INTERACTIVE QUALIFYING PROJECT

Venipedia

A Modern Knowledge & Data Wiki Dedicated to the City of Venice

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Authorship & Acknowledgements

Authorship

All three students contributed equally to the revising and editting of this report.

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Abstract

There are many people and organizations in the world that have collected data and information pertaining to Venice, but there is currently little data and information available on the internet about the subject. The Venice Project Center (VPC) at WPI is one organization that has collected a large amount of information and data about Venice. It currently has no method of making its data available to the public. This project is our attempt to remedy this problem through a unique data oriented wiki created by the VPC called Venipedia.

Executive Summary

The city of Venice has existed for over a thousand years, and for much of that time it has remained essentially unchanged in many ways, creating a unique city in our modern world. The ancient infrastructure of Venice faces challenges in the current social atmosphere and environmental situation. A wide range of organizations have studied and worked to preserve the city of Venice. Students from Worcester Polytechnic Institute have been looking for solutions to its problems for the past twenty years through the Venice Project Center. The projects of these students cover a wide range of topics, including the preservation of public art, the impact of tourists on the city, the change in canal water flow over the years, and the collection of information about all types of historic buildings. An enormous amount of data has been collected by these organizations, yet this useful data is currently inaccessible to the general public. This data is unavailable because it is held by private organizations, or is in Italian. This project seeks to provide a resource containing both information and data about the city of Venice to the English-speaking public.

As part of the VPC's 20th anniversary celebration Venipedia, a wiki-based, online encyclopedia, was created to showcase the data collected by the VPC. Currently 24% of the global population uses the internet, making it a driving force of information sharing in our society. Because of the role that it plays, the internet is a superior choice for the presentation of information and data. While this website provided some useful information about the city, it was incomplete, unorganized and contained little data. This project made the Venipedia website a useful and sustainable resource about the city of Venice by restructuring the website and incorporating the semantic web and a mobile application.

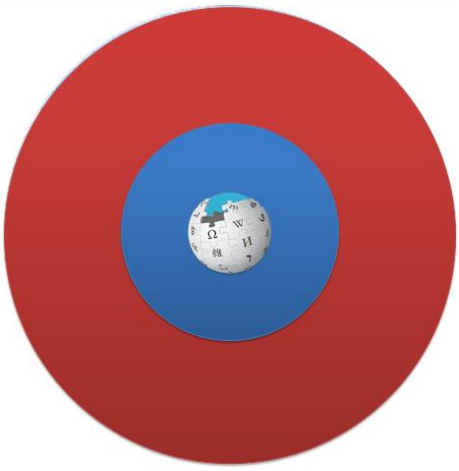

Figure 1: Relative comparison of the percentage of: people in the world [red], internet users [blue], and Wikipedia users/day [Wikipedia logo]

A wiki-based website is one that allows users to edit the content of the website; the most well-known wiki is the online encyclopedia Wikipedia. Venipedia utilizes this format so that anyone who has data about Venice can add it to the website. The semantic web was incorporated into the website in order to help manage the data of Venipedia. Utilizing the semantic web allows the computer to understand data, which is accomplished by creating links between data (identifying the relationship between different these pieces of data). Layar is an augmented reality mobile application. The application identifies the location of the smartphone user and shows points of interest as an overlay of the video display of the phone.

The goal of this project is to help anyone interested in the city of Venice by providing both information and data about the city through Venipedia and an augmented reality mobile application. In

order to accomplish this goal the team developed three objectives to meet the current need for information and data sharing.

1. To prepare the Venipedia website for its public use and develop a maintenance plan for its continued growth.
2. To experiment with data management and sharing to make the data collected by the Venice Project Center available to the public.
3. To develop a smart phone application, utilizing Venipedia, for an augmented reality experience in Venice.

As it stood in August 2010 the Venipedia website was an ineffective tool for information and data sharing because the website was confusing for people unfamiliar with the project center, and there was not data available on the site. In order to make the website useful for a broad range of users we implemented a series of improvements designed to facilitate the use of Venipedia by streamlining the look and feel of the site, organizing the structure of the site, standardizing page features and clarifying the editorial process.

We updated the skin to the one that Wikipedia currently uses, with a few modifications to personalize it. We made this decision for several reasons, but mainly because most people are familiar with the Wikipedia skin and it will take them less time to feel comfortable with Venipedia. The new skin is more streamlined and there are lots of advantageous features on the main page alone.

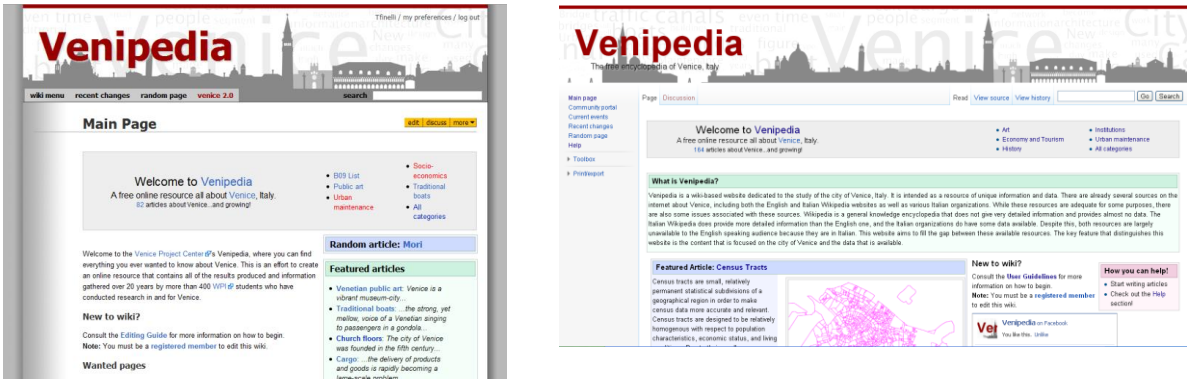

Figure 2: Old Venipedia skin (left) and New Venipedia Skin (right)

In addition to modifying the skin of the front page, we also modified the content. The broken and useless links were removed to clean up the appearance of the front page. The random article feature was modified. Frequently the random article would be formatted poorly, or it would not display correctly in the random article box. This was a major problem because it gave users a very poor impression of the website from the get go. As a result, we changed the random article element on the front page to a featured article element. We also modified the description on the main page to more accurately reflect the new mission of Venipedia as an English-language resource about the city of Venice for a wide range of people.

Additionally, the structure of Venipedia needed to be modified. As it stood, the content of Venipedia was scattered and hard to use. The only way to find anything in Venipedia was to search for the specific topic. There was no way to see related content. We resolved this by modifying the structure of the website, as well as using the Semantic MediaWiki extension. Below is a description of the restructuring process and the Semantic MediaWiki extension will be discussed in a later section of the methodology.

We began the restructuring process by sorting the content of Venipedia. We created the UnderConstruction namespace, and began going through all of the articles in Venipedia and sorting them based on their quality. The articles were evaluated in five main areas; the relevance to Venice, the information and details, the references, the style and grammar, and the features of the article (info boxes, diagrams, maps, etc).

As the articles we sorted articles based on their quality, we also sorted them based on their topic. We sorted the articles into categories of common topics, for example art, architecture, history, environment, etc. This process of sorting was important because it allows users to see related articles by looking at a specific category. After these categories were created, we were also able to create portals. These portals allows users to look up a general topic in Venipedia and browse all of the content related to that topic in large number of categories, rather than one category at a time.

In order to provide users with an engaging experience we added several templates for useful page features. Info boxes provide structured data in a clear and succinct way at the beginning of an article, allowing readers to see the most important features at a quick glance. In addition the info boxes, we created “nav boxes” for several categories in Venipedia. These “nav boxes” are helpful because they allow users to see the content of a category at the bottom of an article in that category.

In order to facilitate meaningful user contribution to Venipedia we developed a set of user guidelines. There are three main sections contained within the user guidelines: the mission of the website, the structure of a typical article, and syntax guidelines. The first part of the user guide discusses the mission of Venipedia. We wanted to make the purpose and philosophy of the website very clear to users. The second part of the user guide is an article showing the general structure that a Venipedia article should have. The article in the user guide follows the format that it describes and each section contains a description of what belongs there. The final section of the user guide provides a guide to the wiki syntax used to create and edit articles in Venipedia. Again we reference the Wikipedia guide to syntax because it is already so fully developed. While this is true, there are also features that are unique to Venipedia that are fully explained in our user guide.

We researched various methods of data management, searching for one that met our needs. We wanted a way to effectively manage our data, but also to present it in Venipedia. We found what we were looking for by using the Semantic MediaWiki extension. This extension for the MediaWiki software allows you to tag pieces of data and search through these tags, creating relationships between pieces of information. We tagged the information that was contained within infoboxes, allowing Venipedia users to connect articles through similarities in the infobox information. Additionally, it is also

possible to tag files that are uploaded to the website. A spreadsheet or database file can be attached to a relevant article; the file can be tagged, and can then be accessed semantically.

Another feature that the Semantic MediaWiki extension supports is the use of Semantic Maps. This allows users to encode an interactive map with geographical data that is pulled directly from the infoboxes at the time the page is accessed by the user. This means that the data on the map is automatically updated with any changes every time someone views it. Thus, the maps are essentially sustainable, and do not need to be updated regularly.

In an extension related to the Semantic Media Wiki, we were also able to mass upload data from a spreadsheet format into both articles and infoboxes. Utilizing the VPC's catalogue of convents in Venice and this extension we were able to create a series of articles, one for each convent in the city. Taking information from the fields of the spreadsheet, the extension automatically filled in an infobox template and an article template.

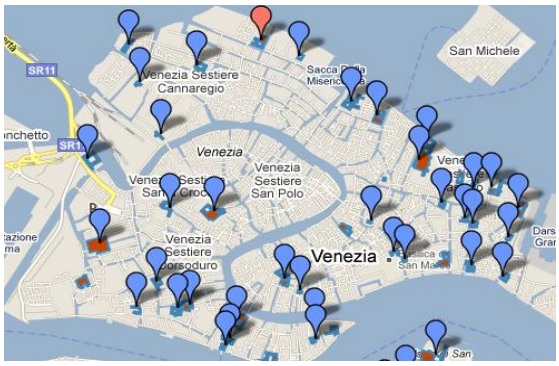

Figure 3: An example of a semantic map, in which markers will automatically be added if new data is entered.

To allow Venipedia to be accessed by users touring the city of Venice, we developed a "layer" for the Layar application. The first step was to identify which articles should be grouped together for each layer. We created a sample layer for convents and aided other WPI teams in creating a number of other augmented reality Layar applications. Our Layer used the co-ordinates of the convents of Venice, gathered by a past WPI project group.

We worked to make Venipedia more useful to the general public. To do so, we de-emphasized WPI, moving project results into more general articles and removed the Wikimecum, a resource intended for WPI Venice Project Center students. Through the addition of new features, appearance and content, we have shaped Venipedia into a viable resource poised for future growth. Additionally, we've implemented Resource Description Framework (RDF) tagging to allow VPC data to be added to the site in an easily-maintainable, public way. Finally, we added Venipedia to the mobile application Layar so that visitors to the city can learn about it as they explore, via augmented reality.

Within the site, we imposed a new structure to ensure consistency throughout related articles and a general feel to the entire site. This new structure emphasizes further research, with "See Also", "External Links" and "References" sections on each page. There is also attention paid to conformity through new templates such as the infoboxes, and navboxes, as well as the newly-added Portal structure, which allows users to start with broad ideas and narrow in on specific content.

We've also tracked Venipedia's performance to show that as we improved it, more people have discovered it and its use is trending upward, suggesting that our work will, in the long run, allow more people to learn about the city. We would like to encourage the readers of this report both to visit the

Venipedia website to learn something new about the city, and to contribute their own unique knowledge and expertise, be it related to the content of the site or to its organization.

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1.0 Introduction

The city of Venice has existed for over a thousand years, and for much of that time it has remained essentially unchanged, creating a unique city in our modern world. The ancient infrastructure of Venice faces challenges in the current social atmosphere and environmental situation. A wide range of organizations have studied and worked to preserve the city of Venice. Students from Worcester Polytechnic Institute have been looking for solutions to its problems for the past twenty years through the Venice Project Center. The projects of these students cover a wide range of topics, including the preservation of public art, the impact of tourists on the city, the change in canal water flow over the years, and the collection of information about all types of historic buildings. An enormous amount of data has been collected by these organizations, yet this useful data is currently inaccessible to the general public. This data is unavailable because it is held by private organizations, or is in Italian. Most information available about the city of Venice is available through general information sources like Wikipedia

Wikipedia contains 3,425,507 articles in 262 languages[1], but the unique element of this online encyclopedia is its wiki format. Anyone can log on and add to or edit the content, providing an outlet for a huge amount of information that is accessed and altered by a wide range of users. On the English Wikipedia there are over 2,000 pages relating to Venice[2]. These pages provide the public with information relevant to Venice in many different areas, but focusing on general information. While this general information is adequate for many, those studying Venice in earnest this level of information is insufficient and they must look elsewhere. Specific information about Venice exists, but the data available is mostly in Italian. The Italian version of Wikipedia contains more specific information than the English version. Venice has its own portal in the Italian Wikipedia, while it is only a category in the English Wikipedia. Other wiki sites like Wikipedia exist for specialized topics and hobbies, from genealogy to Star Wars. In 2008 WPI's Venice Project Center created its own wiki, called Venipedia, as a resource for topics related to the city of Venice and the work done there by the Institute's students over the past 20 years.

Beyond simply sharing information over the internet, there has been a recent move to share data itself in its purest form. The internet is already populated with information in the form of documents, but there is very little hard data in the form of spreadsheets and databases, and even fewer examples of released data being presented in concise, organized ways, which could be easily searched and traversed to find data quickly and logically. This is the core idea of the Semantic Web.

For WPI in particular, this movement is interesting due to the amount of research generated by projects. While the VPC has collected all of this data and information and created an outlet for it, much of the data remains inaccessible to the general public. Some of the research was stored on CDs and an inactive data repository called Dspace. The information on the Venipedia website, while in existence,

[1] (Wikipedia 2010)
[2] ibid

was not useful for the public because of the lack of the structure necessary for website navigation. Also, there was no system in place to manage any of the raw data that has been collected over the years. Additionally, there was no way to access the information in Venipedia while exploring the city itself.

This project seeks to provide a resource containing both information and data about the city of Venice to the English-speaking public. Our goal, therefore, was to devise a system to share all of the information from the Venice Project Center as well as to explore new technologies to be utilized for data sharing. We implemented a system in Venipedia using the new web phenomenon of linked data. We created a maintenance program for Venipedia by writing guides on how to properly create, edit, and categorize articles and cleaned Venipedia up by categorizing articles as well as making a few improvements to their content. In order to disseminate the data in the field, we implemented a mobile application to provide on-the-go access to Venipedia in the city of Venice.

2.0 Background

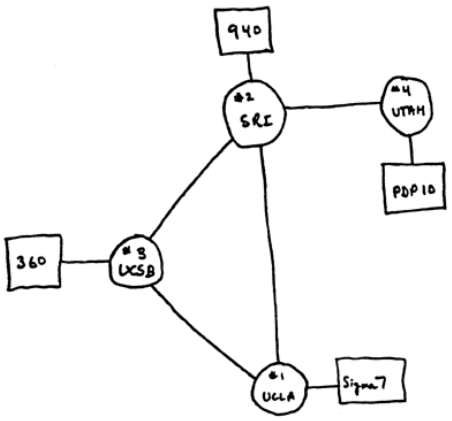


Figure 4: A diagram of the first four connected sites on ARPA's network, representing UCLA, UCSB, the Stanford Research Institute and the University of Utah, not to scale.

The modern internet represents an evolution of ideas and technology. The first long-range network, SAGE, was brought online in 1962 as an American early warning system[3]. The first host-to-host communication occurred a few years later, in October of 1969. The worldwide web was developed later, in 1989[4]. In the early 1990's, the wider web was finalized at CERN, and conventions were laid down leading to the internet we know today[5], an amalgamation of the two.

Over time, the internet has evolved to contain more than just raw information. It now features online stores and social networks, which have helped to make it an integral part of daily life for over 1.5 billion people[6].

However, the internet still hasn't truly strayed from its role in research. Thanks to its growth and evolution, the modern internet is home to many different methods of sharing information and data. Its development from academic novelty to household tool has led to its expansion from terminals to mobile devices, further cementing its role in the daily lives of many. The following chapter represents an analysis of various trends related to the growth of the web: wikis, data sharing and mobile applications.

[3] (The World Wide Web: Past, Present and Future n.d.)
[4] ((W3C) 1990)
[5] Ibid
[6] (Wolfram|Alpha n.d.)

2.1 Wiki

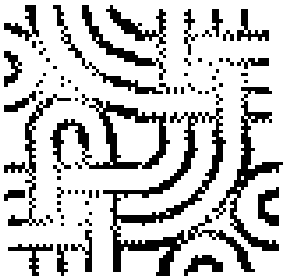


Figure 5: WikiWikiWeb symbol

The Oxford English Dictionary (OED) defines a wiki as "A type of web page designed so that its content can be edited by anyone who accesses it, using a simplified markup language." [7] The term officially entered the dictionary in 2007 because of the influence that the word had gathered[8]. In 1995, Ward Cunningham created the first wiki [9]using the WikiWikiWeb machinery that he developed. The goal of this first wiki was to provide programmers with a way to document changes in programming[10]. Cunningham wanted to create the simplest database that would function and facilitate the exchange of ideas between programmers. This prompted the selection of wiki as the name of the website, as it means "quick" in Hawaiian[11].

Figure 6: WikiWiki shuttle at the Honolulu airport that served as inspiration for Wiki

While there are many different wikis online today, they all share the goals of fast and simple content generation, collaboration and distribution[12]. In order to accomplish these goals wikis also have similar user functions which include: adding new content, linking content, editing content, organizing content and viewing content history[13]. These goals and functions allow wikis to perform all of the actions required for information management. Wikis gather knowledge from the individuals that have it, make it available, connect others to it and connect it to information on other related subjects[14]. All of these attributes create advantages for using wikis. Wikis can structure information by organizing contributions and providing external links and references. The format encourages collective wisdom: by allowing everyone to access and edit information, the end product will theoretically be a reflection of a wide range of experience and expertise. Control is also delegated, allowing everyone to have input and allowing the wiki to be self-policing[15].

[7] (Oxford English Dictionary 2007)
[8] (Haines 2007)
[9] (O'Leary 2008)
[10] (Cunningham 1995)
[11] ibid
[12] (O'Leary 2007)
[13] ibid
[14] ibid
[15] ibid

2.1.1 Wikipedia

Soon after he created the WikiWikiWeb, Cunningham developed the wiki software for public use. People were allowed to register with the website access the software and alter it[16]. The users did this, and then also used it for their own programming websites. From 1995 to 2000 more and more wiki websites appeared on the internet covering a wide range of topics[17]. In 2001 Jimmy Wales released Wikipedia, which has become the most well-known and widely used wiki on the internet[18]. It has been referred to as a Darwinian encyclopedia because it steadily improves as articles are rewritten or deleted[19]. Wales started an encyclopedia called Nupedia in March of 2000, which was established as a free online encyclopedia created by an advisory board of experts that completed a lengthy review process for each article. This was not working as an effective review process and Wales created Wikipedia as part of Nupedia as an alternative for generating entries. Eventually Wikipedia was released as a separate website and surpassed Nupedia in article content resulting in Nupedia being taken offline in 2003[20]. In the first year that Wikipedia was online, it grew to include 20,000 articles in 18 languages[21]. By March 2006 there were 1 million articles in Wikipedia and by September 2007 there were 2 million articles[22]. As of October 2010 there are over 16 million articles in 240 languages[23].

Figure 7: Nupedia logo

Figure 8: Wikipedia logo

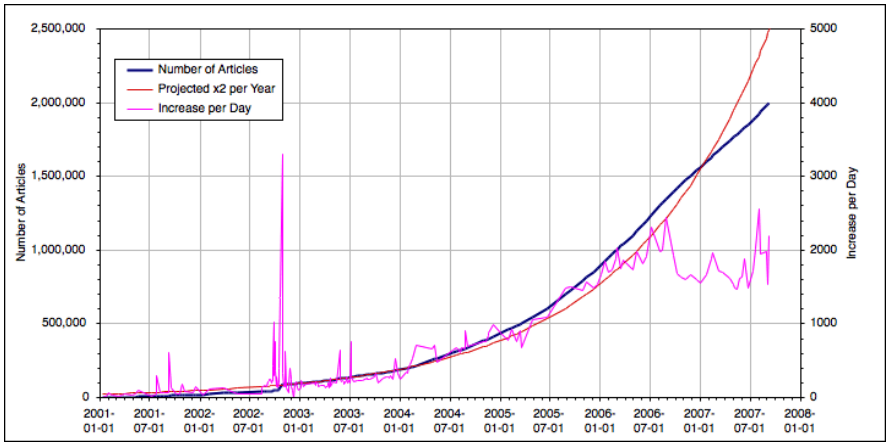


Figure 5: Graph of the article count for the English Wikipedia, from January 10, 2001, to September 9, 2007 (the date of the two-millionth article).

[16] (Cunningham 1995)
[17] ibid
[18] (Encyclopedia Britannica 2010)
[19] (Giles 2005)
[20] (Encyclopedia Britannica 2010)
[21] ibid
[22] ibid
[23] (Wikipedia 2010)

2.1.1.1 Wikipedia's Philosophy

According to Wikipedia founder Jimmy Wales, the encyclopedia format was chosen for the Wikipedia website because it is one that everyone is familiar with, and therefore everyone has a clear idea of what an article should look like. In this way collaboration would be easier because everyone would understand how to contribute[24]. Wikipedia is supported by a non-profit organization, the Wikimedia Foundation, which gathers funds through reader donations, corporate benefactors and the for-profit company Wikia, which provides hosting services[25]. All of the content on Wikipedia is generated, edited, rewritten, corrected and managed by users[26].

There are no hard and fast rules for contribution to Wikipedia; instead the site is governed by five principles known as the Five Pillars. The Pillars are:

1. Wikipedia is an online encyclopedia
2. Wikipedia has a neutral point of view
3. Wikipedia is free content
4. Wikipedians (Editors of Wikipedia) should interact in a respectful and civil manner and
5. Wikipedia does not have firm rules[27].

Figure 6 Five Pillars of Wikipedia

Along with these Five Pillars there are two more principles that are used to govern Wikipedia. One is the definition of what Wikipedia is not, consisting of a long list clarifying that Wikipedia is an encyclopedia and is therefore not a forum for original research or indiscriminate data[28]. This means that contributions to Wikipedia should be about topics that are considered valid and notable by several outside sources, and that these contributions should be relevant for a general audience. The other guiding principle is that if a rule prevents the improvement or maintenance of Wikipedia, that rule should be ignored[29]. The goal of Wikipedia is to produce an unbiased encyclopedia for public use, and nothing, not even the rules of Wikipedia can be allowed to get in the way of that. Beneath these principles are general policies and guidelines created by Wikipedia contributors to help other users to generate and edit entries. These policies and guidelines fall into two major categories, content standards and guidelines for interacting with other users[30].

The ideals of Wikipedia are admirable, but there are some disadvantages to creating an encyclopedia in this format. Everyone with internet access is capable of changing the content of Wikipedia, and not everyone follows the guideline relating to presenting accurate information[31]. While presentation of inaccurate information may be an unintentional mistake, there are also people who deliberately post inaccurate information in order to deface particular articles or mislead Wikipedia

[24] (Khamsi 2005)
[25] (Sutherland 2006)
[26] ibid
[27] (Wikipedia 2010)
[28] ibid
[29] ibid
[30] ibid
[31] (Encyclopedia Britannica 2010)

readers about a specific subject[32]. One prominent example is the Wikipedia entry on a former assistant to Robert Kennedy, John Seigenthaler. In his entry, Seigenthaler was falsely identified as a suspect in the assassination of Robert Kennedy[33, 34]. In addition to accuracy concerns there are also concerns with the style of entries in Wikipedia. There are issues with the readability and structure of articles, which can be confusing, as well as the fact that undue prominence is occasionally given to less-important topics[35].

Figure 8: Encyclopedia Britannica Logo

Despite all of these concerns there is evidence that Wikipedia is on the right track. In 2005, *Nature* performed a peer review study of 50 entries on science-related topics from both Wikipedia and the *Encyclopedia Britannica*. The reviewers were given the entries without knowing their sources and asked to look for inaccuracies in the entries. There were an average of 3 mistakes per entry in Encyclopedia Britannica and an average of 4 mistakes per entry in Wikipedia[36]. The results of this study led Nature to say that the accuracy of the two encyclopedias is comparable[37].

Figure 7: Nature logo

[32] ibid
[33] ibid
[34] (Giles 2005)
[35] ibid
[36] ibid
[37] ibid

2.1.1.2 Wikipedia's Structure

There are two ways to access content on Wikipedia: searching for specific information or browsing more general topics[38]. Searching for specific content is performed using the search box located at the top of the web page. It is also possible to browse the content of Wikipedia using the contents pages, which provide lists or descriptions of information available, as well as links to this information[39]. The two high-level content page types are Portals and Categories.

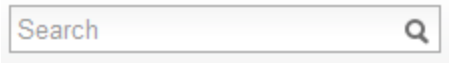


Figure 9: The Wikipedia Search Bar

2.1.1.2.1 Portals and Categories

Portals are a type of content page that are frequently used to see what kind of information is available[40] within a broad topic. "A portal is an introductory page for a given topic. It complements the main article of the subject by introducing the reader to key articles, images, and categories that further describe the subject. Portals also help editors find related projects and things they can do to help

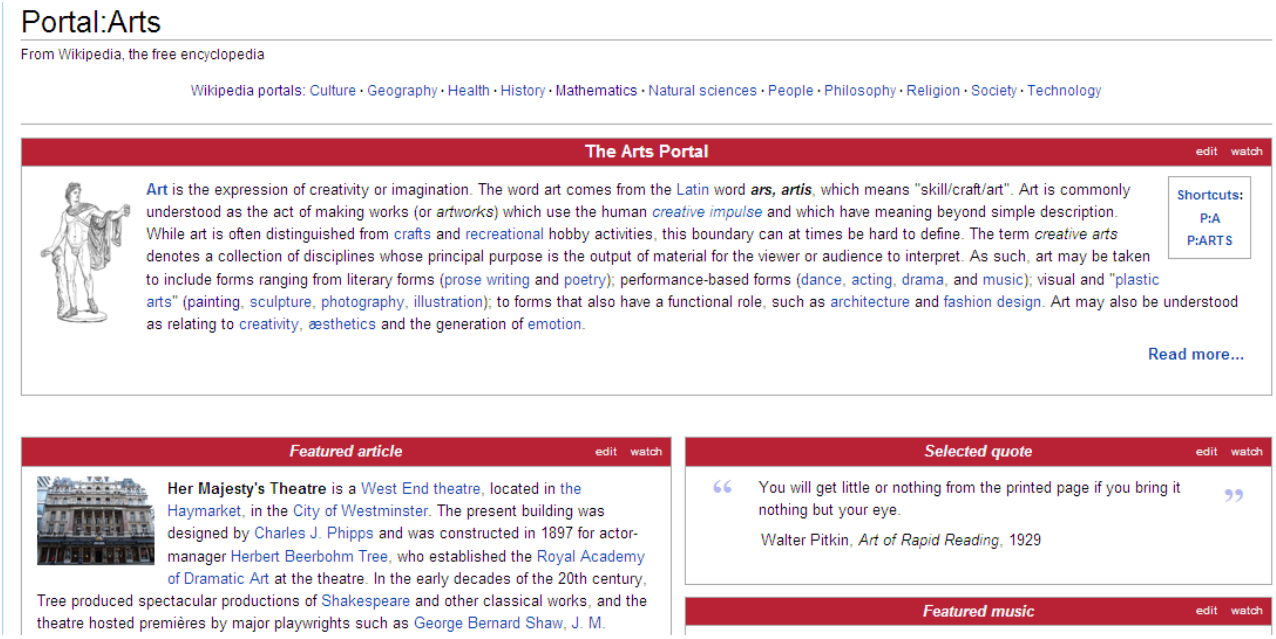


Figure 10: Wikipedia's Arts Portal

[38] (Wikipedia 2010)
[39] ibid
[40] ibid

improve Wikipedia"[41]. Below you will see the arts portal from Wikipedia; it gives a brief description of the general topic as well as a featured article from within the portal. Within this portal there are categories that further separate and organize the content. The arts portal is divided into the following categories, some of which are broken down further into subcategories. While most categories contain subcategories, they also contain individual pages[42]. Below is the "Paintings" category from the arts portal, contains subcategories relating to different aspects of painting. It is interesting to note that the subcategories are not exclusive. One painting could be placed in both the "Painting by Artist" subcategory as well as the "Paintings by Subject" subcategory. The categories are not meant to entirely separate articles from each other, but rather to allow users to easily find the content that they are looking for.

Figure 11 Categories within the Arts Portal

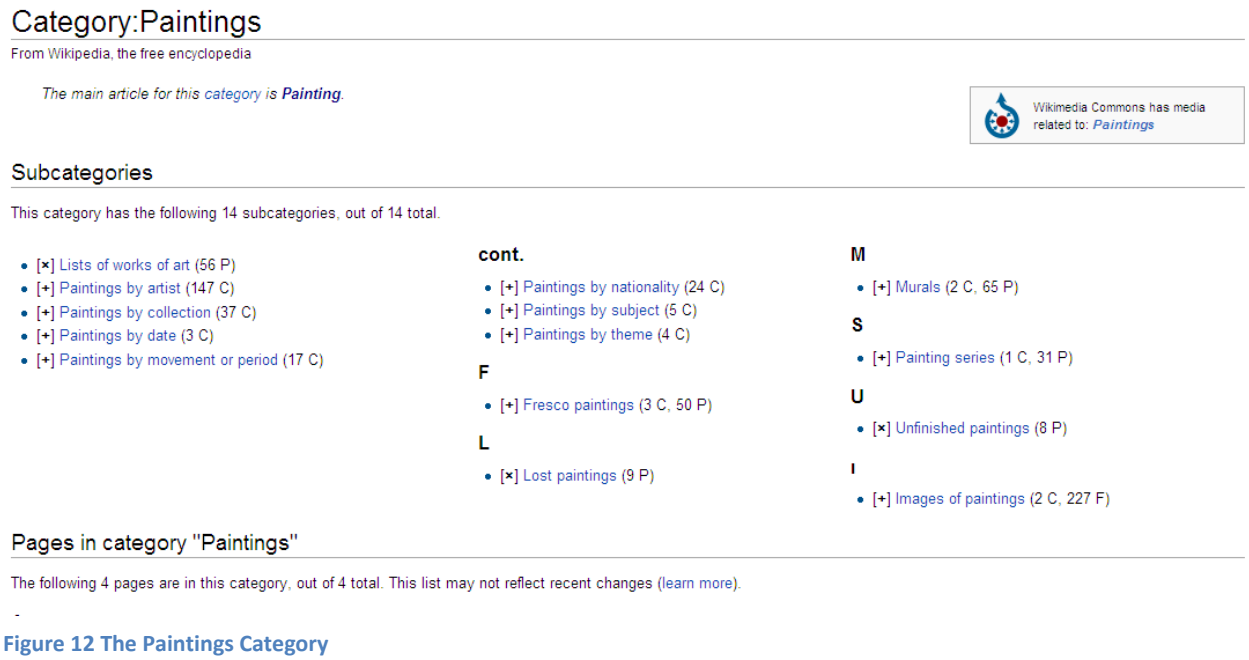


Figure 12 The Paintings Category

[41] ibid
[42] ibid

2.1.1.2.2 Templates

Templates are another tool used to organize Wikipedia. A template inserts pre-defined content into the text of more than one page[43]. Templates perform many functions within Wikipedia, but one main function that the templates serve is that of an editorial tool.

Maintenance Tags

When reviewing an article a user can place a special type of template, known as a maintenance tag, at the top of the page alerting other users to something on the page that needs attention. Maintenance tags range from style concerns to reference concerns, and even concerns about the article not fitting into the five pillars of Wikipedia[44]. The image below is an example of a reference maintenance tag. This is displayed at the top of an article and it lets the users know that there is an issue with the references on the marked page. The users can either take this under advisement when reading the page, or edit the page to bring it up to Wikipedia's standards.

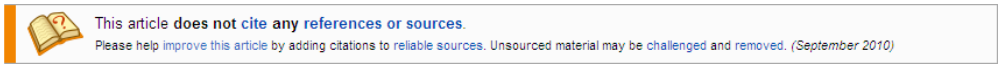


Figure 14: A Wikipedia Maintenance Tag Template

Infoboxes

Another useful template is the Infobox, which provides at-a-glance information to users as soon as they access an article. Infoboxes are used to maintain constant structure across articles of similar topics. For example, each U.S. President has an infobox, displaying that president's term, Vice President, successor, date of birth, date of death, spouse, occupation, signature and other biographical information. An example of the President Infobox can be found at the right[45].

Figure 13: An excerpt from the "President" Infobox, from Wikipedia

The advantage to having infoboxes as templates is that they are moderately complex examples of the wiki syntax. If the infobox needed to be created from scratch on every page, it would both present itself as a tedious task and possibly cause disparity amongst pages due to human error in the process of rebuilding the boxes. This is the true point of templates: consolidating wiki code so that it can be replicated.

Navigation Boxes (Navboxes)

Another general template is the Navbox, which allows for navigation

[43] ibid
[44] ibid
[45] (Wikipedia 2010)

across a category. The navbox sits at the bottom of each page within certain categories, allowing users to continue to learn about the category through further examples.

2.1.2 Venipedia

In 1988 the Venice Project Center (VPC) was formed as a part of Worcester Polytechnic Institute's (WPI) Global Perspective Program. After 20 years of data collection and project work, the VPC has a lot of information on it servers. In April of 2008, in order to share this data with the world Venipedia was created. Venipedia is a wiki encyclopedia dedicated to the city Venice.

Figure 15: Venipedia's Header

Venipedia started not only as an outlet for the VPC's information, but also as an English language resource for people interested in the Venice beyond the tourist spectrum. Most of the resources currently available are in Italian, and Venipedia was created to fill that gap. As this project began, all of the content was student-generated by past WPI teams and largely un-maintained when groups were not working in Venice. As of October 2010, Venipedia contained 388 articles. However,102 of these articles belonged to the side project known as the Wikimecum, a collection of how-to articles for and by WPI students. The Wikimecum exists as a separate namespace within Venipedia, but will eventually be moved out to the website Venice2point0.org.

Venipedia differs from Wikipedia both in its hyper-local focus and its inclusion of unique data gathered by contributors in the field. Wikipedia discourages users from adding their own independent research to ensure that all information can be attributed to other published sources. Venipedia, as a repository of WPI projects and with a goal of including relevant data for others to research the city, encourages the contribution of data and research files.

There are other examples of hyper-local wikis as well, such as sites for Las Vegas and Seattle. While Venipedia is similarly focused on a small, specific region, it is intended as an academic resource focusing on the city's culture, heritage, natural and urban features. The more prevalent trend amongst hyper-local wikis is to recommend stores and restaurants to visitors, which is not within Venipedia's scope. There exists a similar wiki for the city of Venice, but as it is commercially focused, there exists the more historically-focused gap which Venipedia aims to fill.

2.2 Data Management

The Venice Project Center (VPC) has large amounts of information and data from previous projects completed by students in Venice. Currently, nothing has been done to manage this information and data except for Venipedia's creation. The site contains documental information about various topics relating to the city of Venice such as history, public art, economics, tourism, and preservation, but not necessarily the data gathered on those subjects.

2.2.1 Resource Description Framework (RDF)

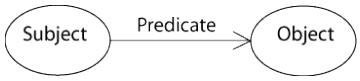


Figure 16: Visual representation of an RDF triple [http://www.w3.org/TR/rdf-concepts/]

A newly developed method to link and share data is the Resource Description Framework (RDF) technology. The major concept behind RDF is defining each piece of data with three parts: a subject, predicate, and objects (Figure 16), resulting in a relationship known as an RDF triple. The subject describes what the triple is about, the predicate expresses what is being done, and the object represents specific information pertaining to the subject (Figure 17). By using this method to link data, multiple relationships can form, and a tree structure describing and linking the data will result (Figure 17). If this process is applied to multiple sets of data, then one large tree interconnecting every piece of data will eventually result. This large data tree can be searched using a query language such as the SPARQL Protocol and the RDF Query Language (SPARQL). Atypical searches can be performed, such as "search for all churches in Venice that were built after 1800 and are still active" (in colloquial language form).

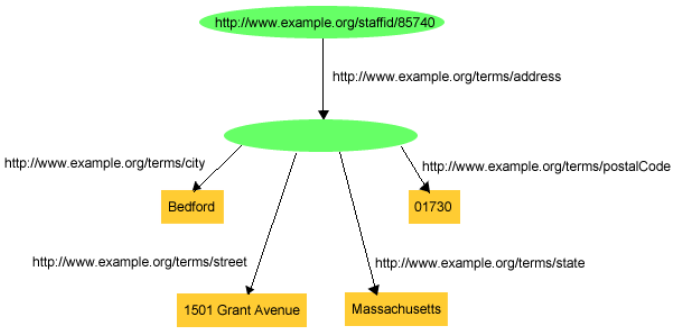


Figure 17: Result of multiple RDF triples to link data [http://www.w3.org/TR/rdf-concepts/]

In RDF triples, a Uniform Resource Identifiers (URI) is required for the subject. These URIs point to specific RDF data, which show all of the relationships pertaining to that specific piece of data. The subject is the current piece of data being examined. It is through the accumulation of these URIs that a data tree forms. The predicate is represented as a label, defined in a "vocabulary" so as to be consistent across websites. Vocabularies are defined for public use so as to encourage consistent use, and users of the semantic web are encouraged to define new labels as necessary. The final part of the triplet, the object, is the actual datum being related to. Objects can be literals, strings or even other URIs, which is where the overall tree comes from: the relationships of many URIs. The end result of the application of linked data is an over-arching tree made of smaller, specific trees.

Some applications of RDF datasets include both data.gov and data.gov.uk, among others. These sites have been set up by governments to expand upon the new Semantic Web approach, which incorporates RDF tagging into the existing internet. It is currently possible to search the aforementioned sites for various datasets gathered by the websites' respective governments. They have been developed

based on the concepts of RDF triplets and the SPARQL query engine. The sites are currently in a testing phase, as the idea of the Semantic Web is still new and growing.

2.3 Mobile Applications

One relatively new and growing method of information sharing exists in the form of smartphones. As of July, 2010, 40% of Americans use their cellphones to access the internet[46]. Smartphones, in particular, have grown from being used by 14% of Americans in 2008 to 21% in 2009. Additionally, 45% of those surveyed by Nielsen claimed that they plan to buy a smartphone as their next mobile device[47].

Smartphones differ from regular mobile phones in their ability to run applications ("apps", for short), which are small programs with various purposes. Apps have also proven financially attractive to developers, with Apple's App store for its iPhone device generating $250 Million dollars in revenue in December of last year[48]. Google's Android Market does not release official sales figures, but its 37000 paid applications[49] generate an estimated $5 Million dollars per month[50]. Additionally, Android phones can run applications purchased or downloaded from outside sources, such as a developer's website[51].

Applications represent a new and unique method for the release of data. For example, the US government has published an app which alerts users to food recalls[52]. The number of apps has also seen tremendous growth as the new medium has developed. Apple's iTunes App Store saw nearly 60,000 apps released in its first year[53]. While the majority of these apps are games or intended for entertainment, they also include programs for education, health, news and reference.

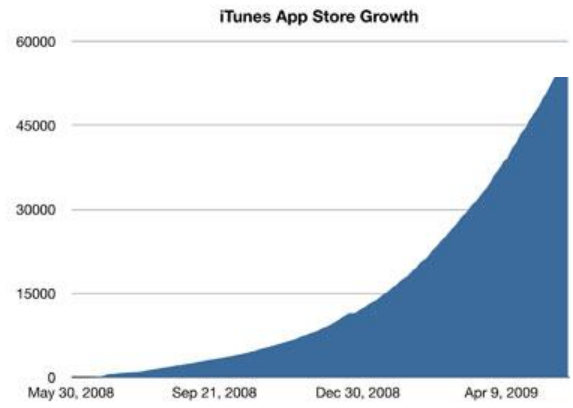


Figure 18: The iTunes App Store's 1st Year Growth

2.3.1 Location-Based Augmented Reality Applications (Layar)

Many smartphones can now determine their location via GPS, allowing for the development of location-based apps. Combining this GPS location with technologies like the accelerometer to determine the phone's orientation allows for the development of Augmented Reality Applications, which use the phone to "[add] graphics, sounds,

[46] (Kharif 2010)
[47] (Google Android Leads Leap in Smartphone Use comScore Says 218468.(Apple Inc. and Microsoft Corp.). 2010)
[48] (GigaOM 2010)
[49] (AndroLib 2010)
[50] (Gadhavi and Shah 2010)
[51] Ibid
[52] (Bottemiller 2010)
[53] (Kellet 2009)

[and] haptic feedback…to the natural world as it exists.[54]" One such application is known as Layar. Using a database of hotspots called "Points of Interest" (PoIs), developers can use Layar to guide users to specific places via their phones. First released in Amsterdam in June of 2009[55], Layar has grown, becoming available in every country[56]. Applications of Layar range from finding menus of nearby restaurants to playing the game Pac-Man in real life by following a trail of projected dots[57].

The Layar technology is of special interest to this discussion because of its application in spreading data. The recent update to version 4.0 allows for PoIs to be linked to websites, among other things, which helps to unify the internet with reality in a way that can allow information to be spread to people as soon as they find something of interest to them. For example, someone walking past a new restaurant could use a layer to find the restaurant's menu and possibly reviews from other users. Academic applications would include attaching historical notes to locations or comparing the state of the environment in a given location.

[54] (Bonsor 2001)
[55] (Layar 2009)
[56] Ibid
[57] (Layar n.d.)

3.0 Methodology

The goal of this project is to help anyone interested in the city of Venice by providing both information and data about the city through Venipedia and an augmented reality mobile application. In order to accomplish this goal the team developed three objectives to meet the current need for information and data sharing.

1. To prepare the Venipedia website for its public use and develop a maintenance plan for its continued growth.
2. To experiment with data management and sharing to make the data collected by the Venice Project Center available to the public.
3. To develop a smart phone application, utilizing Venipedia, for an augmented reality experience in Venice.

3.1 Preparing Venipedia for Public Use

As it stood in August 2010 the Venipedia website was an ineffective tool for information and data sharing because the website was confusing for people unfamiliar with the project center, and there was not data available on the site. In order to make the website useful for a broad range of users we implemented a series of improvements designed to facilitate the use of Venipedia by streamlining the look and feel of the site, organizing the structure of the site, standardizing page features and clarifying the editorial process.

3.1.1 Improving the Look and Feel

Venipedia's main page was confusing. The menu was hard to follow, the color scheme was not uniform, and there were a lot of non-functional elements and links on the main page. Our first order of business was to change this, which we primarily accomplished by changing the skin of Venipedia. We updated it to the skin that Wikipedia currently uses, with a few modifications to personalize it. We made this decision for several reasons, but mainly because most people are familiar with the Wikipedia skin and it will take them less time to feel comfortable with Venipedia. The new skin is more streamlined and there are lots of advantageous features on the main page alone. The search bar is more detailed and the menu presents all of the features of the old menu as well some new ones. The new menu displays the working pages of Venipedia, like special pages and the print function, giving users easy access the pages that were hard to find in the old skin. This new skin also gives easier access to the page history for all pages not just the front page.

In addition to modifying the skin of the front page, we also modified the content. The broken and useless links were removed to clean up the appearance of the front page.

The random article feature was modified. Frequently the random article would be formatted poorly, or it would not display correctly in the random article box. This was a major problem because it gave users a very poor impression of the website from the get go. As a result we changed the random

article element on the front page to a featured article element. An article is still randomly selected and displayed on the front page, but instead of being selected from the entire article pool, it is selected from a group of articles that are of high quality, and are formatted to show up correctly on the front page. We also modified the description on the main page to more accurately reflect the new mission of Venipedia as an English-language resource about the city of Venice for a wide range of people.

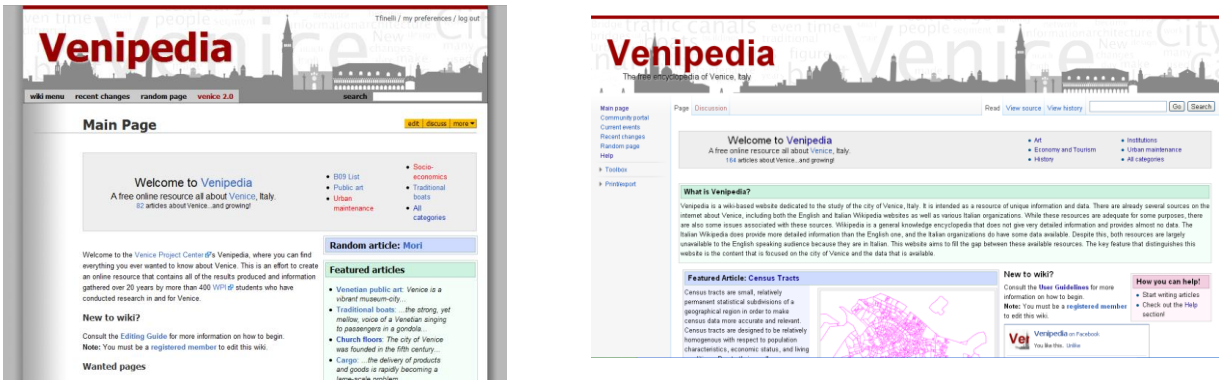


Figure 23: Old Venipedia skin (left) and New Venipedia Skin (right)

3.1.2 Modifying the Structure

The structure of Venipedia also needed to be modified, as it stood, the content of Venipedia was scattered and hard to use. The only way to find anything in Venipedia was to search for the specific topic. There was no way to see related content. We resolved this by modifying the structure of the website, as well as using the Semantic MediaWiki extension. Below is a description of the restructuring process and the Semantic MediaWiki extension will be discussed in a later section of the methodology.

We began the restructuring process by sorting the content of Venipedia. We created the UnderConstruction namespace, and began going through all of the articles in Venipedia and sorting them based on their quality. The articles were evaluated in five main areas; the relevance to Venice, the information and details, the references, the style and grammar, and the features of the article (info boxes, diagrams, maps, etc). Articles that met all of the criteria were left in the main namespace; the articles that did not meet the criteria were tagged with a maintenance tag moved to the UnderConstruction namespace. The maintenance tags that we applied to each page corresponded to the criteria that the article did not meet. These tags are also helpful in the editorial process because the articles can be sorted by the tags that they have, allowing an editor to easily identify the articles that he or she can improve.

Figure 19 Maintenance Tag Example

Of all of the criteria, the relevance to Venice is the most important. If an article is not about a topic related to Venice, or if the topic is not covered with a focus on Venice, then the article does not belong in Venipedia. The information provided in the article is also important; if the article does not contain enough information to explain the topic then the article needs to be improved. A good article also needs to provide a number of references from credible sources to show that the information that is being presented is accurate. The style and grammar of an article are important because if they are not clear, then the meaning of the article and the topic will also be unclear. Finally, the features of an article are also significant because often ideas and information cannot be effectively conveyed with words alone.

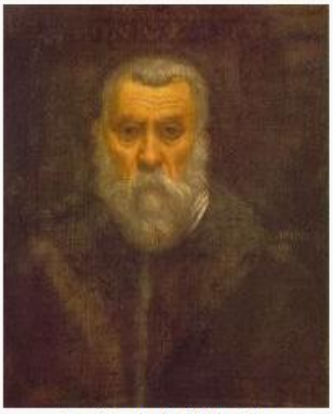
As the articles we sorted articles based on their quality, we also sorted them based on their topic. We sorted the articles into categories of common topics, for example art, architecture, history, environment, etc. This process of sorting was important because it allows users to see related articles by looking at a specific category. After these categories were created, we were also able to create portals.

We set up five portals within Venipedia that correspond with broad topics that are of high interest to people studying the city of Venice. These portals allows users to look up a general topic in Venipedia and browse all of the content related to that topic in large number of categories, rather than one category at a time.

3.1.3 Adding Page Features

In order to provide users with an engaging experience we added several templates for useful page features. Info boxes provide structured data in a clear and succinct way at the beginning of an article, allowing readers to see the most important features at a quick glance. We created a series of seven info box templates for a variety of article types; such as artists, biography, canals, churches, convents, islands, and organizations. The artist info box can be seen in the figure on the right. The structure of the info boxes is also advantageous for the Semantic MediaWiki installation, which we will discuss in the following objective section.

In addition the info boxes, we created “nav boxes” for several categories in Venipedia. These “nav boxes” are helpful because they allow users to see the content of a category at the bottom of an article in that category. We created four “nav boxes” for bridges, convents, islands of the Venetian lagoon, and palaces.



A self portrait of Tintoretto.

Artist	
Name	Jacopo Comin Jacopo Robusti Tintoretto
Born	September 29, 1518 Venice, Republic of Venice
Died	May 31, 1594 (Age 75)
Teacher	Titian
Pupils	Domenico Tintoretto (Son) Martin de Vos
Paintings	
Notable Works	Worship of the Golden Calf Presentation of the Virgin in the Temple Last Judgment The Last Supper Paradise
Painting Locations	(Embed a map of Tintoretto Paintings here)

v • d • e

Figure 20: Artist Info Box

v • d • e	Convents	[hide]
Convents of Cannaregio	Convento di Gesuiti • Convento di Madonna dell'Orto • Convento di S. Alvise • Convento di S. Caterina • Convento di S. Giobbe • Convento di S. Girolamo • Convento di S. Maria delle Penitenti • Convento di S.Maria dei Miracoli • Convento S. Maria di Nazateth Scalzi	
Convents of Castello	Convento di S. Anna • Convento de la Fava • Convento della Ca' di Dio • Convento della Celestia • Convento della pietà S. M. della Visitazione • Convento delle Suore Mantellate • Convento di F. da Paula • Convento di Mendicanti • Convento di Muneghette • Convento di S. Apollonia • Convento di S. Elena • Convento di S. Francesco de la Vigna • Convento di S. Giovanni e Paolo • Convento di S. Giovanni in Laterano • Convento di S. Giovanni in Malta • Convento di S. Giustina • Convento di S. Isepio • Convento di S. Lorenzo • Convento di S. Pietro • Convento di S. Zaccaria • Convento di S.M. del Pianto	
Convents of Dorsoduro	Convento delle Eremitane • Convento di Catecumeni • Convento di Gesuati • Convento di Ognisanti • Convento di S. Gregorio • Convento di S. Maria de la Carita • Convento di S. Maria del Carmine • Convento di S. Maria della Visitazione • Convento di S. Sebastiano • Convento di S.Teresa • Convento di Spirito Santo	
Convents of San Marco	Convento di S. Maria del Giglio • Convento di S. Maurizio • Convento di S. Teodoro • Convento di S.Salvador • Convento di S.Stefano	
Convents of San Polo	Convento di Frari	
Convents of Santa Croce	Convento di S. Chiara • Convento di S. Maria Maggiore • Convento di S. Nicola da Tolentino	
Convents of Giudecca	Convento della Croce • Convento della SS. Trinità • Convento di • Convento di convertite • Convento di Redentore • Convento di S. Cosmo • Convento di S. Giorgio Maggiore • Convento di S. Maria della Presentazione	

Figure 21 Convents "Nav Box"

3.1.4 Creating User Guide

In order to facilitate meaningful user contribution to Venipedia we developed a set of user guidelines. There are three main sections contained within the user guidelines: the mission of the website, the structure of a typical article, and syntax guidelines.

The first part of the user guide discusses the mission of Venipedia. We wanted to make the purpose and philosophy of the website very clear to users. We discussed that Venipedia is an English language wiki-based website dedicated to the study of the city of Venice, Italy. It is intended as a resource of unique information and data. We explained that there are already several sources on the internet about Venice, including both the English and Italian Wikipedia websites as well as various Italian organizations and that this website aims to fill the gap between these available resources. We mentioned that the key feature that distinguishes this website is the content that is focused on the city of Venice and it is in English.

The second part of the user guide is an article showing the general structure that a Venipedia article should have. The article in the user guide follows the format that it describes and each section contains a description of what belongs there. While we provide the general outline in our guide, we also reference the Wikipedia manual of style. There are some features of the article style that are specific to Venipedia, but there are a lot of similarities to the structure of Wikipedia articles. The Wikipedia manual of style has been filled out extensively and provides details and suggestions on many topics.

The final section of the user guide provides a guide to the wiki syntax used to create and edit articles in Venipedia. Again we reference the Wikipedia guide to syntax because it is already so fully developed. While this is true, there are also features that are unique to Venipedia that are fully explained in our user guide.

3.2 Managing Data through Semantic MediaWiki

We researched various methods of data management, searching for one that met our needs. We wanted a way to effectively manage our data, but also to present it in Venipedia. We found what we were looking for by using the Semantic MediaWiki extension. This extension for the MediaWiki software allows you to tag pieces of data and search through these tags, creating relationships between pieces of information. We tagged the information that was contained within infoboxes, allowing Venipedia users to connect articles through similarities in the infobox information. Additionally, it is also possible to tag files that are uploaded to the website. A spreadsheet or database file can be attached to a relevant article; the file can be tagged, and can then be accessed semantically.

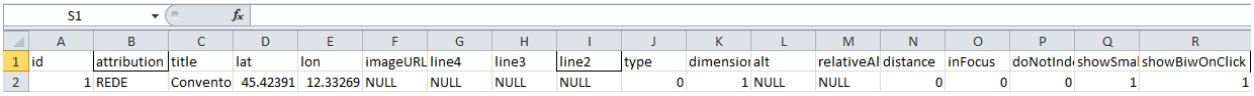
Another feature that the Semantic MediaWiki extension supports is the use of Semantic Maps. This allows users to encode an interactive map with geographical data that is pulled directly from the infoboxes at the time the page is accessed by the user. This means that the data on the map is automatically updated with any changes every time someone views it. Thus, the maps are essentially sustainable, and do not need to be updated regularly.

In an extension related to the Semantic Media Wiki, we were also able to mass upload data from a spreadsheet format into both articles and infoboxes. Utilizing the VPC's catalogue of convents in Venice and this extension we were able to create a series of articles, one for each convent in the city. Taking information from the fields of the spreadsheet, the extension automatically filled in an infobox template and an article template.

3.3 Mobile Application

To allow Venipedia to be accessed by users touring the city of Venice, we developed a "layer" for the Layar application. The first step was to identify which articles should be grouped together for each layer. WE created a sample layer for convents and aided other WPI teams in creating a number of other augmented reality layar applications. Our layer used the co-ordinates of the convents of Venice, gathered by a past IQP group.

In order to define the layers, we created a series of database tables, one of individual points of interest and another of actions for those points for each of the layers. The tables were made as .csv files in Microsoft Excel, then imported into the SQL database associated with Venipedia.



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1	id	attribution	title	lat	lon	imageURL	line4	line3	line2	type	dimensio	alt	relativeAl	distance	inFocus	doNotInd	showSma	showBiwOnClick
2	1	REDE	Convento	45.42391	12.33269	NULL	NULL	NULL	NULL	0	1	NULL	NULL	0	0	0	1	1

Figure 27: The Convent Database, in Excel

Once the necessary information has been compiled, we used the Layar API to link the points to a live map of Venice. From there, we used an iPhone 3GS to test the layer(s) in the city by:

1. Using the application to guide us to each location.
2. Using the application to access each point's Venipedia entry.
3. Using the application to access any relevant material (audio, video, etc.).

After the successful testing of each layer, we submitted the layer to Layar for review and publication, with the ultimate goal of having our layer publically available by December 18, 2010.

4.0 Results & Analysis

Over the two terms we worked on Venipedia, we've worked to change it from a WPI student resource to a public repository of knowledge and data. Our first step in this shift was to de-emphasize WPI in the articles and remove WPI-specific pages, such as the Wikimecum. We wanted Venipedia to reflect public interest in the city, not just the academic focus of students completing projects at WPI. Next, we sorted through the articles to determine which truly belonged in the website. The following chapter summarizes our results for each of the previously defined objectives.

4.1 Venipedia Improvements

Our work on Venipedia has been generally focused on the underlying content and features moreso than the content of the articles. However, some work has been done for article generation in addition to the other changes. Included is a page from Venipedia, with the various changes highlighted.

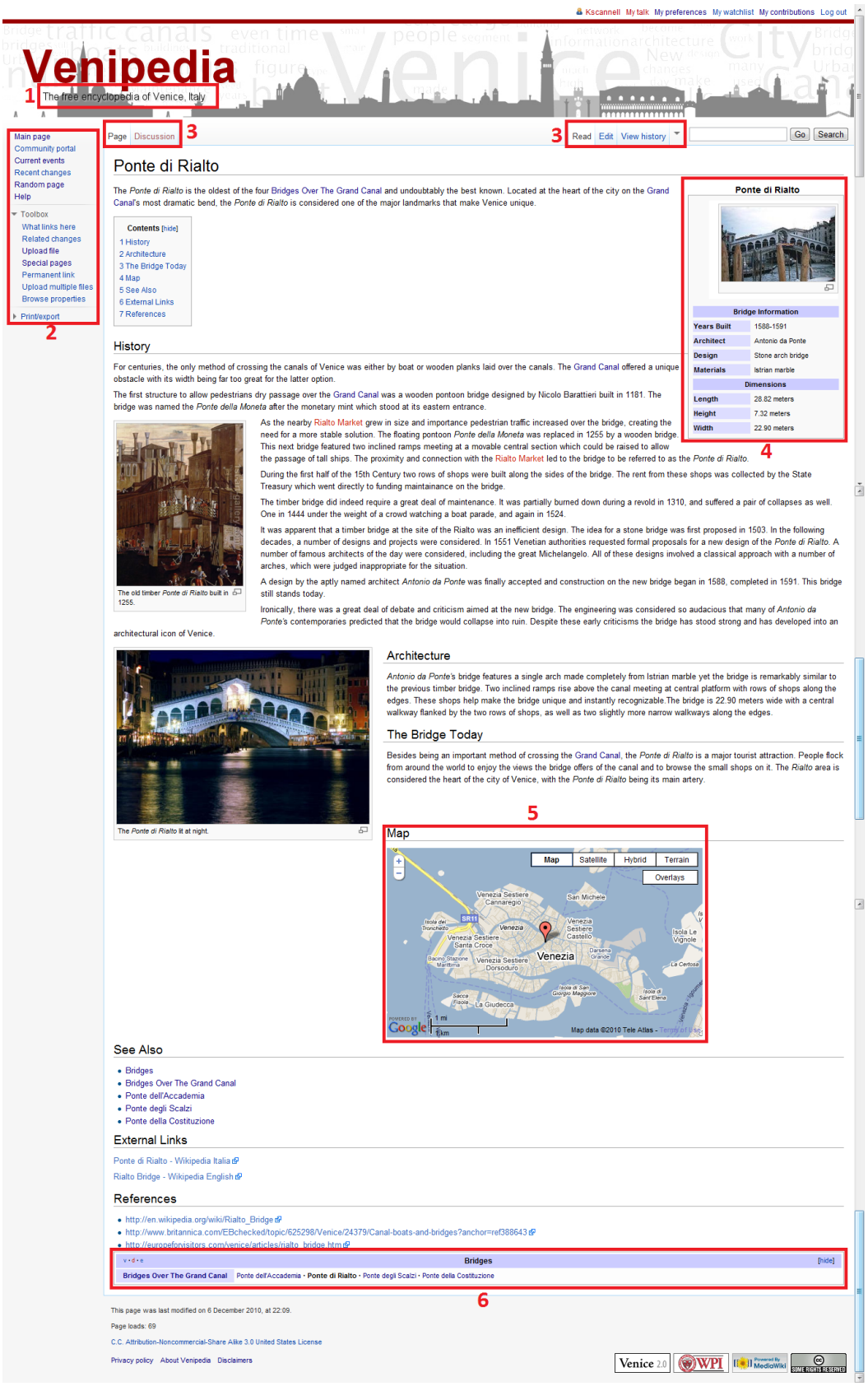


Figure 22: The Ponte di Rialto Page in Venipedia, with new feature highlighted.

4.1.1 Look and Feel

"Look and Feel" refers to the user's interaction with Venipedia. We've changed the Look and Feel of Venipedia through the creation of a new skin and the addition of a comprehensive "Help" section to help new users edit the wiki. We changed the skin from the one previously installed at Venipedia's creation to one known as "Vector", which is the Wikimedia product serving as the standard skin for Wikipedia. We then modified Vector to incorporate the Venipedia banner from the old skin. We then further modified the banner, adding the tagline "The free encyclopedia of Venice, Italy" (Figure 22, Item 1) so that users know on each page that content is related to Venice. We made this addition to reduce potential confusion from external links without requiring phrases like "…in Venice" in each page's title.

We decided on the Vector skin because of its use in Wikipedia. While Venipedia is intended to stand apart as its own resource, Wikipedia has become such a significant part of today's culture that we chose to use its design to increase user familiarity and comfort in Venipedia. Vector also allows us to display the menus more easily. Under the old skin, there was a drop-down menu and three buttons, one of which was a link to Venice2point0.org at the top left of each page, as well as a set of yellow buttons on the right side linking to pages for editing, viewing history and accessing other wiki functions. In addition to being non-intuitive, the left-side menu was buggy; the "random page" option, for example, only ever linked to the main page, and "Recent Changes" did nothing. In Vector, the main text, discussion page, edit page and history page of each article are presented as a tab on that page, situated just above the title (Figure 22, Item 3). These options are integrated into the page because they are relevant to that specific article, presented through the tabs as layers in addition to the main article. The other options from the old drop-down menu have been moved to the left-hand sidebar, where they are visually distinct as part of the site's functions and not those of the page (Figure 22, Item 2). As a result, the overall look of Venipedia is cleaner and offers familiarity while remaining unique.

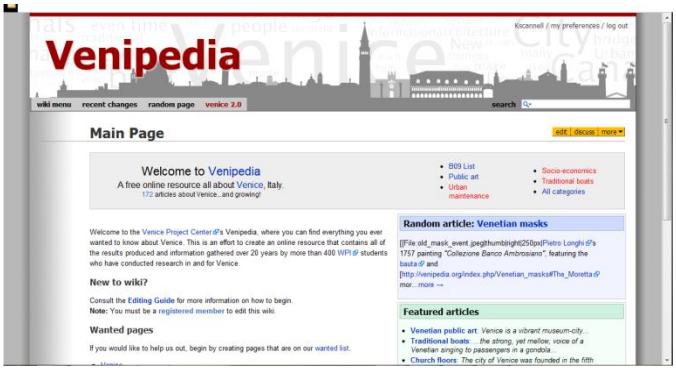


Figure 23: Venipedia's original skin

We also added a number of features, as described in the Methodology section. Infoboxes (Figure 22, Item 4), Navboxes (Figure 22, Item 6) and Factboxes all help users find information and data more easily. Infoboxes allow information which is expected to be present across several articles on a topic to be found at-a-glance. For example, the infobox for organizations provides a location of the group's office and contact information right at the top of the page to make them easier for interested parties to contact. Navboxes sit at the bottom of articles and allow users to easily navigate across

Figure 24: Venipedia's New Skin

categories. Factboxes operate as a data-based fusion of the two. They are fed into by a page's semantic tags and allow users to navigate across data, rather than articles like a Navbox, but provide a concise summary like Infoboxes. Further information on the various boxes can be found in the appendices.

We've also improved Venipedia's maps, allowing them to be utilized in three ways. First, they can be generated in the Venipedia page by entering co-ordinates. Alternatively, a user can choose to link to Google Maps .kml code to allow for the use of "live" maps. Finally, maps can be generated by the Semantic MediaWiki extension by querying a category for all pages with co-ordinates so that the map is automatically updated with the addition of new articles and reflects changes accurately. All three maps allow for linking to other Venipedia pages, but the semantic map is the most customizable.

4.1.2 Content

In addition to working on Venipedia's look and feel, we made changes to the site's content. We've weeded out several articles which were irrelevant and created several "example" articles. In addition, the students working on other teams were each assigned two articles to produce over the course of the two terms of the project. In this way, the other teams have been responsible for the bulk of the content generation. While they received the articles as an assignment rather than taking them on as areas of personal interest, quite a few of their go into great detail and help to cement Venipedia's status as a useful resource. However, the process of assigning articles to people is somewhat counter-intuitive, given the open spirit of wikis, which rely on the edits of many to achieve population and quality. The assignment makes more sense when viewed not as the creation of comprehensive, complete articles, but as starting points for future editors to embellish and expand. We reviewed the articles at various points throughout the term, employing two day-long meeting sessions where the other teams could come to us for help with technical details, like the wiki syntax, as well as questions of structure and content. While the article assignment has generated a significant amount of content and our direct involvement has helped to make the articles high-quality, the nature of the articles as assigned work in addition to each team's project may have lead to some lost care and dedication.

Sadly, not all of the pre-existing articles were able to be brought up to standard within the span of this project. Early in the project, we moved a large number of articles to the new UnderConstruction namespace and added maintenance tags to them to specify what work needed to be done. Due to time constraints and our emphasis on Venipedia's structure over content, we were unable to finish editing all of the articles. We have moved them back to the main namespace, leaving the tags in place so that future editors will have an idea of how to improve them. Those articles which are not the best they can be, according to the standard outlined in our methodology, have been marked with Maintenance Tags so that future editors and contributors know what needs to be done.

New articles were also generated semantically through database uploads. We uploaded the data of all of Venice's convents to create articles which utilize the Semantic MediaWiki features like factboxes and maps, and the PreserVenice team used the same process to upload their public art catalog, creating a basis for future editors to write about individual pieces, or broader topics like their styles.

4.1.3 Analytics

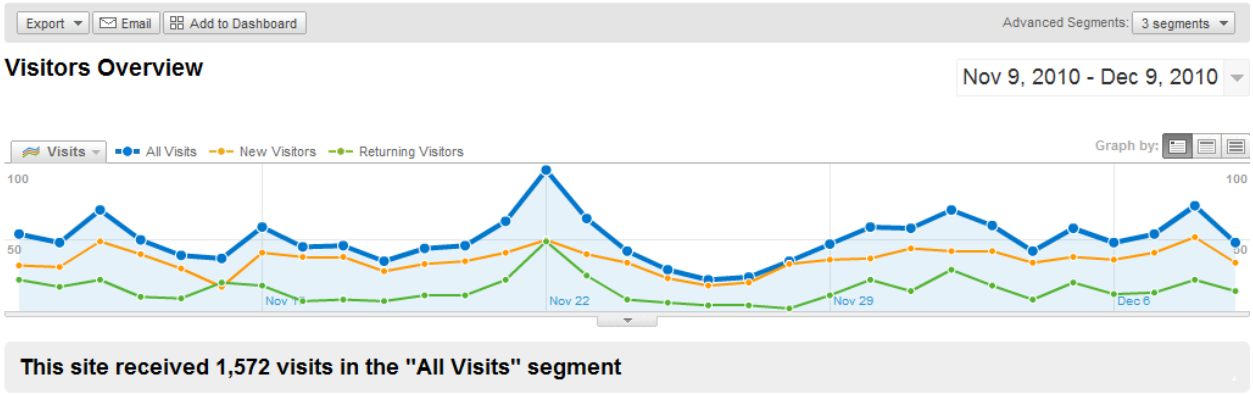


Figure 25: The number of daily visitors to Venipedia between 11/09/2010 and 12/09/2010

With regards to site use, we used Google Analytics to track the number of visitors, as seen in Figure 2537. Overall, we've had an average of 54 visits per day. While this is modest in comparison to the 200 million or more daily visitors to Wikipedia, it's not bad for a small website which has received next to no publicity. Additionally, the number of new visitors has consistently outperformed returning visitors, meaning that the website is being continually exposed to more and more people.

We saw an initial surge in visitors shortly after adding a link to the website to the English Wikipedia's Venice article. While the number of visitors decreased after the burst, it remained at a higher average level than it had been at before the addition of the link, supporting the idea that publicizing the link would bring higher traffic. An additional surge at the end of the observed period corresponds to the creation of a page on Facebook (http://www.facebook.com/pages/Venipedia/171758709511606?v=wall) dedicated to Venipedia, as well as the addition of a link to the Italian-language Wikipedia. The absolute greatest number of visitors occurred just before Thanksgiving, on November 22, 2010, when Venipedia had 100 unique visitors. The exact cause of this surge is unknown, as the date doesn't correspond to anything significant in the city. It is the date after the *Festa della Salute*, but common sense would suggest interest to build leading up to such an event, not after.

Figure 26: Venipedia's visits around the addition of a link to Wikipedia

The other thing to consider with regards to site use is how people are getting to Venipedia. Google analytics breaks access down into three types of sources: direct traffic, referral traffic and search engine traffic. In the case of Venipedia, most of the visits have come from search engines, like Google. As we finish the project, 929 visits to Venipedia have come from those search engines, or about 59% of all visits. About 23 percent have come from referring sites, such as Wikipedia, Venice2point0 and Facebook, and about 18% has been direct traffic, where users type www.venipedia.org into their address bars. While search traffic has been consistently ahead of the other sources throughout the term, referral and direct traffic have been alternating fairly regularly, perhaps implying that users are

being referred to the site and then going there directly afterward.

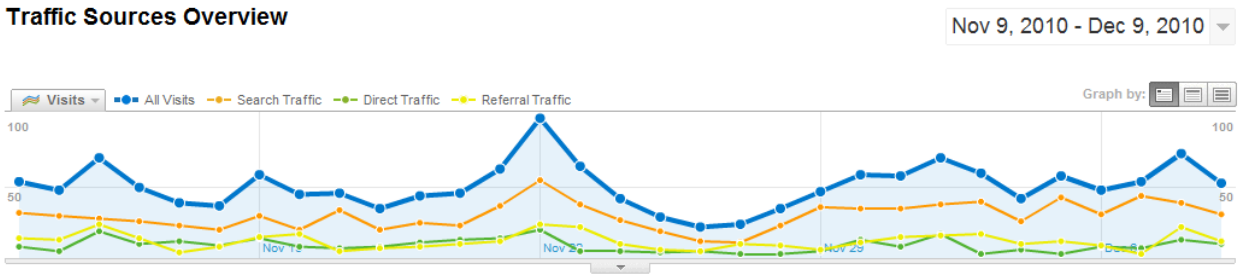


Figure 27: A graph showing the sources of Venipedia's visitors for each day from 11/09/2010 to 12/09/2010.

Another important piece of information gleaned from Google Analytics is the list of search words which lead to Venipedia. As of the end of the term, the top 5 search terms are:

1. Venipedia
2. Wikimecum
3. Venice list flood
4. Propel a gondola
5. Archaeological sites in Venice

These five phrases account for twenty percent (20%) of all visits to Venipedia. Venipedia as a search phrase is self-explanatory, but the others warrant some consideration. Wikimecum, as mentioned before, is a WPI resource for students studying in Venice, and the visits from that are most likely from the other students abroad in B-term 2010, as well as some of the potential students for the 2011 term.

"Venice list flood" has a 100% Bounce rate, meaning that all users who entered through that term left after viewing one page, specifically the page detailing "The Ten Worst Floods in Venetian History". The bounce rate and low average visit time implies that this subject could be expanded upon in the future to be more useful. "Propel a gondola" leads to the "Gondola" entry and also has a high bounce rate (91.67%) and low average visit time, which also suggests that that article needs work as well. "Archaeological Sites in Venice" accounted for only about 1%, and is related to an ongoing project.

4.2 Data Management

With regards to data management, we added the Semantic MediaWiki extension to Venipedia so that articles can be related to each other via the Semantic Web, which was explained in the background.

The Semantic MediaWiki uses tags within the article of the format [[Property::Value]], where "Property" is a defined characteristic of several items and "Value" is the specific characteristic of the article's subject. For example, each church has an "Active Church" property, which refers to whether or not Mass is said there. For the specific church Chiesa di Santo Stefano, this value is "false". It appears as such in the article's Factbox, which is at the bottom of each page and allows users to search for other

articles with the same value in a given property.

Figure 28: The factbox for Chiesa di Santo Stefano

Furthermore, these factboxes and properties can be applied to files, not just articles. We configured the Semantic MediaWiki extension to work on both the Main and File namespaces as an alternative to the CKAN protocol used by websites like Data.gov and Data.gov.uk. The use of SMW allows us to minimize dependence on outside technologies by utilizing just the one tool and hosting the data ourselves, rather than placing it on an external site. Functionally, the two methods are the same for human users in that files are deposited, tagged and rendered searchable through RDF vocabularies.

These semantic functions are being put to use in the content of pages as well. Using co-ordinate properties, we can generate maps, such as one for the churches of Venice. We have also used it as a way to manage the mass-uploading of articles and images, by ensuring that they have the same name and using calls such as [[Image:{{PAGENAME}}.jpg]] to embed the pictures in the related infoboxes. This call works by finding a .jpg file which shares its name with the page in question.

4.3 Layar

The other way we've worked to improve access to the site is through the use of the Layar application. While the original hope was to create layers for various series of Venetian landmarks, our focus on Venipedia's functionality over content has lead to the creation of only one, that of the convents of the city. Another team, Preservenice, has created layers for all of the public art in Venice with links to the relevant articles, but beyond that layers are being left for future groups to generate (see recommendations). The convent layer, however, provides the locations of all the convents in Venice as well as links to their Venipedia pages, which were generated through an importing tool we installed in Venipedia to handle converting large amounts of data from the VPC into articles. Again, this has only been used on the convents so far due to time constraints.

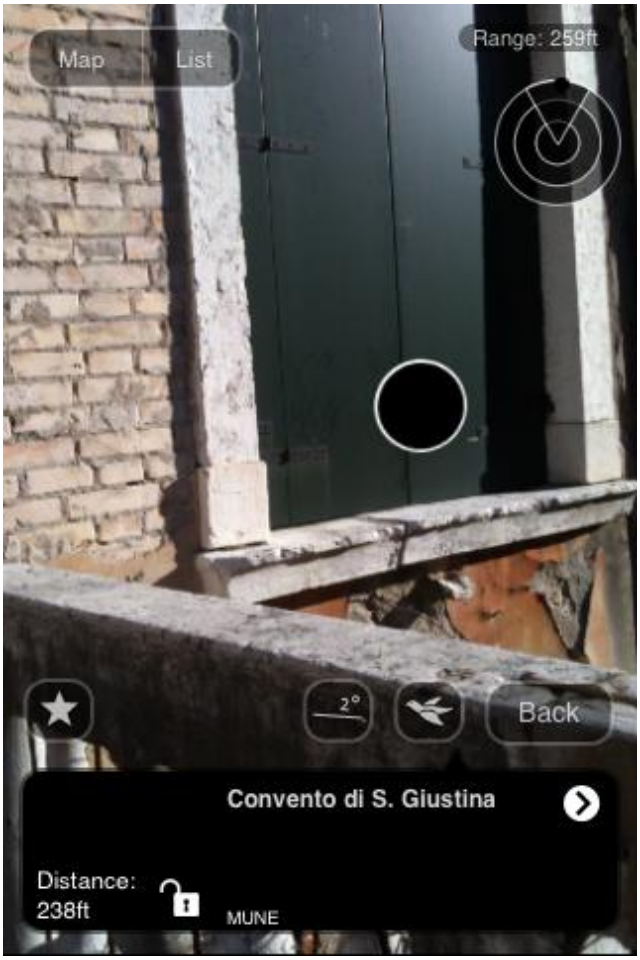


Figure 29: A screenshot of the convent layer, running on the iPhone

5.0 Recommendations

The main issue facing Venipedia as we finish our project is a lack of content. However, the wiki format is designed to allow anyone to contribute, even those unrelated to WPI. This model, combined with the wiki assignment from the ID 2050 course, should lead to a more robust Venipedia. However, the assignment can possibly be redesigned to better focus on what Venipedia lacks. Students could be asked to select one article each from the "wanted pages" and "most templated pages" lists. In this way they will complete the culture requirement of ID 2050 while cutting down on Venipedia's red links and improving the quality of existing articles. Further, their being allowed to choose which subjects to write about from a group broader than just their project fits well with the wiki model of editors writing about their passions. Additionally, series of articles on relevant topics can be generated from teams' reports, using their background research and project data. These articles can be generated from old reports, this year's projects and projects still to come.

For the addition of new infoboxes, navboxes and maintenance tags, users should be able to make new ones from the existing templates and information found in the User Guide. Thanks to the use of wiki syntax, users of other wikis can easily adapt their knowledge to Venipedia's constructs. A list of the existing boxes and templates can be found in the appendices. The most likely future additions are infoboxes for more topics, as navboxes are not necessary for every topic and the maintenance tags cover a wide variety of issues already.

One feature worth looking into is multimedia. Because Bluehost doesn't support ffmpeg playback, we were unable to adapt Wikipedia's multimedia player template. Additionally we were unable to successfully install Flash player, due to security risks inherent in the proposed Mediawiki extensions. As a result, there is currently only support for multimedia files to be downloaded to the user's computer, but not played in the pages as is standard.

For the mobile application, an app devoted entirely to Venipedia, perhaps in the spirit of the iPhone app Wikiamo in regards to Wikipedia, would be a gain in terms of user reach. For the time being, however, Layar layers cover a variety of topics and refer users to the website, lessening the need. We have produced a layer for the convents, and the Preservenice team has produced layers for each type of public art. Other catalogs worth considering include churches and palaces, as well as layers designed for each sestiere instead of just a subject.

For data management, the Semantic Mediawiki extension is in place, which allows Venipedia to utilize RDF tagging and generate things such as maps semantically. Furthermore, any file under 10 MB can be uploaded to Venipedia directly. While it may be preferable in the future to increase the maximum size, the option to use compressed (.zip) folders alleviates the need.

There are some extensions which we would have liked to implement but could not. For example, SMW Halo adds an "Ontology Browser" which allows users to search for articles by category and/or RDF properties. It is currently installed on the Bluehost server, but, it is currently incompatible

with MediaWiki 1.16, which is the current version used in Venipedia. Future administrators of Venipedia should consider re-enabling it when an update becomes available.

The other main need of Venipedia is moderation. Someone needs to be found to receive administrator's privileges to work on Venipedia's maintenance and upkeep. While we do not foresee any imminent problems, there needs to be a system in place to deal with potential vandalism. The best way for this to work is to introduce a moderator (or several moderators) and encourage the use of the vandalism maintenance tag. The moderator(s) would simply have to check the list of pages with the tag on occasion and tag them with the protected status while corrections were made. The "rollback" feature on each page's history would help greatly with the restoration process and protection could then be used to avoid future vandalism, at least for a time. The status can then later be removed at a moderator's discretion.

Additionally, it may be beneficial to create a nonprofit Venipedia Foundation, similar to Wikipedia's Wikimedia Foundation, to take donations for the management and upkeep of the website. At such a time as the foundation is created, a "Donate" button could be added to the sidebar of the website for potential donors to read about how to help Venipedia financially and make contributions, if interested.

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Appendix A: Wiki Vocabulary

Here are some definitions which will help the reader understand many things that follow in the Appendices section. These definitions have been taken directly from respective Wikipedia pages. Refer to the URL at the end of each definition for more information on the subject.

MediaWiki is a popular free web-based wiki software application. It is developed by, and it runs, all the projects of the Wikimedia Foundation, including Wikipedia, Wiktionary, and Wikinews, as well as powering many other wiki websites worldwide. It is written in the PHP programming language and uses a backend database. *Source:*http://en.wikipedia.org/wiki/MediaWiki

Namespace is a set of pages whose names begin with a particular prefix recognized by the MediaWiki software (followed by a colon), or in the case of the main namespace have no such prefix. For example, the user namespace consists of all pages with names beginning "User:". Encyclopedia articles appear in the main namespace, with no prefix. *Source:* http://en.wikipedia.org/wiki/Help:Namespace

Categories are a software feature of MediaWiki, which enables pages to be added to automatic listings. These help structure a project such as Wikipedia by grouping together pages on similar subjects. *Source:*http://en.wikipedia.org/wiki/Help:Category

Templates are pages created explicitly for transclusion – the process of including the contents of one page within another page. Any page can be transcluded, but templates are designed specifically for that purpose, usually for repetitive material that might need to show up on any number of articles or pages. They are commonly used for boilerplate messages, standard warnings or notices, infoboxes, navigational boxes and similar. *Source:*http://en.wikipedia.org/wiki/Help:Templates

Infoboxes are fixed-format tables designed to be added to the top right-hand corner of articles to consistently present a summary of some unifying aspect that the articles share and to improve navigation to other interrelated articles. *Source:* http://en.wikipedia.org/wiki/Help:Infoboxes

Navboxes, navigation templates, or topicboxes are a grouping of links used in multiple related articles to facilitate navigation between those articles. Editing of a navigation template is done in a central place, the template page. *Source:* http://en.wikipedia.org/wiki/Help:Navbox

Appendix B: Structuring Venipedia

To improve Venipedia, we've implemented and designed three structured features:

- Infoboxes, which provide data
- Navboxes, which provide a method to navigate articles of a similar topic
- Maintenance tags, which indicate that the wiki article needs work

Infoboxes

The purpose of infoboxes is to convey structured information and data to the user in a standard manner. Infoboxes are created and handled through the use of MediaWiki's Template system. We have implemented the structure of infoboxes by using Wikipedia's Infobox templates as a model. In all, we created 9 infoboxes. These can be found at the following location: http://venipedia.org/index.php?title=Category:Infobox_templates

Implementation

We've developed a brief procedure describing how we added the infobox feature in Venipedia. This should not have to be done again, unless something unexpected happens to the infobox feature.

Requirement: Documentation templates from Wikipedia

1. Go to http://en.wikipedia.org/wiki/Template:Infobox
2. Click *View Source* at the top right of the page
3. Copy the code
4. Make a page in Venipedia titled *Template:Infobox*
5. Paste the code into the page and save the page
6. The documentation subpage should also be included, so go to http://en.wikipedia.org/wiki/Template:Infobox/doc
7. And repeat steps 2-5, except replace *Template:Infobox* with *Template:Infobox/doc*
8. Go to the *Template:Infobox* page in Venipedia. There will most likely be many red links present. This means that the current template refers to other templates which don't exist in Venipedia since the code was copied from Wikipedia.
9. Parse through the document and pick out the red links that seem to be required for the actual **structure** of the infobox. There will be many unnecessary red links that are Wikipedia exclusive, which is why the *Import* and *Export* feature is not desirable in this situation.
10. Repeat steps 2-5 for each red link that is dependent upon the **structure** for infoboxes.
11. Troubleshoot: It will take time and patience to figure out which red links are required. Refer to Wikipedia's help page on infoboxes (http://en.wikipedia.org/wiki/Help:Infoboxes) if necessary.

Creating an Infobox

Refer to the *Template:Infobox* page in Venipedia. It has detailed instructions on how to create an infobox. Also refer other premade infoboxes, such as *Template:Infobox Convent, Template:Infobox Church,* and *Template:Infobox Artist* for the formatting of both the template page and the documentation subpage. To give a brief explanation:

1. Go to http://venipedia.org/index.php?title=Template:Infobox
2. Scroll to the bottom of the page and copy the generalized infobox code from the heading *Full blank syntax*
3. Create a page titled *Template:Infobox Foo* where Foo is the unique name of your infobox.
4. Paste the code into the page, and fill out the header, label, and data fields.
5. Save the page.
6. Be sure to create the documentation subpage (/doc) for your infobox so that others will be able to properly reuse your infobox. Again, refer to other infoboxes (*Template:Infobox Convent, Template:Infobox Church,* and *Template:Infobox Artist*) for examples.

List of Current Infoboxes

Infobox Artist

Infobox Biography

Infobox Canal

Infobox Church

Location	
Year Consecrated	
Active Church	
Admission Price	
Open to the Public	
Relics	
Hours of operation	

Infobox Convent

Location	
Coordinates	
Sestiere	
General Information	
WPI Code	
Current Use	
Founded	
Parish	
Open to the Public	
Data	
All Convents	CSV

Infobox Cross

PV ID	
Type	
Subtype	
Subject	
Location	
Mixed Materials	
Primary Material	
Metal Present	
Time Period	
Height from Ground	
Height	
Width	
Bibliography	
Coordinates	
Address	
Street	
Parish	
Inscription	

Infobox Island

Island of the Venetian Lagoon	
Location	
Year Settled	
Population	
Known For	
ACTV Lines	

Infobox Organization

Public Transportation	
Location	
Address	
Telephone Number	
Fax	
Founded	
Staff	
Chairman/CEO	
Managing Director	

Infobox Relief

Basic Information	
PV ID	
Type	
Subtype	
Subject	
Specific Subject	
Inscription	
Time Period	
Location	
Address	
Street	
Parish	
Coordinates	
Material	
Mixed Materials	
Primary Material	
Metal Present	
Dimensions	
Height from Ground	
Height	
Width	
Further Information	
Bibliography	

Navboxes

The purpose of navboxes is to connect the user to articles similar to the current page. Navboxes, like infoboxes, are created and handled through the use of MediaWiki's Template system. We have implemented the structure of navboxes by using Wikipedia's navbox templates as a model. In all, we created 4 navboxes. These can be found at the following location: http://venipedia.org/index.php?title=Category:Navbox_templates

Implementation

We've developed a brief procedure describing how we added the navbox feature in Venipedia. This should not have to be done again, unless something unexpected happens to the navbox feature.

Requirement: Documentation templates from Wikipedia

12. Go to http://en.wikipedia.org/wiki/Template:Navbox
13. Click *View Source* at the top right of the page
14. Copy the code
15. Make a page in Venipedia titled *Template:Navbox*
16. Paste the code into the page and save the page
17. The documentation subpage should also be included, so go to http://en.wikipedia.org/wiki/Template:Navbox/doc
18. And repeat steps 2-5, except replace *Template:Navbox* with *Template:Navbox/doc*
19. Go to the *Template:Navbox* page in Venipedia. There will most likely be many red links present. This means that the current template refers to other templates which don't exist in Venipedia since the code was copied from Wikipedia.
20. Parse through the document and pick out the red links that seem to be required for the actual **structure** of the navbox. There will be many unnecessary red links that are Wikipedia exclusive, which is why the *Import* and *Export* feature is not desirable in this situation.
21. Repeat steps 2-5 for each red link that is dependent upon the **structure** for navboxes.
22. Troubleshoot: It will take time and patience to figure out which red links are required. Refer to Wikipedia's template page on navboxes (http://en.wikipedia.org/wiki/Template:Navbox) if necessary.

Creating a Navbox

Refer to the *Template:Navbox* page in Wikipedia. It has detailed instructions on how to create a navbox. Also refer other premade navboxes, such as *Template:Bridges, Template:Convents, Template:Islands,* and *Template:Palaces* in Venipedia for the formatting of both the template page and the documentation subpage. To give a brief explanation:

7. Go to http://en.wikipedia.org/wiki/Template:Navbox
8. Copy the generalized navbox code from the heading *Usage*
9. Create a page titled *Template:Infobox Foo* in Venipedia where Foo is the unique name of your navbox.
10. Paste the code into the page, and fill out the title and appropriate group and list fields.

11. Save the page.

List of Current Navboxes

Bridges

v • d • e	Bridges	[hide]
Bridges Over The Grand Canal	Ponte dell'Accademia • Ponte di Rialto • Ponte degli Scalzi • Ponte della Costituzione	

Convents

v • d • e	Convents	[hide]
Convents of Cannaregio	Convento di Gesuiti • Convento di Madonna dell'Orto • Convento di S. Alvise • Convento di S. Caterina • Convento di S. Giobbe • Convento di S. Girolamo • Convento di S. Maria delle Penitenti • Convento di S.Maria dei Miracoli • Convento S. Maria di Nazateth Scalzi	
Convents of Castello	Convento di S. Anna • Convento de la Fava • Convento della Ca' di Dio • Convento della Celestia • Convento della pietà S. M. della Visitazione • Convento delle Suore Mantellate • Convento di F. da Paula • Convento di Mendicanti • Convento di Muneghette • Convento di S. Apollonia • Convento di S. Elena • Convento di S. Francesco de la Vigna • Convento di S. Giovanni e Paolo • Convento di S. Giovanni in Laterano • Convento di S. Giovanni in Malta • Convento di S. Giustina • Convento di S. Isepio • Convento di S. Lorenzo • Convento di S. Pietro • Convento di S. Zaccaria • Convento di S.M. del Pianto	
Convents of Dorsoduro	Convento delle Eremitane • Convento di Catecumeni • Convento di Gesuati • Convento di Ognisanti • Convento di S. Gregorio • Convento di S. Maria de la Carita • Convento di S. Maria del Carmine • Convento di S. Maria della Visitazione • Convento di S. Sebastiano • Convento di S.Teresa • Convento di Spirito Santo	
Convents of San Marco	Convento di S. Maria del Giglio • Convento di S. Maurizio • Convento di S. Teodoro • Convento di S.Salvador • Convento di S.Stefano	
Convents of San Polo	Convento di Frari	
Convents of Santa Croce	Convento di S. Chiara • Convento di S. Maria Maggiore • Convento di S. Nicola da Tolentino	
Convents of Giudecca	Convento della Croce • Convento della SS. Trinità • Convento di • Convento di convertite • Convento di Redentore • Convento di S. Cosmo • Convento di S. Giorgio Maggiore • Convento di S. Maria della Presentazione	

Islands

v • d • e	Islands of the Venetian Lagoon	[hide]
Active or Inhabited Islands	Burano • Cavallino • La Certosa • Chioggia • Giudecca • Lido • Pellestrina • Mazzorbo • Murano • Sacca Fisola • Sacca Sessola • San Clemente • San Francesco del Deserto • San Giorgio Maggiore • San Lazzaro degli Armeni • Santa Maria della Grazia • San Michele • San Pietro di Castello • San Servolo • Sant'Elena • Sant'Erasmo • Santa Cristina • Sottomarina • Torcello • Tronchetto • Vignole	
Abandoned Islands	Buel del Lovo • Certosa • La Cura • Lazzaretto Nuovo • Lazzaretto Vecchio • Madonna del Monte • Poveglia • Saline • San Andrea • San Angelo della Polvere • San Arian • San Giacomo in Paludo • San Giorgio in Alga • San Secondo • San Tommaso Borgognoni • Santo Spirito	

Palaces

v • d • e	Palaces	[hide]
Palaces open to the public	Ca'Adoldo • Ca'Ariani • Ca'Avon • Ca'Balbi • Ca'Bembo • Ca'Benedetti • Ca'Bernardi • Ca'Bernardo • Ca'Bonvicini • Ca'Brandolin • Ca'Caotorta • Ca'Cappellis • Ca'Cappello • Ca'Cavagnis • Ca'Cavanis • Ca'Civran • Ca'Clary • Ca'Cocco • Ca'Contarini • Ca'Corner • Ca'Correggio • Ca'Costa • Ca'Dandolo • Ca'Da Riva • Ca'Diedo • Ca'Dolfin • Ca'Dona • Ca' d'Oro • Ca'Duodo • Ca'Erizzo • Ca'Farsetti • Ca'Foscari • Ca'Franchetti • Ca'Frescada • Ca'Gaggia • Ca'Garzoni • Ca'Giovanelli • Ca'Giustinian • Ca'Gradenigo • Ca'Grimani • Ca'Gussoni • Ca'Labia • Ca'Layard • Ca'Loredan • Ca'Malipiero • Ca'Manfrin • Ca'Manolesso • Ca'Marcello • Ca'Marcora • Ca'Martinengo • Ca'Michiel • Ca'Minelli • Ca'Mocenigo • Ca'Molin • Ca'Mora • Ca'Moro • Ca'Morosini • Ca'Nani • Ca'Nunziatura • Ca'Oddoni • Ca'Papadopoli • Ca'Pesaro • Ca'Pisani • Ca'Priuli • Ca'Querini • Ca'Rezzonico • Ca'Ridotto • Ca'Rota • Ca'Sagredo • Ca'Sanudo • Ca'Savorgnan • Ca'Sceriman • Ca'Soranzo • Ca'Tiepolo • Ca'Tron • Ca'Vendramin • Ca'Zaguri • Ca'Zenobio • Ca'Ziani • Ca'Zorzi	

Maintenance Tags

The purpose of maintenance tags is to inform the community that the article needs work. These maintenance tags already existed when we received the website in August 2010. We felt that the purpose of each maintenance tag was necessary and appropriate, thus we did not change the content of each maintenance tag. However, we overhauled the look and feel of the maintenance tags so that they would be similar to Wikipedia's style of maintenance tags.

Types

Within Venipedia, there are 6 types of maintenance tags that correspond with 6 different colors. These tags can be found on Venipedia at the following URL:
http://venipedia.org/index.php?title=Venipedia:Templates

Category	Color of Sidebar	Description
Delete	Red	Pages with these tags are candidates for deletion for violating Venipedia's principles.
Move	Purple	Pages with these tags need to be moved to another namespace or merged into other articles.
Content	Orange	The content of these pages needs attention, usually to be more encyclopedic.
Style	Yellow	These pages need structural changes.
Notice	Blue	Something about these pages needs to be brought to the reader's attention.
Protection	Silver	These pages are currently protected or under watch by a moderator.

Figure 30: Types of maintenance tags [Source: http://venipedia.org/index.php?title=Venipedia:Templates]

List of Current Maintenance Tags

Delete

{{Venice}}

There is very little (or nothing) on this page about how the topic relates to Venice. Please help make it relevant to Venipedia.

{{Copypaste}}

This page appears to have been laregly copied-and-pasted from other sources. Please fix the article immediately by removing all direct quotes that are not properly cited.

{{Nonfree}}

This page may contain copyrighted material that is used excessively, improperly, or that is not cited properly. Please fix the article by removing copyrighted material, or by inserting proper references.

Move

{{Namespace}}

This page seems to be in the wrong namespace. Please consider moving it to somewhere more appropriate.

Content

{{Allplot}}

This page consists mostly/entirely of a plot summary. Please improve the article by discussing the work in more detail.

{{References}}

This pages lacks sufficient references and/or citations. Please improve the article by adding to or improving the references.

{{Expand}}

Please help improve this article by expanding it.

{{Histinfo}}

This page needs more historical information. Please help improve this article by adding some.

Style

{{Catimprove}}

This page needs to be in more categories. Please edit the article to add some, if possible.

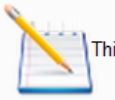
{{Cleanup}}

This page may require clean-up to meet our standards for quality. Please assist with improving the article, if possible.

{{Copyedit}}

This page may require copyediting for style, grammar, tone and/or spelling. Please assist with improving the article.

{{Inappropriatetone}}


This page's tone is inappropriate for Venipedia. Please improve the article by making it more encyclopedic.

{{InfoReq}}


This page could be improved by the addition of an infobox. Please consider adding one now.

{{Reqdiagram}}


This page needs one or more diagrams to improve its quality. Please edit the article to insert one now.

{{Reqmap}}


This page needs one or more maps to improve its quality. Please edit the article to insert one now.

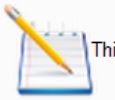
{{Reqphoto}}


This page needs one or more photos to improve its quality. Please edit the article to insert one now.

{{Review}}


This page reads like a review of a book/film/etc. Please improve the article by fixing the tone and making it neutral.

{{Rewrite}}


This page may need to be rewritten to meet our standards for quality. Please assist with improving the article.

{{Singlesource}}


This page relies largely or entirely on a single source, or doesn't cite any sources. Please do some more research and improve the article by adding some more sources.

Notice

{{Outofdate}}


This page contains information that is out-of-date. Please rectify this by updating it.

Protection

{{Protected}}

This article is currently protected and may not be edited. Please contribute to the discussion.

{{Vandalism}}

This article is suspected to have been vandalized. Please contribute to the discussion to assist us in assessing and correcting the damage.

Appendix C: Extensions

Extensions are compilations of PHP code that add new features or enhance functionality of the main MediaWiki core. Extensions are one of the main advantages of MediaWiki. They give wiki administrators and wiki end-users the ability to adapt MediaWiki to their requirements.

Depending on your goals you can use extensions to:

- extend the wiki markup used to write articles (*Category:Parser function extensions* and *Category:Parser extensions* for examples)
- add new reporting and administrative capabilities (*Category:Special page extensions* for examples)
- change the look and feel of MediaWiki (*Gallery of user styles* and *Category:User interface extensions* for examples)
- enhance security via custom authentication mechanisms (*Category:Authentication* and *Authorization Extensions* for examples)

Source directly from: http://www.mediawiki.org/wiki/Manual:Extensions

Installations

We've installed 16 extensions which perform various functions that enhance Venipedia.

General MediaWiki Extension Install Procedure

1. Search the MediaWiki site to find the extension you want to install.
2. Verify that the extension will work with the current version of MediaWiki. To find this information, go to the page *Special:Version* in Venipedia.
3. Satisfy any prerequisite extensions that the extension may have by installing them first.
4. Each extension should have its own unique installation instructions. Find them, read them, and follow them.
    a. The instructions will most likely ask you to add a line of code similar to the following
    include_once("$IP/extensions/ExtensionFolder/ExtensionName.php");
    to LocalSettings.php. In order to do this you must have the host information.
    b. Once you have the information to login, navigate to the root of Venipedia's installation *…/venipedia/*
    c. You should see LocalSettings.php within this folder. Open it and find the *Extensions* section.
    d. Paste the code in and save the file.
    e. Follow any additional instructions that are unique to whichever extension you're installing.

Use and Justification for Extensions

Cite

This extension gives a specific syntax on citing references within wiki articles. It displays the references in a clean and concise format. The extension also allows the user to toggle between the spot in the article where the reference is cited and the reference information.

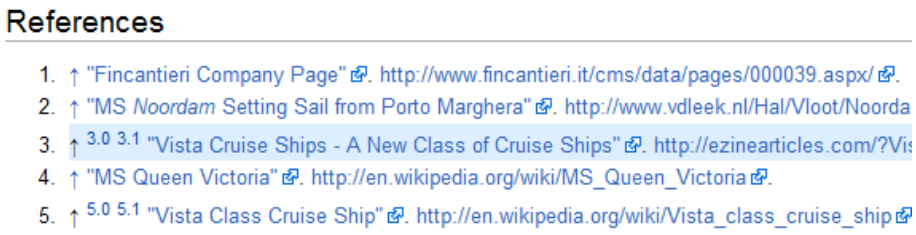


Figure 31: When a reference is clicked in the article, Cite displays the References section and highlights the reference clicked.

Collection

Collection allows a selection of articles from Venipedia to be downloaded in formats such as PDF, ODF, and XML. This is useful if the user wants to have the information available without the use of the internet.

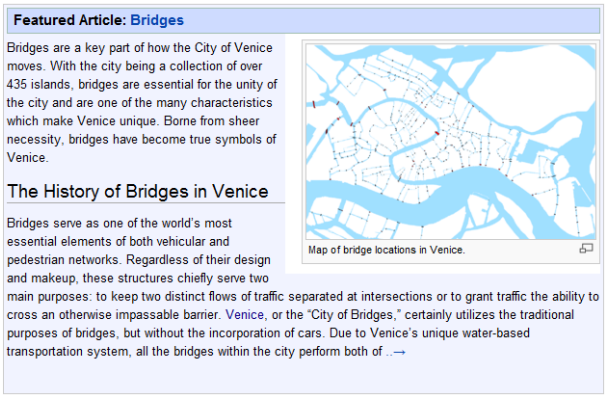
DataTransfer

See Appendix E: Importing Data.

DynamicPageList

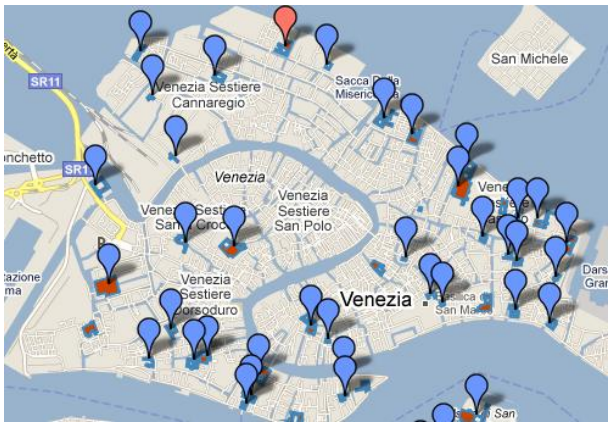
DynamicPageList allows for the creation of lists of other articles based on their category, namespace, title, references or template usage and include contents or arguments of template calls of those articles into a page. This extension is used to generate the Featured Article located on the main page of Venipedia.

```
<dpl>
category=Featured Articles
namespace=
includepage=*
includemaxlength=1000
escapelinks=false
resultsheader=__NOTOC__ __NOEDITSECTION__
randomcount=1
mode=userformat
addpagecounter=true
listseparators=<h2 style="margin:0;
background:#cedbff; font-size:120%; font-
weight:bold; border:1px solid #a3bfb1; text-
align:left; color:#000; padding:0.2em
0.4em;">Featured Article: , [[%PAGE%]]</h2>,,\n
</dpl>
```



Maps

Maps allows multiple map services, including Google Maps, to be embedded into wiki articles. The VPC has a lot of geographical data, so this extension is used on many pages.



MultiUpload

This extension simply allows for multiple files to be uploaded at once. We initially thought this extension would allow us to batch upload 183 images of Convents, but it turns out that it only allows 5 files at a time. We felt this extension may still be useful for other uploads that aren't quite as large.

Nuke

Nuke allows Administrators to delete multiple pages or uploads from a specific user at once. This can come in handy when an error occurs during an import of a large amount of data. It's also useful in reverting changes if a user vandalizes the site.

ParserFunctions

ParserFunctions allows logical statements to be run within the wiki. For example, it can evaluate conditional statements as well as simple mathematical expressions. This extension is required by many other extensions. Infoboxes is one feature that relies heavily on this extension.

Semantic Compound Queries

See Appendix D: Semantic Extensions.

Semantic Maps

See Appendix D: Semantic Extensions.

Semantic MediaWiki

See Appendix D: Semantic Extensions.

SemanticResultFormats

See Appendix D: Semantic Extensions.

UsabilityInitiative

This extension was developed by the Wikipedia Foundation to enhance features of the Vector skin. It adds a fresh new toolbar which is planned to become the default toolbar in an upcoming version of MediaWiki. The toolbar also includes many unique features such as: the insertion of special characters, built in Help function, and improved insertion of media and tables.

Validator

Validator provides generic parameter handling support to other extensions (required for Maps and Semantic Maps).

Using Each Extension

For directions on how to use each extension, find the extension in the table below and visit the extension's MediaWiki page (listed in the table) for instructions.

This allows the reader to view the most up to date information about the extension.

Table of Installed Extensions

Extension	Last Version	MediaWiki	Brief Description & URL
Call	*1.2 (2009-05-27)*	*1.7 and later*	*Create dynamic wiki pages by passing parameters* http://www.mediawiki.org/wiki/Extension:Call
Cite	N/A	1.6+	Allows a user to create footnotes http://www.mediawiki.org/wiki/Extension:Cite
Collection	1.4	1.14	Allows a user to export selections of wiki pages (PDF, ODF, XML) http://www.mediawiki.org/wiki/Extension:Collection
DataTransfer	0.3.6 (July 2010)	1.11.* or greater	An extension that allows for importing and exporting the contents of a wiki's pages in XML and CSV form http://www.mediawiki.org/wiki/Extension:DataTransfer
DynamicPageList	1.8.9 (2009-10-01)	1.7 .. 1.16+	Create lists of other articles based on their category, namespace, title, references or template usage and include contents or arguments of template calls of those articles into a page http://www.mediawiki.org/wiki/Extension:DynamicPageList_(third-party)
Inputbox	*1.11*	*1.11*	*Add predefined HTML forms to wiki pages* http://www.mediawiki.org/wiki/Extension:InputBox
Maps	N/A	1.15.* or higher	Allows users to display maps and coordinate data using multiple mapping services. http://www.mediawiki.org/wiki/Extension:Maps
MultiUpload	2.0 (9th of November, 2010)	1.16	Allows users to upload more than one file at a time http://www.mediawiki.org/wiki/Extension:MultiUpload
Nuke	N/A	1.11+, verified under 1.16 beta	Gives sysops the ability to mass delete pages http://www.mediawiki.org/wiki/Extension:Nuke
OggHandler	N/A	1.11+	http://www.mediawiki.org/wiki/Extension:OggHandler
ParserFunctions	N/A	1.7+	Enhances parser with logical functions http://www.mediawiki.org/wiki/Extension:ParserFunctions
Ploticus	*1.0 (2007-*	*1.11.0*	*Just-in-time graph generation*

	10-16)		http://www.mediawiki.org/wiki/Extension:Ploticus
ScriptManager	N/A	N/A	Script extension which manages the including of common JS script libraries (require for SMWHalo) http://smwforum.ontoprise.com/smwforum/index.php/Help:Script_Manager_extension
Semantic CompoundQueries	0.2.6 (September 2010)	1.14.* or greater	Defines a parser function, #compound_query, that can make multiple Semantic MediaWiki queries at the same time http://www.mediawiki.org/wiki/Extension:SemanticCompoundQueries
SemanticMaps	N/A	1.15.* or greater	Allows users to edit and display semantic coordinate data using multiple mapping services http://www.mediawiki.org/wiki/Extension:Semantic_Maps
SemanticMediaWiki	1.5.4 (2010-12-01)	1.15.0 or greater (tested up to 1.17alpha, r63248)	Allows users to add structured data to wiki pages through simple wikitext markup that turns links to other pages and data values in a page into meaningful properties. With this information, SMW helps to search, organize, browse, evaluate, and share the wiki's content. http://www.mediawiki.org/wiki/Extension:Validator
SemanticResultFormats	1.5.1 (2010-08-26)	1.11.0 or greater	Adds further formats to render inline query results (e.g. gallery, Google graphs, etc.) http://www.mediawiki.org/wiki/Extension:Semantic_Result_Formats
UsabilityInitiative	N/A	1.16+	Features developed by the Wikipedia Usability Initiative to enhance the usability of MediaWiki (include enhancements for the Vector skin [e.g. Vector toolbar] and edit page) http://www.mediawiki.org/wiki/Extension:UsabilityInitiative
Validator	0.4.2 (2010-10-28)	Tested with 1.15.5 and 1.17, probably supports older versions	Provides generic parameter handling support to other extensions (required for Maps and Semantic Maps) http://www.mediawiki.org/wiki/Extension:Validator
Variables	*2007-05-19*	*1.6.x and above*	*Allows the addition of new built in variables* http://www.mediawiki.org/wiki/Extension:Variables
Wgraph	*0.82 (2007-08-15)*	*1.7 and later*	*Generate graphs from a semantic textual description of objects and their relations* http://www.mediawiki.org/wiki/Extension:Wgraph

**Italicized text* indicates that the extension was installed prior to our involvement with Venipedia (August 2010)

Changes Made to LocalSettings.php for Extensions

The first step in installing an extension is to add it to the LocalSettings.php file which is located in the root directory of the MediaWiki installation. We've included the code that we've appended to the file for all the extensions that we've installed:

```
###############################
######## EXTENSIONS ###########
###############################

#CHANGE added by Kevin (12/01/10) to enable the Semantic Mediawiki GUI Halo
#¡IMPORTANT! This extension MUST be first. List all other extensions AFTER this one.
require_once("$IP/extensions/ScriptManager/SM_Initialize.php");

#CHANGE added by Tom to allow use of infoboxes, which requires the ParserFunctions
extension
require_once( "$IP/extensions/ParserFunctions/ParserFunctions.php" );

#CHANGE added by Tom on 11/16/10 to install Semantic MediaWiki
$smwgNamespaceIndex = 200;
include_once("$IP/extensions/SemanticMediaWiki/SemanticMediaWiki.php");
enableSemantics('venipedia.org');
$smwgQSubcategoryDepth = 0;

require_once( $IP.'/extensions/Cite/Cite.php' );
require_once("$IP/extensions/DynamicPageList/DynamicPageList2.php");

#Added by Kevin on 12/6/10 to enable SMWHalo
include_once('extensions/SMWHalo/includes/SMW_Initialize.php');
#enableSMWHalo(/*param-start-enableSMWHalo*/'SMWHaloStore2', NULL, NULL/*param-end-
enableSMWHalo*/);
#$wgUseAjax=true;

#Added by Kevin on 12/8/10 to enable Collection (PDF Book extension)
require_once("$IP/extensions/Collection/Collection.php");
$wgCollectionMWServeURL = "http://tools.pediapress.com/mw-serve/";
$wgCollectionMWServeCert = NULL;
$wgCollectionFormats = array('rl' => 'PDF');
#$wgCollectionPortletFormats = array( 'PDF' );
$wgCollectionHierarchyDelimiter = NULL;
$wgCollectionArticleNamespaces = array(
      NS_MAIN,
      NS_TALK,
      NS_USER,
      NS_USER_TALK,
      NS_PROJECT,
      NS_PROJECT_TALK,
      NS_FILE,
      NS_MEDIAWIKI,
      NS_MEDIAWIKI_TALK,
      );
$wgCollectionMaxArticles = 500;
$wgCollectionLicenseName = NULL;
$wgCollectionLicenseURL = NULL;
$wgEnableWriteAPI = true;
$wgGroupPermissions['user']['collectionsaveasuserpage'] = true;

#Added by Kevin on 12/09/2010 to allow for mass uploads via .zip folders (Not
compatible with Mediawiki 1.16. Look into replacement)
```

```
#require_once("{$IP}/extensions/SpecialMultiUploadViaZip.php");

#Added by Kevin on 12/10/2010 to allow for Audio and Video playback in pages
#Doesn't work on Bluehost; no support for ffmpeg.
#require( "$IP/extensions/OggHandler/OggHandler.php" );
#$wgFFmpegLocation = '/usr/bin/ffmpeg';

#Added by Kevin on 12/14/2010 to allow flash player to be embedded. (Solution to the
lack of ffmpeg support)
require_once('extensions/flashmp3.php');

# Maps
require_once( "$IP/extensions/Maps/Maps.php" );
# API keys configuration
$egGoogleMapsKey =
"ABQIAAAA66EROn0ZmSWczBQKuVxAjBRWTwqD8zFIOPK20PVKJ2_CG84uDhQhrpe1HE3LawlOrNIiTgigPTR2q
w";
# Your Google Maps API key. Required for displaying Google Maps, and using the Google
Geocoder services.

#Semantic Maps (CHANGE added by Tom on 11/16/10)
require_once( "$IP/extensions/SemanticMaps/SemanticMaps.php" );

require_once('extensions/RawMsg.php');

require_once("$IP/extensions/MultiUpload/MultiUpload.php");


include("extensions/SecureHTML.php");
#Change added by Tom on 11/17/10 to allow DataTransfer extension
include_once("$IP/extensions/DataTransfer/DataTransfer.php");


#Change added by Kevin 11/17/2010 enabling HTML Tidy for navboxes to display properly
$wgUseTidy=true;

#Change added by Tom on 11/30/10 for WYSIWYG/FCKeditor extension (GUI toolbar)
#require_once("$IP/extensions/FCKeditor/FCKeditor.php"); //commented out on 11/30/10
b/c it was too buggy for public use; replaced with WikiEditor extension

#Change added by Tom on 11/30/10 for WikiEditor extension (toolbar GUI)
require_once("$IP/extensions/UsabilityInitiative/WikiEditor/WikiEditor.php");
$wgDefaultUserOptions['usebetatoolbar-cgd'] = 1;  // Default user preference to use
toolbar dialogs
$wgWikiEditorModules['toolbar']['global'] = true;  // Enable the WikiEditor toolbar
for everyone
require_once("$IP/extensions/UsabilityInitiative/Vector/Vector.php");

include_once("$IP/extensions/SemanticCompoundQueries/SemanticCompoundQueries.php");
require_once("$IP/extensions/Nuke/SpecialNuke.php");

require_once("$IP/extensions/SemanticResultFormats/SemanticResultFormats.php");
$srfgFormats[] = 'gallery';

include_once("$IP/extensions/SemanticDrilldown/SemanticDrilldown.php");
```

Appendix D: Semantic Extensions

We have installed multiple semantic extensions for use with Venipedia. The core extension is called Semantic Media Wiki (SMW). It allows for data to be directly entered, tagged, and searched all within the same website. There are 3 additional semantic extensions that we installed to go with SMW:

- Semantic Maps – allows for geographical data to be semantically queried and displayed
- Semantic Compound Queries – allows for multiple queries to be made
- Semantic Result Formats – allows for different semantic output formats

The combination of these 4 extensions makes managing and publicizing VPC data possible.

Semantic MediaWiki

Semantic MediaWiki (SMW) is a type of semantic extension that allows for data to be: input, tagged, and queried within Venipedia. With the installation of SMW it's possible for:

- Students to use Venipedia to enter their data
- The public to view and contribute data and information

Process Overview

We will provide a brief overview describing the process of entering, tagging, and searching for data in Venipedia. To understand how SMW works, we **highly recommend** you read the *User Manual* written by the SMW Developers.

The user manual can be found online on SMW's website. Again, we recommend visiting their website as your primary resource, as it will always have the **most updated information**.
http://semantic-mediawiki.org/wiki/Help:User_manual

Assigning Data to Properties

First, the data has to be assigned a property. For example, say there is a convent, Convento di S. Alvise, and each convent in Venice has a *WPI Code* that the Venice Project Center has devised. Convento di S. Alvise's code is *ALVI*, so in order to assign the **property** *WPI Code* to *ALVI* we type somewhere in the article: *[[WPI Code::ALVI]]*

The general syntax for this is: *[[Property Name::Data]]* This process can then be repeated for each convent.

Defining Property Types

It is also necessary to define the data **type** of each **property**. This allows for more precise search results, meaning the user can easily find exactly what they're looking for.

Using the previous convent example, the WPI Code *ALVI* is of the data type *String*. Common data types such as *String, Number, Date, Text,* etc. are predefined by SMW and can be found on the page *Special:Types*.

To classify *WPI Code* as data type *String,* go to the page *Properties:WPI Code* and then add the following code: *[[Has type:String]]* somewhere on the page. The general structure for adding data types is as follows: *[[Has type::Data Type]].*

Querying Data

Now that data has been entered and assigned a property, it can be searched for. The way to do this is through the use of an *ask* query. To search for anything (not just convents) within the wiki that uses a WPI Code type the following into any wiki page or in the *Special:Ask* page which is part of SMW: *{{#ask: [[WPI Code::+]] }}* The plus sign indicates a wildcard, meaning it will search for anything that has the **property** *WPI Code*. To put the above query into words: search for anything that uses the **property** *WPI Code*.

To find just *Convents* that have a *WPI Code*, then we'd have to restrict our search results. This can only be done if all of the Convents are grouped in some manner. On Venipedia, we have grouped all of the convents into the **Category** titled *Convents*. To refine the search, we can type:
{{#ask: [Category:Convents]
|?WPI Code }}

To put the above query into words: search for anything in the *Convent* **category** and then display the *WPI Code* as a **property**.

This query can be expanded to include other properties such as *Coordinates, Parish, Sestiere,* etc:
{{#ask: [Category:Convents]
|?WPI Code
|?Coordinates
|?Parish
|?Sestiere }}
To put the above query into words: search for anything in the **Category** titled *Convents* and display the **properties** *WPI Code, Coordinates, Parish,* and *Sestiere.*

Semantic Maps

This extension is used in combination with the Map extension to make maps semantic. For example, it's possible to query a **category** for geographical data and then display the data as a **map**. Continuing with the Convent example from above, we could use the same code with one addition, *format=map*:

{{#ask: [Category:Convents]
|?WPI Code
|?Coordinates
|?Parish

|?Sestiere
|format=map }}

This query would display all of the convents on a map, with the *Parish* and *Sestiere* **properties** shown in balloons as data. Additionally, if a new convent is added to the category, then the map would automatically update itself since the map submits a new query each time it's loaded on a page. This eliminates the tedious task of manually updating every convent map every time a new convent is added.

For complete instructions on how to utilize this extension, view this exension's MediaWiki page located at http://www.mediawiki.org/wiki/Semantic_Maps and the User Manual located at http://mapping.referata.com/wiki/Help:User_manual

Semantic Compound Queries

This extension allows for multiple queries to be made within the same parser tag. It follows the structure:

{{#compound_query:
|Boundary1; Property1A; Property2A; Property3A…
|Boundary2; ?Property2A; ?Property2B; Property3B…
|…
}

This is useful when you want compare different data sets with one another. A specific application in which this extension shines is when you're comparing different categories on maps. For example, you could display all the convents in Venice with green markers and all of the churches in Venice with blue markers.

For complete instructions on how to utilize this extension, view this extension's MediaWiki page located at http://www.mediawiki.org/wiki/Semantic_Compound_Queries

Semantic Result Formats

The Semantic Results Format allows data to be displayed in a variety of formats that are not included with the Semantic MediaWiki extension. Some of the formats are

- gallery – this uses MediaWiki's built in <gallery> tags
- googlebar – displays a bar chart of number values, using the Google Charts API
- googlepie – displays a pie chart of number values, using the Google Charts API
- timeline – displays pages in a scrollable timeline, using the SIMILE Timeline Javascript library
- eventline –similar to 'timeline', but shows each page as an individual point, instead of sometimes showing date ranges as 'timeline' does
- calendar – displays pages in a monthly calendar

There is a lot of potential with the Semantic Results Format extensions. We've used it to generate the *<gallery>* for each of the convents, but there are many more data formatting features that can be utilized by this extension, such as dynamic Google bar and pie charts and timeline comparisons.

For complete instructions on how to utilize this extension, view this extension's MediaWiki page located at http://www.mediawiki.org/wiki/Extension:Semantic_Result_Formats

Appendix E: Importing Data

One of the goals for our project was to explore and implement methods to manage the VPC's data. During our time consuming and in-depth research, we found an extension called *DataTransfer* that allows the user to import CSV and XML formatted files into Venipedia.

The CSV format is very common and is supported by most operating systems and programs, so we felt that this extension would be worthwhile to implement. In order to accomplish this, we converted Microsoft Database files into CSV format using Microsoft Access. We then had to format the data so that the extension would understand where all the data should be placed within the wiki article.

We've devised a procedure describing how we accomplished this, so that more data can be imported by future students. We hope that this will be a major breakthrough in centralizing a location for VPC data.

Note: This guide assumes the reader has prior knowledge of designing Infoboxes and the functions of all four of the installed semantic extensions (*Semantic MediaWiki, Semantic Maps, Semantic Result Formats,* and *Semantic Compound Queries*). If you don't understand these concepts, please refer to: the *Help:Infobox* article in Venipedia and *Appendix D: Semantic Extensions* located in this report.

Verifying the Installation of DataTransfer

The first step is to install the *DataTransfer* extension. The Venipedia team has already installed the extension, so this step should not be necessary unless someone tampers with the currently installed extensions. To verify that the extension is installed, go to the page *Special:Version* in Venipedia and make sure that *DataTransfer* is listed. If for some reason it is not listed, then search for the extension on the MediaWiki website and follow the installation directions there.

Defining Templates

DataTransfer takes advantage of and relies on MediaWiki's template concept to transclude data into wiki entries. Therefore, the first real step in this process is to define and populate all of the templates for the data. There are 4 kinds of templates that we have used during our importing process:

- Infobox, named *Template: Infobox Data*
- Page, named *Template:Page Data*
- Map, named *Template:Map Data*
- Gallery, named *Template:Image Data*

where "Data" represents the generic title of data that you want to import.

Template:Infobox Data

- Locate the *Help:Infobox* article in Venipedia, and use that to design your infobox. The process is no different than the regular design of and infobox.

- Assign semantic **properties** to your *label* and *data* fields in your infobox. See the *User Manual* on Semantic MediaWiki's website, specificly the "Properties and types" section, located at: http://semantic-mediawiki.org/wiki/Help:Properties_and_types

Template:Page Data

If the data has longer text fields, then this is the template where it belongs. The text will appear in the body of the wiki article. The template should be setup as follows:

==Heading 1==
{{{bodytext1|}}}

==Heading 2==
{{{bodytext2|}}}

==...==
...

Additionally, the following pages in Venipedia can be used as guidelines: *Template:Page Convent, Template:Page Cross,* and *Template:Page Relief*

Template:Map Data

If the data has geographical coordinates, include it in this template. The data should be queried in the same manner as regular semantic maps. If you're unfamiliar with these concepts, review the *User manual* on the *Semantic Map* extension website, located at http://mapping.referata.com/wiki/Help:User_manual

Pay particular attention to the section on querying semantic map data, located at http://mapping.referata.com/wiki/Help:Queries

Additionally, the following pages in Venipedia can be used as guidelines: *Template:Map Convent, Template:Map Cross,* and *Template:Map Relief*

Template:Image Data

If there are multiple images associated with the data, then this template should be created for the data. If there's only one image, then just place the image in the infobox and exclude this template.

If you're planning to upload a large number of images, be sure that the images have a unique naming schema that can be related to some other unique piece of data that will be included in the infobox. Additionally, a generic category should be added to your images.

For example, all of the images for the convents in Venipedia begin with their *WPI Code*, which is a unique code designed for each convent. An *#ask* query can be used to compare the *WPI Code* of the current page with the beginning of the filename of the images located in *Category:Convent Images*. Additionally, the code should include a parameter to display the images in *MediaWiki's* built in *gallery*

format. This is done through the use of the extension *Semantic Result Formats*. The code for this query is:

{{#ask: [[Category:Convent Images]] [[File Name::~{{#show: {{PAGENAME}} |?WPI Code}}]]*

|format=gallery}}

For more information on the *Semantic Result Formats* extension, see *Appendix D: Semantic Extensions* and/or visit the extension page on MediaWiki, located at http://www.mediawiki.org/wiki/Extension:Semantic_Result_Formats

Formatting the Data

The data must be formatted in a very specific way so that the extension, *DataTransfer,* can understand and properly import the data into Venipedia. We have developed a guide on how the data should be formatted.

1. Put the data into CSV format.
    a. *Using Microsoft Access*: Go to the "External Data" tab >> under Exports click "Export to Excel spreadsheet" >> See *Using Microsoft Excel* to convert to CSV (below)
    b. *Using Microsoft Excel*: File >> Save As >> click "Save as type:" box >> select "CSV (Comma delimited) (*.csv)"
2. There are two special column titles that *DataTransfer* allows: *Title* and *Free Text*.
    - The *Title* section is what the name of the article should be, and is the only required field
    - The *Free Text* section is text that doesn't belong in a template. Typically the following goes inside the *Free Text* section: *{{Images Data}} {{Map Data}} [[Category:Data]]*
3. Rename the rest of the columns in the spreadsheet to the format: *TemplateName[datafield]* . The data fields values must match their respective templates: *Template:Infobox Data* and *Template:Page Data*.
4. Save the file.
5. Now we have to change the encoding to "UTF-8", which is a common web encoding format. Open the recently saved file in Notepad.
6. File >> Save As >>click "Encoding:" box >> select "UTF-8"
7. Name the file something different.

Uploading and Importing Images

We have developed a procedure for uploading and importing a large number of images to supplement the imported data.

Uploading Images to the Server

If the images aren't already on the server, you must first upload them. If they are on the server, then you can skip the *Uploading Images to the Server* procedure.

1. Open an SFTP/FTP program, such as WinSCP
2. Log in to the Venipedia host using proper credentials
3. Create a new folder somewhere on the server for the images. We suggest navigating to *$HOME/public_html/venipedia* and adding a new folder there.

Importing Images into Venipedia

1. Open a SSH terminal emulator, such as PuTTY
2. Log in to the Venipedia host, using proper credentials
3. Navigate to *$HOME/public_html/venipedia/maintenance/* by typing *cd public_html/venipedia/maintenance* into the command prompt
4. Type *php importImages.php $HOME/Location/Of/Your/Directory* into the command prompt
    a. If you want to add a category to the images, which is required for semantically querying more than one image per page, type *php importImages.php $HOME/Location/Of/Your/Directory --comment="[[Category:Data Images]]"*

Importing Data

This is the final step in the data import process. Once this step is complete, all of your data including: infoboxes, images, maps, and page contents should appear in Venipedia.

1. Go to the *Special:ImportCSV* page in Venipedia. *Note:* You must have *Administrator* privileges to access this page and upload data.
2. Click "Browse…" and find the file that was saved from Notepad.
3. Fill in the "Summary of import"
4. Click the *Import* button. If everything goes correctly, a message indicating the number of pages that have been generated will appear.

For additional information, see the *MediaWiki* page about the extension *DataTransfer* located at http://www.mediawiki.org/wiki/Extension:DataTransfer

Appendix F: Look and Feel Coding

To update the look and feel of Venipedia, multiple changes to files on the server had to be made. We've documented those changes here.

Directory Path: venipedia/skins/Vector.php

Google Analytics Tracking

```
451         <!-- CHANGE
452             author: Tom Finelli
453             date: 11/4/10
454             reason: to add Google Analytics
455             change: added php line of code below -->
456         <?php include_once("analyticstracking.php") ?>
```

Venipedia Logo

```
522             <!-- CHANGE
523                 author: Tom Finelli
524                 date: 11/4/10
525                 reason: needed to add Venipedia logo to the vector skin
526                 change: added the new div layer below, containing the logo and text -->
527             <div style="margin-top:1.5em; background-repeat:no-repeat; background-image:
    url(http://venipedia.org/skins/clean/background.top.jpg); height:155px;">
528                 <div style="padding:2em;">
529                     <a href="/index.php?title=Main_Page" style="text-shadow:#EEEEEE 2px 2px 3px;
    font-weight:bold; font-size:450%; color:#990000; text-decoration:none;">Venipedia</a>
530                     <p style="margin:-0.5em 0 0 2em; text-shadow:#CCCCCC 2px 2px 3px;">The free
    encyclopedia of Venice, Italy</p>
531                 </div>
532             </div>
```

Book Logo

```
543                 <!-- logo -->
544                     <!-- CHANGE
545                     author: Tom Finelli
546                     date: 11/4/10
547                     reason: hide logo
548                     change added style="display:none" below -->
549                     <div id="p-logo" style="display:none"><a style="background-image: url(<?php $this->text
( 'logopath' ) ?>);" href="<?php echo htmlspecialchars( $this->data['nav_urls']['mainpage']['href'] ) ?>"
<?php echo $this->skin->tooltipAndAccesskey( 'p-logo' ) ?>></a></div>
550                 <!-- /logo -->
```

```
568                 <!-- CHANGE
569                 author: Tom Finelli
570                 date: 11/10/10
571                 reason: added Venice2Point0 and WPI logos
572                 change: see the following two lines of code
573                 -->
574                 <li><a href="http://venice2point0.org/"><img src="skins/common/images/venice-logo.png" alt=
    "Venice 2.0" /></a></li>
575                 <li><a href="http://wpi.edu/"><img src="skins/common/images/wpi-logo.png" alt="WPI" /></a>
    </li>
576                 <?php if ( $this->data['poweredbyico'] ): ?>
577                 <li id="footer-icon-poweredby"><?php $this->html( 'poweredbyico' ) ?></li>
578                 <?php endif; ?>
579                 <?php if ( $this->data['copyrightico'] ): ?>
580                 <li id="footer-icon-copyright"><?php $this->html( 'copyrightico' ) ?></li>
581                 <?php endif; ?>
582             </ul>
```

File Directory: venipedia/skins/vector/main-ltr.css

The following changes were made to the Vector skin's CSS file to fix the display of the main body, after the addition of the "Venipedia" header at the top of the page.

```
99      /* Navigation Containers */
100     /* CHANGE
101         author: Tom Finelli
102         date: 11/4/10
103         reason: needed to properly align the left and right navigation boxes after the addition of the
    Venipedia header
104         change: top from 2.5em to 11.5em and margin-top from 2.5em to 11.5em */
105     #left-navigation {
106         position: absolute;
107         left: 10em;
108         top: 11.5em;
109     }
110     #right-navigation {
111         float: right;
112         margin-top: 0.33em;
113         /*margin-top: 11.5em;*/
114     }
```

```
398 /* Panel */
399 /* CHANGE
400     author: Tom Finelli
401     date: 11/4/10
402     reason: need to adjust the absolute position of the panel due to the addition of the Venipedia
    background logo
403     change: top from 160px to 180px */
404 #mw-panel {
405     position: absolute;
406     top: 180px;
407     padding-top: 1em;
408     width: 10em;
409     left: 0;
410 }
```