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Design and Implementation of an Online Bath and Body Products Business

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Regis University

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Regis University
School for Professional Studies Graduate Programs
Final Project/Thesis

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Abstract

This project created an online extension of a bath and body products business. Currently, the author's son owns a business that provides soap and lip balm to brick-and-mortar businesses. The products have been well accepted in the marketplace and an online venture was the next logical step to increase market share. For this project, a website was created that serves as an online storefront and product catalog. A traditional phased project management approach was used to complete the project. The analysis phase consisted of research into competitive companies as well as how to successfully design and implement an interactive website. After the analysis phase, the project requirements were developed. Design, construction and testing of a website that met the requirements were completed. The final implementation was a fully functional website including online ordering and acceptance of credit cards.

A fully functional website was deployed in January 2007 and the project was considered a complete success.

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Chapter One: Introduction / Executive Summary

This project created a website for an online soap and lip balm venture. Currently, the author's eleven-year old son owns a successful business, Jason's Body Works, that provides soap and lip balm to brick-and-mortar businesses. The products have been well accepted in the marketplace and an online venture was the next logical step to increase market share.

The project consisted of research into online soap and lip balm businesses and research into website design and website hosting. The goal of the project was a functional website that serves as an online storefront and product catalog. The website includes online ordering and acceptance of credit cards and PayPal®.

1.1 Need for the Project

The owner of the business belongs to a Young Entrepreneurs Club and determined that many of his peers had websites. He requested a website, so the author researched online full service web design/hosting services. The need for this project became apparent when it was found that these services cost at least \$100/month. The business is a small, family owned business and had a budget of \$10/month to fund a website. Research showed that online web hosting services were available for approximately \$5/month.

Interestingly, e-commerce has become a necessity in the business world today. Turban (2004, p.3) states that "e-commerce is the explosive emergence of the Internet as a major, perhaps, eventually *the* major, worldwide distribution channel for goods." It is a

practical reality that for most businesses to thrive, an online presence is required. This project shows one simple, easy-to-implement approach for an online business.

1.2 Proposed Solution and Project Goals

The proposed solution is a fully functional website including online ordering capability. The project goals are listed below.

1. A website that is attractive and user friendly.
2. A website with search engine optimization so that it will be featured during customer searches.
3. A website that is competitive with similar online businesses.
4. An online hosting solution that is less than \$10 per month.
5. A website with online ordering capability accepting major credit cards and PayPal.
6. An easy to maintain website since website development is not the core competency of the business or business owner.
7. Training of the business owner so website maintenance can be completed by the owner who has no experience developing websites.

1.3 Barriers to the Project

The barriers to this project were that the author had no previous website development skills and no website development tools. This was overcome by attending an HTML class offered at a local community college. Also, a web hosting service was chosen that

offered free web development tools. This, along with HTML skills, allowed the author to create a website.

During the website design phase, it was determined that the free web development tools available were not adequate since the HTML code could not be modified. Search engine optimization requires key words be listed in the website description meta tag. Research into website development tools showed that Dreamweaver was the preferred website development software. The author first utilized a free 30 day trial of Dreamweaver. When it was determined that the tool would enhance the website development, the author purchased Dreamweaver. It should be noted that the website could have been developed and maintained in HTML. This is important in situations where the cost of a web development tool is prohibitive. In the interest of creating the website quickly and maintaining the schedule, the author chose to purchase Dreamweaver.

1.4 Questions to be Answered

The following questions were answered in the project.

- What were competitors doing in online bath and body products businesses?
- What web hosting service should be chosen?
- How to create an interactive website that accepts credit card payments?
- How to accomplish search engine optimization for the website?

1.5 Limitations/scope of the project

The project was limited to offering only the current products for sale online. It did not include expanding the product line. Since the author served as both project manager and lead developer, the project was limited to a minimally functional website for ordering all the current products. Future enhancements to the website such as a blog or a customer database feature will be considered later. Enhancing link popularity will also be considered in future enhancements of the website.

1.6 Definition of terms

- HTML – Hypertext Markup Language. The coding language used for all documents available over the World Wide Web defined by the World Wide Web Consortium. (Power, 2006)
- SEO – Search Engine Optimization. The optimization of strategies intended to position a website at the top of a search engine list. (Turban, 2004, p.630)
- SSL – Secure Sockets Layer. SSL is used to encrypt data sent over the internet to ensure it will not be monitored or intercepted. (Rayport, 2004, p. 55)
- URL – Uniform Resource Locator. An address used by websites that makes them easy to remember. They are mapped to a numerical IP address which is difficult to remember. (Rayport, 2004, p. 500)
- Meta tag – An HTML element that describes the contents of a web page. (Turban, 2004, p. 631)

- WYSIWYG editors (WYSIWYG stands for “what you see is what you get”) – Editors that conceal the markup language so the user can create a web page that looks exactly like the final product without using HTML tags and code. (Rayport, 2004, p.36)
- Google - A search engine that enables users to search the Web, Usenet, and images. Features include PageRank, caching and translation of results, and an option to find similar pages. (www.google.com)

1.7 Summary

This project created an online web store for a bath and body products business.

Expected benefits include an online presence for the business and increased market share.

The author also acquired website development skills that can be used for other projects.

There are no known barriers to implementation of the website.

Chapter Two: Review of Literature / Research

The research for this project was divided into two main categories. The first was research into the successful deployment of an e-commerce website. The second was research into other online bath and body products businesses.

The research into successful deployment of a website included research on how to write a webpage as well as web hosting services to determine the best web host for the business. Research into accepting online payments was also conducted. Search engine optimization as well as website security research was conducted to aid in designing the website.

The research into other online bath and body businesses included a competitive analysis of similar online bath and body products businesses. This information was used to determine the website scope, develop the website design and determine if the product costing was competitive in the marketplace.

The owner of the business was also interviewed to determine the requirements of the website.

2.1 Webpage Development Research

A webpage is made of simple components and constructed of text. No special software is required. A simple text-editing program like Notepad in Microsoft Windows and an understanding of HyperText Markup Language (HTML) is all that is needed. Almost anyone that has access to a computer can write a webpage. HTML is a set of rules and conventions for designing text formats and tags to structure texts into paragraphs, lists and other formats. HTML is cumbersome to use for large websites with many pages and links so

a WYSIWYG (what you see is what you get) editor is preferred for website development. WYSIWYG editors allow a webpage to be created that looks like the final webpage without using tags and codes. These editors are expensive and may be difficult to learn. (Rayport, 2004, pp. 36-37)

A comparison of some of the most popular WYSIWYG editors (Macromedia Dreamweaver, Adobe GoLive, Microsoft FrontPage 2003, and Visual Studio.NET) showed that FrontPage and Dreamweaver had the most features. (WiserWays, 2006) The comparison chart is shown in Appendix G. Since Dreamweaver supports an HTML tag editor and is one of the most popular website development tools, the author chose to use Dreamweaver. The author plans to develop more websites and investing in Dreamweaver will make future development much easier.

Another consideration in webpage development is design and style. Markel (2001, pp. 611-620) has the following recommendations for webpage design. These items were considered when creating the website.

- Analyze the audience and purpose of the website. What kind of equipment do they have? Will large graphics delay page loading? A larger number of small pages is preferred over a small number of large pages. Ensure graphics are not of such high resolution that they will not load on slow internet connections.
- If the website will be printed, ensure each page prints as a single, unified document.
- Users should be able to easily find the information they need. Consider the audience and purpose and identify the reasons that a person would visit.
- For simple sites with few pages such as the one proposed for this project, a shallow design with a home page and most other pages linked directly to it are acceptable. A

deeper site design that allows sub-classification of information would be appropriate for websites with many pages. The user will be overwhelmed if there are too many links listed on the home page.

- Try to give the pages a consistent appearance. The site's navigation elements should appear in the same place on each page, to help create a pattern so users can anticipate where to find the information they seek.
- Aim for simplicity and avoid effects that serve no useful purpose such as blinking text. They may annoy the user or slow down the webpage loading.
- Use simple backgrounds and good contrast to ensure text readability.
- Make the text easy to read and understand by keeping the text short and putting information in chunks by using frequent headings and brief paragraphs.

2.2 Website Hosting Research

The first step in the project was to design the website. The author had planned to use the free website design tool offered by the web hosting company. A search of web hosting services showed that most web hosts offered a free website design tool. To find the best web host for the application, a web hosting requirements analysis was conducted by interviewing the business owner.

The following criteria were determined to be important to the proposed online business. The budget for the website was \$10/month or less. A shopping cart was necessary for online ordering. A review of requirements for web hosts determined that a minimum of 10 Mbyte of disk space and a minimum of 2 Gbyte bandwidth per month were required to

sustain a small website such as the one proposed. (FindMyHosting.com, p. 4) Due to the above constraints, all web hosts considered were required to have these minimum features.

1. Inexpensive (<\$10/month with one-year agreement)
2. Provide free domain name
3. Ability to add shopping cart
4. Reliable (high uptime)
5. Good customer service
6. Free site builder
7. Minimum 10 MByte disk space
8. Minimum 2 GByte bandwidth/month
9. Secure Server and Backups

The above requirements were considered when choosing the web hosting service.

An internet search using Google was conducted to find the top ten web hosting services. This search yielded the following sites that listed their recommended top ten web hosting services. (Retrieved 1/1/07):

1. Top-10-Web-Hosting (<http://www.top-10-web-hosting.com>),
2. Host Critique (<http://www.hostcritique.com>),
3. The Hosting Chart (<http://www.thehostingchart.com>).

Review of the features of each of those listed above led to the following top five finalists listed in Table 1. Since all five met the minimum requirements, additional criteria were used to choose the web host. The criteria included cost and customer reviews.

Table 1. Top 5 Web Hosting Services (Retrieved 1/1/07)

Host Name	Rating* (Web Hosting - Providers, Reviews and Ratings)	Cost/ Month**
Dot5Hosting (http://dot5hosting.com)	3.5	\$5.95
IX Web Hosting (https://www.ixwebhosting.com)	6.5	\$9.95
StartLogic (http://www.startlogic.com)	3.2	\$6.95
Blue Host (http://www.bluehost.com)	9.2	\$7.95
HostGator (http://www.hostgator.com)	8.2	\$6.95

* Rating based on customer reviews on Customer Support, Technical Quality/Reliability, Cost/Value.

** Based on one year contract.

Although Blue Host was not the lowest cost provider, it had exceptional customer ratings, especially in customer service. Since the author and the business owner had no prior experience with web hosting, customer service was considered more important than the lowest cost since all of the web hosting services listed above were within the project budget. Therefore, Blue Host was chosen as the web hosting service.

2.3 Accepting Online Payments Research

Research into accepting online payments was conducted. There are two ways to accept credit card payments online. One is a personal merchant account and the other is through a third-party merchant. The initial costs of the personal merchant account are higher than using a third-party merchant but the transaction fee is smaller. A third-party merchant is a convenient option for a small business that is new to online payments. (Heng, 2006) Third-party merchants usually charge only a percentage of sales and a per-transaction fee, so you only pay when you sell something. (Sanchez, 2003) Since the initial sales volume of the online business will be low, it was determined that a third-party merchant was the appropriate method for a small, new online business.

There are several options for third-party merchants. The two best known third-party merchants are PayPal and Clickbank. PayPal is the most popular and charges a reasonable fee structure of approximately 3%. Clickbank specializes in web marketers that sell downloadable, digital products (Sanchez, 2003) and is not a viable option for the proposed business. The author's previous experience with PayPal and the popularity of PayPal for small online purchases less than \$20 indicated that PayPal was a good candidate. PayPal was one of the first companies to offer third-party merchant services and is one of the largest. (Turban, 2004, p.507) It also has a free shopping cart feature that is needed for this project. Therefore, PayPal was chosen as the third-party merchant without further investigation into other third-party merchants. The PayPal website (www.PayPal.com) was researched to determine specific implementation steps for accepting credit card payments online. The PayPal shopping cart required pasting HTML code into the webpage code which further emphasized the need for a webpage editor that allowed customization of the HTML code.

2.4 Website Security Research

Security is an important aspect of e-commerce so research was conducted to determine how to attain adequate website security so customers would feel comfortable buying products from the website. The focus of this research was on credit card payments and securing customer personal information. Electronic information is submitted over the internet for most credit card transactions. Information routed through the internet can be easily monitored or intercepted unless secured. Merchants must ensure the security of customer transactions.

Three primary aspects of credit card security must be addressed by merchants:

1. Transfer of data from the customer computer to the merchant e-commerce site
2. Transfer of data from the merchant to the payment processors
3. Protection of customer data stored in the merchant database.

The first two issues concerning data transfer over the internet can be addressed using Secure Sockets Layer (SSL). SSL is used to encrypt data sent between the customer computer and the merchant web server. It also encrypts data sent between the merchant and payment processor. Since the two most popular web browsers, Netscape Navigator and Microsoft Internet Explorer are both SSL-capable, a customer using these applications can see if the internet connection is secure by checking for an icon shaped like a closed lock or key at the bottom of the browser window. The URL for secure connection begins with “https” instead of “http.” (Rayport, 2004, p. 55)

Since PayPal was the chosen third-party merchant and they would handle all credit card transactions, a thorough investigation was conducted into the security of using PayPal. PayPal enables the buyer to pay without the seller seeing any bank or credit card account numbers. They monitor transactions for suspicious activity and work with law enforcement agencies throughout the world to apprehend and prosecute identity thieves. PayPal’s information is protected by SSL with an encryption key length of 128 bits, which is the highest level commercially available. When a customer registers or logs into PayPal, they verify that the internet browser being used is running Security Sockets layer 3.0 or higher. Customer personal information is stored on the PayPal servers that are heavily guarded physically and electronically. To shield credit card and bank numbers, the PayPal firewall-protected servers are not directly connected to the internet. PayPal also offers 100% protection against unauthorized payments. (PayPal, 2006)

PayPal has a good reputation and is an industry leader in online payments.

Customers are familiar with PayPal and its policies. Offering PayPal as the online payment method will help ensure customers are comfortable supplying their credit card numbers and personal information to the online bath and body products business. Information about PayPal security was added to the website privacy policy page.

2.5 Search Engine Optimization Research

Research into search engine optimization was conducted. Search engines use databases of web pages that have been indexed on criteria such as keyword occurrence and link popularity. *Spiders*, or the software that “crawls” the web to find new web pages, send web page information back to the databases. When a search engine user does a search on the web, the results actually come from the archived database. Search engines use algorithms to determine the rankings of the results returned to the searcher. All search engines rely on keywords as the principal, or sometimes sole, criteria for ranking results. For this reason, search engine spamming was used to increase keyword occurrence on a website. Developers would put a long list of keywords in text the same color as the page background. The site visitor would not see it but the spider would. In 1998, Google initiated a fundamental change in search engine ranking strategies that included link popularity in the search engine criteria. Today, link popularity is an important part of the results-placement algorithms used by most search engines.

Strategies to maximize a web site’s ranking in search engines should be part of the content creation, web site design and site construction. It should not be an afterthought at the end of the website development. Optimizing search engine rankings with effective keyword

placement and link building is much easier and less time-consuming if it is integrated into the web site development process. (Turban, 2004, pp. 630-631)

Since keywords are used for every web search, and search engine users type in keywords to search for a website, the website designer must keep in mind the probable keywords that will be used to find the website. The website must be optimized for the keywords. The search engine optimization techniques found in the research and listed below were used when creating the website. See Appendix B for website optimization techniques used to develop the website.

Power (2006, Chapter 6) suggests the following search engine optimization strategies.

1. Create a meaningful title because many search engines place an undue weight on the title. If the search engine keyword search appears in the title, the search engine will boost that website in the listings. The website title should begin with the primary keyword. Titles should be kept to between three and six words because many search engines will snip characters at the end of the title if it exceeds 50 characters (including spaces).

2. Create multiple titles by using a different title on each page of the website.

However, many search engines, including Google, will only index two pages from a website.

3. Write a description for the website just below the title. If you do not, the search engine will do it and it will probably not be optimal for your business. It is best to keep the description at or below 256 characters, including spaces and punctuation marks.

4. Create a keyword list and refine it since most search engines will use it in searches.
Keep the list to about 750 characters, including spaces and punctuation marks.
5. Take advantage of typos by including likely typos in your keyword list.
6. Work keywords into the body of the website because search engines will look at the text in the website page. Use primary keywords multiple times in the page content.
However, do not use a keyword more than five times or it might be considered excessive by some search engines.
7. Use headings since most search engines place more weight on headings than they do regular text on the page.
8. Hide keywords inside ALT statements in your IMG tags to describe a picture for visitors who cannot see the graphic. Most search engines check ALT statements for keywords.
9. Obtain a domain containing a keyword because most search engines will give a site a higher ranking if its domain name contains a keyword.
10. Do not go off topic and include keywords that are not relevant to the website. This will bring up websites that have nothing to do with the topic.
11. Do not spam search engines.

Since link popularity is another criteria used by search engines, Turban (2004, p. 632) suggests the following strategies for maximizing link popularity. Due to the limited scope of this project, link popularity was not considered in the website design. This can be added as a later enhancement.

1. Create content that promotes linking. Create linkable content such as product reviews, tips and hints for using the products. Free downloads and informative articles are other items that could be offered by the website.
2. Seek reciprocal links from business partners, suppliers, business associations and major customers.
3. Visit competitors to find outgoing links that may be applicable to your site.
4. Seek highly placed links by encouraging link partners to place your link in the first or second levels of the website so spiders will find it.
5. Do not use free-for-all links or link farms that sell or give away links because search engines ignore them.

Sites should also be registered with major web search engines and web directories.

Registering the site invites spiders to visit the site rather than waiting for the site to be found.

(Turban, 2004, p. 632) The website for this project was registered with Google, Lycos, AlltheWeb and Open Directory Project. Powers (2006) states that at this time, Yahoo! is not accepting free directory submissions except for nonprofits. Commercial sites must pay a \$299 fee to be considered for a listing. So, Yahoo! was not considered for this project.

Power (2006, Chapter 6) offers the following tips on registering websites with directories.

1. Wait for the site to mature before submitting it to a directory. If a site is unpolished or unfinished, it may be snubbed.
2. Categorize the site yourself. Take the time to study the directory to figure out which category or categories provide the best match for your site. Provide this information on your request for listing.

3. Go to Open Project Directory (<http://www.dmoz.org>) to scan through a list of categories to find one that might work for your site.

The above techniques were employed and the resulting category that was determined optimum for this project is listed in Appendix B.

2.6 Copyright Research

Another important aspect of protecting your website is copyright protection. According to Protecting Your Website (2006), the two primary methods of protection are technical countermeasures such as digital watermarking and legal protection, primarily copyright. Technical countermeasures tend to be cumbersome, expensive and user-unfriendly. Therefore, copyright is the easiest and most popular form of protection used today.

Three items should be considered in implementing a copyright strategy: ownership, notice and registration. There are many aspects of a website that can be copyrighted including text, graphics, script, data and code. If everything on the site was developed by one person, it is reasonable to claim ownership. If someone else created the text copy or downloaded clip art or files were used, then the issue of ownership is not as clear.

It is generally a good idea to put the copyright notice on a website. In the past, the copyright notice was required to protect the work, but this is no longer true. However, it is still customary to attach a copyright notice on copyrighted works. This offers protection from certain types of damages. The copyright notice consists of the copyright symbol and/or the term “Copyright”, the year of the copyright and the name of the copyright holder. The

term “Copyright” is technically not required but it may be used in lieu of the © symbol in the United States. The © symbol is generally the standard identifier of copyright notice and is required in many foreign countries for copyright protection. Some HTML standards and browser specifications turn the copyright symbol into meaningless text such as “#169” or “©” so it is recommended to use both the copyright symbol and the full “Copyright” word to avoid problems with browsers.

Based on the above research, both the © symbol and the word “Copyright” were used on the web pages that were deemed worthy of copyright based on the textual content or the product photos.

2.7 Online Bath and Body Product Business Research

Online bath and body product websites were researched to find information on product offering, cost analysis, shipping methods and delivery methods. A Google search was conducted using the keywords “seasonal soap”, “guest soap” and “lip balm”.

The following websites were used in the competitive analysis for online bath and body products companies (Retrieved 1/4/07). These sites were chosen because they offered similar products. The businesses were categorized as major retailer or small craft industry, family businesses similar to Jason’s Body Works. The category is listed below. When making final determination of website features, the small craft industry websites were favored over the major retailer. The major retailer’s websites were valuable to review since they offered insight into possible expansion of the product line at a future date.

1) Sabon NYC (major retailer): (<http://www.sabonnyc.com>)

2) Splash Bath and Body (major retailer): (<http://www.splashbathandbody.com>)

- 3) The Soap Gallery (small craft industry): (<http://www.uniquesoap.com>)
- 4) Bulk Salts (small craft industry): (<http://bulksalts.com/soap>)
- 5) Tangerines (small craft industry): (<http://www.tangerinesandcompany.com>)
- 6) American Soap Company (major retailer): (<http://www.americansoaps.com>)
- 7) Magnolia Hill Soaps (small craft industry): (<http://www.magnoliahillsoap.com>)
- 8) The Family Soap Company (small craft industry):
(<http://www.thefamilysoapcompany.com>)

Analysis of the websites, product offering, prices, payment methods and shipping methods revealed the information exhibited in Table 2. Screenshots of the homepages are shown in Appendix A. The information from this table was analyzed and used to design the website.

Table 2. Competitive Analysis

Company	Types of Products	# Links	Cost*	Payment Type	Shipping Method/Info
Sabon NYC	Soaps, body products (lotion and oil), gift baskets, face products	8	\$1.57/oz.	Credit Card	United Parcel Service (UPS), automatically calculates shipping based on order, \$20 min purchase
Splash Bath and Body	Soaps, bath salts and mists, facial products, haircare products, lotions and creams, shower gels and bubble baths, candles	7	\$.86/oz.	Credit Card	UPS, automatically calculates shipping based on order, free shipping on orders over \$100
The Soap Gallery	Soaps, bath scrubs, bath salts, seasonal soaps	5	\$0.65/oz.	Credit Card	Not stated, flat rate shipping based on order cost
Bulk Salts	Soaps, bath scrubs, soapmaking supplies, seasonal soaps, individual mix/match soaps	4	\$1.00/oz.	Credit Card, Pay Pal, Mail Check	UPS and US Post Service (USPS)
Tangerines	Soaps, seasonal soaps, lip balm	10	\$1.76/oz. Lip Balm: \$2.99 ea	Credit Card, Pay Pal, Mail Check	UPS ground and US Post Service (USPS)
American Soap Company	Soaps, seasonal soaps, bath salts, gift baskets	7	\$0.75/oz.	Credit Card, Mail Check	USPS and unspecified major carrier
Magnolia Hill Soaps	Liquid and body foam soaps	7	\$1.50/oz. Foam Soap: \$5/7oz.	Credit Card, Mail Check	UPS, automatically calculates shipping based on order
The Family Soap Company	Soaps	4	\$1.53/oz.	Credit Card	USPS

* Cost is for bar soap unless otherwise specified

Analysis of the research above showed that most of the small craft industry businesses had 4-7 major links on their websites. All accepted major credit cards. Some accepted mailed in orders but this was obviously not a requirement. Shipments were made via UPS and USPS. This information was used when designing the website and payment acceptance scheme.

2.8 Owner Interview

The owner of the soap and lip balm business was interviewed. The following criteria were established for the website.

1. Easy-to-use online ordering
2. Photos of the product
3. Contact information
4. Biography of the owner and history of the business
5. Clear, colorful pages
6. The website needed to be completed before the next Colorado Young Entrepreneurs Competition in May 2007.

2.9 Summary of what is known and unknown about the project topic

The known area of the project topic is the soap and lip balm brick-and-mortar market. A family business has existed for 1½ -years that sells soap and lip balm. The business was started by Jason Prince when he was 9 years old. A unique selling point is Jason's age. Many sales are made when a buyer finds out that Jason is a child. This unique attribute was

utilized in the online business as well by including Jason's biography and the history of the business on the website.

The unknown areas of the project topic were website design, website security, website hosting and search engine optimization. An extensive search of these topics was included in the project.

Another unknown area of the project topic was the online soap and lip balm business. A competitive analysis was completed to help design a website that is relevant to the market.

2.10 Contributions to the Field

The project allowed the author to utilize the skills and knowledge gained in attending the MSCIT program at Regis University. This professional project paper can be used as a guide for other students or as a reference for small businesses that want to create an online presence with ordering capability. This project illustrates a simple e-commerce implementation for businesses that do not have a large budget for a website.

Chapter Three: Methodology

3.1 Research Methods Used

Research consisted of an online search and a search of journals and other publications on the subject of website design, website hosting and search engine optimization. A competitive internet analysis of online soap and lip balm businesses was conducted to determine how the product offering compared with other similar businesses. The author interviewed the business owner to determine his requirements for the website and online ordering capability.

3.2 Life-cycle models

The project used an iterative build/test software development model. A Software Development Life Cycle (SDLC) is a method to ensure consistency in software development. In the classic waterfall method, each subsequent step does not begin until all elements of the steps preceding it have completed and there is no going back to a prior step once the subsequent step has begun. A more modern approach is the iterative method where steps can be repeated in an iteratively. (Altwies)

Using the iterative model, the pages of the website were designed, launched and tested in phases. Initially, a prototype test page was uploaded to the website. Next, two prototype linked pages were added. Additional pages were added one at time until the website design was complete. The iterative model allowed the project to be built and tested in small blocks. Troubleshooting was easier and the final product was tested extensively during the development phase to help prevent errors at launch.

3.3 Definition of End Product of Project

The end product of the project is a fully functional website including product ordering capability using major credit cards. Listed below are key deliverables of the project.

1. A description of the current situation and proposed solution.
2. Project plan including project schedule.
3. The analysis and design approach used for the project including any system diagrams.
4. Test plan and test cases of the system.
5. Test results.
6. A demonstration of the website.
7. Final presentation of the above items.

3.4 Specific Procedures

This section details the key deliverables of the project.

1. Current Situation and Proposed Solution

Currently, a wholesale bath and body products business exists that sells soap and lip balm to brick-and-mortar businesses. A logical extension is an online presence. The proposed solution is a website with online ordering capability.

2. Project Plan

A detailed project plan consisting of a schedule, budget and project risk is included as Appendix C.

3. Design Approach

Design Phase

The design of the website was accomplished by analyzing competitor's websites and developing a list of why potential customers would visit the website. In the competitive analysis, it was determined that most sites had a home page, a catalog page, content information page and a privacy page or security policy. A Frequently Asked Questions (FAQ) page was used to provide additional information such as product shipping and product packaging information. Product pricing comparisons showed that the products being offered were competitive in the marketplace.

Using Markel's (2001, pp. 612-613) recommendations, the following list was created that identifies the major reasons a person would visit the site:

- To see the types of products offered
- To find out the prices
- To e-mail questions
- To learn about the type of business and the business owner
- To order product

The information in Table 2. Competitive Analysis as well as the list above led to the website plan shown in Figure 1.

It was determined that the shopping cart would be best linked to the catalog page based on the PayPal shopping cart feature. An effort was made to keep the pages simple in design and easy to use.

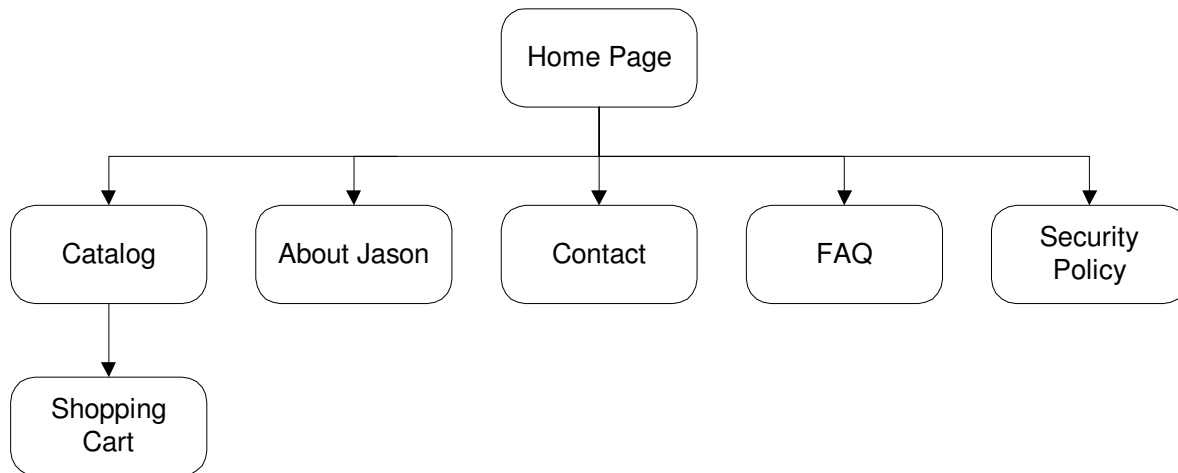


Figure 1. Website Design

Construction Phase

Construction of the website was completed on a Windows XP platform desktop using HTML and Adobe Dreamweaver 8 software. A test home page was completed first. Additional pages were completed and added one at a time in a build/test iteration. After uploading a page, each page and its links were tested. A flat home page was used so that all information could be accessed from the home page. Every page has links to all the other pages so that a user can easily find the home page or any other pages.

4. Test Plan

The test plan shown in Table 3 was created to test all functionality of the website including the online ordering feature using PayPal and a credit card. Functionality of each page was tested as it was uploaded to the World Wide Web. The final test plan was executed when the final website was published. Two different testers independently executed the test plan.

Table 3. Test Plan

Test	Result	Recommendations	Status
Can user access website with URL			
Ensure all links work on all pages			
Send e-mail to Jason			
Ensure product photos match product listed			
Check price accuracy			
Put items in cart and ensure cart is populated correctly			
Check that scents and flavors populate cart correctly when input			
Order product using PayPal account			
Order product using major credit card			
Ensure deposit is made to business bank account after an order			
Search for website using Google and Alltheweb			
Cancel order and ensure you are taken back to JBW site			
Ease and use of the website			
Recommended enhancements			
Print web pages			
Ensure "Continue Shopping" takes you back to JBW site			
Check for typos and misspellings			

5. Test Results

Testing was conducted by the business owner and the author's husband. Detailed test results are shown in Appendix E. Test results were favorable. Issues that were found were either fixed in the final iteration or listed as recommended enhancements. The recommended enhancements will be added to the list of next steps for the project and are listed in section 5.4. The status column of the test report shows which issues were implemented and which were delayed.

6. Demonstration of the Website

The completed website was published on January 20, 2007 and can be accessed at www.jasonsbodyworks.com. Screen shots of the web pages are included in Appendix D.

Potential customers will find the site using a search engine. Also, the URL is listed on all product packaging. The products are currently sold in a resort town so most buyers are from out of town. Reorders by customers can be easily placed using the website.

This phase also included training the business owner on how to maintain and upgrade the website. The training plan is shown in Appendix F.

3.5 Final Presentation

The final presentation of the project is this report. An oral report will be given at Regis University as part of the MSCIT 696C Professional Project class.

3.6 Summary

Methodology for the project included research of website development and existing online competing websites. The project was managed using an iterative development model to allow build/test iterations in the development. A project plan was completed that included the schedule, resource plan and budget. The end product of the project, a functional website, was designed, developed and tested. The website was successfully deployed on schedule and within budget. The business owner considered the project a success.

Chapter Four: Project History

4.1 Origins of the Project

This project is a requirement of the MSCIT program at Regis University. The project was chosen because the author identified a need for an online extension of a brick-and-mortar business.

4.2 How the project was managed

The project was managed using a traditional project management approach with an iterative build/test development model. A Work Breakdown Structure (WBS) was used to help identify the tasks of the project. See Figure 2 for the top level WBS.

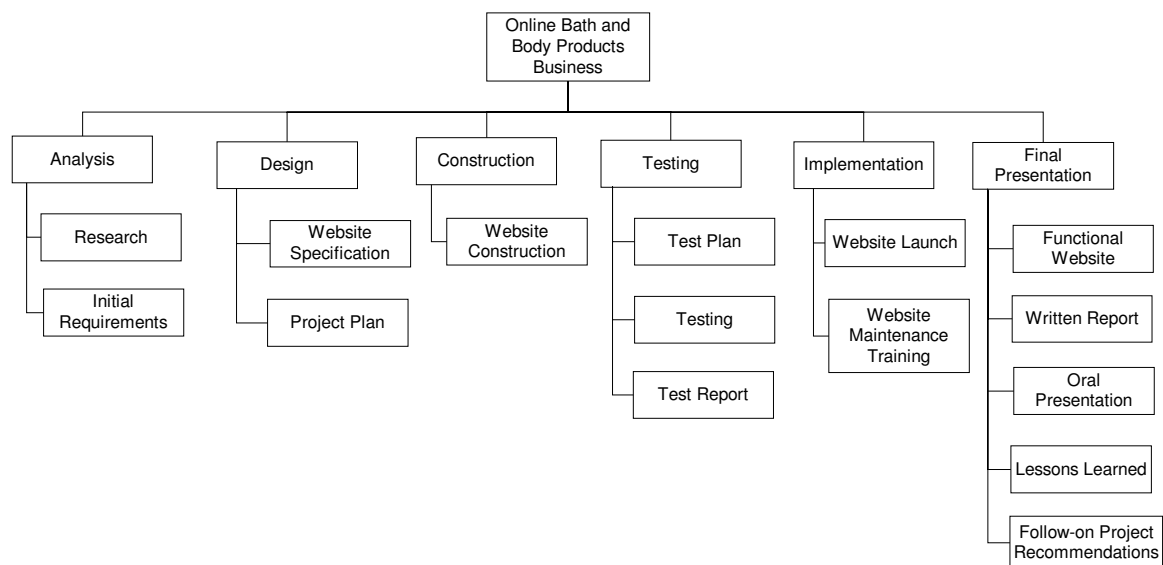


Figure 2. Work Breakdown Structure

4.3 Significant events/milestones in the project

The six phases in the project were analysis, design, construction, testing, implementation and final presentation.

The key, high level input, outputs (deliverables) and process tasks for each phase are listed below.

1. Analysis – The analysis phase consisted of research into current online bath and body product businesses. Research areas included product offering, website design, cost analysis, shipping methods and online ordering security. Research into website hosting was conducted to find a web host.
2. Design – A specification for the website was completed. A detailed project plan including resources, budget and schedule was completed.
3. Construction – This phase consisted of constructing the website.
4. Testing – A comprehensive test plan was completed. Initial testing of the website was conducted by the author as each new page was added in a build/test approach. Final testing was conducted by a third-party. Results from the tests were used to either make enhancements to the website or were added as items to be considered in a follow-on project.
5. Implementation – The website was launched and made available to the public.
6. Final presentation – A final presentation will conclude the project. The presentation includes this written report that details the analysis and design approach used in the project, the test plan and test cases and a demonstration of the website. An oral presentation will be presented at Regis University as part of the MSC 696C class.

4.4 Changes to the project plan

The major change to the project plan was made when the author realized that a website development tool would speed the project. The original plan was to develop the website using HTML. After it was determined that this would add several weeks to the project, the author acquired Dreamweaver 8 software.

Due to the well-defined scope and short duration of the project, no additional changes were required.

4.5 Evaluation of whether or not the project met project goals

The project met the final goal of a fully functional website for online ordering. The business owner was pleased with the results and it met his required schedule. The website accepted credit cards and PayPal per the original plan. The website is easy to use and attractive. The project showed that it is easy to implement an inexpensive, simple website.

4.6 Discussion of what went right and what went wrong in the project

In general, there were no major issues on the project. This was due to a well-defined scope and effective project plan. This illustrates that a good project plan is a requirement for a successful project. Interviewing the stakeholders, in this case the business owner, is also an important step so that the final product will be acceptable. The business owner was involved in all steps of the process so there were no surprises at the end of the project.

4.7 Discussion of project variables and their impact on the project

The major project variable was the choice of website development tools. The author started with HTML since it was free. After determining that this was a cumbersome method for developing websites, the author tried to use the free website development tool offered by the web hosting service. When it was determined that the free tool did not offer HTML customization, the author concluded that a high-end web developer tool was required. The project was delayed due to this uncertainty. In retrospect, the high-end development tool should have been considered first. After the author realized that ongoing website development maintenance would be required and that the software tool could be used to develop other family business websites, the decision to invest in the high-end tool was easy.

Another variable on the project was the choice of web hosting services. The author had no previous experience with the web hosting services and was unsure if the choice was correct. Particularly important to the success of the project was web host customer service and uptime. The first 6 weeks that the web host was active during the project, there were no issues. The customer service department was always available to answer questions and was very helpful. The website was always available when the author went to access it which was several times a week at different hours during the day. The web host (BlueHost.com) was considered a good choice.

4.8 Findings / analysis results

The project was challenging for the author who had no previous website development experience. However, the process for developing a website is well documented and research made the project possible. This paper could be used by other inexperienced web developers

to help develop a website. The project showed that building a simple website is easy and people desiring a website should not be deterred from trying it. The website deployment was successful and the author plans more in the future.

4.9 Summary of results

This project was conducted to fulfill the graduation requirements of the MSCIT program at Regis University. A business owner identified a need for an online presence for his business. This project successfully implemented a website for the business that included online ordering. The website met the business owner's expectations and all of his identified requirements. The business owner was trained and can now successfully maintain and upgrade the website as the business grows.

Chapter Five: Lessons Learned and Next Evolution of the Project

5.1 What was learned from the project experience

This project was an excellent learning experience for the author. The author was able to use the knowledge and skills learned in the MSCIT program at Regis University. The author learned HTML and a new software tool (Dreamweaver) and now feels very confident in designing, building and publishing websites. The author plans to volunteer to build websites for nonprofits or small businesses that cannot afford to outsource the development. Interacting with the business owner was necessary to the successful implementation of the website. This step is vital so the ultimate solution is accepted by the customer.

5.2 What should have been done differently in the project

The author should have begun the website development with Dreamweaver. The author was concerned about the time required to learn Dreamweaver. In retrospect, not using Dreamweaver added time to the project schedule. The author was able to learn Dreamweaver and use it to develop the website. The author will consider taking additional classes to learn the advanced features of Dreamweaver to design and construct more elaborate websites.

5.3 Discussion of whether the project met initial project expectations

The project met all initial expectations. The requirements for the website identified by the business owner were met. The website is easy to use and allows online ordering of bath and body products.

5.4 Next stage of evolution for the project

The next step for the project will be to enhance the website by adding a blog to help promote the business owner and the fact that he is a child. The blog will help draw young people to the site and will increase sales. A customer database could be added so the business could send out mailings and other promotional materials. Enhancing link popularity is another challenge that could be considered.

The testing showed that sometimes the PayPal shopping cart did not have a “Continue Shopping” button. This issue will be addressed with PayPal and changed once a resolution is known.

The testing showed that the website was not found when an internet search was done for “Jason’s Body Works”, “seasonal soap” or “lip balm”. It takes months for a search engine like Google to recognize a website in a search once it is registered. The author will monitor this and if it does not appear after several months, further search engine optimization techniques will need to be employed.

The competitive analysis showed that several online bath and body products have more extensive lines. Further research could show which products should be added to the line.

5.5 Conclusions / recommendations

This project successfully implemented a website for the business that included online ordering. The website met the business owner’s expectations and all of his identified requirements. The project was considered a success and there are no recommendations for the initial launch of the website. Future enhancements can be considered. Now that the

author has website development experience, she will design and create a website for her husband's custom home design business with the same methodology used for this project.

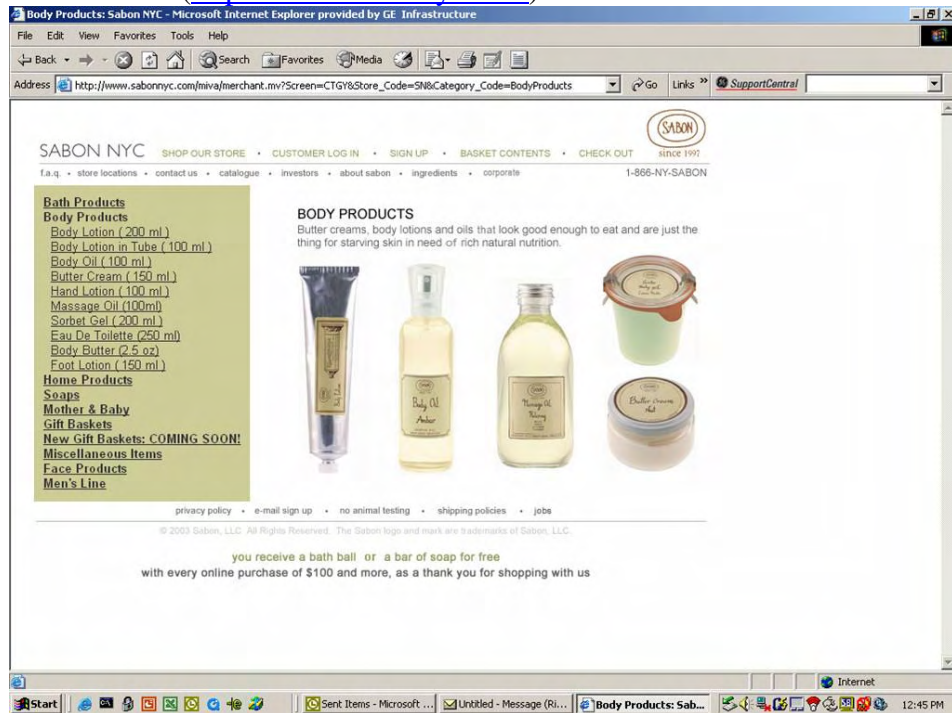
5.6 Summary

This project successfully launched an online presence for a brick-and-mortar bath and body products business. The implementation was successful and both the author and business owner were pleased with the results. The author gained valuable knowledge about implementing e-commerce solutions and was able to utilize the experience gained in the MSCIT program at Regis University.

Appendix A

Screen Shots of Competitor's Website Home Pages

Sabon NYC (<http://www.sabonnyc.com>)



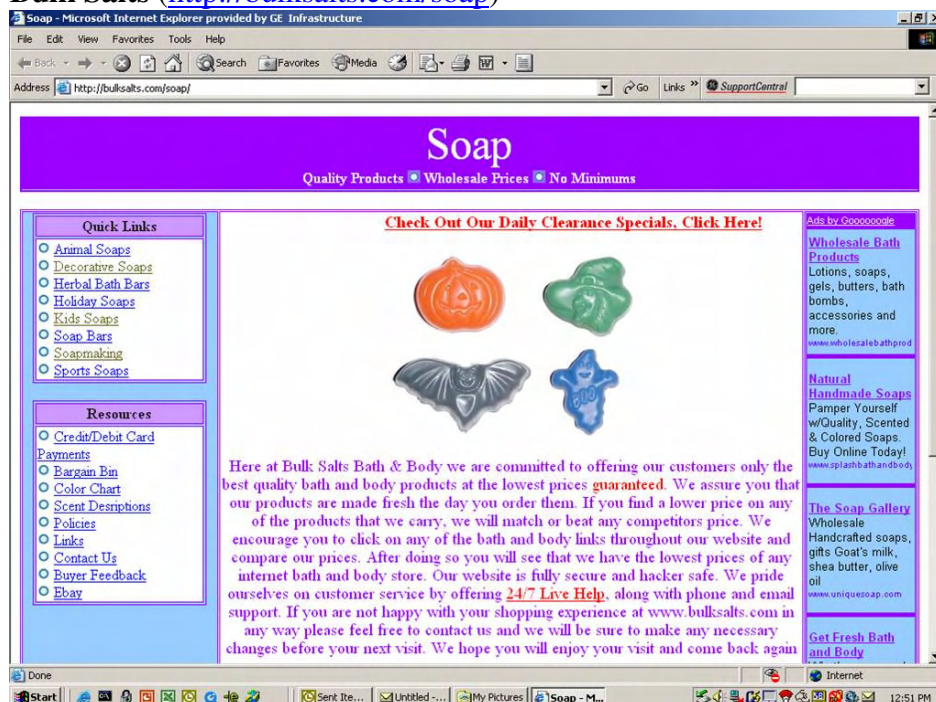
Splash Bath & Body (<http://www.splashbathandbody.com>)



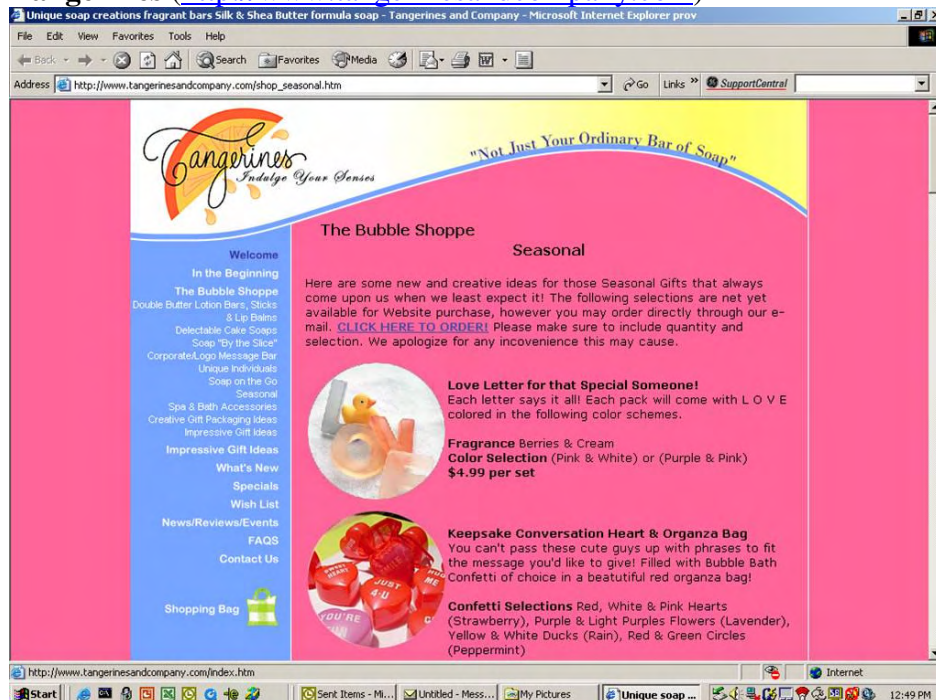
The Soap Gallery (<http://www.uniquesoap.com>)



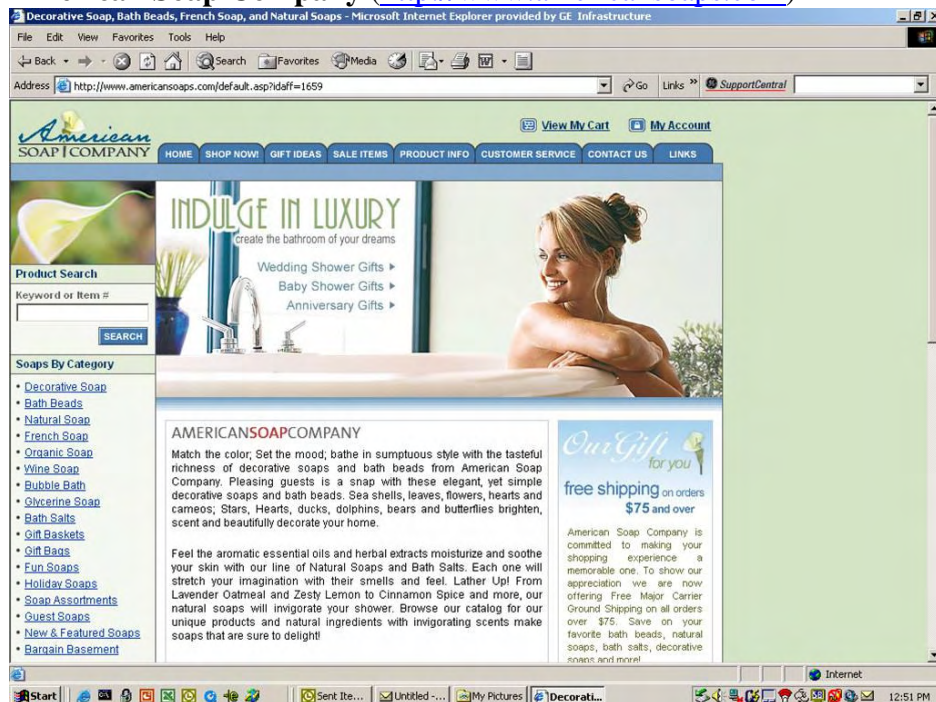
Bulk Salts (<http://bulksalts.com/soap>)



Tangerines (<http://www.tangerinesandcompany.com>)



American Soap Company (<http://www.americansoaps.com>)



Magnolia Hill Soap, Inc. (<http://www.magnoliahillsoap.com>)



The Family Soap Company (<http://www.thefamilysoapcompany.com>)



Appendix B

Search Engine Optimization Techniques

List of keywords

Listed below are the keywords for the online bath and body products business. These were generated by brainstorming with the business owner.

- Guest soap
- Foam soap
- Specialty soap
- Seasonal soap
- Hand made soap
- Lip Balm
- All flavors and scents (strawberry, raspberry, lemon, licorice, huckleberry, root beer, tropical, bubble gum, grape, peppermint, tangerine, vanilla)
- Jason Prince
- Body works
- Bath
- Wedding favor
- Shower favor

The keywords will be used in the title and meta tag of the website pages. They will be used to create a keyword list to submit to search engines. They will also be used throughout the text of the website pages.

A search of the Open Directory Project (<http://www.dmoz.org/>) indicated the following category was appropriate for this website.

1. Bath and Body

Appendix C

Project Plan

Goal

To create an online presence for Jason's Body Works, a bath and body products business.

Objective

To create a fully functional website including online ordering capability.

Scope

- Competitive analysis
- Design website
- Construct website
- Implement website

Responsibilities

The project will be managed by the author. Input for website design will come from the business owner, Jason Prince. The author will interview the business owner and build a website based on the business owner input and project research. The author will act as project manager and lead website designer. All photos of the product will be taken by the author, the author's husband or the business owner. Testing of the website will be conducted by the business owner and the author's husband since it is not effective for a developer to test his own work.

Schedule

The detailed Gantt chart is shown below.



Figure 3. Project Schedule

Budget

The budget for the project is shown below.

Item	Cost
HTML Class	\$75.00
Website Hosting fee (1 year)	\$120.00
Dreamweaver	\$400.00
Miscellaneous computer supplies for final report copies	\$30.00
Total Cost	\$625.00

Project Risks

The project risks and planned mitigation are shown below.

1. Risk: Schedule may not be met since the author works full time.

Planned Mitigation: The author is prepared to take several days off work if the schedule is not being met.

2. Risk: The website host chosen may prove to be inadequate.

Planned Mitigation: The website host candidates had at least a 30-day money back guarantee so a new service could be chosen if the first one proved inadequate.

Exclusions

To limit the scope of the project and meet the minimum customer requirements, the project will not include any “nice to have” features of a website including owner blog, customer database or enhancing website link popularity. These will be added in the future.

Deliverables

- Competitive analysis for website design and product offering
- Fully functional website that offers secure product ordering using major credit cards

Strategies

- Interview business owner for website design requirements
- Research web hosting companies
- Research shopping cart options
- Research website security
- Iterative software development model

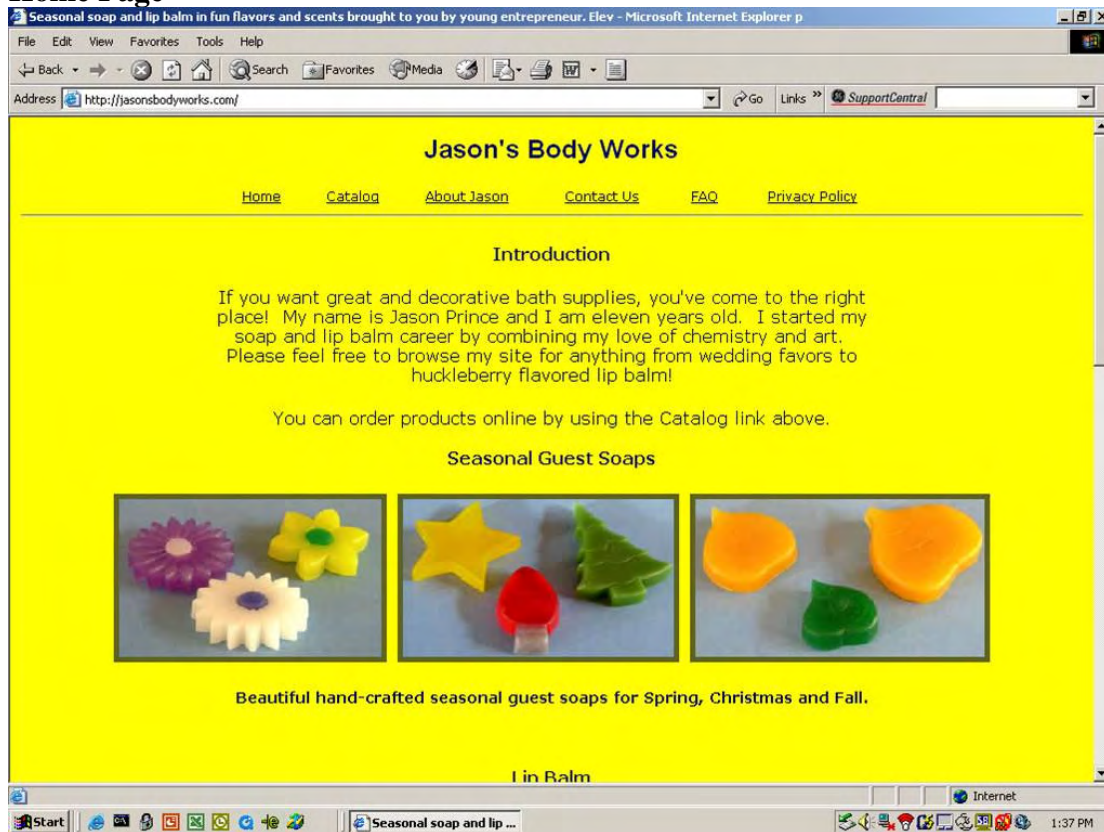
Resources

- Dell XPS 400 workstation
- Nikon digital camera
- Microsoft Office Software Suite including Microsoft Project
- Visio
- Dreamweaver 8

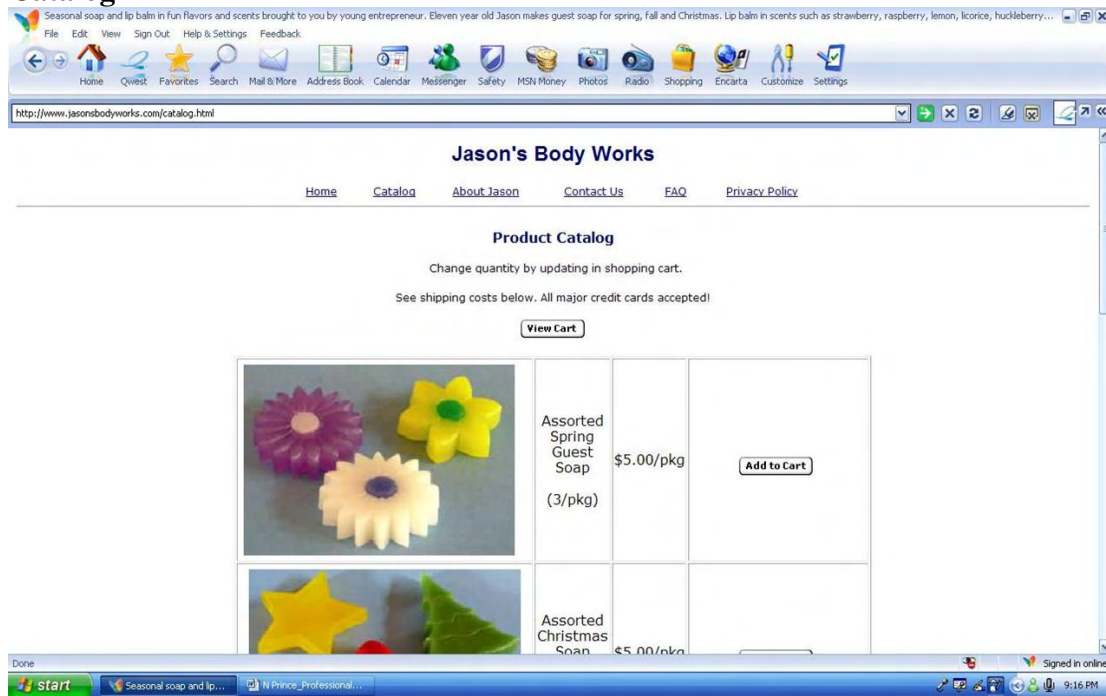
Appendix D

Screen Shots of the Jason's Body Works website (www.jasonsbodyworks.com)

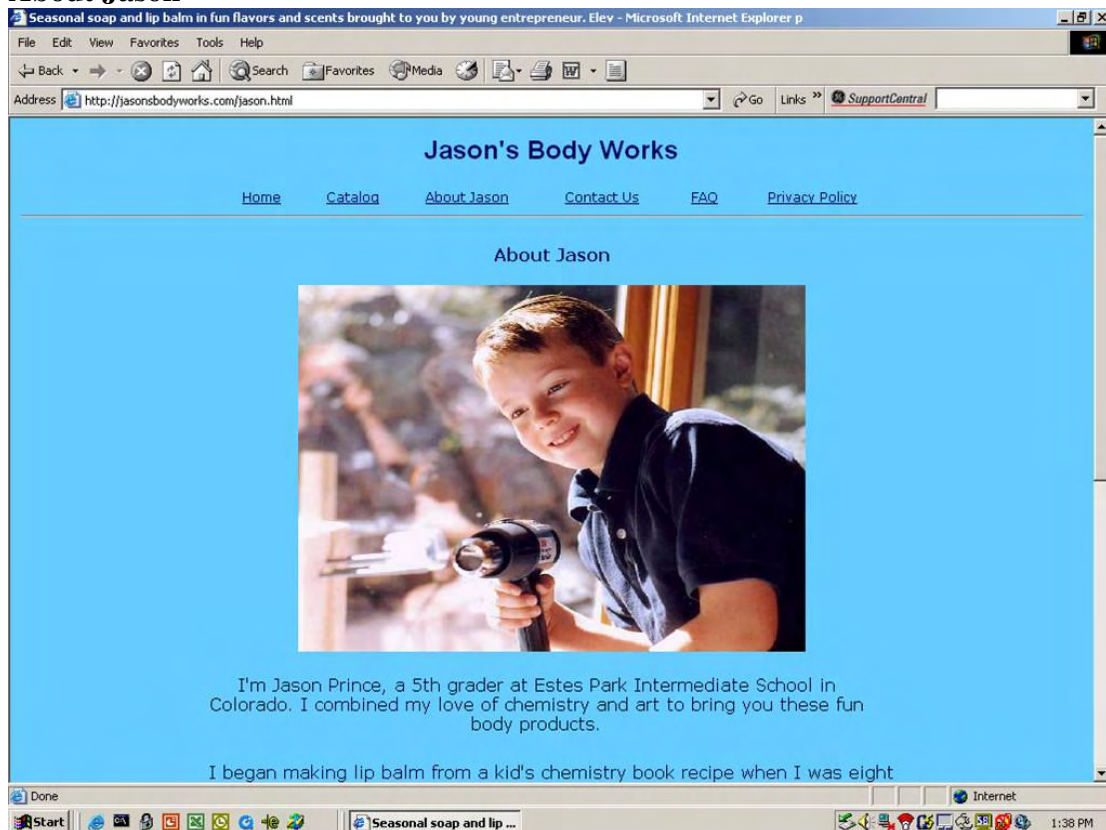
Home Page



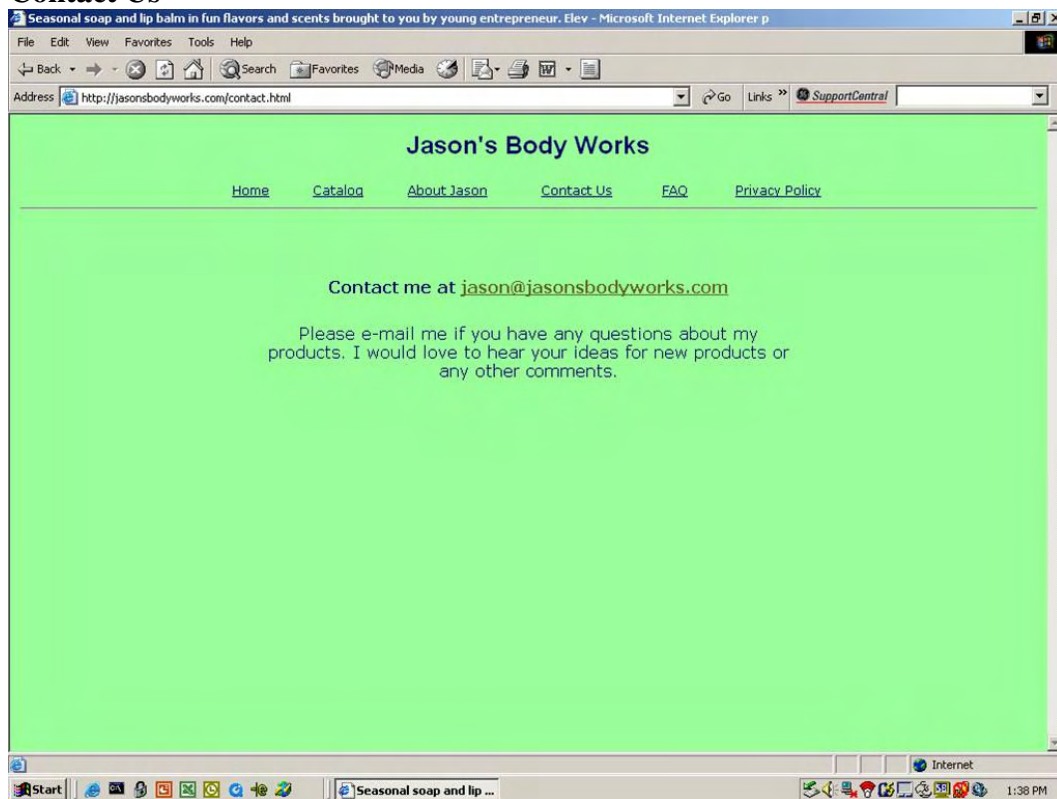
Catalog



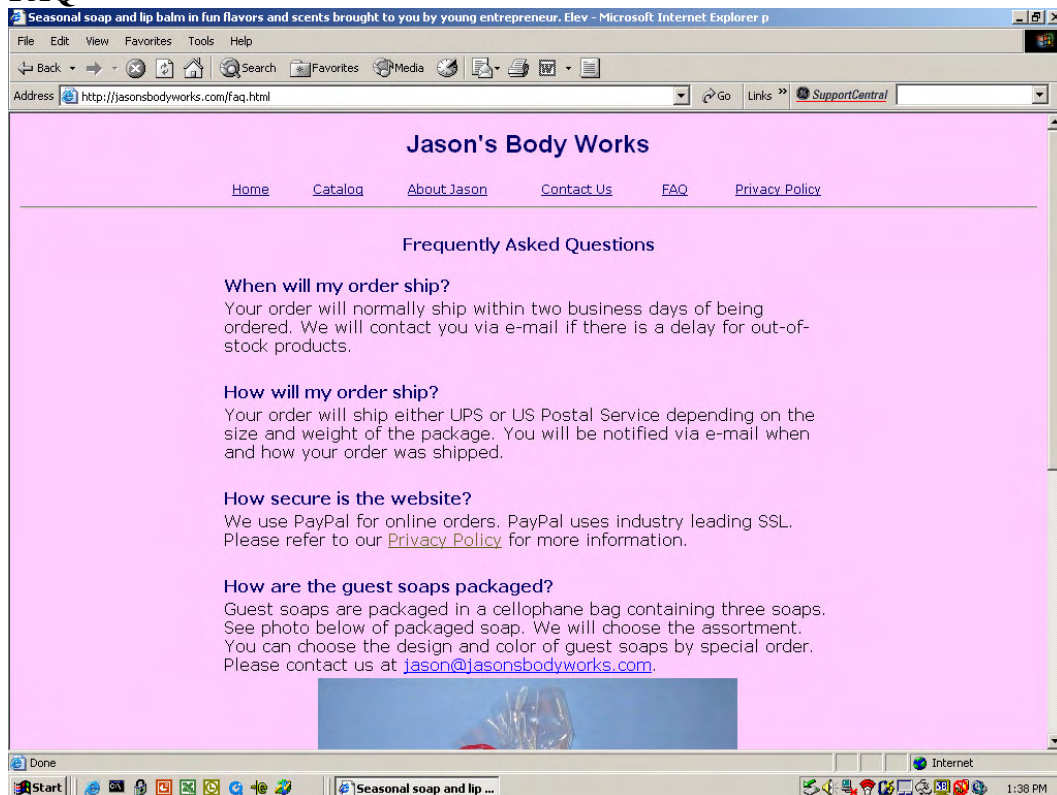
About Jason



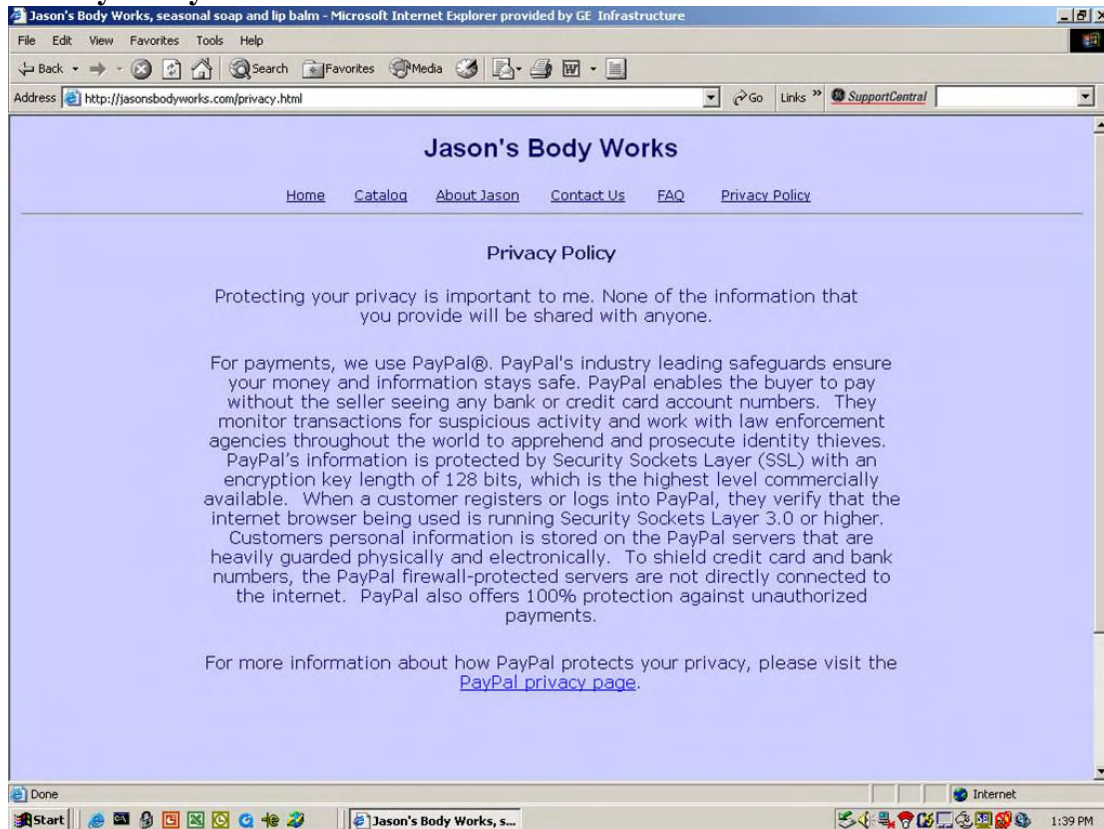
Contact Us



FAQ



Privacy Policy



Appendix E

Test Results

Shown below are the test results from two testers. The two testers used different computers and different internet access to help ensure the website would work in different browsers.

Tester One (MDP)

Test	Result	Recommendations	Status
Can user access website with URL	Yes		
Ensure all links work on all pages	Yes		
Send e-mail to Jason	Yes		
Ensure product photos match product listed	Yes		
Check price accuracy	Does not say how many soaps/pkg	Add that the soaps are sold in a package of 3.	Added to Catalog page
Put items in cart and ensure cart is populated correctly	Yes		
Check that scents and flavors populate cart correctly when input	Yes		
Order product using PayPal account	Not tested		
Order product using major credit card	Not tested		
Ensure deposit is made to business bank account after an order	Not tested		
Search for website using Google and Alltheweb	Was not found using “Jason’s Body Works”, “seasonal soap”,	Add additional keywords and other SEO techniques	Will wait 3 months to see if searches work. If not, will investigate other SEO techniques.
Cancel order and ensure you are taken back to JBW site	Are not taken back to JBW site	Change so that user is taken back to JBW site when order is cancelled	Added to PayPal button code on Catalog page
Ease and use of the website	Very intuitive and easy to follow links		

Recommended enhancements	Need more information on wholesale pricing and quantity discounts	Add that wholesale prices and quantity discounts are available	Added to FAQ page
Print web pages	Works well		
Ensure “Continue Shopping” takes you back to JBW site	Yes		
Check for typos and misspellings	None found		

Tester Two (JCP)

Test	Result	Recommendations	Status
Can user access website with URL	Yes		
Ensure all links work on all pages	E-mail links do not work on FAQ page	Change to “mail.to” links	Changed on FAQ page. All links work.
Send e-mail to Jason	Yes		
Ensure product photos match product listed	Yes		
Check price accuracy	Yes		
Put items in cart and ensure cart is populated correctly	Yes		
Check that scents and flavors populate cart correctly when input	Yes		
Order product using PayPal account	Yes	<i>Note:</i> This item was completed by the author’s sister since PayPal does not allow you to send money to yourself.	
Order product using major credit card	Yes		
Ensure deposit is made to business bank account after an order	Yes		
Search for website using Google and Alltheweb	Was not found using “Jason’s Body Works”, “seasonal soap”,	See Tester One test results	See Tester One test results
Cancel order and ensure you are taken back to	Are not taken back to JBW	See Tester One test results	See Tester One test results

JBW site	site		
Ease and use of the website	Easy to use		
Recommended enhancements	None at this time		
Print web pages	Yes		
Ensure “Continue Shopping” takes you back to JBW site	Sometimes the “Continue Shopping” button does not appear on the shopping cart page	User can close the shopping cart and the catalog page is still open so this will not be addressed at this time.	Will be added at a later date after further investigation with PayPal.
Check for typos and misspellings	None		

Test Results Conclusion

All required tests passed and the website is considered complete. All recommended enhancements were implemented except where listed in the status column of the test reports.

Those not implemented will be considered in future projects as detailed in section 5.4.

Appendix F

Website Maintenance Training Plan

The following training was conducted by the author for the business owner so that he can maintain and update the website.

- Basic HTML
- Basic Dreamweaver
- How to edit and save files in Dreamweaver
- Website file names and location
- How to upload files to the web hosting service
- Explanation of PayPal business services

Appendix G

WYSIWYG Editor Comparison

Source: WiserWays, 2006

Item	Dreamweaver MX 2004	FrontPage 2003	GoLive 6	Visual Studio.NET 2003
Workspace				
Split View of Code and Design	*	*	*	
Customizable Toolbar	*	*		
Visual Table Editing Cues	*	*		
Professional Quick Start	Dreamweaver MX 2004	FrontPage 2003	GoLive 6	Visual Studio.NET 2003
Pre-Built Web Designs	*	*		
Pre-Built Accessible Web Sites	*			
Sample Site Structures	*	*		
Team Collaboration Site Structures		*		
CSS Based Themes		*		
Sample CSS Templates	*			
Sample JavaScript Functions	*	*		
Template Architecture	*	*	*	
Microsoft Word and Excel Copy and Paste	*	*		
Flash Elements	*			
Define Editable, Optional and Repeated Regions for Templates	*	*		
Nested Templates	*			
JavaScript Pop-up menu creation	*	*		
Web Photo Album	Through Extensions	*		
Resize & Crop Images		*		
Code Editing Support	Dreamweaver MX 2004	FrontPage 2003	GoLive 6	Visual Studio.NET 2003
Code Hints	*	*		*
Customizable Syntax Coloring	*	*	*	*
Snippets Panel	*	*		
Tag Editor	*	*		

Right-Click Coder Tools	*			
Customizable Tag Database	*	*		
Printing From Code View	*	*		*
Integrated Debugging		*		*
Siteless File Editing	*	*		
Multiple Technology Development	Dreamweaver MX 2004	FrontPage 2003	GoLive 6	Visual Studio.NET 2003
Server Code Libraries	ColdFusion, ASP, ASP.NET, JSP, and PHP		ASP, JSP and PHP	ASP and ASP.NET
Database Integration	*	*		*
Tag Editors	HTML, CFML, and ASP.NET	ASP, ASP.NET		ASP.NET
Dynamic Form Objects	ColdFusion, ASP, ASP.NET, JSP, and PHP	ASP, ASP.NET		
Server Objects and Behaviors	ColdFusion, ASP, ASP.NET, JSP, and PHP	ASP.NET		ASP.NET
Unique Support for ASP.NET Development	Dreamweaver MX 2004	FrontPage 2003	GoLive 6	Visual Studio.NET 2003
ASP.NET Custom Tag Support	*	*		*
ASP.NET Web Forms Support	*	*		*
ASP.NET Form Controls Objects	*	*		*
ASP.NET DataGrid and DataList Objects	*	*		*
XML and Web Services	Dreamweaver MX 2004	FrontPage 2003	GoLive 6	Visual Studio.NET 2003
XML Editing and Validation	*	*		*
XML Namespace Support	*	*		*
Tree view for viewing XML, HTML	*	*		
Web Services Introspection	.NET, ColdFusion, and Java			.NET
Web Service Creation	ColdFusion			.NET
Web Service Creation Wizard	ColdFusion			.NET

Standards Support	Dreamweaver MX 2004	FrontPage 2003	GoLive 6	Visual Studio.NET 2003
XHTML support	*	*	*	*
Code Validator	*	Through		*
		Add-ins		
Cascading Style Sheet (CSS) Rendering	*	*		
CSS Layout Visualization	*	*		
CSS Rule Inspector	*	Through		
		Add-ins		
CSS-based Text Property Inspector	*	Through		*
		Add-ins		
CSS-based Page Properties	*	*		*
Accessibility Support	Dreamweaver MX 2004	FrontPage 2003	GoLive 6	Visual Studio.NET 2003
Accessibility Site Reporting	*	*	*	
Integrated Accessibility Reference Content	*			
Accessibility option for generating compliant code	*	Through		
		Add-ins		
Accessible Tags	*	*		
Accessible Environment	*	*		
Keyboard Accessibility	*	*		*
Screen Reader Support	*	*		*
Web Publishing	Dreamweaver MX 2004	FrontPage 2003	GoLive 6	Visual Studio.NET 2003
Full support for the Mac platform	*		*	
Secure FTP Publishing	*			
FTP Publishing	*	*		
HTTP Publishing	Through extensions	*		*
Integration with Other Technologies and Tools	Dreamweaver MX 2004	FrontPage 2003	GoLive 6	Visual Studio.NET 2003
Designed for Windows XP Compliance	*	*		*
MS Office Application Integration		*		*
SharePoint Team Services Integration		WSS		
Wireless development support	Through extensions		*	*

Macromedia Flash MX Integration	*	For Embedding		
Fireworks MX Integration	*	as external editor		

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