Web Based Program to Improve our Clients Ordering System

By

Steve Horvath Jr.

Submitted to the Faculty of the Information Engineering Technology Program in Partial Fulfillment of the Requirements for the Degree of Bachelor of Science in Information Engineering Technology

University of Cincinnati
College of Applied Science

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Steve Horvath Jr. — Date: 3/12/01

Faculty Project Advisor — Date: 3/12/01

Department Head — Date: 3/2/01

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Most of all I'd like to thank my family and fiancé, who throughout my college career have continued to push me into the success that I have had. Without them, this dream of mine wouldn't have been possible.

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Abstract

This report covers the detailed information on how I created a Web based application to improve the way our clients place their orders. To fulfill the requirements of Senior Design, I developed a site that enables user's to place an order and receive verification of that order quicker than ever before. On the host's side of things, we receive the order using a database that tracks all orders placed by the customer. It allows us to track their orders easier.

The Web based application was decided upon based on customer suggestions and planned implementation with Southwest Financial Services. In today's society, people need results quicker than ever, and with my project I can deliver it. It allows us to further branch out into states that we never thought about acquiring business before and allowed us to add more customers locally.

This improved order of operations was created during the three quarters of my Senior Design process. I showed that this improvement was needed, planned to develop the entire project and completed it in a timely fashion including full documentation of all steps covered.

Web Based Program to Improve our Clients Ordering System

1. Statement of the Problem:

Southwest Financial Services provides bank clients with services in many different areas. To provide these customers with the finest product, Southwest needs to surpass their competition. Currently, a majority of customers place their orders via fax. This creates an excessive amount of paperwork and too much labor, especially typing in the information for each order. These orders are generated on a fax machine and entered in the system by operators who must insert all of the customer's information. This process proves to be time consuming and inadequate for fast paced daily business.

With the implementation of the proposed solution, this project will allow Southwest Financial's customer's to enter orders into the Southwest Ordering Site easier. When the customer enters the account into the site, it's stored in an Access 2000 database, including all of the important information for the individual order. In order to do this, I've developed a Web page that will enable Southwest's customers to be confident in our response time as well as improving the service that we already offer them. The design will be secured using Secure Sockets Layer (SSL) with encryption. This is needed to keep customer's records private from other users. Customers will have the choice to place an order, check an archived order, read about services provided and access a help screen to assist them with both information and navigation. Other pages will be added as necessary. The project applies to a real-life solution that's needed in Southwest's current situation. This efficient process will prove to be a success and cost effective. Each order placed by the client has a certain type of service that they want to be placed for their customer. These services include:

- Title Search
- Flood Zone Determination
- Appraisal Work
- Legal Work

The orders are completed and transmitted using PC Anywhere, by dialing in to an open host at Southwest. The PC Anywhere program has raised questions about security levels that do not protect the files being transmitted. Southwest customers are able to receive their work, but a problem arises when the connection is fused to one of Southwest's workstations on the network. The company needs a more secure system so the banks will receive their completed work without worrying about security on all documents. Other clients receive the information by fax and mail, but the problem with both methods is speed. Turnaround time is one of the important bargaining tools when selling Southwest's products to future customers. In order to ensure premium quality products, Southwest must improve the time in which the customers receive their work. The goal is to do everything faster and more effectively. The quicker Southwest gets the product into the customers hands, the happier they will be, thus creating more business for Southwest.

Some customers send in faxes that are typed: this allows our Teleform software to read the form and automatically input the information. The Teleform software is a program that uses Optical Character Recognition (OCR) to scan the fax to select only the orders with an image that isn't recognized. The problem is that not all customers want to submit the work in this way. Southwest must provide an alternative way for them to

enter the information, and at the same time make it easier to enter information into Southwest's system.

1.2 Solution to the Problem:

In order to make it easier on the customer, Southwest needs to create a solution where its customers can enter the information on a computer, thereby cutting the time spent writing the order. It would, in turn, reduce the time Southwest employees spend entering orders, thus being more cost-effective and efficient for both parties.

The proposed plan entails a couple of ways to solve the problem. Instead of using PC Anywhere to retrieve the work from Southwest, customers could use mailing software that would only receive the orders over a computer. They wouldn't be connected to any workstation, just a host computer that would receive the calls on a regular basis and send the e-mail to them and automatically print out. This would eliminate the risk of user interference, either on purpose or by accident. An e-mail box would be set up on Southwest's exchange server, before they were connected, they would be checked for a distinctive user name to verify the computer identity. Windows NT would be used to limit the access to the particular folders in their mailbox and records kept to archive the work. Microsoft Outlook 2000 will be used, which would allow a change to any desired setting. An ordering screen would be created to enter all of the customer's information before it would be transmitted to Southwest. One way is to connect using a modem to drop off the work. Upon retrieval, it could be processed. Once an order was complete via fax or e-mail, depending on the customer's preference, it would be sent back to the bank.

Another solution is to have the bank enter the information into a database with all of the information capturing to a file. An Access format designed for the client to enter in customer information in the correct spots. When Southwest receives it, the information can run through the Teleform software, so the system can read the order and input the data immediately. Transmitting would be over a modem line that will be connected on their site and to Southwest's network for receiving purposes. Once the customer completes a batch of orders, the file would be transmitted over a modem line.

An online solution is to develop a Web page using Microsoft Interdev 6.0 to create a site with these choices for users:

- Services Offered – List of services that are offered now and what each service entails. How Southwest's services exceed those of the competitors.
- On Line Ordering – For our existing customers, this is where they place their orders.
- Careers – Not satisfied with your current job? We may have the right opportunity for you.
- Need Help navigating through our site? – If you have any questions about our site, click on this site to get help.

The Web site will be built using several tools, including Microsoft Interdev 6.0 for the layout and conversion of active server pages. The databases used will be Microsoft Access possibly advanced to SQL Server once the database is expanded.

2. Review of the Literature

Of all my references, the development of my Web Page was improved greatly after I read Building a Better Web Site. I used it to help decide what type of Web site I was going to use and how to decide on how to develop it. Down to the basic question of, is your Web site going to be used to inform or become interactive.

PC Anywhere is the remote control software that was used in the past with not much comfort in the security areas. Now with their newer 9.0 version, they've corrected these concerns. The IT Reviews and Symantec's Web sites were used to rate PC Anywhere against their competitors in the market. How they fared is very important in how I decided to proceed with our project. This lack of confidence is what pushed me away from using this within my site.

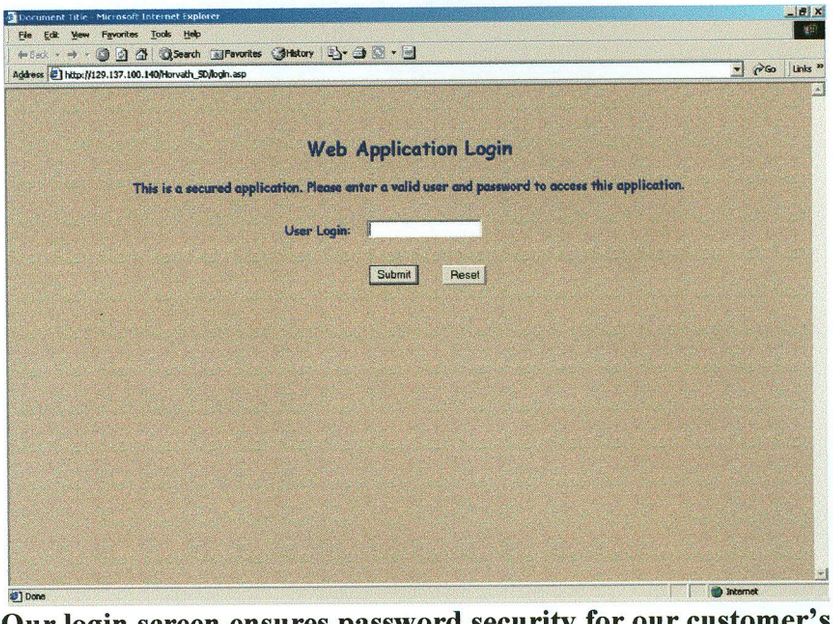
I also used the IT Reviews site to research the reviews of people who had experience with the software and hardware products I used for the project. It provided independent reviews of products with both positive and negative reviews.

3. Design of Project

All of my pages have the tidepool theme on them except for the beginning Home Page screen. I chose this because the color reminded me of a "Southwest" feel to it. Our office has a similar color to it so it just seemed to fit. My default page, has a different look and feel than all other pages. I wanted to grab the person's attention right away, so I selected a black background with white font color. The images that I used also signify my company, so when the customer is on the site, they recognize it immediately. With navigation, I used mostly text links to make it easier for the user to navigate throughout

the entire Web Page. The User Profile for the project are user's at each bank branch that we do business with. With the increased security threats of today, I will be doing the password protection on the server site. With each additional user, I will create their Password and assign it to them.

Screen Shot #1 - The Login Screen



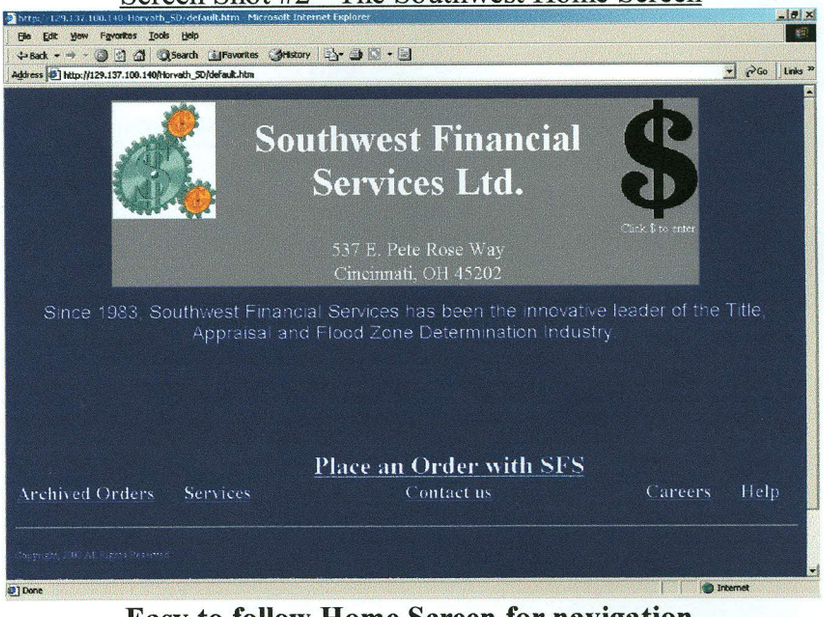
Our login screen ensures password security for our customer's.

The user can:

Enter their existing name/password for access, or

Enter our site as a guest where they can browse just the Services page.

Screen Shot #2 - The Southwest Home Screen



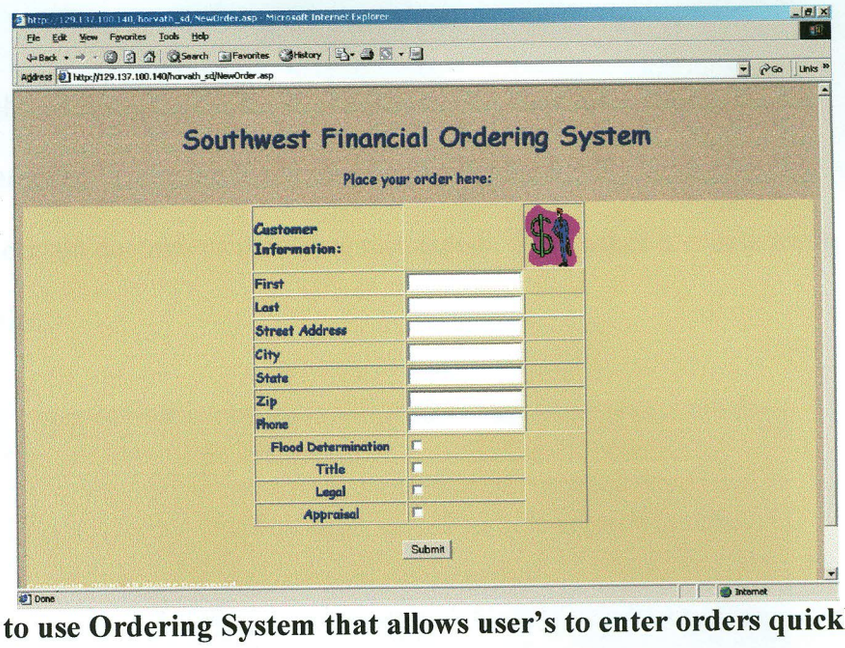
Easy to follow Home Screen for navigation.

This page allows access to every spot of the Web page the user will ever need.

They are given the choice to:

- Enter an order
- Check the archived database for an order
- Read about services that we offer
- Read about available jobs at Southwest or use the on-line Help page

Screen Shot #3 - Orders Screen



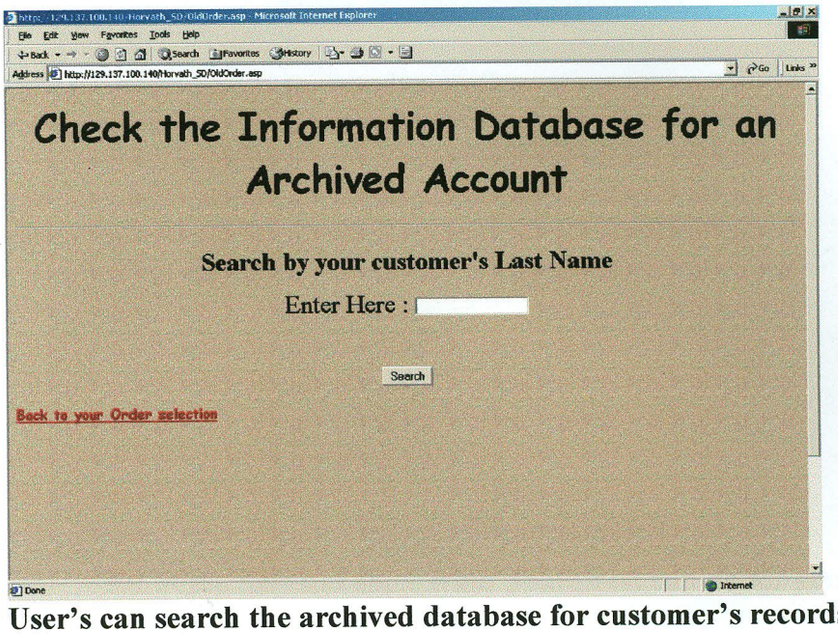
An easy to use Ordering System that allows user's to enter orders quickly.

The user can:

- Enter a new order
- Check the status of an existing order, or
- Check an old order from the database.

Screen Shot #4 – Archived Orders

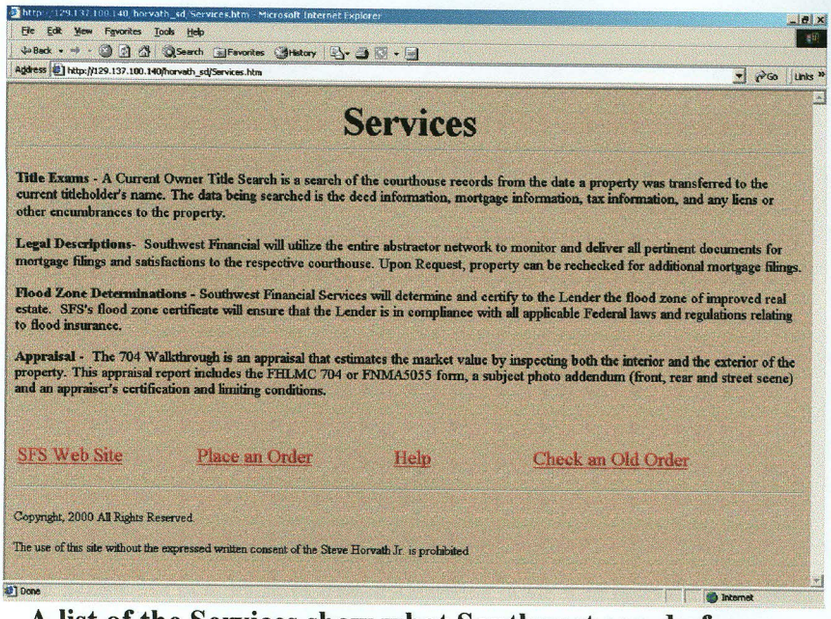
- Archived Retrieval – Clients can go back to view information on past customers. There are many times when the bank will call to request a resend for certain documents that were misplaced. This makes it simple for both parties.



User's can search the archived database for customer's records.

Screen Shot #5 - Services of Southwest Financial Services

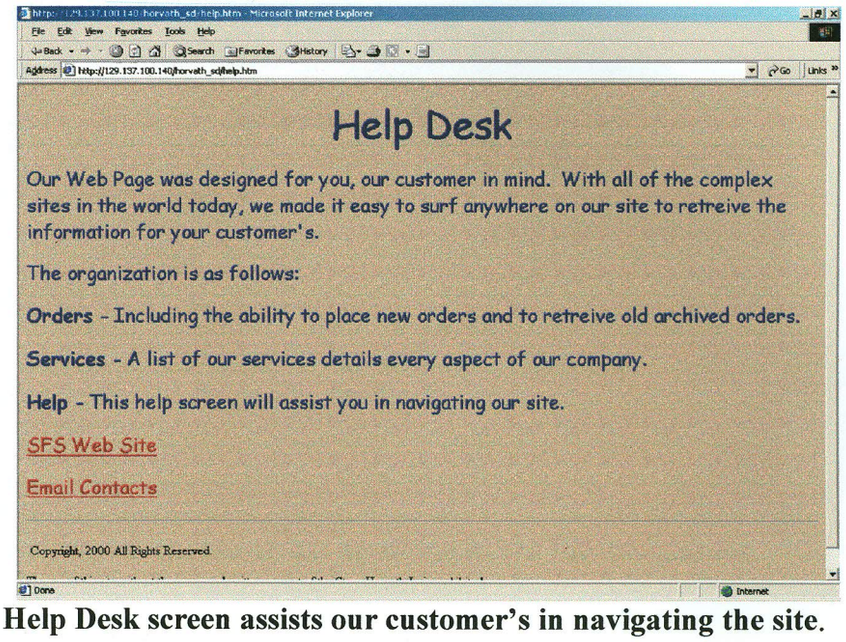
This is an HTML page designed to provide information on all of the services Southwest has to offer. Some customers may not know the exact details or what each service entitles them to. This page allows them to determine what's best for their customer.



A list of the Services show what Southwest can do for you.

Screen Shot #6 - Help Screen

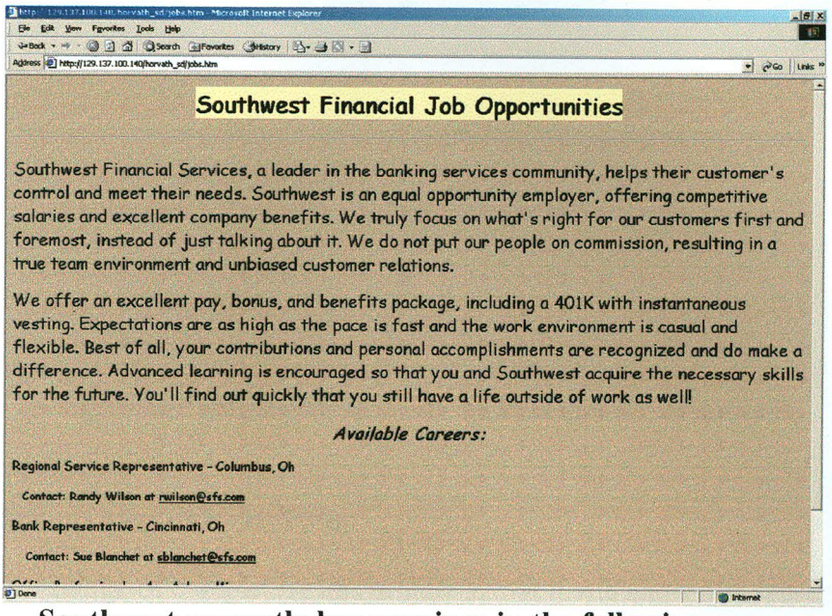
The help screen allows the customer to learn the layout of the Web site. So they can get to the right page. Some users may not need complete details of services, but do need assistance on how to locate a specific page. This page details the way that the below average user can navigate the site.



Our Help Desk screen assists our customer's in navigating the site.

Screen Shot #7 - Job Opportunities

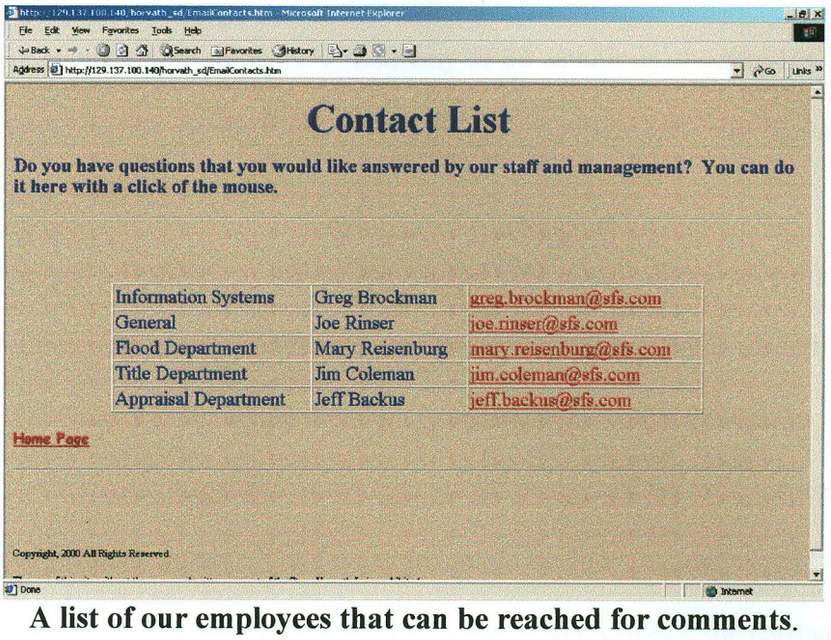
A majority of Internet pages today enable people to apply for jobs online. For our site I will allow someone to see the different types of jobs available and include the person to be contacted about a specific job.



Southwest currently has openings in the following areas.

Screen Shot #8 - Contacts

- Provide us Feedback on our Web Site – Do you have comments about our site? Let us know what you think.



A list of our employees that can be reached for comments.

3.1 Advantages of project completion:

The advantage of completing this project is that it will show our customers how we can adapt to the changing technology of today. Customers will benefit from the change in terms of turnaround time and continued quality. They will realize that we're trying to improve the way of doing business with them. This improvement will be realized once they use the Web site. The customers that I've been working with for the past five years have little Internet experience. Most of the practice that they have is using the Internet at home, but I will point them in the direction of the Help Screen on the site. Even though most of the users haven't placed orders for work in the past, this type of ordering is similar to ordering personal things for themselves. Every user has entered their own customer's orders using the banks software. By developing the site simple to

understand, I am confident that even these users will feel confident with this improvement. This way of working with our customers will cut down on the number of mistakes that are made on both ends. By completing the work on time, it will create a quicker rate of return to the customer. With any of the solutions, the retrieval process will be automated so that the customer won't have to manually dial-in to pick up the completed work.

The biggest advantage to this process is the time saved. For each bank, a program will read the name of the bank and branch so that each time an order is placed it will already have the bank's information loaded. There are many ways this can be completed. The problem with that is that many banks that we do business with today are small banks that don't have Internet access. The money we spend on Internet access will more than make up for the cost. When addressing the budget for the project, the hardware and software that I'll be using is already loaded on computers at Southwest. To assign or designate a price for these supplies is not necessary. For the project, I'll need Internet access so that both the Web page and database will connect properly.

3.2 Objectives for the Project:

The overall project objective is to further develop the way we do business with our banking clients. In order to complete this one of the solutions will be created, tested, and completed for delivery to the customer within the next year. Phase I will be to create a number of solutions to choose from, decide on which is best and prepare for the development phase. In phase II, the development phase, I will design the working model

of the project and construct it, keeping the needs and concerns of our clients in mind.

Phase III will be the testing and practical use of the product and preparing it for delivery.

4. Deliverables

- Interactive Web site will allow for easy navigation.
- Enhanced user interface showing advanced features.
- A Secured Connection keeping unauthorized user's out.
- A completed database design showing complete information.
- A personal login for each customer.
- Order search by the customer's name.
- Order search displaying the customer's address.
- Order search specific to the account and services provided.
- Easy to use online ordering form.
- The ability to cancel an order that a customer already placed.

5. Proof of Design

This project will allow any of our banking clients to enter an order, view old account information and all services described in this project. There will be a testing period in which I enter in accounts to see the results that will be returned to the server to see the same results as our users will encounter. All of these tests will be performed prior to the final presentation for Senior Design III in which I will show the current students and faculty members my working model.

While developing the project, the interactive Web Page was made in order to make it easier for the customer to get around the different pages and links that are

offered. To create the site, I used Microsoft Visual InterDev 6.0 for the entire ASP coding and html pages. This software made it easier to connect to my database through the DSN connection. There are many different developing tools out there for development, but InterDev worked out the best with a back-end database solution. In order to get this connection running I had to create a DSN connection both on the server and workstation to get the link. After creating this shared link with the site, I had to point the connection to my database so that when a user entered a new order, the information was appended to the database located at the server level.

Using PC Anywhere provided a security concern so by using a secured connection allowed my users to feel confident in the way this project was developed, using unique passwords for each user. The database search engine can run, showing the user the information entered for customers by their name, address and specific information. An easy to use order form was made easy to understand, even for someone who has never used our web site in the past. The user can also cancel an order that was already placed by emailing the contact person for that department. Contacts can be reached easily by using the links to email each member for that group. These characteristics make the site unique, which promises to keep our company ahead of all competitors in our field today and in the future.

Appendix A.

6. Hardware / Software needed for the project:

- **Microsoft Outlook 2000**- This will allow us to create a client mailbox to retrieve orders, and send them via a modem to be printed out at the customer's site.

- **Microsoft Access 2000**- This database program will be used to store the information collected about the customer. It will keep an archived record of data, for purpose of resending orders.

- **Windows NT 4.0 Server**- This Operating System, which is already in place, will be used to control users access rights and permissions.

- **Host computer with Windows NT**- A workstation will be in place to retrieve logins from the customer and will provide the user with a stable system that we know can more than handle the load. Suggested: 500MHz system with 128 MB of Ram and a 13GB hard drive, Intel Pentium III, and Windows NT 4.0.

- **Microsoft Front Page 2000** – This program will be used to develop the Web Page to be used to create the graphical side of the Southwest Web site.

- **Microsoft Visual InterDev** – This program will be used to develop the Web site and connect to the databases for the project.

- **Dell Dimension L** – The Computer is a 500MHz system with 128 MB of Ram and a 13GB hard drive, Intel Pentium III, and Windows '98.

- **Web Server and Database Server** – Both provided by the University of Cincinnati OCAS 4th floor lab.

7. Timeline:

This timeline details the development of my project from Senior Design II through the completion of Senior Design III.

Senior Design II:

Week 1 (1/5/00):	Begin Developing the Web Page using Visual InterDev 6.0.
Week 2 (1/12/00):	Continue with design of the Web Page.
Week 3 (1/19/00):	Begin design of the database as well as working on the Web Page. The database will be produced using Access 2000 as described in the software section.
Week 4 (1/26/00):	Database design continued.
Week 5 (2/2/00):	Linking the database to the existing project.
Week 6 (2/9/00):	Putting the project together.

Week 7 (2/16/00): Begin testing the Web Page's functionality with the database.
Week 8 (2/2300): Continued test of the Web page and how it connects to the database.
Week 9 (3/1/00): Prepare for the presentation and continued test of the project.
Week 10 (3/8/00): Presentation to the Faculty and Fellow Learners of the functioning project.

Senior Design III:

Week 1 (1/3/00): Begin documentation of the project.
Week 2 (1/10/00): Continue the research for the documentation.
Week 3 (1/17/00): Submit documentation for proofing.
Week 4 (1/24/00): Review the document and develop further the shallow parts.
Week 5 (1/31/00): Begin testing the project preparing for the final presentation.
Week 6 (2/7/00): Begin developing the project presentation using Power Point.
Week 7 (2/14/00): Run through the Power Point project and fix any bugs.
Week 8 (2/21/00): Test the project with different approaches. False accounts.
Week 9 (2/28/00): Wrap up everything and make sure all loose ends are complete.
Week 10 (3/7/00): Final presentation of entire project including full documentation.

8. Budget:

Microsoft 2000 Upgrade	$289.90
Microsoft Visual Studio	$850.00
Web Server	Ranged from $2000-$3000
Database Server	$2000-$3500
Dell Dimension L 500 MHz with 128 MB Ram and 13 G HD	$1200
Total:	**$6339.90**

These prices are taken from PC Connection.com. The prices shown are upgrade prices taken from their site. The Hardware / Software is installed both in the OCAS computer lab and on my computer at work.

Appendix B.

In conclusion with my project, I believe no matter how much time was spent and the amount of problems that were encountered, it was a great lesson for me. Everything from organizing the information, planning the development and completing what I promised to deliver, it was all challenging but worth it. Now that this project is completed, there are some things that I would suggest to others on how to do some things differently. If you plan to put together a project that becomes this involved, make sure you have everything mapped out first. Know how you plan on addressing your important parts and have a plan so the steps along the way come easier. I learned this the hard way, by getting too shallow and then having to back track to get to where I wanted to end up. Realize your final goal, but set smaller steps that you meet periodically so your organization during this time stays straight.

In developing this project some things caused some setbacks along the way. To begin with, developing a project idea was difficult. My experience with web development was limited and using Interdev it was much less. It just so happened that during my first Senior Design class, I was also taking the Microsoft Visual InterDev class. This gave me the idea to create a web page using my company as a backdrop. It grew into an interactive page that connected to a Microsoft Access database which would allow our customer's to order their services over the net. Once the active server pages were created with database connectivity, the static pages were easy to create. Then came the part of making the site graphically pleasing to the user. Using a theme was the best thing I did, because it allowed me to concentrate on text and picture formatting more.

None of these were anything compared to the day I returned for Senior Design III, when the server had been formatted with my database and all connections being wiped out. After all of my connections were re-established everything seemed to fit together nicely. It was a great experience, and I hope that in the future I can use this experience to develop a site like this one on a larger scale.

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