

Copier Solutions Database Web Site

By

Courtheas Gatewood

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

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Courtheas Gatewood

Date

Professor Robert Schlemmer

Date

Patrick C. Kumpf, Ed.D. Interim Department Head

Date

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Abstract

Copier Solutions is a database driven Website created with two of the latest software tools: ASP.Net and SQL Server. Copier Solutions stores customers and products information in a SQL Server Database. Copier Solutions allows customers to browse the Web site, create an account, read the history of Copier Solutions, and purchase products such as copiers, faxes, and printers.

Copier Solutions Database Web Site

1. Statement of Problem

Copier Solutions is a complete database driven Web site which allows customers to store their selected products in a sophisticated (Structured Query Language) database (SQL). When you want to purchase something from a Web site you either have to buy it then or you'll have to look elsewhere. Copier Solutions stores customer products in an SQL database, giving them the opportunity to come back later.

2. Description of the Solution

Copier Solutions gives the customer the ability to browse the Web site and look at the products it has to offer. A Microsoft SQL Server 2000 database stores the customer and product information. To connect to the database and login to Copier Solutions (Active Server Pages.NET) ASP.NET is used. (Visual Basic.NET) VB.NET and SQL will make Copier Solutions an accurate database Web site. Combining an HTML and ASP.NET user interface with a SQL database, gives users the edge on purchasing form a sophisticated database Web site.

2.1 User Profile

Copier Solutions Database Web site is designed for anybody who can access the Web site. Users who have different levels of information technology (IT) literacy such as parents, teachers, and students will find that browsing Copier Solutions is user friendly with easy to navigate interfaces, which are designed using ASP.NET.

Since teachers, mothers, and students are the main targeted users of Copier Solutions, the graphical interfaces are designed with them in mind.

2.2 Design Protocols

The graphical interface page for Copier Solutions was created using Adobe Photoshop CS and ASP.NET. Adobe Photoshop is a perfect tool for graphic creation and for editing digital photographs.

ASP.NET makes building real world Web applications dramatically easier. Displaying data, validating user input, and uploading files are all amazingly easy. Best of all, ASP.NET pages work in all browsers including Netscape, AOL, and Internet Explorer. The graphical interface pages are designed for 800 by 600 screen resolution, which is mostly used today.

VB.NET is designed to be the easiest and most productive tool for creating .NET applications including Windows applications, Web Services, and Web applications with out the complexity generally associated with programming. VB.NET also provides language interoperability, simplified deployment, enhanced security, and improved versioning support. The programming code for Copier Solutions will be simple with comments to make it easy to read.

Microsoft SQL Server 2000 is used to show the relationship between the Customers, Products, Orders, ProductOrders, and ShoppingCart tables, as well as hold data in these tables. These tables represent the instances of an entity, customer is an entity and all the rows in the customers table identify the customer, the Products table holds all the information about the products such as ProductID, ProductName,

and ProductPicture, these rows of data identify the Product table, the Orders table holds OrderID, OrderDate, and CustomerID, the ProductOrders table holds OrderID, ProductID, and quantity, the ShoppingCart table is where the customer puts all their selected products in before buying them. The outline of the database can be found below (See Figure 1.)

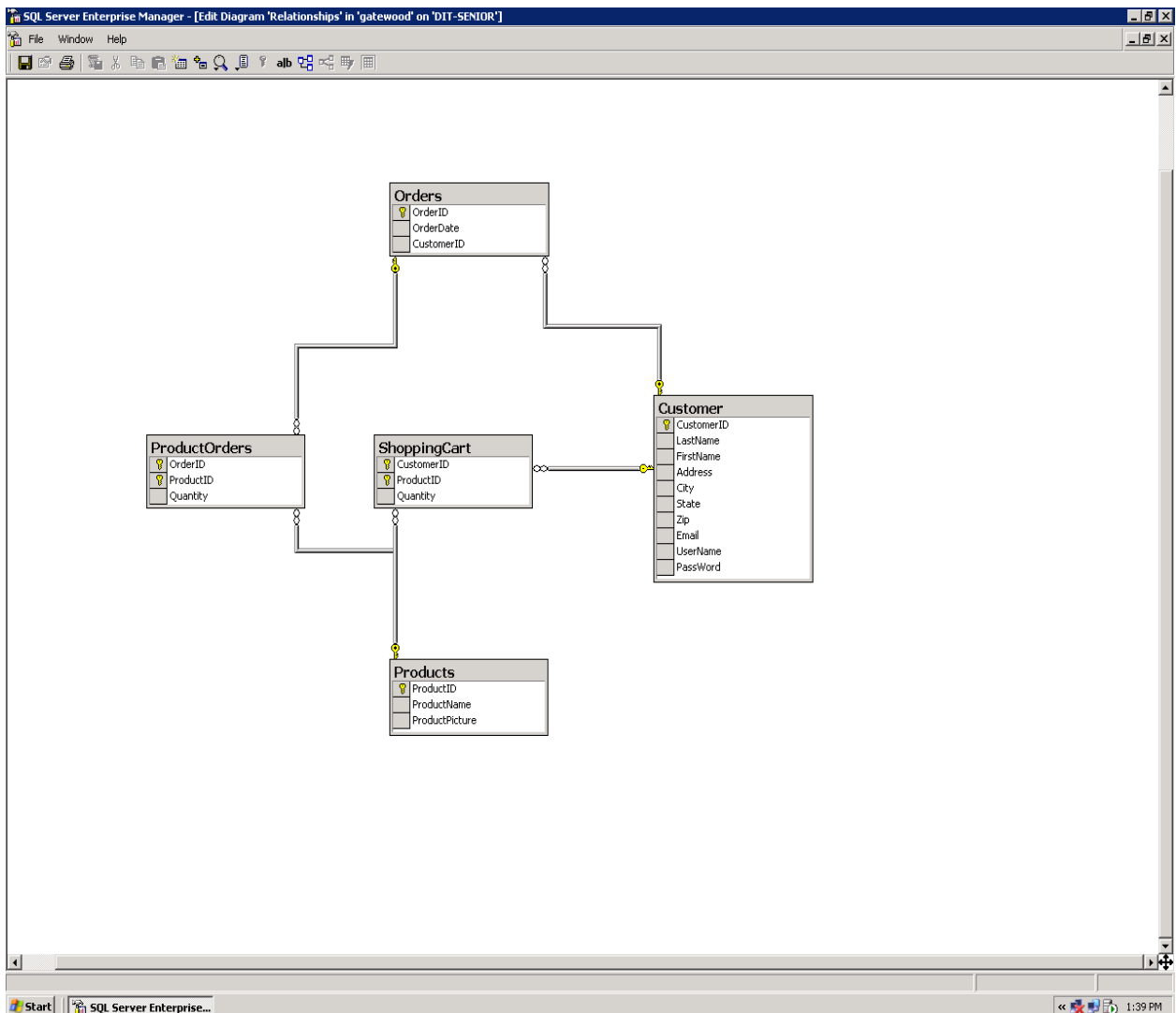


Figure 1. SQL Relationship Table

3. Deliverables

In order to provide a well organized project certain items were considered necessary.

1. A database Web site that manages customer orders.
2. The user interface is written in HTML, which allows simple user navigation.
3. The Web site uses ASP pages to communicate between the client and database.
4. New users/customers will be required to create an account.
5. User/customers will be able to complete the following
 - Brows Copier Solutions Database Web site
 - Secure login authenticated by the Visual Studio.NET
 - Manage saved orders
 - Search products
 - Place orders
 - Get order status

4. Design and Development

The next sections describe the project's budget, timeline, software, and hardware.

4.1 Budget

Item	Cost
Development Budget	
Microsoft Visual Basic.NET	\$500.00
Microsoft SQL Server 2000 Standard Edition	\$1,840.00
Adobe Photoshop	\$300.00
Total	\$2,640.00
Production Budget	
Dit-Senior.cas.uc.edu Server	\$Free
Internet Explorer 6.0	\$Free
Microsoft Internet Information Server	\$Free
Development Total	\$5,280.00
Production Total	\$00.00

4.2 Timeline

Below are achievements of Senior Design sequences.

4.2.1 Senior Design I Spring 2005

Week 1-5

- Visited a small independent owned copier store
- Gathered information on copiers, faxes, and printers
- Designed basic layout of the user interface

Week 6-10

- Continued to design the user interface
- Gathered information about use of database tables

4.2.2 Senior Design II Autumn 2005

Week 1-5

- Finalized SQL Database design
- Finalized user interface design
- Documentation

Week 6-10

- Add additional settings
- Make adjustments to the user interface
- Documentation
- Demonstrate working prototype

4.2.3 Senior Design III Spring 2006

Week 1-5

- Complete project functionality
- Complete testing and troubleshooting
- Submit documentation

4.3 Software and Hardware Requirements

Software Requirements

- Microsoft SQL Server 2000
- Microsoft Visual Studio.NET

Hardware Requirements

- Web Server
- Database Server

5. Proof of Design

This section shows in detail how deliverables of the project were fulfilled and what changes were encountered

5.1 Browse Copier Solutions Database Web site

Copier Solutions enables users to browse the Web site. The main page has two pictures and four links; the top picture is a picture showing two business women standing by the c-SOLUTION351C, which is a copier. The second picture is a rollover; it's an advertisement telling users to support public schools. The Links gives the user three choices to choose from: Products and Services, About Us, and Login. Each one of these Web pages are easily accessible from the main page, just click on their icon and you will be directed to that page. (See Figure 2.).

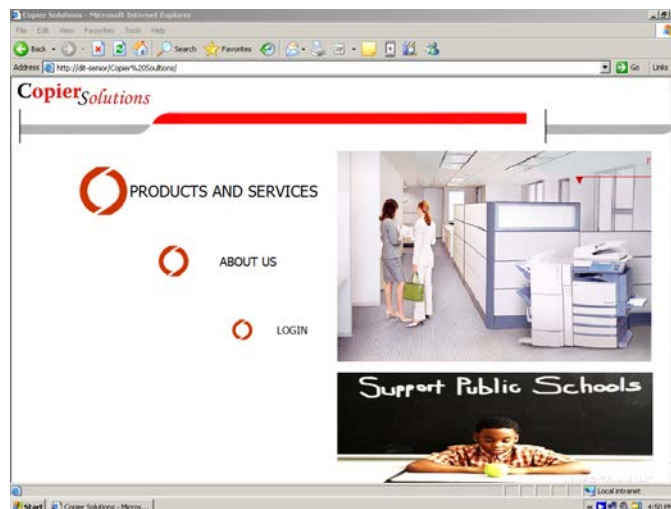


Figure 2. Main Page

5.2 Search Products

Selecting the Products and Services Link (See Figure 9.) will take you to the Products and Services Web page. The products and services Web page lets the user decide what products they want to search for (See Figure 10.)



Figure 3. Products and Services Link

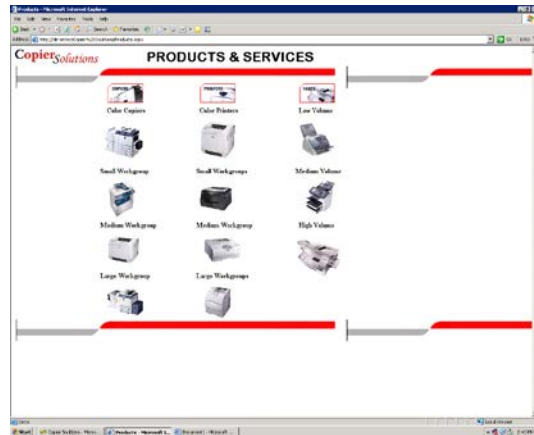


Figure 4. Search Products

5.3 About Us

The about us link (See figure 5.) takes the user to a Web page (See figure 6) that talks about the designer, development, and history of Copier Solutions. It also shows pictures of OCAS (Ohio College of Applied Science) computer lab where all the programming was completed.

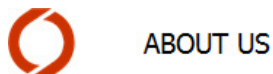


Figure 5. About Us Link



Figure 6. About Us

5.4 Secure Login Authenticated by Visual Studio.NET

Clicking on the Login Link (See Figure 7.) takes you to the login page. Logging into Copier Solutions Web site is authenticated by Visual Studio's.NET control to validate property, which pops up an error message if the user name and password isn't correctly entered. (See Figure 8.).

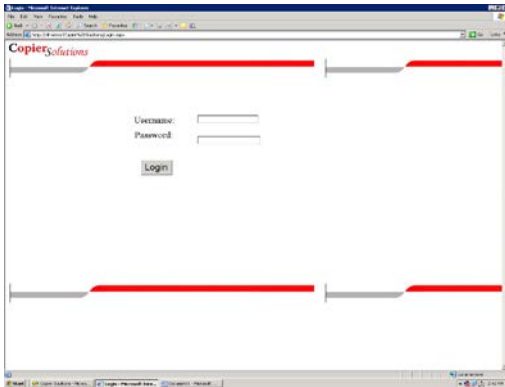


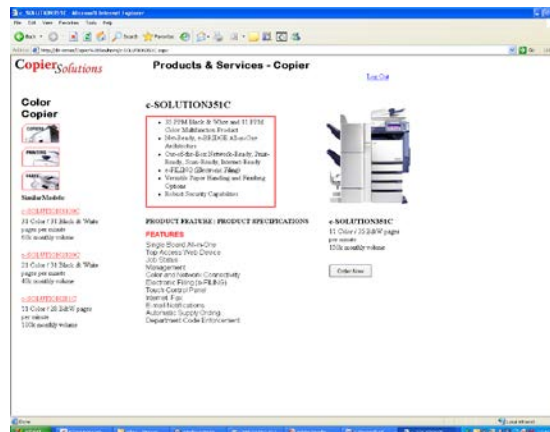
Figure 7. Login Link

Figure 8. Secure login authenticated by Visual Studio.NET

5.5 Manage Saved Orders

Copier Solutions allows users to manage their saved orders by pushing the order now button on the products individual Web page (See Figure 9). This action will take them to the saved orders page, where they are asked if they want to add the item to the shopping cart. The saved orders page displays the item, name, and price. This allows the user to make a decision to add the item or not. (See Figure 10.).

Figure 9. Color Copier



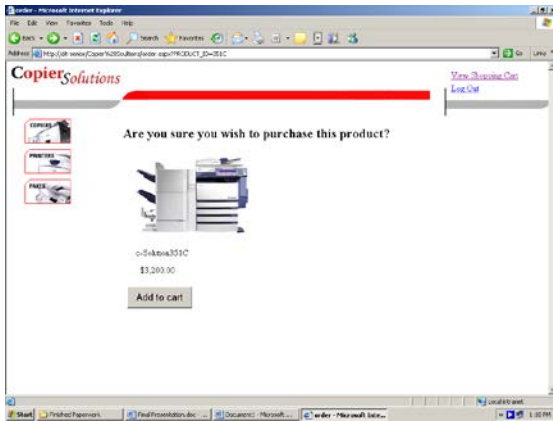


Figure 10. Manage Saved Orders

5.6 Get Order Status

Once a user has selected a product from Copier Solutions, they can either check out or continue shopping; this is basically giving the user the order status of their selected products. (See Figure 11.). Figure 11. shows a shopping cart with the picture of the item, the price, and a quantity text box. Selecting the check out button will redirect the user to a login page (See Figure 12.) where they must login or register an account in order to process their order.

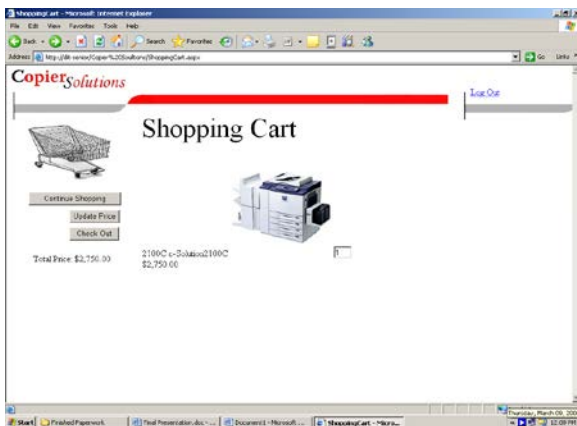


Figure 11. Get Order Status

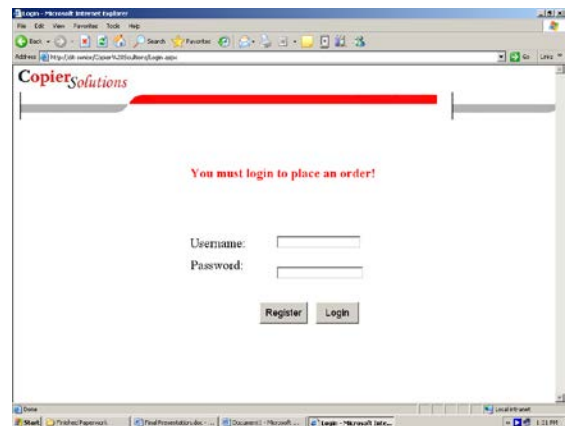


Figure 12. Login

5.7 Create Account

Creating an account with Copier Solutions (See figure 13.) will allow the customer to purchase products from Copier Solutions Database Web site. In order to create an account the user must supply their first and last name, address, city, state, zip, email, user name and password. These fields are all authenticated by Visual Studio.Net controltovalidate property

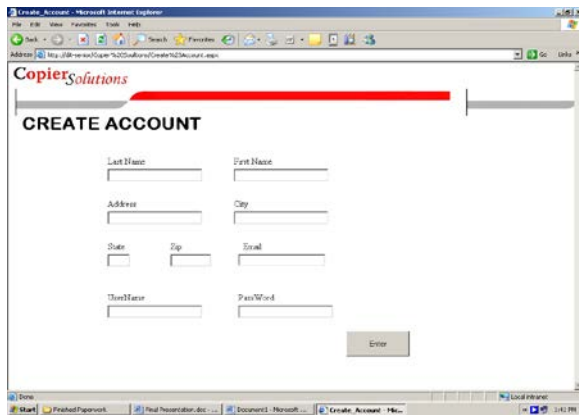
A screenshot of a web browser displaying the 'CREATE ACCOUNT' page for Copier Solutions. The page features a red header with the company logo. Below the header, there are several input fields arranged in two columns: 'Last Name', 'First Name', 'Address', 'City', 'State', 'Zip', 'Email', 'Username', and 'Password'. A 'Enter' button is located at the bottom right of the form area. The browser's address bar shows the URL 'http://88.166.104.100/Copier/Solutions/CreateAccount.aspx'.

Figure 13. Register

5.7 Credit Card Information

After the user has log in or created an account with Copier Solutions, they will be asked to supply payment information. The information will be sent directly into SQL database where it will be secure. (See figure 14)

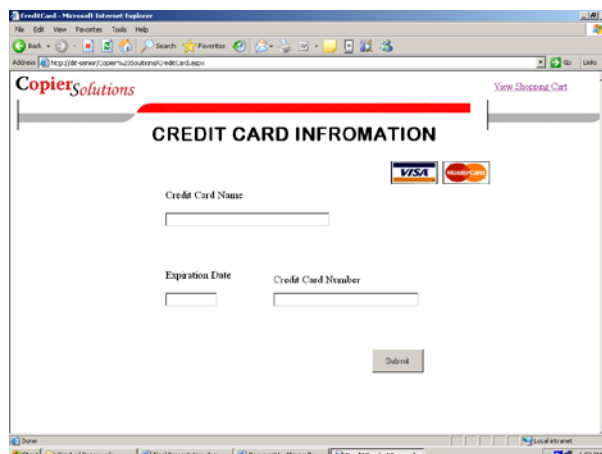
A screenshot of a web browser displaying the 'CREDIT CARD INFORMATION' page for Copier Solutions. The page features a red header with the company logo and a 'View Shopping Cart' link. Below the header, there are input fields for 'Credit Card Name', 'Expiration Date', and 'Credit Card Number'. There are also logos for Visa and MasterCard. A 'Submit' button is located at the bottom right of the form area. The browser's address bar shows the URL 'http://88.166.104.100/Copier/Solutions/CreditCard.aspx'.

Figure 14. Payment Information

5.8 Receipt

After supplying valid credit card information and pressing the send button, the customer will be prompted to a Web page that displays a receipt (See figure 15). The receipt display the quantity amount, product names, and the unit price of each product.

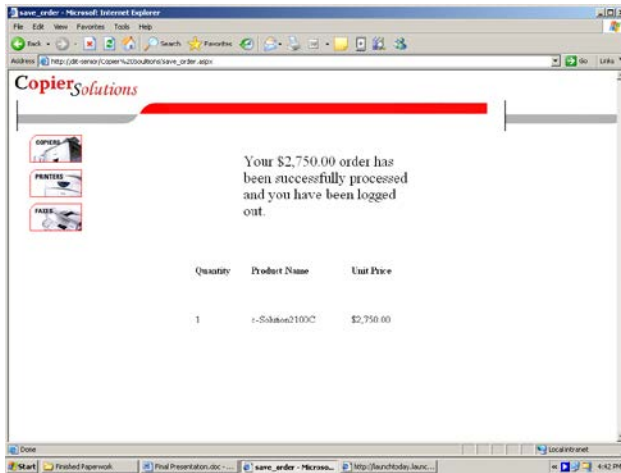


Figure 15 Receipt

6. Conclusions and Recommendations

6.1 Conclusions

This project was created in response to Copier Concepts, a copier store based in Covington, Kentucky in need for a Web site. The owner of Copier Concepts backed out the deal, he felt like OCAS students were not experienced enough to create a dynamite Web site like his competitor had. I continued working on the Web site and added different features to it. I rename the project from Copier Concepts to Copier Solutions, I put an extremely amount of time in this project; to prepare for the project I used Microsoft SQL Server Database 2000, Visual Basic.NET, ASP.NET and Adobe Photoshop CS. The project was completed over the three quarter Senior Design Project. The estimate of \$5,280.00 would be a real life total for the project. All design freeze deliverables were met and testing was performed to ensure the product's usability.

6.2 Recommendations

While working on Copier Solutions I encountered a lot of new challenges. A fluent understanding of Visual Basic.Net is recommended before beginning a Web site. Knowing that Microsoft SQL Server 2000 is more than just a database is a good start in understanding the way tables relate to one another. I recommended anyone who is using SQL Server in their Web site know the difference between a one-to-many table and a many-to-many table. For example: One customer can have many orders which is a one-to-many table, now many products can have many orders. Adobe Photoshop is easy to deal with, inserting a picture is not hard at all. The hard part is knowing how to crop or filter a picture to a certain degree. Too much light may

make it hard to view the picture or if the picture is too big how much do you need to crop it. These are just some of the skills that needed to work with photoshop. I recommend playing with the software before actual trying to make any changes to a picture.

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6. TOSHIBA <http://www.toshiba.com/tai-new/>