

Quick Shopper
Online Store

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System Specification

1.0 Introduction

1.1 Goals and Objectives

“Quick Shopper” is software that allows people to do their shopping over the Internet.

Customers are allowed to select items from the store list, move them to the virtual cart and check out, paying for everything by their credit card. In the process of shopping, customers will have to go through a few steps, such as log in, select items, check out.

The administrator of “Quick Shopper” is given tools for adding and removing items to and from his/her websites. Since the tools given are so easy, the administrator is able to minimize the number of people working in his IT department. It’s the tools provided to the administrator that make “Quicker Shopper” unique as it makes the entire process of managing the system automated and does not place any restrictions on the knowledge needed to use this system thus making it user friendly even for the administrator.

1.2 System Statement of Scope

The scope of the system is to allow users to come and shop on our website from the list of items for sale.

Quick shopper expects to have two kinds of user: an administrator and a customer.

CUSTOMER

From the customer point of view, there are the following inputs:

- user login elements (password, login) ;
- user info;
- item selection;
- quantity selection;

The functionality of the websites on the customer side consists of:

- user authentication;
- credit card # authentication;
- shopping items processing;
- searching for items;

The output for customer has some elements, such as:

- confirmation page;
- order reference number;

ADMINISTRATOR

The inputs on the Administrator part are:

- administrator log in;
- administrator info;
- take inputs;

Functionality for Administrator is the following:

- adding and removing product categories;
- adding and removing products;
- editing products related futures;
- creating reports;

The Administrator part has the outputs as follow:

- all kinds of reports;
- functional changes;

1.3 Software context

“Quick Shopper” is developed to be a complete solution for the companies interested in selling their products on the Internet. Compared to most of the online stores, “Quick Shopper” provides a simple yet effective solution for cutting costs. The Administrator has some dynamic tools that allow him/her to easily add and remove items from the websites.

1.4 Major constraints

The major constraints are the use of the following

1. Windows 2000/XP/Server
2. The .Net Framework
3. IIS Server
4. The MSDE Database

2.0 Data design

2.1 Internal software data structure

Majority of data passed among the components will be simple data type like string, or integer. During page (component) – DataAccess component communication, dataset structure might be used. This structure is the same as described in section 2.3 Temporary Data Structures.

2.2 Global data structure

The only global constructs are the data structures provided by ASP.NET. Those include application setting and session structures. For the purposes of this application only session object will be used for temporary data storage.

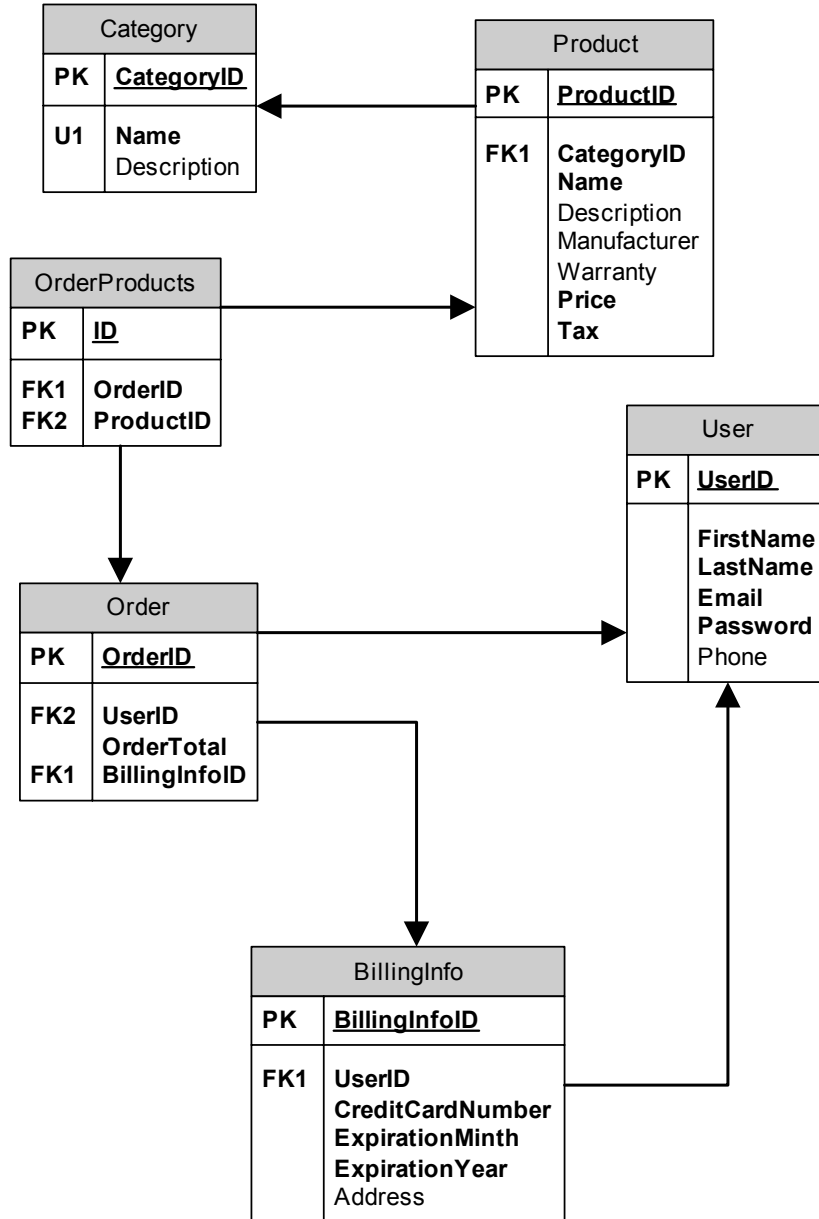
2.3 Temporary data structure

Datasets containing table (with rows) will be created by fetching data from database.

It's a .NET data structure: Dataset contains tables which in turn contain data rows. It's a memory copy of selected database "part". Categories' dataset will contain table which is an exact copy of the Category database table. Products dataset will contain table which has only the product rows matching criteria for a specified category. Product Detail dataset will have a table with one row containing all product information for a specified product id.

2.4 Database description

Only one database will be created to support Quick Shopper, named Quick Shopper. The database design is shown below:

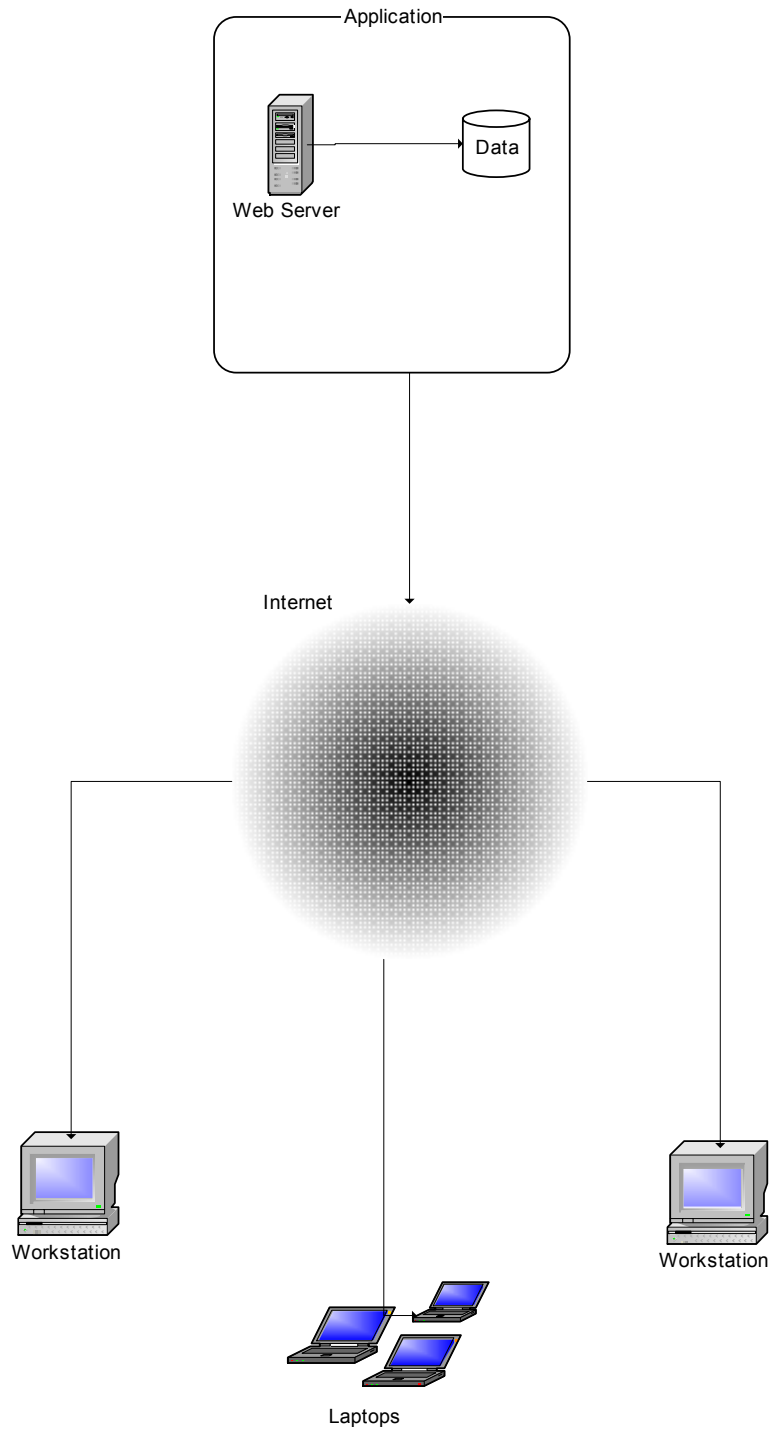


3.0 Architectural and component-level design

3.1 Program Structure

Quick Shopper is a basic web application. All application logic, except database communication, is embedded in the web pages themselves. The database interaction will be done using a DataAccess component.

3.1.1 Architecture diagram



3.2 Description for Quick Shopper Components

3.2.1 Main_Page component

This page is the entry page of the Quick Shopper.

3.2.2 Main_Page interface description.

This page is the main page from where the customer logs in, it gives him a choice to choose the item OR to login and then go around the website.

3.2.3 Main_Page processing detail

This page will only display welcome information and links to Customer pages. It will be an html page. No dynamic processing will take place.

3.2.1 DataAccess Component

This component will be responsible for all database interactions. All other components (ASP.NET pages) will use it for all of their database calls.

3.2.2 DataAccess interface description.

There will be two functions per data table:

- 1) Update – performs all updates, inserts and deletes for a table
 - a) Input – dataset contain the data-table which has data-rows for update
 - b) Output – None
- 2) Select – performs all data retrievals for a table
 - a) Input – Row id or set of row ids to retrieve from database
 - b) Output – dataset contain the data-table which has data-rows that where selected

3.2.1 Administrator_LogIn_Page component

This page will perform administrator's authentication for the Quick Shopper.

3.2.2 Administrator_LogIn_Page interface.

This page will perform one function Administrator_Authentication:

- a) Input – Name (string variable), password (string variable), level of access (String variable)

b) Output – True if successful, false otherwise

3.2.3 Administrator_LogIn_Page processing detail

This page will display administrator's log in interface. After the information is filled in and the page is submitted, it will perform the administrator's authentication.

3.2.1 Manage_Category_List_Page component

This page will display all the categories and its subcategories for administrator of the QuickShopper.

3.2.2 Category_List_Page interface.

This page will perform a few functions

1. Show_Categories:

a) Input – None

b) Output – List of all categories from database

2. Add categories

a) Input – category name (string)

b) output – updated list of categories

3. Add subcategories

a) Input – subcategory name (string)

b) Output – updated list of subcategories for a specific category

4. Remove categories

a) Input – category selected from the list of categories

b) Output – updated list of categories

5. Remove subcategories

a) Input – subcategory selected from the list of categories

b) Output – updated list of subcategories

6. Edit categories

3.2.3 Manage_Category_List_Page processing detail

This page will display two list: categories and subcategories for the Quick Shopper's administrator. The administrator is given a set of button which allow him/her to add, remove, or editcategory/subcategory. These button will move the administrator to the dialog boxes.

3.2.1 Manage_Products_List_Page component

This page will display all the products for a given category for administrator of the Quick Shopper.

3.2.2 Manage_Products_List_Page interface.

This page will perform a few functions

1. Show_Category_Products:

a) Input – Category ID

b) Output – List of all products for a specified category from database

2. Add product

a) Input – product id

b) Output – updated list of products for the specific list

3. Remove product

a) Input – selected product

b) Output – updated list of products

4. Edit product

3.2.3 Manage_Products_List_Page processing detail

This page will display all categories, its subcategories and its products for the Quick Shopper's administrator. The administrator is given a set of buttons to manipulate data

3.2.1 Category_Item_Page component

This page will display all the products for a given category for the customer of the Quick Shopper.

3.2.2 Category_Item_Page interface.

This page will perform one function Show_Category_Products:

a) Input – Category ID

b) Output – List of all products for a specified category from database

3.2.3 Category_Item_Page processing detail

This page will display all products for a specified category for the Quick Shopper's customer. The products would be listed on the page, and each will be a link to the Product_Details_Page.

3.2.1 Item_Details_Page component

This page will display specified product's details for the customer of the Quick Shopper.

3.2.2 Item_Details_Page interface.

This page will perform one function Show_Products:

a) Input – Product ID

b) Output – Products details

3.2.3 Item_Details_Page processing detail

This page will display specified product's details. Once the product's information is displayed a link "Add to cart" will be displayed for adding the product to customer's shopping cart.

3.2.1 Shopping_Cart_Page component

This page will display/modify the customer's shopping cart. This page is included as a small graphic on the left side of the current page during the process of shopping.

3.2.2 Shopping_Cart_Page interface.

It will perform the following functions:

1) Update Cart

a) Input – Product ID, Quantity

b) Output – None

2) Remove_Product

a) Input – Product ID

b) Output - None

3.2.3 Shopping_Cart_Page processing detail

This page will display specified customer's shopping cart details. It will list all the products in the cart, this quantity and price. The customer will be able to change the product's quantity and/or remove a product.

3.2.1 Check_Out_Page component

This page will display customer purchase details.

3.2.2 Check_Out_Page interface.

This page will perform two functions:

1 Show_Products:

a) Input – Product ID

b) Output – Products details

2.Remove_Products:

a) Input – Product Id

b) Output - none

3.2.3 Check_Out_Page processing detail

This page will display a summary of the selected products. The customer will be able to remove some of the product. To continue process of shopping the customer will have two options: either press check out button that will send him/her to confirmation page, or “back” button to continue selection.

3.3 Software Interface Description

3.3.1 External machine interfaces

<None>

3.3.2 External system interfaces

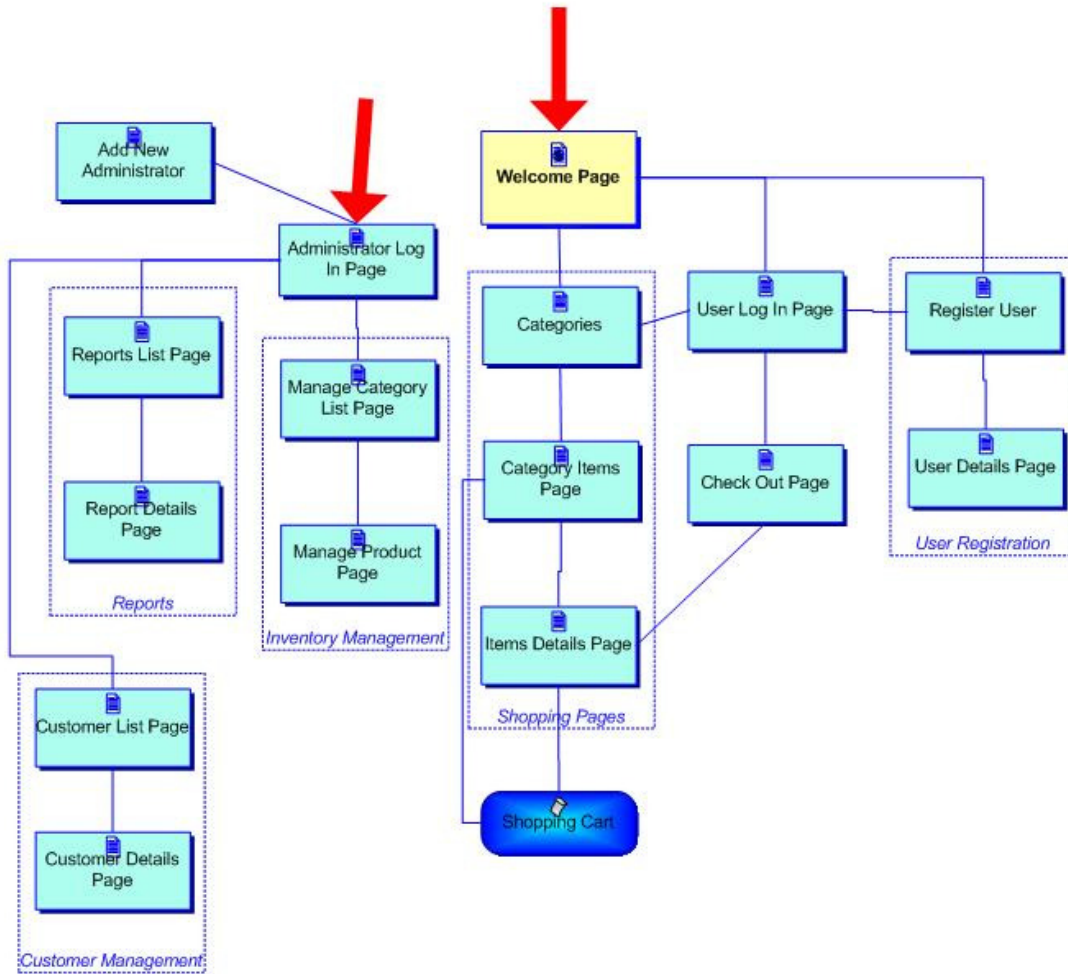
<None>

3.3.3 Human interface

The graphical user interface for the Quick Shopper will be done in html. The display and interaction will be handled using standard html metaphors and design.

4.0 User interface design

The site map.

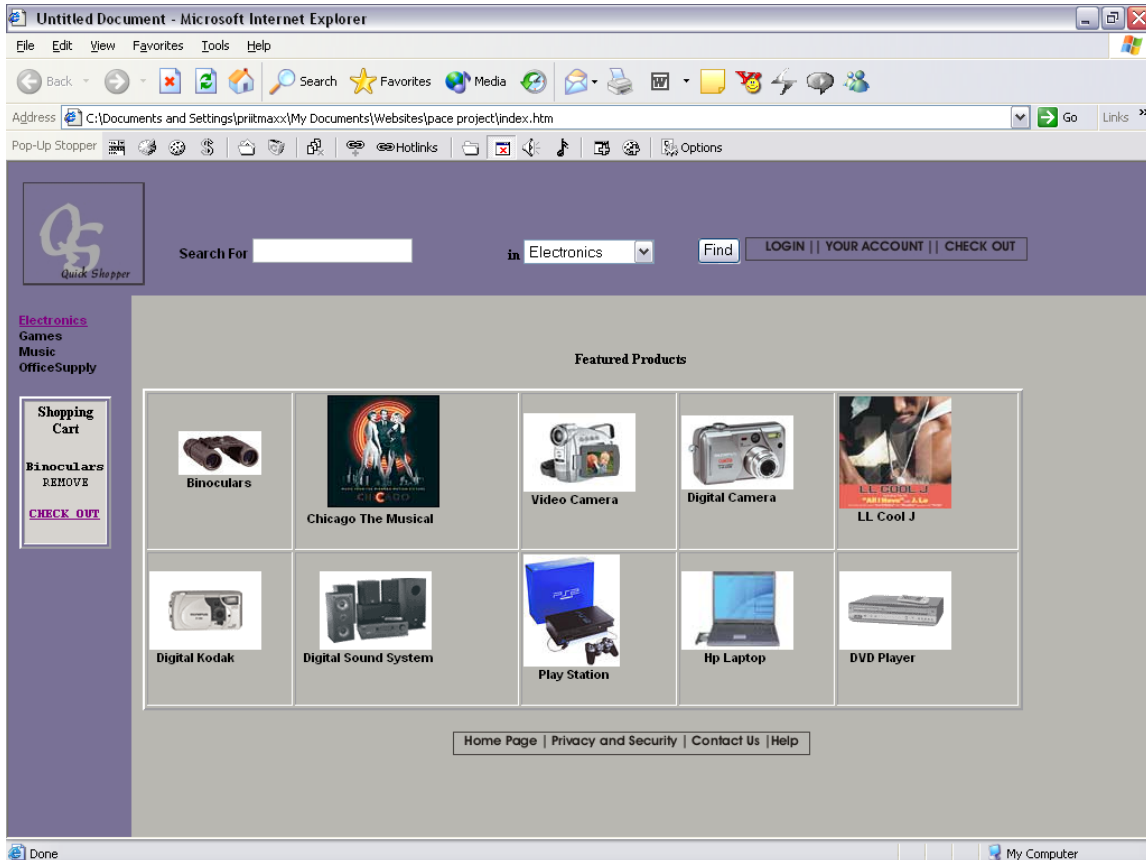


4.1 Description of the user interface

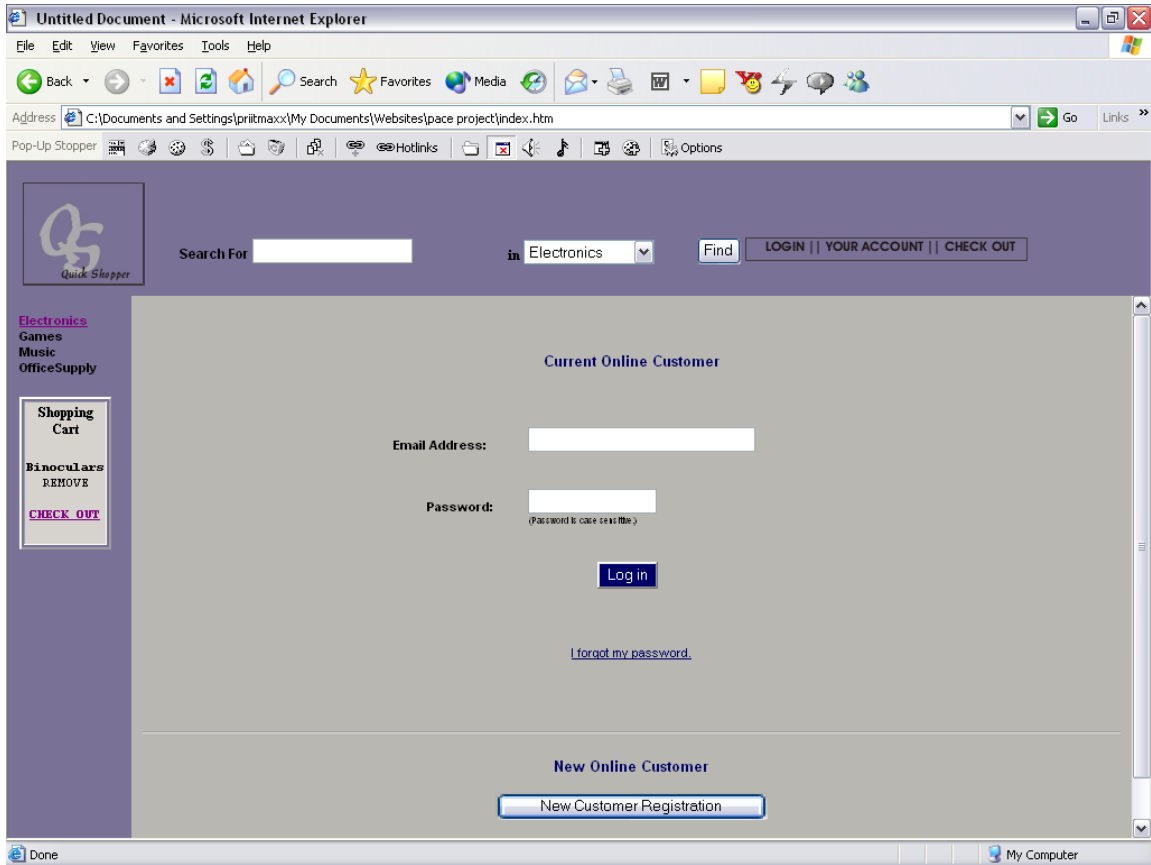
A detailed description of user interface including screen images or prototype is presented.

4.1.1 Screen images

Main Page



Login Page



Category Page

Microsoft Internet Explorer window showing a category page for electronics. The address bar indicates the page is located at `C:\Documents and Settings\prittmaxx\My Documents\Websites\pace project\index.htm`.

The page header includes a search bar with the text "Search For" and a dropdown menu set to "Electronics". Navigation links include "LOGIN", "YOUR ACCOUNT", and "CHECK OUT".

The main content area displays a grid of camera products:

Product Name	Price	Description
Kodak CX4230 2.0 Megapixel 3x Zoom Digital Camera Recertified	\$149.99	Sharing Made Simple With superior color and exposure capabilities and a premium quality lens, you'll always have crisp, shar...
Fuji FinePix A303 3.2-Megapixel 3x-Optical Zoom Digital Camera	\$149.99	The Argus DC3500 feature a 2.1-megapixel CCD sensor that ensures bright and vivid digital photos. You can effortlessly set up your shots using the...
Argus DC3500 2.1 Megapixel Digital Camera	\$149.99	The Hot "CyberShot" DSC-P31 Super-Cameral Sony's Tiny, Super-Light, 2-Megapixel Digital Masterpiece! This camera does it all—it's si...
Kodak CX4200 2.0 Megapixel Digital Camera Recertified		
Kodak CX4200 2.0 Megapixel Digital Camera Recertified		
Sony Cybershot DSC-P31 2 Megapixel 3x Optical Digital Camera		

Each product listing includes an "Available Now" status and an "ADD TO CART" button.

The left sidebar contains navigation links for "Electronics", "Games", "Music", and "OfficeSupply". A "Shopping Cart" section shows "Binoculars REMOVE" and a "CHECK OUT" button.

Item Detail Page


Untitled Document - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Print Mail News RSS Options

Address C:\Documents and Settings\prilmaxx\My Documents\Webistes\pace project\index.htm Go Links

Pop-Up Stopper Hotlinks Options



[Search For](#) in Electronics [Find](#)

[LOGIN](#) | [YOUR ACCOUNT](#) | [CHECK OUT](#)

[Electronics](#)

[Games](#)

[Music](#)


[OfficeSupply](#)

Shopping Cart

[Binoculars REMOVE](#)

[CHECK OUT](#)

Kodak CX4230 2.0 Megapixel 3x Zoom Digital Camera Recertified



Manufacturer	Kodak
Price	Now Just \$200.00
Status	Not Available
Quantity	<input type="text"/> ADD TO CART
Extended Service Plan	Year Replacement after Mfg. Warranty Ends . \$19.99
Item Number	345-678-432

Specifications

CCD: 2.1 Megapixel [Learn More](#)
 Optical Zoom: 3X [Learn More](#)
 Digital Zoom: 2X [Learn More](#)
 LCD: 1.6-inch color TFT
 Shutter speeds: 1/8 to 1/1700 sec (automatic)

Additional Specification

Image Quality 2.0MP - Best (1632 x 1232)
 1.0MP - Better (1184 x 888)
 0.5MP - Good (816 x 616)

Done My Computer

Check Out Page


Untitled Document - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Print Mail News RSS Options

Address C:\Documents and Settings\priitmaxx\My Documents\Webistes\pace project\index.htm Go Links

Pop-Up Stopper Hotlinks Options



Search For in Electronics [LOGIN](#) | [YOUR ACCOUNT](#) | [CHECK OUT](#)

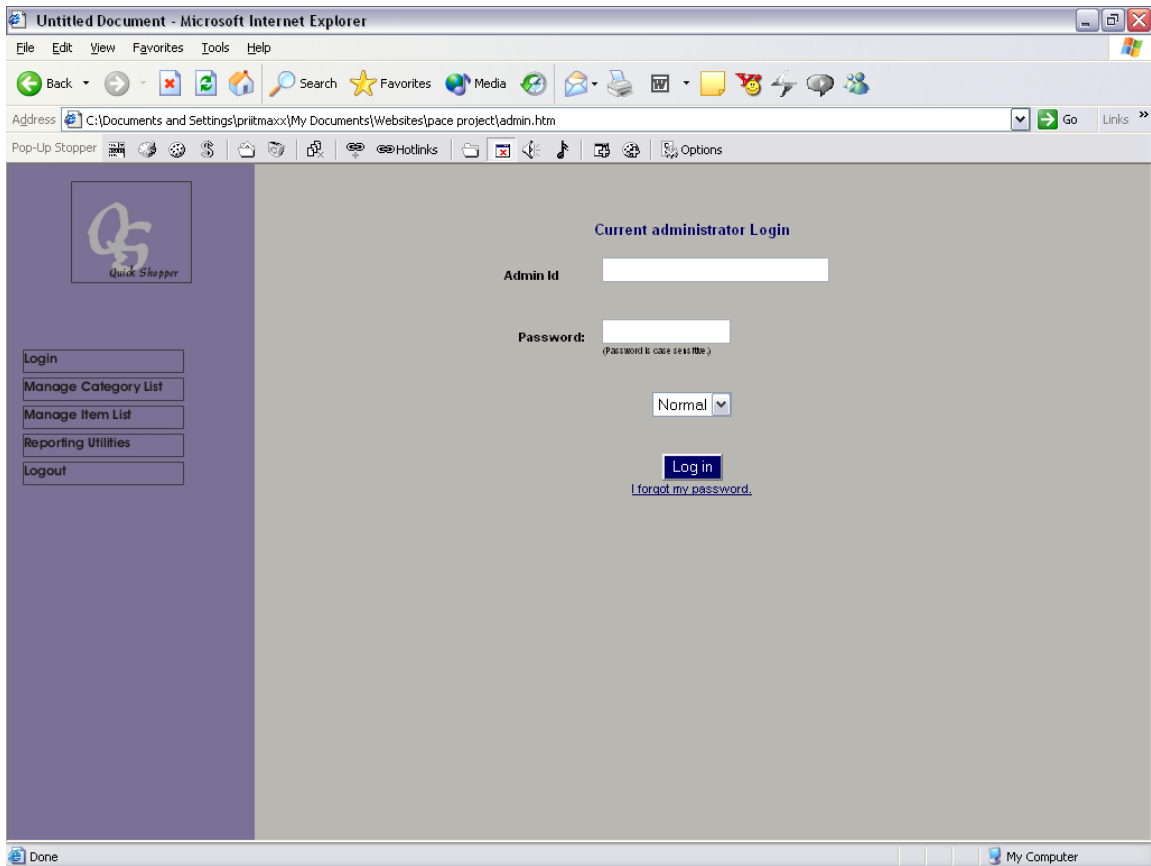
QTY	Item	Category	Price
2	Creative Labs NOMAD® Jukebox 3 MP3 Player with 20GB Hard Drive Brand/Model: CL HD0003	Digital Music Player-MP3	\$299.99
1	Nintendo Game Boy® Advance SP Platinum Brand/Model: NIN AGSSZ78	Video Game Hardware	\$99.99

Continue CheckOut
OR
Hit Back to Go back.

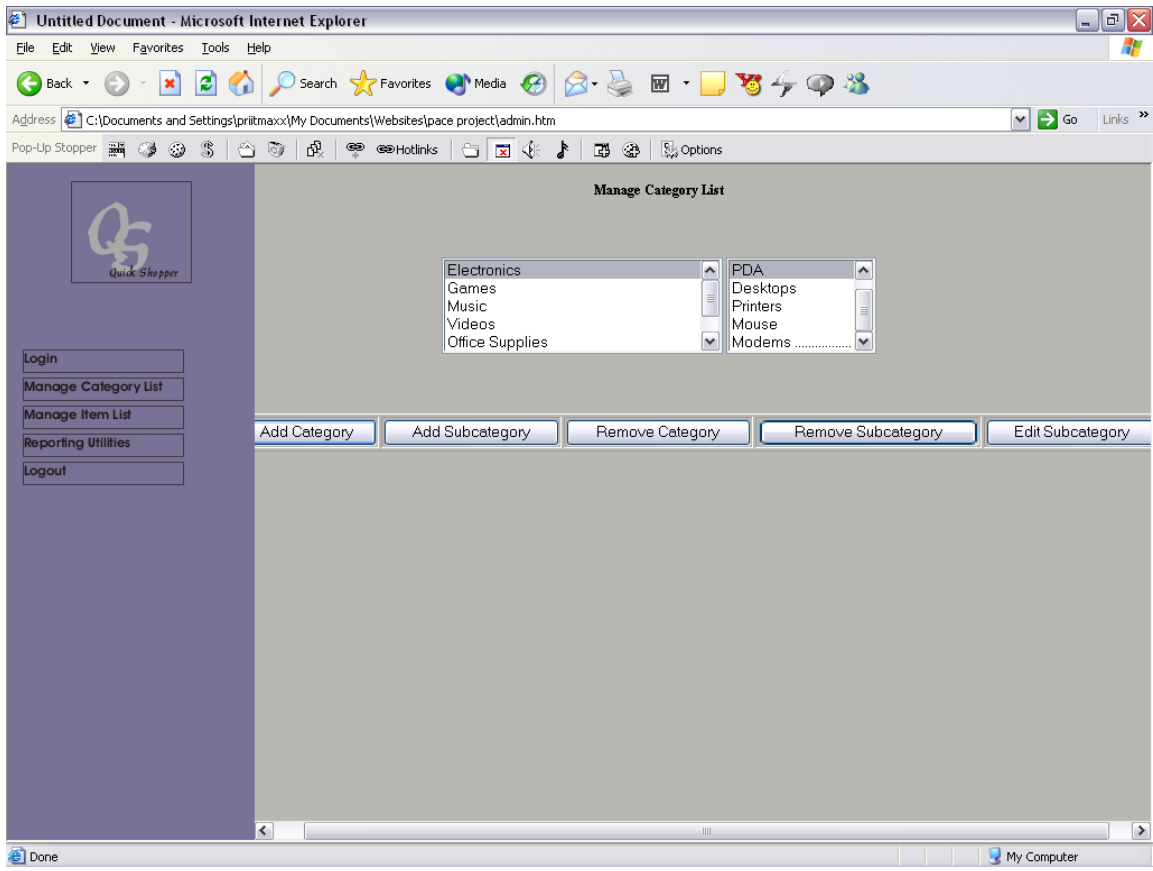
Shopping Cart
[Binoculars REMOVE](#)
[CHECK OUT](#)

Done My Computer

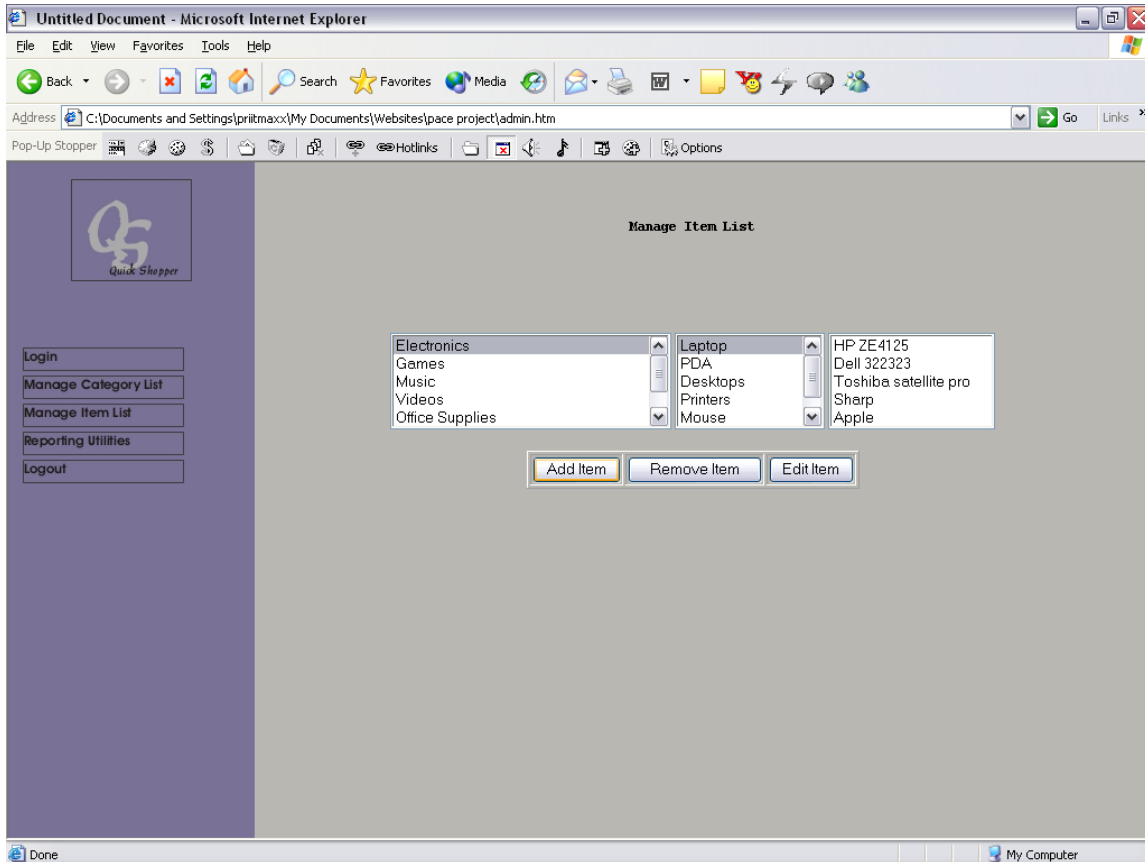
Administrator Login Page



Manage Category Page



Manage Item List



4.1.2 Objects and actions

The **Administrator Login** page consists of:

- Id text box – the administrator writes his/her id, preferably e-mail address(string, max_length 20 characters)
- Password text box – the administrator writes his/her password (string, max_length 10 characters)
- Drop down list – the Administrator chooses his/her level of access (there are two options: “Normal” for a regular Administrator and “Super” for SuperAdministrator).
- Log in button – after being pressed the system performs user authentication. If the administrator inputs correct data, he/she gets the access to the system. Otherwise, the system displays Invalid/Missing data message and clears the text boxes.

- A link called “I forgot my password” – the system retrieves the user’s password after performing necessary questioning. The password is sent to the user’s e-mail address.

The **Manage Category List** page contains of:

- Category list - a list used to select categories. Its size is dynamic.
- Add Category button – used to add a new category. After being pressed, an input dialog appears (it prompts for category name).
- Add Subcategory button – used to add a new subcategory. Before pressing the button, the Administrator has to select the category. While button is pressed, an input dialog box appears (it prompts for subcategories name).
- Remove Category button - used to remove a category. Before pressing the button, the user needs to select the specific category. If the category doesn’t consists of any subcategories, it gets removed; otherwise, an output dialog box appears and prompts for deletion of existing subcategories.
- Edit button – is used to edit category/subcategory name. The user needs to select category or subcategory from the list. Edition is done by interacting with an input dialog box.

The **Manage Product List** page consists of the following:

- Two lists: one with categories and second with subcategories, used to show their contents and to enable selection. Their size is dynamic.
- Product list – displays all the products of a specific subcategory.
- Add button – used to add a new product. While presses, the system displays input dialog which prompts for a product name.
- Remove button – used to remove a product from the list. Before pressing, the user needs to select the button from the list.
- Edit button – used to edit product futures. Before pressing, the user needs to select the button from the list.

The **Main Page** is the customer’s page that provides him/her with the access to other pages he/she intends to visit. It contains of:

- Logo of the company
- The “search part” consisting of:
 - a text box for the name of the product
 - drop down list for selecting the category of the product
 - search button , while pressed the system moves to the right page or displays error message.
- login button that moves the customer to the User Login page.

- A list of categories which are the links to the Category Items page.
- Links to the new products on the market.
- Links to the home page, privacy/security page, and help page
- A shopping cart page as a graphic on the left side of the page

The **User Login Page** is divided into the part for a current user and a new user. It consists of the:

- text boxes for users id and password,
- log in button , for the current user authentication,
- forgot you password link that retrieves the user password,
- New user login button, while pressed, the user moves to the registration page.

The **Check Out Page** consists of the selected items and:

- “go back” button , while pressed the user moves to the main page.

The **Category Page** - besides some parts similar to main page, it consists of the list of the subcategories and the links to them

The **Category Item Page** besides some part similar to main page, it consists of the list of Items from which the user can select what he wants to buy. He can also go to details of that item and than decide on whether he wants to buy it.

The **SHOPPING CART** is always dynamically updated as and when the user adds or removes items from his session.

4.2 Interface design rules

The Quick Shopper is web based application, therefore its GUI consists of the set of websites.

The software’s Graphical User Interface incorporates the following futures:

1. Accessibility :
 - viewed by all browsers
 - not accessible for people with disabilities
 - fast possible load time by using reasonably small file size and reduced bandwidth
 - searchable by most search engines
2. Longevity: the Quick Shopper’s GUI will last into the future. The idea is create a GUI whose changed won’t destroy the entire design.
3. Price:
 - web pages are cheap to maintain and develop.
4. Design:
 - interactive
 - intuitive usable navigation

- standard medium size text
- use of Web-safe colors
- enough **contrast** between the background and the text.
- No flash animations
- Text and graphic based navigation
- Adjusted dimensions and resolution of graphical elements
- Images only as many as required
- Links:
 - o All links contain enough useful information about their destination
 - o Links are not presented directly next to each other, so they are not interpreted as being one single link.
 - o A text based site map helps customers quickly and easily navigate.

The main aim of the Quick Shopper is maintaining the “ease of understanding” and “user friendly interface” for the customers. In doing so, we are designing the following rules

1. The user’s name and information will be shown on the right upper corner of each page
2. The user selectable options are always accessible on the left.
3. The user shopping cart is always on the left side of the screen.
4. The main screen, which will always be on the right, will contain all the selected items.
5. The user should be able to check out at any time no matter where they are on the site.
6. Each web page should have the number of items selected and the total balance of their selections on the left side of the page
7. Each page will have a link for the home page and search options.
8. Every Page always shows the company logo.
9. Every Item listed anywhere on the webpage’s will have a “Add to Cart” button.
10. The webpage are maintained on a consistent color scheme.

5.0 Restrictions, limitations, and constraints

- The system is going to be implemented using the .NET framework. So the restrictions/constraints that will be imposed on the system are the use of
 1. Windows 2000/XP/Server
 2. The .Net Framework
 3. IIS Server
 4. The MSDE Database

- Response time for system UI process should be under 5 seconds. If there is process longer than that, the user must be informed of the progress.
- The basic assumption that we made while designing the user part of the system, just like any other online store, is that each and every user that wishes to do business with us must have a credit card and that they are willing to use it to make online transactions. This is the limitation of the system that we intend to design.

6.0 Testing Issues

6.1 Classes of tests

There will be two types of testing used –Unit testing and integration.

Unit Testing – white box testing

The system is build mostly of one main module – DataAccess, and many ui modules – pages. The DataAccess will be the main focus of unit testing, whereas the pages testing will be mostly done during validation testing stage. Other page contain functions will be tested at this stage.

Validation Testing – white/black box testing

The Quick Shopper is a Web-based application therefore the focuses during validation testing will be on user-visible actions and user-recognizable output from the application. Test cases will be derived from *System Requirements*, Software Interface Description part of the document. Every dynamic page in the system will have a display function among many others. This function of every page will be tested during this stage. All other page-level functions should be tested during the unit testing.

6.2 Expected software response

Unit Testing

The result of the Select and Update test cases can be directly verified against the database.

Validation Testing

The results of the validation tests will be verified visually using the Software Interface Description part of the *System Requirements* document.

6.3 Performance bounds

No performance tests will be performed.

6.4 Identification of critical components

List of critical components: Shopping_Cart_Page, Check_Out_Page and Administrator_LogIn_Page.

7.0. Appendices

Product Strategies

Quick Shopper is an educational project which can be freely distributed and used with the Pace University consent. There are no plans for any commercial use or distribution of it at this time.