

# E-Commerce

Supervised By  
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**THE DESIGN AND IMPLEMENTATION OF AN E-COMMERCE  
SITE FOR ONLINE SALES**

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## **Abstract**

The business-to-consumer aspect of electronic commerce (e-commerce) is the most visible business use of the World Wide Web. The primary goal of an e-commerce site is to sell goods and services online.

This project deals with developing an e-commerce website for Online Products Sale. It provides the user with a catalog of different items available for purchase in the store. In order to facilitate online purchase a shopping cart is provided to the user. The system is implemented using a 3-tier approach, with a backend database, a middle tier of Apache and PHP, and a web browser as the front end client.

In order to develop an e-commerce website, a number of Technologies must be studied and understood. These include multi-tiered architecture, server and client side scripting techniques, implementation technologies such as PHP, programming language (such as Javascript, PDO), relational databases (such as MySQL).

This is a project with the objective to develop a basic website where a consumer is provided with a shopping cart application and also to know about the technologies used to develop such an application.

This document will discuss each of the underlying technologies to create and implement an e-commerce website.

## **ACKNOWLEDGMENTS**

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## **1. Introduction**

E-commerce is fast gaining ground as an accepted and used business paradigm. More and more business houses are implementing web sites providing functionality for performing commercial transactions over the web. It is reasonable to say that the process of shopping on the web is becoming commonplace.

The objective of this project is to develop a general purpose e-commerce store where any product (such as books, CDs, computers, mobile phones, electronic items, and home appliances) can be bought from the comfort of home through the Internet. However, for implementation purposes, this paper will deal with an online Products store.

An online store is a virtual store on the Internet where customers can browse the catalog and select products of interest. The selected items may be collected in a shopping cart. At checkout time, the items in the shopping cart will be presented as an order. At that time, more information will be needed to complete the transaction. Usually, the customer will be asked to fill or select a billing address, a shipping address, a shipping option, and payment information such as credit card number. An e-mail notification is sent to the customer as soon as the order is placed.

## **2. Literature Review**

Electronic Commerce (e-commerce) applications support the interaction between different parties participating in a commerce transaction via the network, as well as the management of the data involved in the process [2].

The increasing importance of e-commerce is apparent in the study conducted by researchers at the GVU (Graphics, Visualization, and Usability) Center at the Georgia Institute of Technology. In their summary of the findings from the eighth survey, the researchers report that “e-commerce is taking off both in terms of the number of users shopping as well as the total amount people are spending via Internet based transactions”.

Over three quarters of the 10,000 respondents report having purchased items online. The most cited reason for using the web for personal shopping was convenience (65%), followed by availability of vendor information (60%), no pressure from sales person (55%) and saving time (53%).

Although the issue of security remains the primary reason why more people do not purchase items online, the GVA survey also indicates that faith in the security of e-commerce is increasing. As more people gain confidence in current encryption technologies, more and more users can be expected to frequently purchase items online [11].

A good e-commerce site should present the following factors to the customers for better usability [11]:

- Knowing when an item was saved or not saved in the shopping cart.
- Returning to different parts of the site after adding an item to the shopping cart.
- Easy scanning and selecting items in a list.
- Effective categorical organization of products.
- Simple navigation from home page to information and order links for specific products.
- Obvious shopping links or buttons.
- Minimal and effective security notifications or messages.
- Consistent layout of product information.

Another important factor in the design of an e-commerce site is feedback [4]. The interactive cycle between a user and a web site is not complete until the web site responds to a command entered by the user. According to Norman [5], "feedback--sending back to the user information about what action has actually been done, what result has been accomplished--is a well known concept in the science of control and information theory. Imagine trying to talk to someone when you cannot even hear your own voice, or trying to draw a picture with a pencil that leaves no mark: there would be no feedback".

Web site feedback often consists of a change in the visual or verbal information presented to the user. Simple examples include highlighting a selection made by the user or filling a field on a form based on a user's selection from a pull down list. Another example is using the sound of a cash register to confirm that a product has been added to an electronic shopping cart.

Completed orders should be acknowledged quickly. This may be done with an acknowledgment or fulfillment page. The amount of time it takes to generate and download this page, however, is a source of irritation for many e-commerce users. Users are quick to attribute meaning to events. A blank page, or what a user perceives to be "a long time" to receive an acknowledgment, may be interpreted as "there must be something wrong with the order." If generating an acknowledgment may take longer than what may be reasonably expected by the user, then the design should include intermediate feedback to the user indicating the progress being made toward acknowledgment or fulfillment.

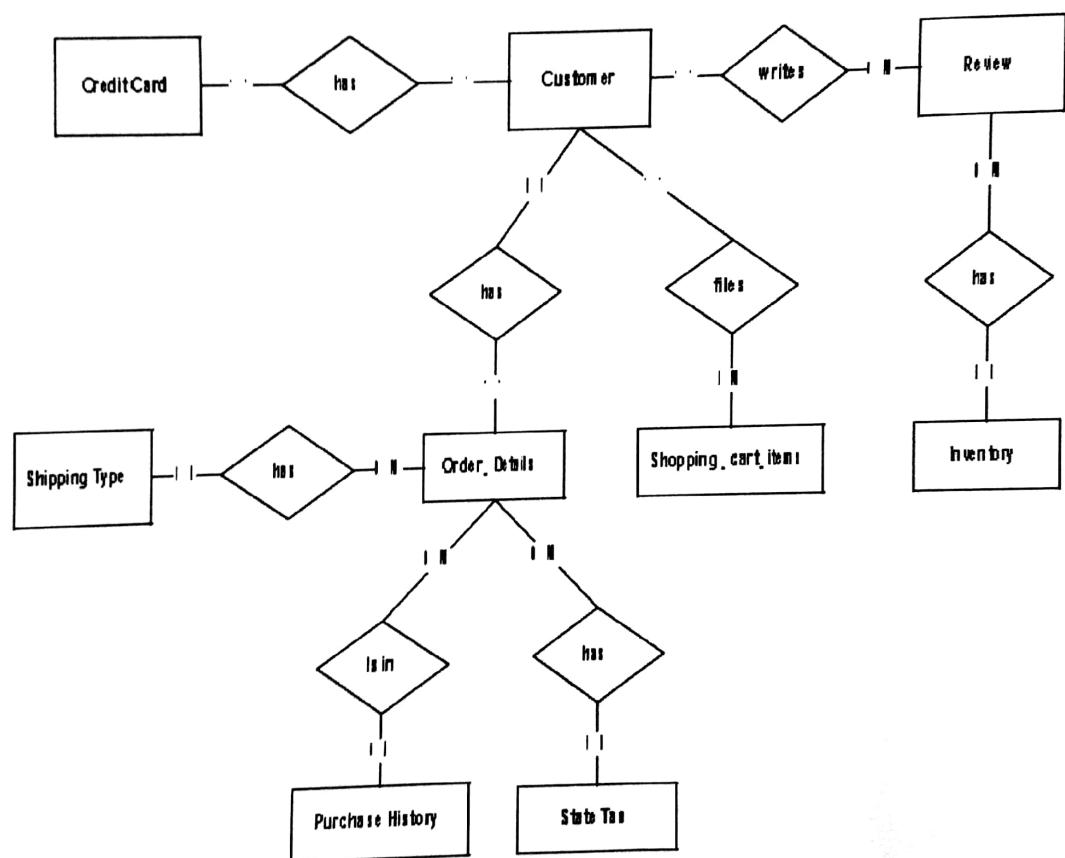
Finally, feedback should not distract the user. Actions and reactions made by the web site should be meaningful. Feedback should not draw the user's attention away from the important tasks of gathering information, selecting products, and placing orders.

### **3. Project Design**

In order to design a web site, the relational database must be designed first. Conceptual design can be divided into two parts: The **data model** and the **process model**. The data model focuses on what data should be stored in the **database** while the process model deals with how the data is processed. To put this in the context of the relational database, the data model is used to design the **relational tables**. The process model is used to design the queries that will access and perform operations on those tables.

### 3.1 Data Model

A data model is a conceptual representation of the data structures that are required by a database. The first step in designing a database is to develop an Entity-Relation Diagram (ERD). The ERD serves as a blue print from which a relational database maybe deduced. Figure 1 shows the ERD for the project and later we will show the transformation from ERD to the Relational model.



entity A matches exactly one record in entity B and every record in B matches exactly one record in A. One to many means that every record in A matches zero or more records in B and every record in B matches exactly one record in A. If there is a one to many relationship between two entities, then these entities are represented as Associative Entities. In the Relational Database model, each of the entities will be transformed into a table. The tables are shown below along with the attributes.

### **3.1.1 Database Design**

In this section, the basic structure of the tables composing the database for the project are shown along with information about primary and foreign keys.

#### **Users**

SNO	NAME	TYPE	DESCRIPTION
1	UserID	Int	
2	Username	Varchar	
3	Password	Varchar	
4	Email	Varchar	
5	FullName	Varchar	
6	GroupID	Int	
7	TrustStatus	Int	
8	RegStatus	Int	
9	Date	Date	

#### **CATEGORIES**

SNO	NAME	TYPE	DESCRIPTION
1	ID	Int	
2	Name	Varchar	
3	Description	Text	
4	Ordering	Int	
5	Visibility	tinyint	
6	Allow_Comment	tinyint	
7	Allow_Ads	tinyint	
8	parent	tinyint	

### **Items**

<b>SNO</b>	<b>NAME</b>	<b>TYPE</b>	<b>DESCRIPTION</b>
1	Item_ID	Int	
2	Name	Varchar	
3	Description	Text	
4	Price	Varchar	
4	Add_Date	Date	
6	Country_Made	Varchar	
7	Image	Varchar	
8	Status	Varchar	
9	Rating	Smallint	
10	Approve	Tinyint	
11	Cat_ID	Int	
12	Member_ID	Int	
13	tags	Varchar	

### **Cart**

<b>SNO</b>	<b>NAME</b>	<b>TYPE</b>	<b>DESCRIPTION</b>
1	Cart_ID	Int	
2	Member_id	Int	
3	Item_id	Int	

### **Brands**

SNO	NAME	TYPE	DESCRIPTION
1	ID	Int	
2	Name	Varchar	
3	Description	Text	
4	Ordering	Int	
4	Visibility	Tinyint	
6	Allow_Comment	Tinyint	
7	Allow_Ads	Tinyint	
8	parent	Int	

### **Comments**

SNO	NAME	TYPE	DESCRIPTION
1	C_id	Int	
2	Comment	Text	
3	Status	Tinyint	
4	Comment_date	Date	
4	Item_id	Int	
6	User_id	Int	

### **3.2. Process Model**

A Process Model tells us about how the data is processed and how the data flows from one table to another to gather the required information. This model consists of the Functional Decomposition Diagram and Data Flow Diagram.

#### **3.2.1. Functional Decomposition Diagram**

A decomposition diagram shows a top-down functional decomposition of a system and exposes the system's structure. The objective of the Functional Decomposition is to break down a system step by step, beginning with the main function of a system and continuing with the interim levels down to the level of elementary functions. The diagram is the starting point for more detailed process diagrams, such as data flow diagrams (DFD). Figure 2 shows the Functional Decomposition Diagram for this project.

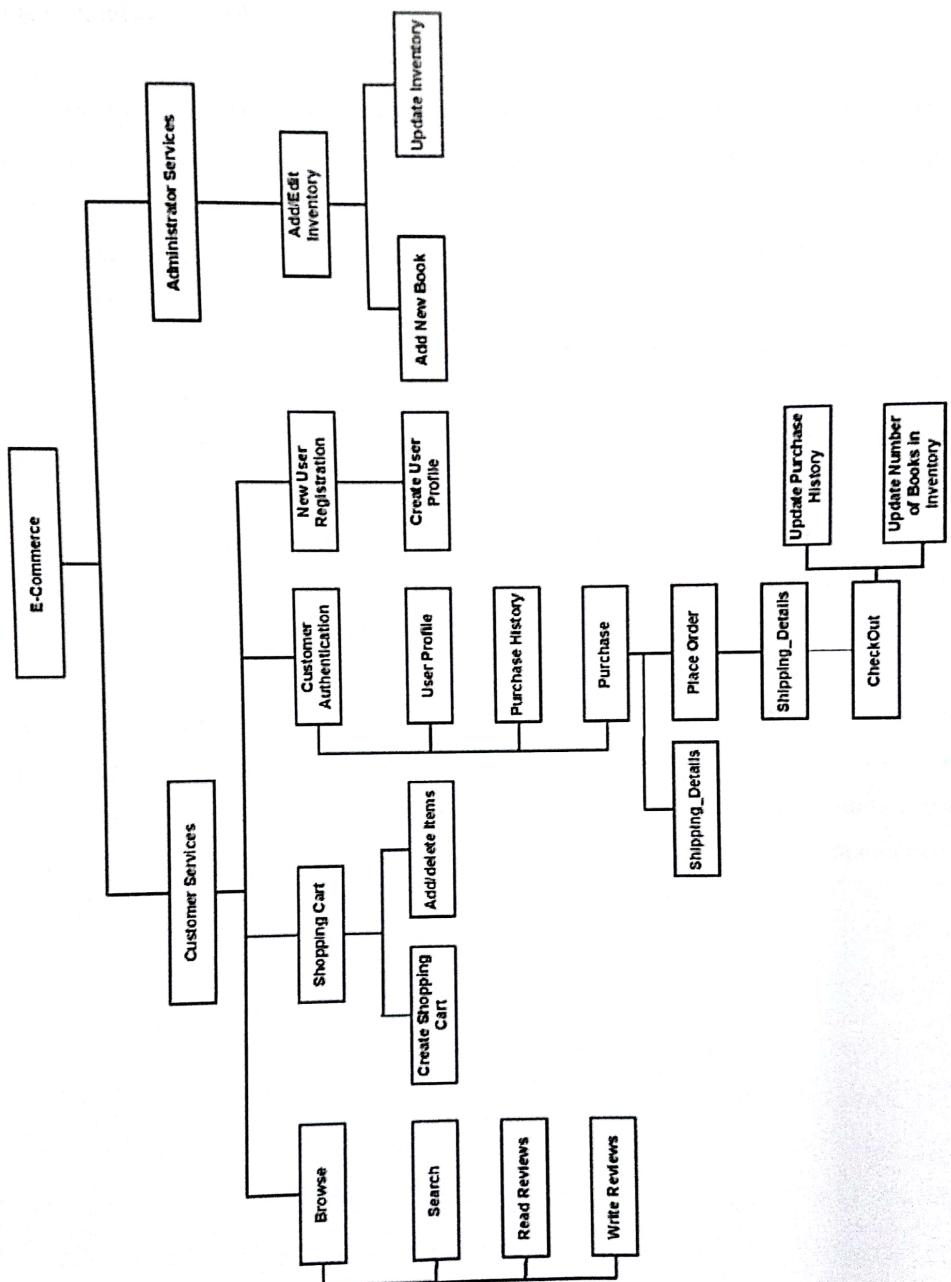


Figure 2 Functional Decomposition Diagram

### 3.2.2 Data Flow Diagram (DFD)

Data Flow Diagrams show the flow of data from external entities into the system, and from one process to another within the system. There are four symbols for drawing a DFD:

1. Rectangles representing *external entities*, which are sources or destinations of data.
2. Ellipses representing *processes*, which take data as input, validate and process it and output it.
3. Arrows representing the *data flows*, which can either, be electronic data or physical items.
4. Open-ended rectangles or a Disk symbol representing *data stores*, including electronic stores such as databases or XML files and physical stores such as filing cabinets or stacks of paper.

Figures 3 - 14 are the Data Flow Diagrams for the current system. Each process within the system is first shown as a Context Level DFD and later as a Detailed DFD. The Context Level DFD provides a conceptual view of the process and its surrounding input, output and data stores. The Detailed DFD provides a more detailed and comprehensive view of the interaction among the sub-processes within the system.

Customer-Browse Context DFD

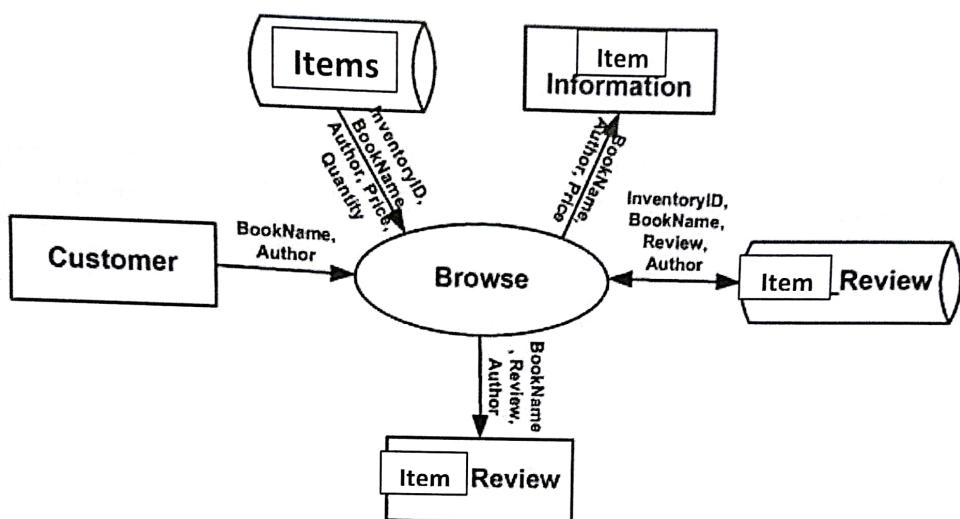


Figure 3 Customer - Browse Context DFD

Customer-Browse Detailed DFD

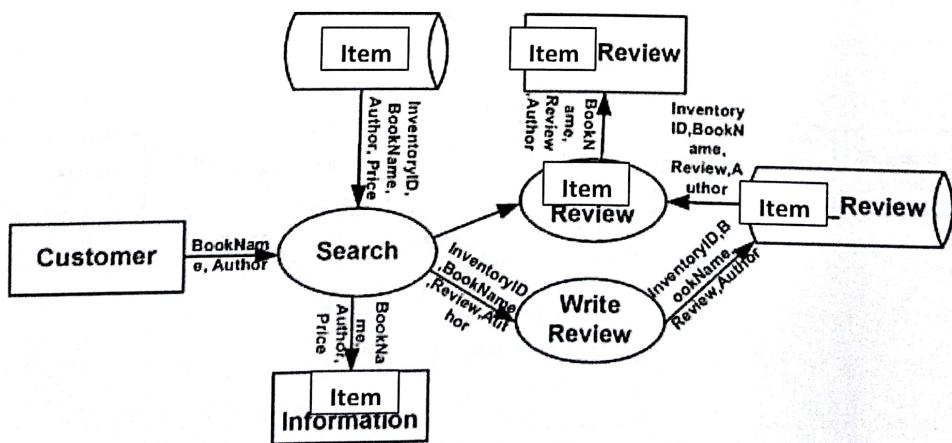


Figure 4 Customer - Browse Detailed DFD

Customer - ShoppingCart Context DFD

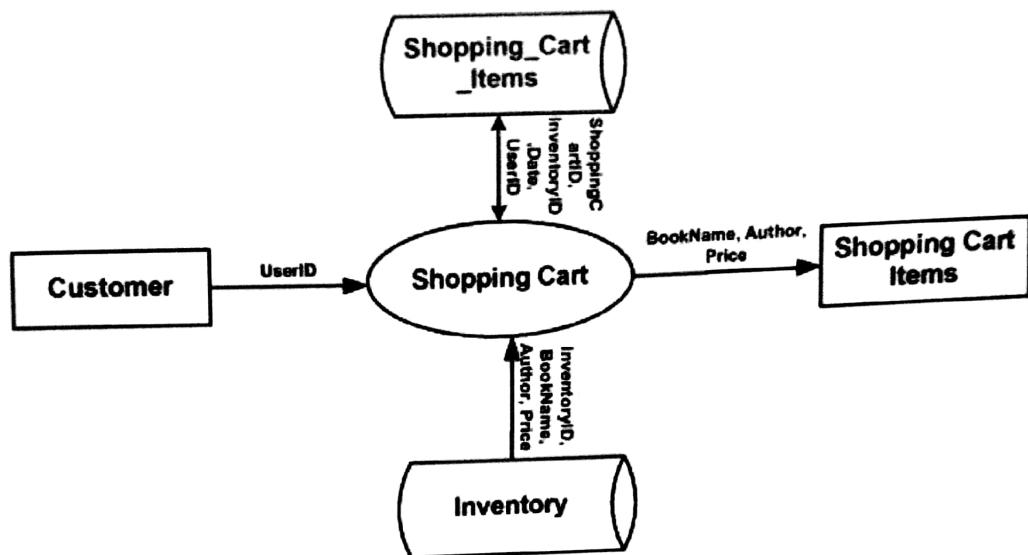


Figure 5 Customer – ShoppingCart Context DFD

Customer - ShoppingCart Detailed DFD

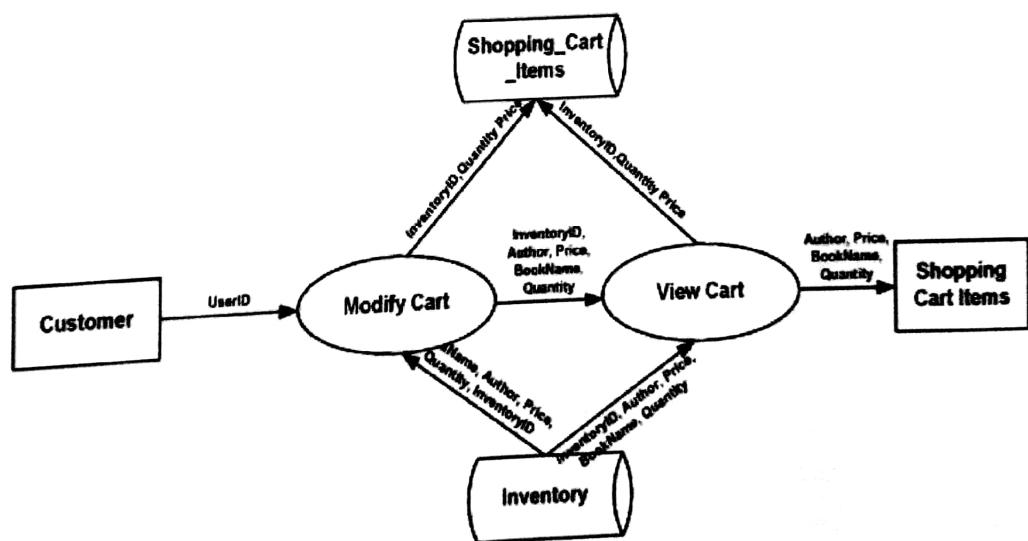


Figure 6 Customer - ShoppingCart Detailed DFD

### Customer-Authentication Context DFD

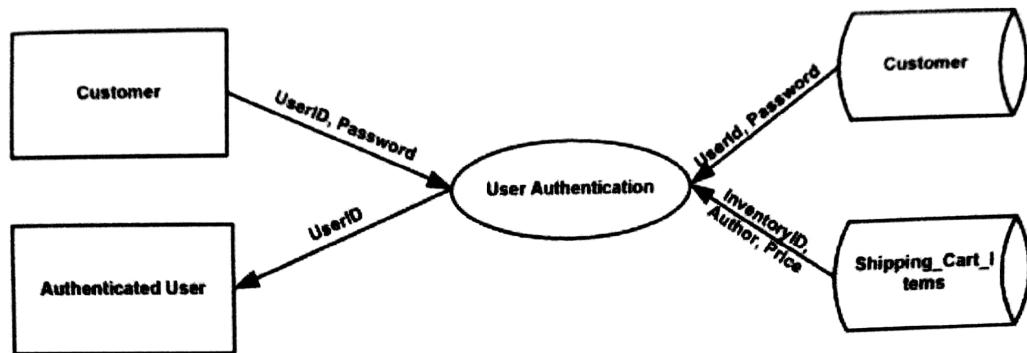


Figure 7 Customer - Shopping Cart Detailed DFD

### Customer-Authentication-PurchaseHistory DFD

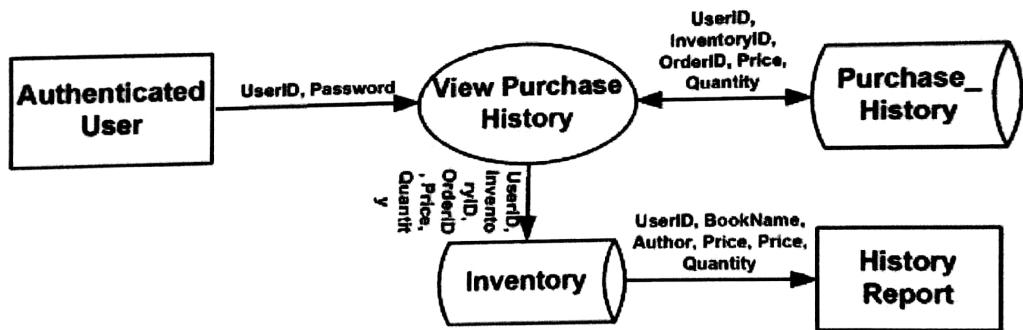


Figure 8 Customer - Shopping Cart Detailed DFD

### Customer-Authentication-UserProfile DFD



Figure 9 Customer – Authentication – UserProfile DFD

### Authenticated User-Purchase Context DFD

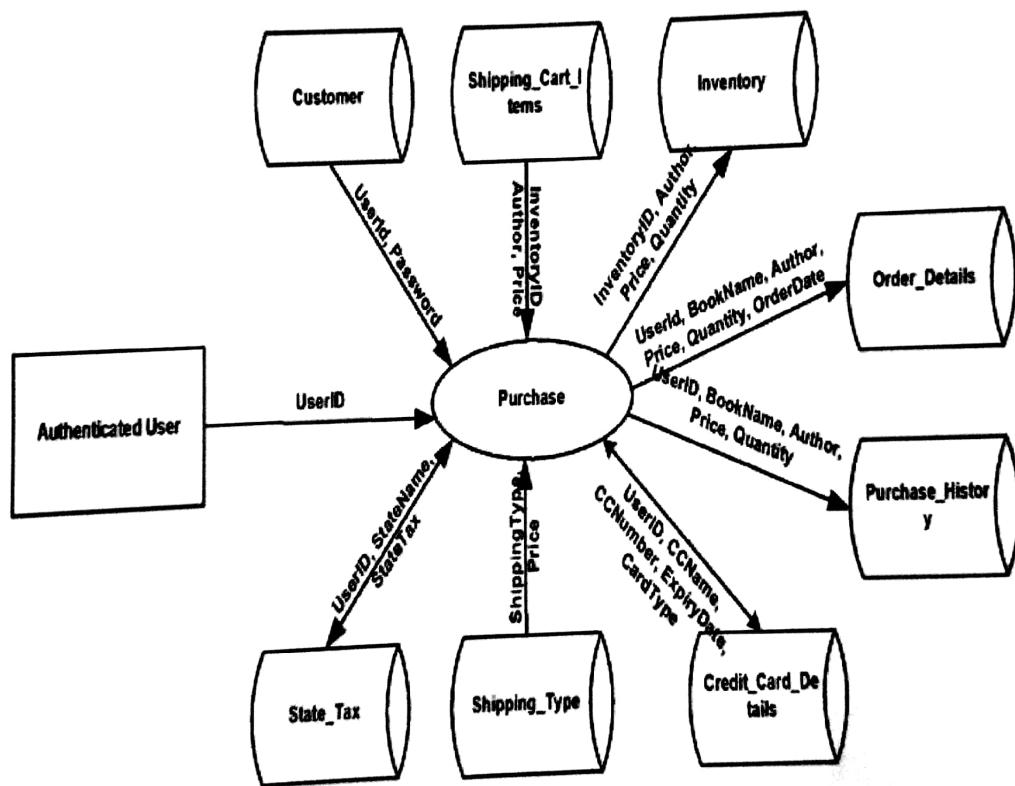


Figure 10 Authenticated User-Purchase Context DFD

## Authenticated User-Purchase DFD

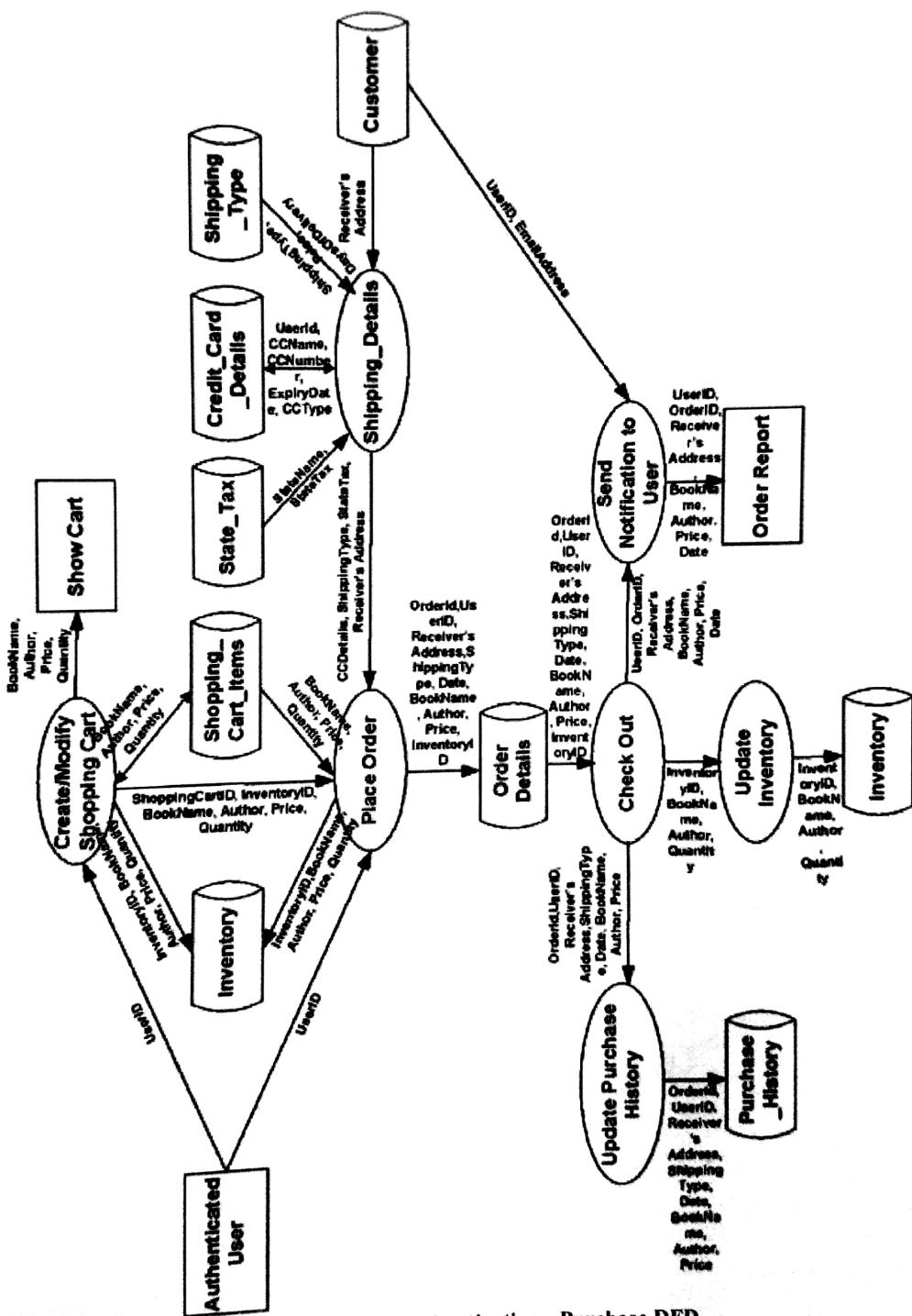
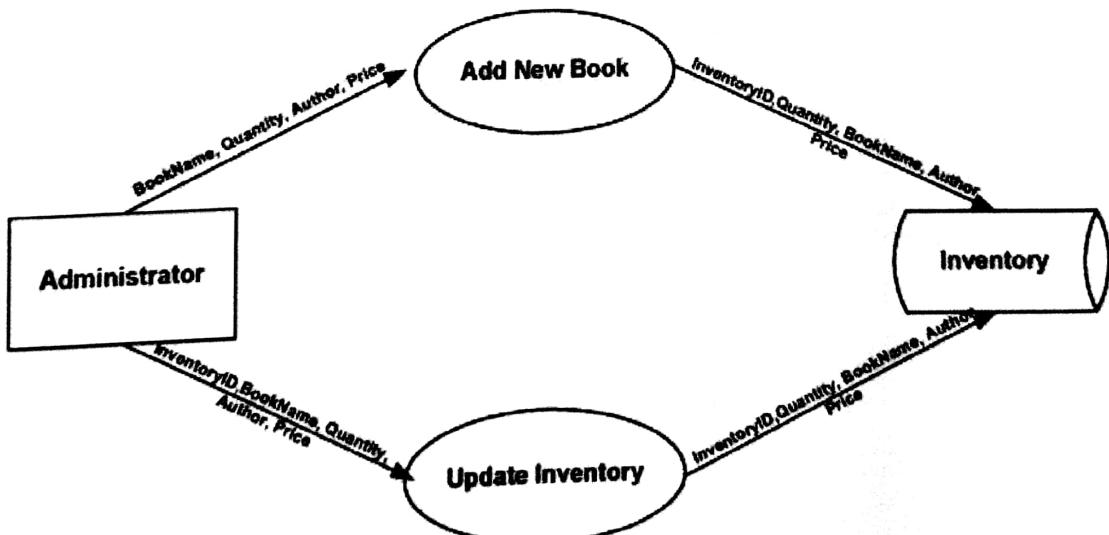
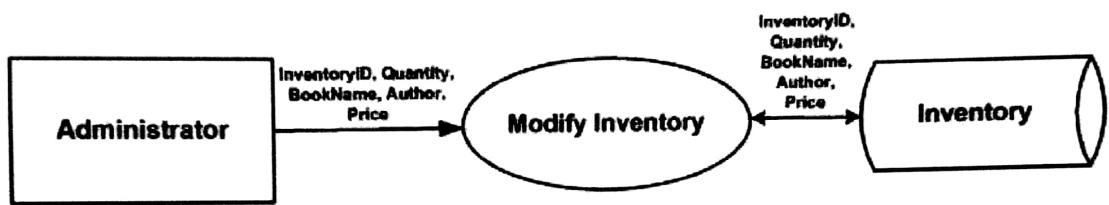


Figure 11 Customer - Authentication - Purchase DFD

### Customer-NewUserRegistration DFD



### 3.3 User Interface Design

Before implementing the actual design of the project, a few user interface designs were constructed to visualize the user interaction with the system as they browse for items, create a shopping cart and purchase items. The user interface design will closely follow our Functional Decomposition Diagram (Figure 2). Figures 15 – 20 show the initial designs of the web pages.

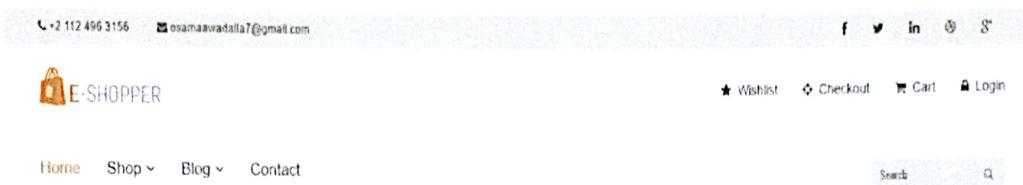


Figure 15 Menu



Figure 16 Display of Books present in the store



**Figure 17 For searching the books in the store**

A screenshot of a shopping cart page. At the top, there is a breadcrumb navigation showing "Home > Shopping Cart". Below this is a table with the following data:

Item	Description	Price	Quantity	Total
	The Lenovo A7020 K5 Note Dual SIM smartphone has a stylish design and houses many exciting and new features in its sleek gold chassis. Equipped with a 5.5inch Full HD display, it provides an immersive viewing experience as it enables you to view crisp and clear content. The ...	\$350	<input style="width: 10px; height: 10px;" type="button" value="+"/> <input type="text" value="1"/> <input style="width: 10px; height: 10px;" type="button" value="-"/>	\$350

**Figure 18 Shopping Cart for the user**

## New User Signup!

Name

Email Address

Password

Type Password Again

**Signup**

**Figure 19 Registration of the new user**

## Login to your account

Name

password

Keep me signed in

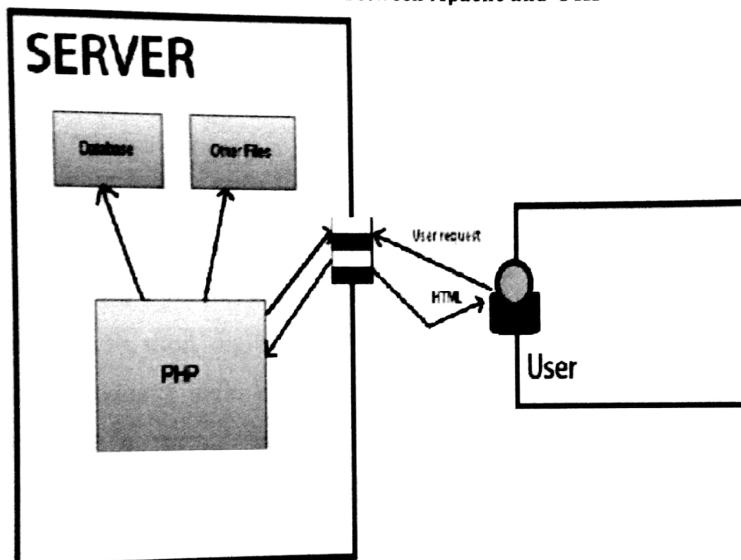
**Login**

**Figure 20 Authentication of the user**

#### **4. Implementation Technologies**

The objective of this project is to develop an online product store. When the user types in the URL of the site Store in the address field of the browser, Apache receives a request for a URL and forwards this request on to PHP. PHP sends 'queries', in a language called SQL, to the database, which responds by generating the required

**Figure 21 Relation between Apache and PHP**



information.

PHP formats the information into a web page constructed from HTML that is then passed back to Apache. Apache sends the web page to the browser which displays it to the user.

#### **4.1. APACHE**

Apache HTTP Server, colloquially called Apache is free and open-source cross-platform web server software, released under the terms of Apache License 2.0. Apache is developed and maintained by an open community of developers under the auspices of the Apache Software Foundation. Originally based on the NCSA HTTPd server, development of Apache began in early 1995 after work on the NCSA code stalled. Apache played a key role in the initial growth of the World Wide Web.

**Features:** Apache supports a variety of features, many implemented as compiled modules which extend the core functionality. These can range from server-side programming language support to authentication schemes. Some common language interfaces support Perl, Python, Tcl, and PHP. Popular authentication modules include mod\_access, mod\_auth, mod\_digest, and mod\_auth\_digest, the successor to mod\_digest. A sample of other features include Secure Sockets Layer and Transport Layer Security support (mod\_ssl), a proxy module (mod\_proxy), a URL rewriting module (mod\_rewrite), custom log files (mod\_log\_config), and filtering support (mod\_include and mod\_ext\_filter).

**Development:** The Apache HTTP Server Project is a collaborative software development effort aimed at creating a robust, commercial-grade, feature-rich and freely available source code implementation of an HTTP (Web) server. The project is jointly managed by a group of volunteers located around the world, using the Internet and the Web to communicate, plan, and develop the server and its related documentation. This project is part of the Apache Software Foundation. In addition, hundreds of users have contributed ideas, code, and documentation to the project.

## **4.2 PHP**

PHP is a server-side scripting language designed primarily for web development but also used as a general-purpose programming language. Originally created by Rasmus Lerdorf in 1994,[4] the PHP reference implementation is now produced by The PHP Development Team.[5] PHP originally stood for Personal Home Page,[4] but it now [stands for the recursive acronym PHP: Hypertext Preprocessor.[6]

PHP code may be embedded into HTML or HTML5 markup, or it can be used in combination with various web template systems, web content management systems and web frameworks. PHP code is usually processed by a PHP interpreter implemented as a module in the web server or as a Common Gateway Interface (CGI) executable. The web server software combines the results of the interpreted and executed PHP code, which may be any type of data, including images, with the generated web page. PHP code may also be executed with a command-line interface (CLI) and can be used to implement [standalone graphical applications.[7]

The standard PHP interpreter, powered by the Zend Engine, is free software released under the PHP License. PHP has been widely ported and can be deployed on most web servers on almost every operating system and platform, free of charge.[8]

The PHP language evolved without a written formal specification or standard until 2014, leaving the canonical PHP interpreter as a de facto standard. Since 2014 work has gone on to create a formal PHP specification.

#### **4.2.1. Authentication in PHP**

It is possible to use the header() function to send an "Authentication Required" message to the client browser causing it to pop up a Username/Password input window. Once the user has filled in a username and a password, the URL containing the PHP script will be called again with the predefined variables PHP\_AUTH\_USER, PHP\_AUTH\_PW, and AUTH\_TYPE set to the user name, password and authentication type respectively. These predefined variables are found in the \$\_SERVER array. Both "Basic" and "Digest" (since PHP 5.1.0) authentication methods are supported. See the header() function for more information

An example script fragment which would force client authentication on a page is as follows:

```
<?php
if (!isset($_SERVER['PHP_AUTH_USER'])) {
    header('WWW-Authenticate: Basic realm="My Realm"');
    header('HTTP/1.0 401 Unauthorized');
    echo 'Text to send if user hits Cancel button';
    exit;
} else {
    echo "<p>Hello {$_SERVER['PHP_AUTH_USER']}</p>";
    echo "<p>You entered {$_SERVER['PHP_AUTH_PW']} as your password.
</p>";
}
?>
```

### **4.3. MySQL Database**

In this project, MySQL is used as the backend database. MySQL is an open-source database management system. The features of MySQL are given below:

- MySQL is a relational database management system. A relational database stores information in different tables, rather than in one giant table. These tables can be referenced to each other, to access and maintain data easily.
- MySQL is open source database system. The database software can be used and modify by anyone according to their needs.
- It is fast, reliable and easy to use. To improve the performance, MySQL is multi-threaded database engine. A multithreaded application performs many tasks at the same time as if multiple instances of that application were running simultaneously.

In being multithreaded MySQL has many advantages. A separate thread handles each incoming connection with an extra thread that is always running to manage the connections. Multiple clients can perform read operations simultaneously, but while writing, only hold up another client that needs access to the data being updated. Even though the threads share the same process space, they execute individually and because of this separation, multiprocessor machines can spread the thread across many CPUs as long as the host operating system supports multiple CPUs. Multithreading is the key feature to support MySQL's performance design goals. It is the core feature around which MySQL is built.

MySQL database is connected to PHP using an PDO driver. PHP Data Objects (PDO) as an abstraction layer used for accessing databases, and even speech synthesis. Some of the language's core functions, such as those dealing with strings and arrays, are also implemented as extensions. The PHP Extension Community Library (PECL) project is a repository for extensions to the PHP language.

## 5. Web Page Programming Options

An e-commerce organization can create data-based Web pages by using server-side and client-side processing technologies or a hybrid of the two. With server-side processing, the Web server receives the dynamic Web page request, performs all processing necessary to create the page, and then sends it to the client for display in the client's browser. Client-side processing is done on the client workstation by having the client browser execute a program that interacts directly with the database.

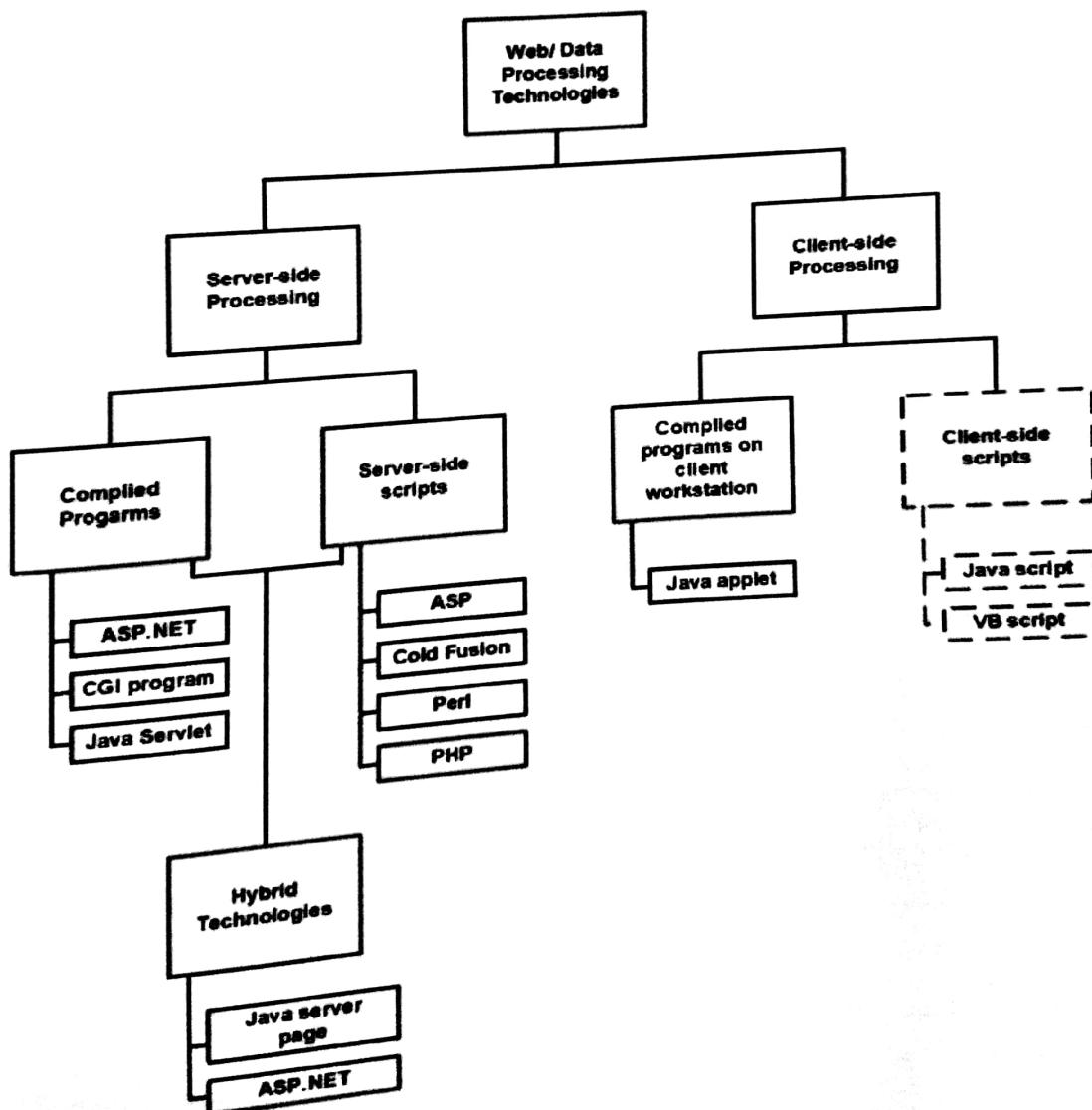


Figure 22 Web page programming options

Figure 22 (reproduced from [3]) outlines commonly used server-side, client-side, and hybrid Web and data processing technologies; client-side scripts are in dashed lines to indicate they are unable to interact directly with a database or file but are used to validate user input on the client, then send the validated inputs to the server for further processing.

### 5.1. Server-side processing.

Generally dynamic or data-driven Web pages use HTML forms to collect user inputs, submitting them to a Web server. A program running on the server processes the form inputs, dynamically composing a Web page reply. This program, which is called, servicing program, can be either a compiled executable program or a script interpreted into machine language each time it is run.

*Compiled server programs.* When a user submits HTML- form data for processing by a compiled server program, the Web Server invokes the servicing program. The servicing program is not part of the Web server but it is an independent executable program running on the Web server; it processes the user input, determines the action which must be taken, interacts with any external sources (Eg: database) and finally produces an HTML document and terminates. The Web server then sends the HTML document back to the user's browser where it is displayed. Figure 23 shows the flow of HTTP request from the client to the Web server, which is sent to the servicing program. The program creates an HTML document to be sent to the client browser.

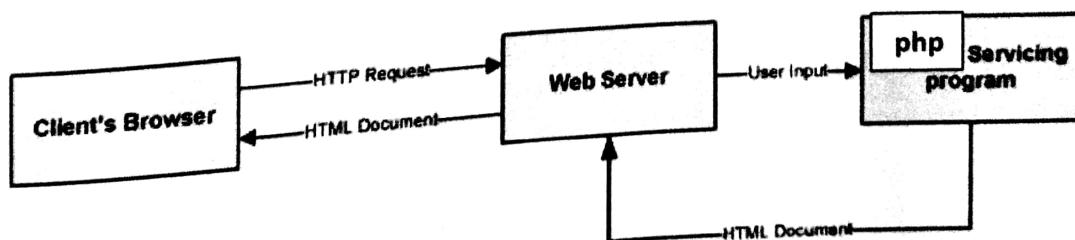


Figure 23 Compiled server programs flowchart

Popular languages for creating compiled server programs are Java, Visual Basic, and C++, but almost any language that can create executable programs can be used, provided that it supports commands used by one of the protocols that establish guidelines for communication between Web servers and servicing programs. The first such protocol, introduced in 1993, for use with HTML forms was the Common Gateway Interface (CGI); many servicing programs on Web sites still use CGI programs. However, a disadvantage of using CGI-based servicing programs is that each form submitted to a Web server starts its own copy of the servicing program on the Web server.

A busy Web server is likely to run out of memory when it services many forms simultaneously; thus, as interactive Web sites have gained popularity, Web server vendors have developed new technologies to process form inputs without starting a new copy of the servicing program for each browser input. Examples of these technologies for communicating with Web servers include Java Servlets [8] and Microsoft's PHP [7]; they allow a single copy of the servicing program to service multiple users without starting multiple instances of the program.

*Server-side scripts.* Web-based applications can also use server-side scripts to create dynamic Web pages that are able to retrieve and display information from a backend database and modify data records. The processing architecture is the same as the processing architecture used for compiled server programs (Figure 21), except the Web

server processing is performed through and interpreted script rather than a compiled program.

If needed, a developer can have a single Web server process a variety of scripts written with any or all of these technologies. The Web server knows which script interpreter to invoke by taking note of the requesting script's file extension. Table 1 below demonstrates some commonly used extensions and the related technologies.

**Table 1** Processing Technology for different File Extensions

Processing technology interpreter/compiler	File Extension
Microsoft Active Server Page	.asp
Microsoft ASP.NET web page	.aspx
Microsoft Scripting Language "JScript" file extension	.js
PHP Script	.php
Visual Basic Project	.vbp

*Server-side hybrid processing.* Compiled server-side programs offer two main advantages: First, they are compiled and stored in a machine-readable format; so they usually run faster than scripts. Second, compiled programs are usually created in integrated development environments that provide debugging utilities. The advantage of using scripts is that their modification requires only a text editor rather than installation of an associated development environment.

## **5.2. Client-Side Processing.**

Client-side Web page processing is achievable through compiled programs downloaded, installed, and executed on the client workstation or by creating scripts with the HTML Web page commands interpreted by the client browser.

*Downloading and running compiled programs on client workstations.* When a user clicks a hyperlink on a Web page associated with a compiled client-side program, the user's browser must have the ability to run the executable program file; this program interacts with the user, sending and retrieving data from a database server as needed.

Many times, the user is asked to install certain ActiveX components to view some animations or play games. This new component *plugs in* into the existing system, thus extending the functionality of the system.

Java Applets are another example of compiled programs on client workstations. An applet is a program written in the Java programming language that can be included in an HTML page, much in the same way an image is included in a page. When we use a Java technology-enabled browser to view a page that contains an applet, the applet's code is transferred to our system and executed by the browser.

*Client-side scripts.* In a client-side script, source code written in such languages as JavaScript and VBScript is embedded in an HTML document, along with the static HTML text; it is placed within delimiter tags to indicate to the user's browser that the text is code that must be interpreted. If the user's browser is able to recognize and interpret the code, it is processed. If the browser is unable to recognize and interpret the code, it is displayed as text on the Web page.

Although basic client-side scripts cannot be used by a Web page to interact with a remote database, they are often used to validate user inputs entered on HTML forms submitted for processing by a server-side program; for example, a script running on a

client workstation might check the inputs users submit to a Web page to make sure they entered all required data and appropriate data values. This approach avoids transmitting inputs to the Web server that are incomplete or include errors, while offloading error checking and handling from the Web server program to the client workstation.

Client-side scripts can also be used to create advanced Web page features, including: animations, calculations, playing sound and video, and image maps allowing users to move their cursors over an image and click to access different Web page links.

JavaScript is the most commonly used client-side scripting language and is supported by most browsers.

Use of a client-side scripting language depends on the user's operating system, browser platforms, and developer expertise. If the Web pages in question are to be accessed by a variety of users over the Internet, JavaScript is probably better than VBScript, as JavaScript is the only scripting language able to run on nearly all browsers. If the Web pages are to be accessed on an intranet and if the organization has standardized on Microsoft's browser and Web server, VBScript is a satisfactory scripting language for creating client-side scripts.

## **6. Web Based Application Development**

The Web is built on the Hyper Text Transfer Protocol. HTTP is a client/server request/reply protocol that is *stateless*. That is, the protocol does not make any association between one transaction and another; e.g.: time since the last transaction, type or client involved in the last transaction, what data was exchanged between the client and the server. As far as HTTP is concerned, each transaction is a discrete event. But this is not what we want in a shopping cart application because we need to preserve the user's shopping selection as they proceed with their purchase, in addition it is useful to have the access to their past purchase history and personal preferences.

Carrying information from one page to another can be achieved by several ways, such as Cookies, Session variables, Post variables, etc.

A cookie is a small file that has a maximum age, a domain and path of applicability, and a security specification. Any time a server sends a response to a client, it may include one or more Set-Cookie headers. When a client receives a Set-cookie header, it stores the content of the header and the cookie, for later use. In our application, every time the client selects an item to put in the shopping cart, the server can send a Set-Cookie whose content is the ID of the item, and whose domain and path of applicability are the URL of the order/payment page. Then, when the user goes to order and pay, the client will send the Cookie headers for each of the selected items. Upon receiving this request, the server can parse the supplied cookies and charge the user appropriately for the selected items. Cookies may also be used to identify the users.

However, cookies are very insecure to use since they are transmitted as plain text and the server has no control over how cookies are stored in at the client's side. Another approach is based on a notion of session ID. These notions provide means for the server to track the requests of a client through a "session", but unlike cookies, which are stored on the client, Session variables are stored on the Server. A session starts when a user logs in and ends when they log off from the website.

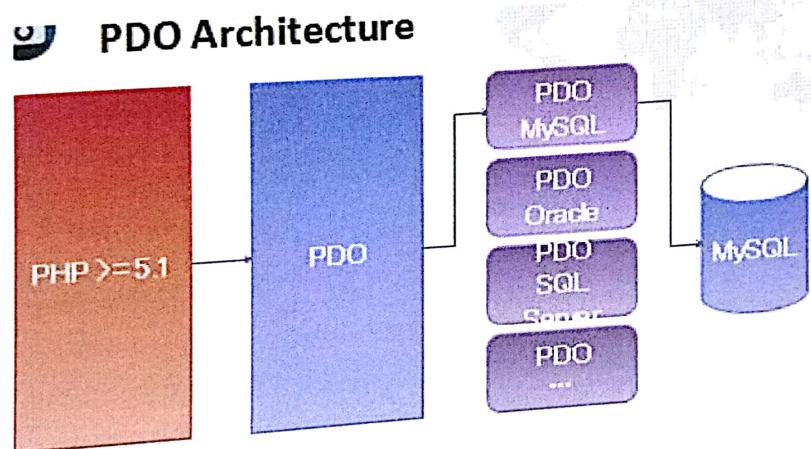
The Session object is used to store information about, or change settings for a user session. Variables stored in the Session object hold information about one single user, and are available to all pages in one application. Common information stored in session variables are name, id, and preferences. The server creates a new Session object for each new user, and destroys the Session object when the session expires.

In this project, the concept of session variables will be used for maintaining state information.

## 7. Database Connectivity

In e-commerce applications it is very typical for the Web server to contact the database to get information as needed. PHP uses a technology called PHP Data Objects (PDO) to connect to the database.

PDO follows the below process, Figure 24, to connect to the database and



retrieve data to the application [21].

Figure 24 PDO Architecture

## 7.1 Connecting PHP application to a Database

The steps required to connect our PHP application to the MySQL database and access the data are given below|

```
<?php  
  
$dsn = 'mysql:host=localhost;dbname=honzo';  
$user = 'root';  
$pass = '';  
$option = array(  
    PDO::MYSQL_ATTR_INIT_COMMAND => 'SET NAMES utf8',  
);  
  
try {  
    $con = new PDO($dsn, $user, $pass, $option);  
    $con->setAttribute(PDO::ATTR_ERRMODE, PDO::ERRMODE_EXCEPTION);  
}  
  
catch(PDOException $e) {  
    echo 'Failed To Connect' . $e->getMessage();  
}  
?  
?>
```

The data can now be used as desired by the application.

Below figures show some screenshots taken from running the application. All the functionalities are explained accordingly.

The image contains two screenshots of a web application interface:

- Admin Login:** A screenshot of a browser window showing the "Admin Login" page. It has two input fields: "Username" and "Password", and a blue "Login" button below them.
- Dashboard:** A screenshot of a browser window showing the "Dashboard" page. The page title is "Dashboard". It features four summary cards:
  - Total Members: 3
  - Pending Members: 1
  - Total Items: 66
  - Total Comments: 0A section titled "Latest 6 Items" lists six items with small preview images and "View" buttons:
  - Crystal Analog Gold Dial Case Wrist Quartz Lady
  - Casio LTP-V002G-9A For Women- Analog Dress Watch
  - Bracelet Watch for Women by Vintage, Analog, Leather, Brown
  - Casio Analog Dress Watch For Men - MTP-1314L-8A
  - Casio SGW-400HD-1B For Men- Analog, Digital Casual Watch

**HONZO SHOP** Categories

## Manage Categories

[Manage Categories](#)

**Watches**  
This Category Contains Watches From Several Models And Companies

**Computers & Laptops**  
This Category Contains Personal Computers And Laptops From Different Companies

**Books**  
This Category Contains Books Of All Categories

**Mobiles & Tablets**  
This Category Contains Very Famous Phones And Tablets



**HONZO SHOP** Items

Home Categories Items Members Comments Orders

## Manage Items

ID	Item Name	Description	Price	Adding Date	Category	Username	Control
57	Crystal Analog Gold Dial Case Quartz Lady	Crystal Analog Gold Dial Case Quartz Lady round shape working with battery analog, fashionable 12-Hour Dial Bling Crystal Arabic Numerals	40	2017-06-17	Watches	ahmed	<a href="#">Edit</a> <a href="#">Delete</a>
66	Casio LTP-V002G-BA For Women Analog Dress Watch	Band Material: Stainless Steel Case Material: Stainless Steel Band Color: Gold Dial Color: Gold Movement: Quartz Band Material: Stainless Steel Case Material: Stainless Steel Band Color: Gold Dial Color: Gold Movement: Quartz	30	2017-06-17	Watches	ahmed	<a href="#">Edit</a> <a href="#">Delete</a>
65	Bracelet Watch for Women by Vintage Analog Leather Brown	Stylish and modern design timepiece by Vintage with strap that is made of Leather that gives a smooth touch and unique look. The attractive design of the watch makes it fit along with most apparel in parties, special occasions or to send it as a gift to whom you love. Brand: Vintage+Brand	20	2017-06-17	Watches	ahmed	<a href="#">Edit</a> <a href="#">Delete</a>
64	Casio Analog Dress Watch For Men MTP-1314L-8A	The Casio Analog Dress Watch is the perfect accessory for today's modern men. It provides you with a date display apart from your regular time viewing. It can be worn for a casual outing with friends as well as a semi-formal meeting with your	40	2017-06-17	Watches	ahmed	<a href="#">Edit</a> <a href="#">Delete</a>



ON2O SHOP

Members

localhost:51/project1/admin/manageMembers.php

## Manage Members

ID	Username	Email	Full Name	Registered Date	Control
4	gamal	gamal@gmail.com		2017-05-21	<a href="#">Edit</a> <a href="#">Delete</a> <a href="#">Activate</a>
3	ahmed	ahmed@gmail.com	Ahmed Elasayed	2017-05-20	<a href="#">Edit</a> <a href="#">Delete</a>

+ New Member

Osama



ON2O SHOP

Comments

localhost:51/project1/admin/comments.php

Home Categories Items Members Comments Osama

| There's No Comments To Show



Home Shop Categories

Add New Category

Name: Name Of The Category \*

Description: Describe The Category

Ordering: Number To Arrange The Categories

Parent?: None

Visible:  Yes  No

Allow Commenting:  Yes  No

Allow Ads:  Yes  No

**Add Category**

**Edit Category**

Name	Watches*
Description	This Category Contains Watches From Several Models And Com
Ordering	1
Parent?	none
Visible	<input checked="" type="radio"/> Yes <input type="radio"/> No
Allow Commenting	<input checked="" type="radio"/> Yes <input type="radio"/> No
Allow Ads	<input checked="" type="radio"/> Yes <input type="radio"/> No
<b>Save</b>	

**Add New Item**

Name	Name of The Item
Description	Description of The Item *
Price	Price of The Item *
Country	Country of Made *
Status	
Member	
Category	
Item Image	Choose File No file chosen *
Tags	Separate Tags With Comma ( )

**Add Item**



**Edit Item**

Name	Electric Keyboards - Black and White *
Description	Product Features This child's keyboard is an easy and fun way *
Price	20 *
Country	China
Status	New
Member	ahmed
Category	Toys
Tags	baby toys

**Save Item**



**Add New Member**

<b>Username</b>	Username To Login Into Shop
<b>Password</b>	Password Must Be Hard & Complex
<b>Email</b>	Email Must Be Valid
<b>Full Name</b>	Full Name Appear In Your Profile Page

**Add Member**

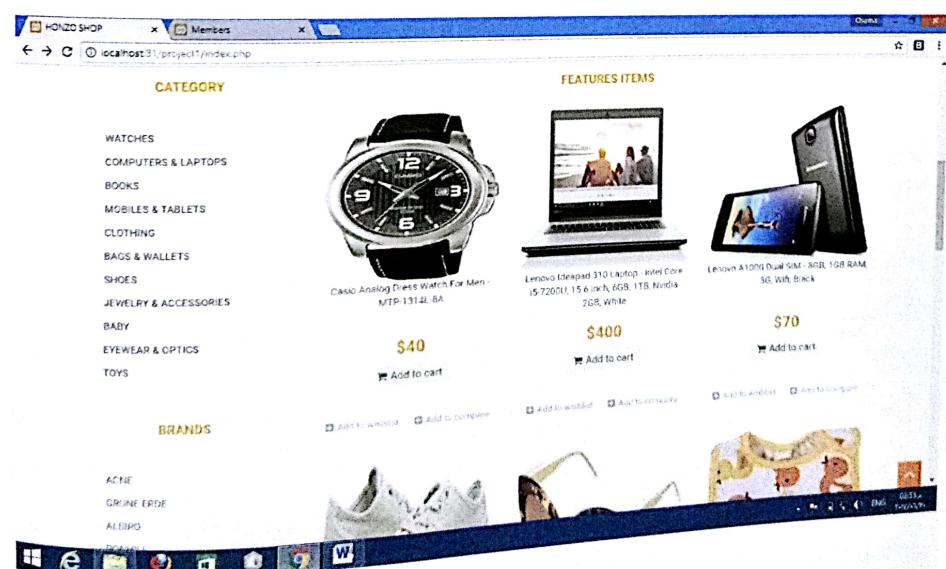
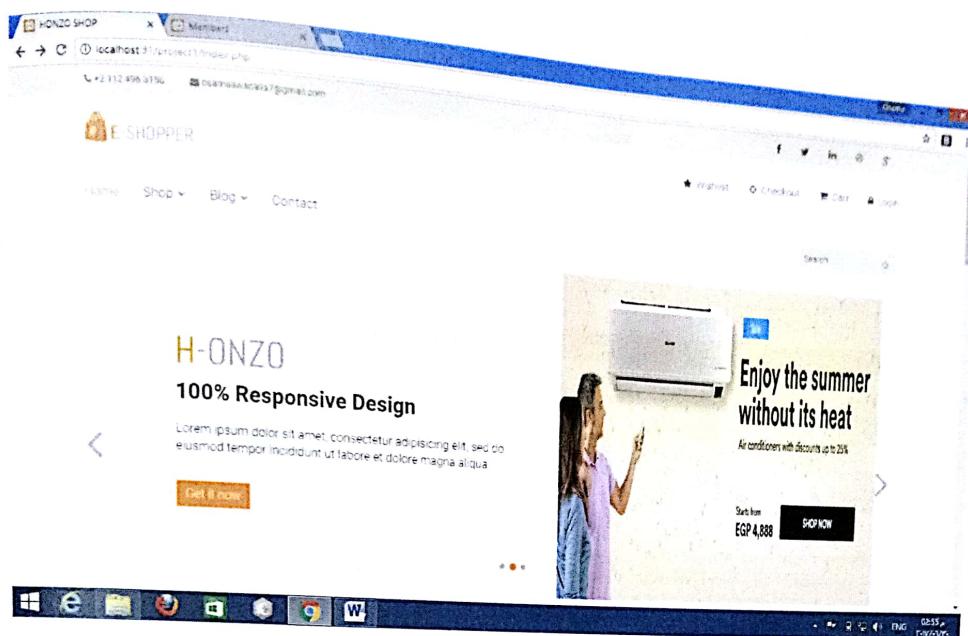


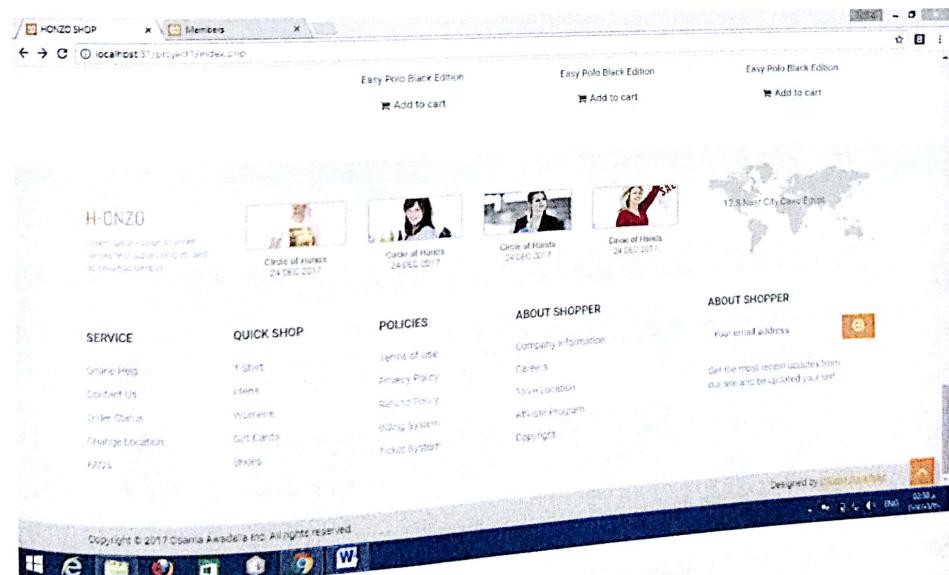
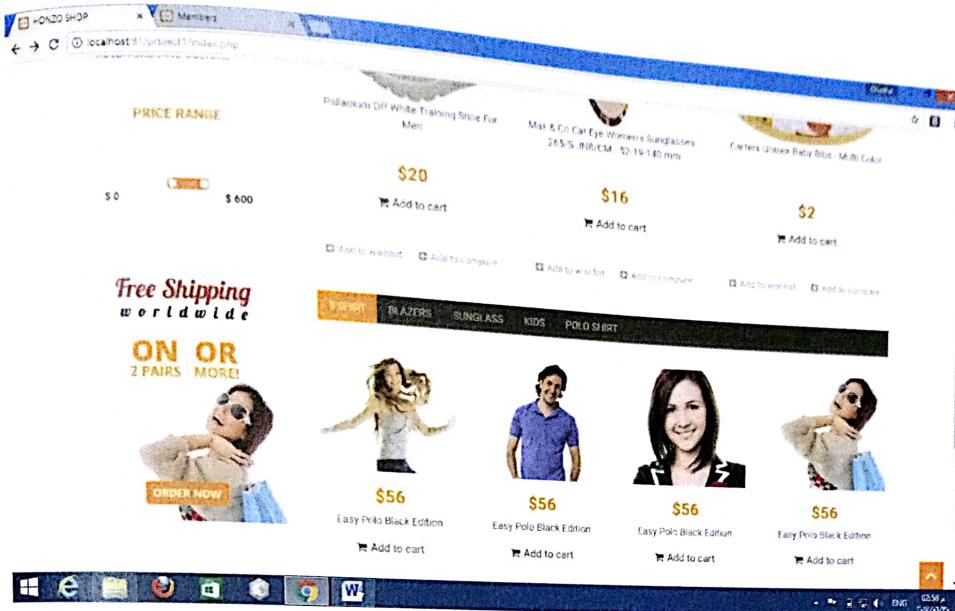
**Edit Member**

<b>Username</b>	ahmed
<b>Password</b>	Leave Blank If You Don't Want To Change
<b>Email</b>	ahmed@gmail.com
<b>Full Name</b>	Ahmed Elasayed

**Save**







and  
Data  
how  
iven  
ts to  
vide

Product Details    Members

localhost:81/project1/product-details.php?prod\_id=12

# E SHOPPER

Home Shop Blog Contact

CATEGORY

- WATCHES
- COMPUTERS & LAPTOPS
- BOOKS
- MOBILES & TABLETS
- CLOTHING
- BAGS & WALLETS
- SHOES
- JEWELRY & ACCESSORIES
- BABY
- EYEWEAR & OPTICS
- TOYS

BRANDS



**Max & Co Cat Eye Women's Sunglasses -  
265/S JN8/CM - 52-19-140 mm**

**\$16** Quantity: 3 **Add to cart**

Availability: In Stock  
Condition: New  
Brand: HONZO

Facebook Twitter Print Email

Cart    Members

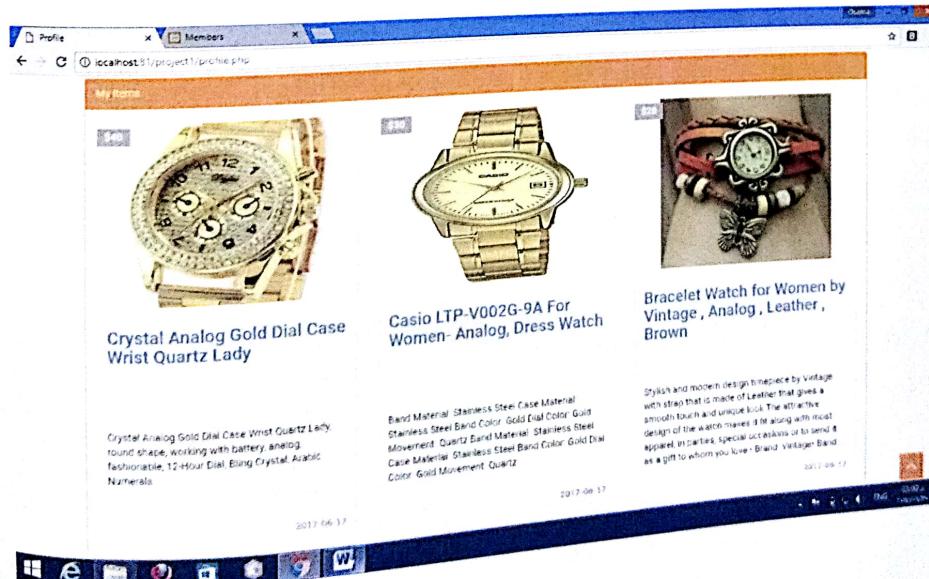
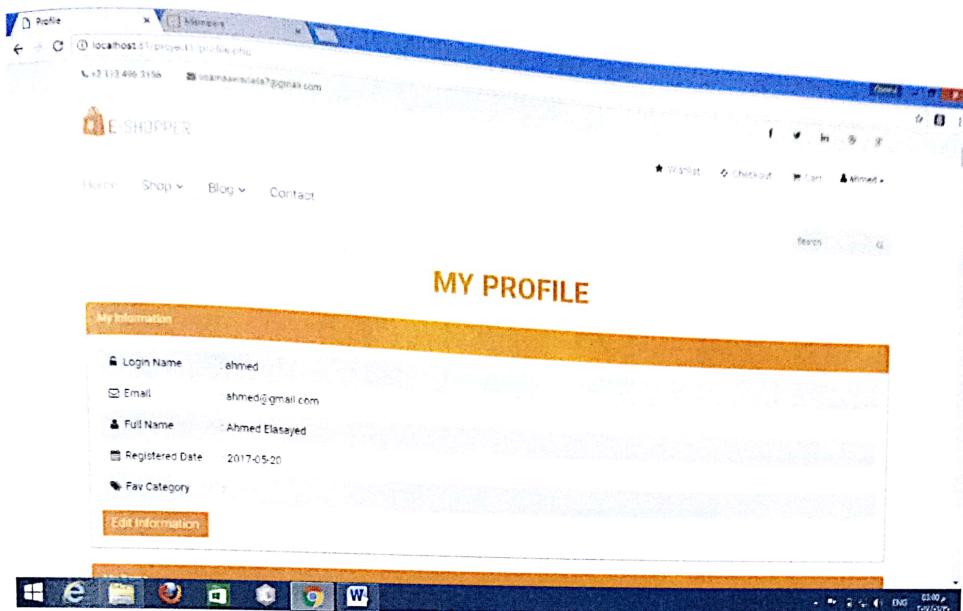
localhost:81/project1/cart.php?cart\_id=59

Home Shop Blog Contact

Shopping Cart

Item	Description	Price	Quantity	Total
	The Lenovo A7020 K5 Note Dual SIM smartphone has a stylish design and houses many exciting and new features in its sleek gold chassis. Equipped with a 5.5inch Full HD display, it provides an immersive viewing experience as it enables you to view crisp and clear content. The ...	\$350	<input type="button" value="+"/> <input type="text" value="1"/> <input type="button" value="-"/>	\$350
	Increase your storage and your possibilities. With powerful processors and graphics, this expandable desktop packs big performance into a compact design. Product Features: 16GB memory lets you run your most demanding programs. Extra-large 1TB hard drive holds thousands of songs, photos ...	\$600	<input type="button" value="+"/> <input type="text" value="1"/> <input type="button" value="-"/>	\$600

What would you like to do next?



Create New Item

## CREATE NEW ITEM

Create New Item

Name	Name of the item
Description	Description of the item
Price	Price of the item
Country	Country of Made
Status	...
Category	...
Item Image	<input type="button" value="Choose File"/> No file chosen
Tags	Separate Tags With Comma (,)
<input type="button" value="Add Item"/>	

Title  
Description

Choose File No file chosen

Add Item

Login

New User Signup!

Login to your account

OR

Name

Password

Keep me signed in

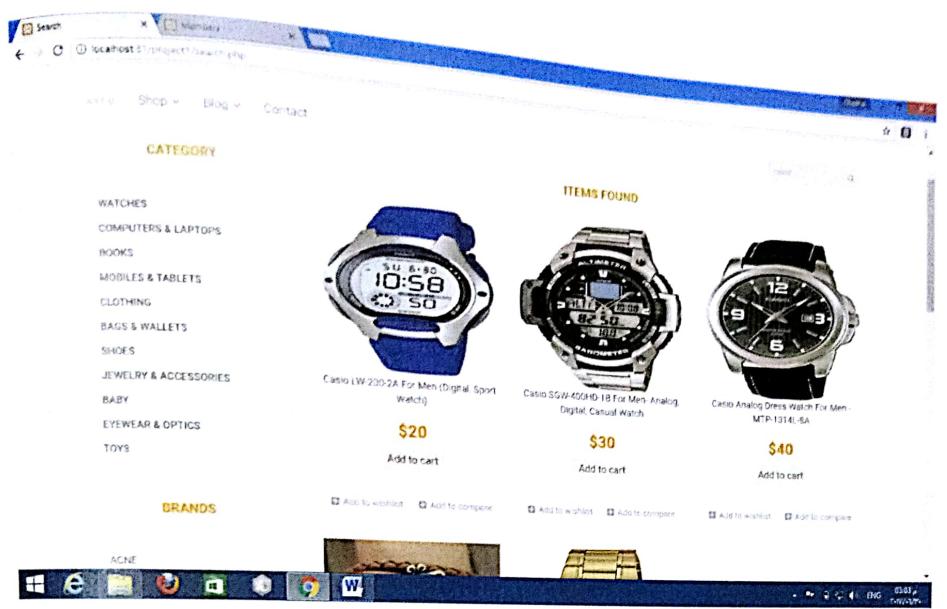
New User Signup!

Name

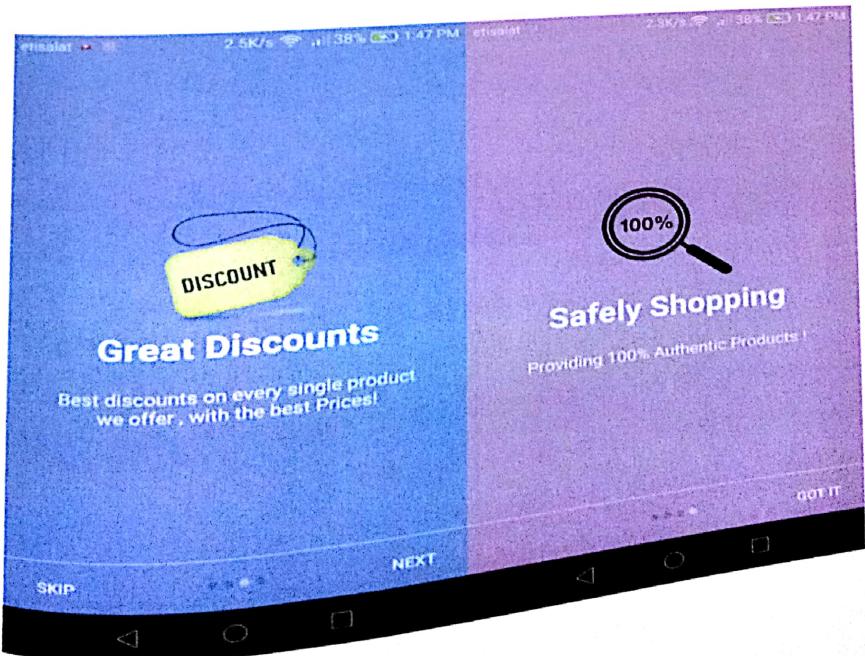
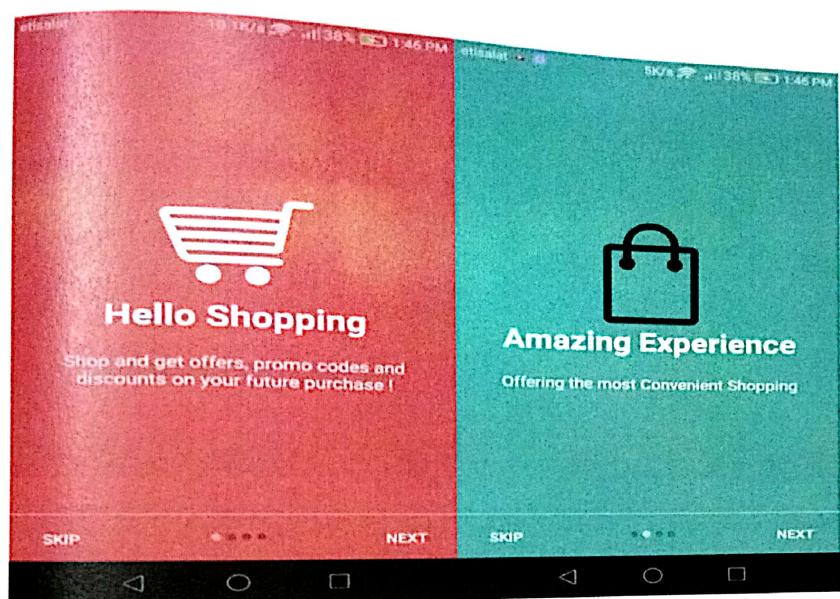
Email Address

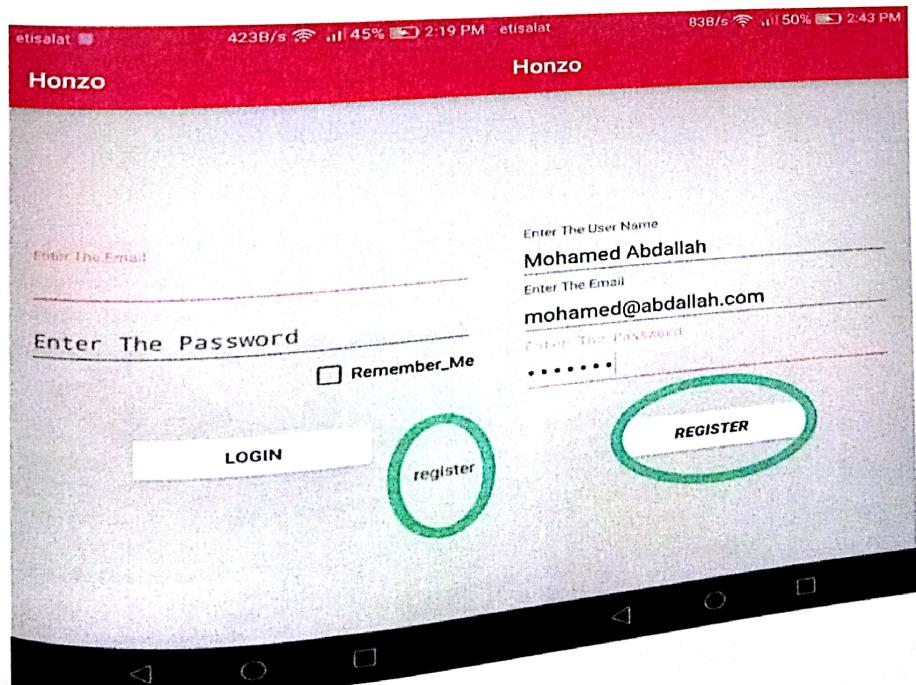
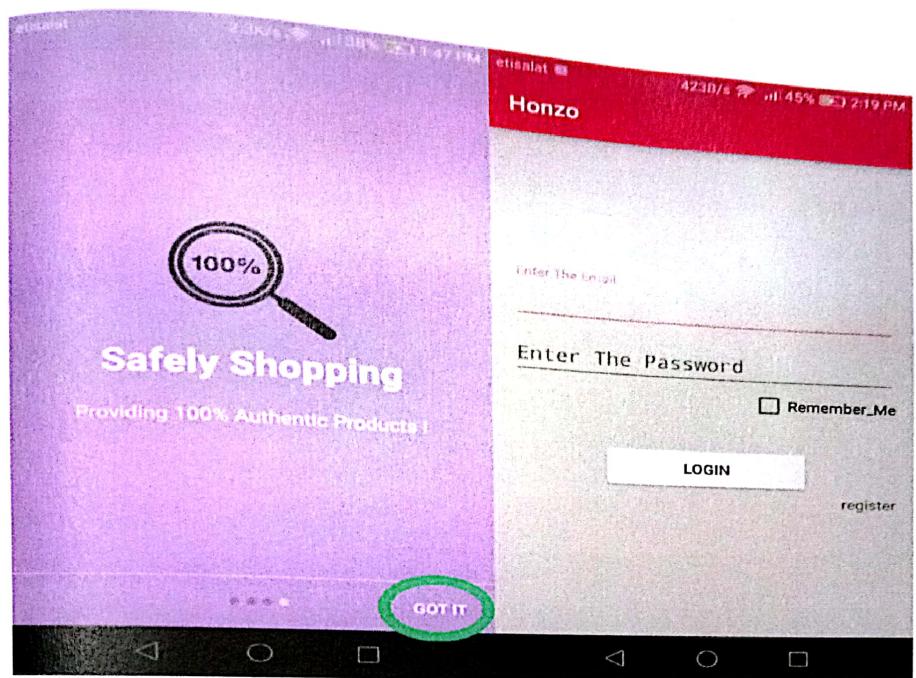
Password

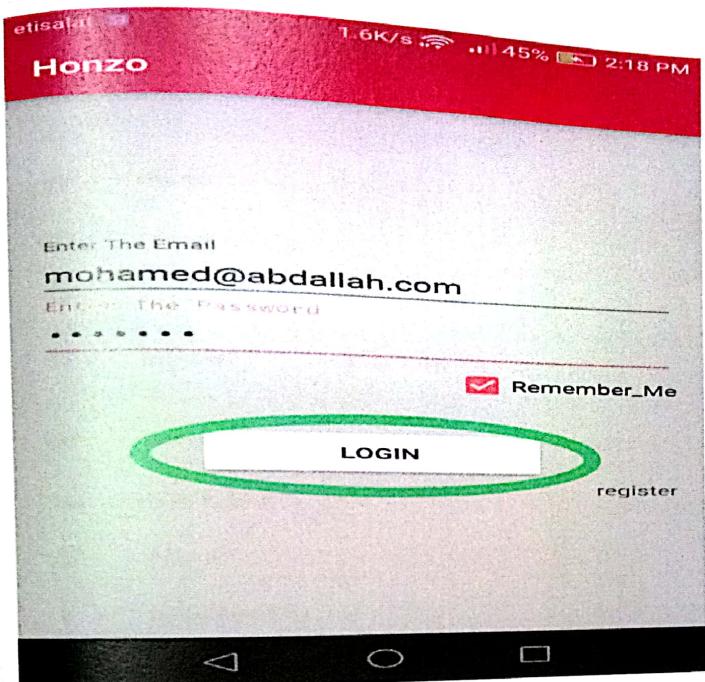
Type Password Again

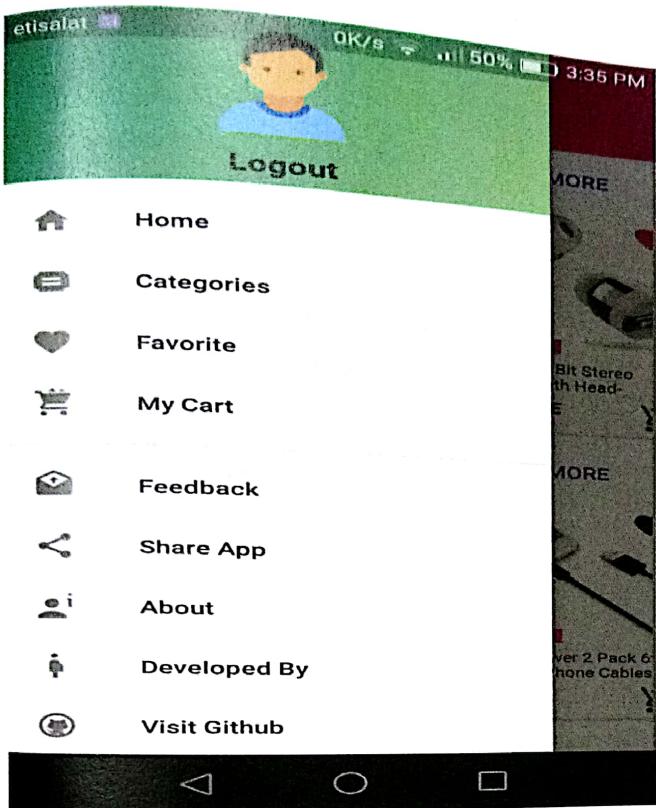


## Some Pictures From The Android Application









## **8. Conclusion**

The Internet has become a major resource in modern business, thus electronic shopping has gained significance not only from the entrepreneur's but also from the customer's point of view. For the entrepreneur, electronic shopping generates new business opportunities and for the customer, it makes comparative shopping possible. As per a survey, most consumers of online stores are impulsive and usually make a decision to stay on a site within the first few seconds. "Website design is like a shop interior. If the shop looks poor or like hundreds of other shops the customer is most likely to skip to the other site"[16]. Hence we have designed the project to provide the user with easy navigation, retrieval of data and necessary feedback as much as possible.

In this project, the user is provided with an e-commerce web site that can be used to buy products online. To implement this as a web application we used PHP as the Technology. PHP has several advantages such as enhanced performance, scalability, built-in security and simplicity. To build any web application using PHP we need a programming language such as PDO and so on. PHP was the language used to build this application. For the client browser to connect to the PHP engine we used Apache as the Web Server. PHP uses PDO to interact with the database as it provides in-memory caching that eliminates the need to contact the database server frequently and it can easily deploy and maintain an PHP application. MySQL was used as back-end database since it is one of the most popular open source databases, and it provides fast data access, easy installation and simplicity.

A good shopping cart design must be accompanied with user-friendly shopping cart application logic. It should be convenient for the customer to view the contents of their cart and to be able to remove or add items to their cart. The shopping cart application described in this project provides a number of features that are designed to make the customer more comfortable.

This project helps in understanding the creation of an interactive web page and the technologies used to implement it. The design of the project which includes Data Model and Process Model illustrates how the database is built with different tables, how the data is accessed and processed from the tables. The building of the project has given me a precise knowledge about how PHP is used to develop a website, how it connects to the database to access the data and how the data and web pages are modified to provide the user with a shopping cart application.