Online Shopping Cart

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Abstract. This project is entitled "Online Shopping Cart" a desktop & Mobile based web application. This web application has been developed using HTML/CSS/JAVASCRIPT for the front end and PHP for the back end and MYSQL for the database. The objective of the project is to order products through an online web application. The website is designed in such a way, the customer can log in to the website using the customer's id password and then the customer will be able to view the products if the customers need those products for purchase the Customer to add the products to the cart. When the cart icon is clicked the product can be viewed and when the customer clicks on proceed to check out option then payment will have proceeded. The purpose of this project is to make shopping easy for the customer. Implementing this process will automatically increase the shop's sales and provide a good profit and get the sales record easy for the owner. This sales details report is generated for the benefit of the owner. This helps him to decide.

Keyword: Online Shopping ,Automation, Shopping cart, Shopping Web application.

1. Objective

The objective of this project is to develop their GUI-based automated system, which will enhance the business owner to increase his sales through online mode of shopping. This automated system developed, will contain information about the product available for sale by the customer. The product includes items like groceries, home appliances, kitchen items, electronics, beauty products sports, and many more products. This product information includes the Product details like the price product availability etc. This system will enable the user to shop for their choired product by selecting the product and adding it to the cart and shopping the product and then we will able to make payment for the product. The main objective of this system is to develop the shop sale through online mode. [1]

2. Existing system

In the existing system, everything is managed manually. Customers should go physically to the store to buy a product. Selling and purchasing the products takes a lot of time. Hence the customers need to face a waste of time in case of a crowd. The main problem is that all the data are maintained via paper works. This process is very number and time- consuming. In the proposed system all the data is maintained in the database which is safe and easy to retrieve. To overcome the drawbacks of the existing system, the proposed system was introduced. [3]

Disadvantage

- Could get there and the store doesn't have the item you're looking for.
- Waiting in line.
- More difficult to compare prices from one store to the next.
- Sales are limited to what's offered in the store.

3. Proposed System

The proposed system solves the difficulty of maintaining data manually and the work is automated. The proposed system is an online confectionery shop that allows customers to check for various products available at the store and purchase online. This system is a dynamic web application that will make online purchasing easy. The proposed system is fully automated it is faster than the existing manually maintained system and can handle data easily. Customers can browse through the products and buy the same online rather than visiting the store. All the data related to the purchase are storing the database thus eliminating the risk of maintaining data via paper works. The System helps to save time. Home delivery is also made possible. [2][4]

Advantage

- Shop from the home
- More options to choose
- Low transportation fees
- Time saver

4. System Specification

4.1 Hardware specification

- Processor: Intel Core i5 8th Gen
- RAM: 8GB
- HDD: 256GB
- Monitor type: 15 Inch VGA
- Keyboard:110Keys Keyboard

4.2 Software specification

- Operating System: Windows 10

- Client: Any Browser (Compatible)

- Frontend: HTML, CSS, JAVA script

- Backend: PHP

- Database: MYSQL

- Server: Apache

- Code Behind: Visual Studio.

5. About Front-End

Html

Hypertext Markup Language (HTML) is the standard markup language for creating web pages and web applications. With Cascading Style Sheets (CSS) and JavaScript, it forms a triad of cornerstone technologies for the World Wide Web. Web browsers receive HTML documents from a web server or local storage and render them into multimedia web pages. HTML describes the structure of a web page semantically and originally included cues for the appearance of the document. [5]

CSS

Cascading Style Sheets (CSS) is a style sheet language used for describing the presentation of a document written in a markup language. Although most often used to set the visual style of web pages and user interfaces written in HTML and XHTML, the language can be applied to any XML document, including plain Extensible Markup Language (XML), Scalable Vector Graphics (SVG), and XML User Interface Language (XUL), and applies to rendering in speech, or on other media. Along with HTML and JavaScript and CSS is a cornerstone technology used by most websites to create visually engaging web pages, user interfaces for web applications, and user interfaces for many mobile applications.

JavaScript

JavaScript often abbreviated as JS is a high-level interpreted programming language. I am a language that is also characterized as dynamic, weakly typed, prototype-based, and multi-paradigm. Alongside HTML and CSS, JavaScript is one of the three core technologies of the World Wide Web. JavaScript enables interactive web pages and thus is an essential part of web applications. The majority of websites use it, and all major web browsers have a dedicated JavaScript engine to execute it. As a multi-paradigm language, JavaScript supports event-driven, functional, and imperative programming styles.

PHP

PHP stands for PHP: Hypertext Preprocessor. Hypertext refers to files linked together using hyperlinks, such as Hyper Text Markup Language (HTML) files. Pre-processing is executing instructions that modify the output. PHP is a scripting language originally designed for producing dynamic web pages. It has evolved to include a command line interface capability and can be used in standalone graphical applications. PHP is free software released under the PHP License; however, it is incompatible with the GNU General Public License (GPL), due to restrictions on the usage of the term PHP.

PHP is a widely-used general-purpose scripting language that is especially suited for web development and can be embedded into HTML. It generally runs on a web server, taking PHP code as its input and creating web pages as output. It can be deployed on most web servers and almost every operating system and platform free of charge. PHP is installed on more than 20 million websites and 1 million web servers. PHP 5 was released in July 2004 after long development and several pre-releases. It is mainly driven by its core, the Zend Engine with a new object model and dozens of other new features.

6. About the backend

xampp

XAMPP is a free and open-source cross-platform web serve resolution stack package developed by Apache Friends, consisting mainly of the Apache HTTP Server, Maria DB database, and interpreters for scripts written in the PHP and Perl programming languages. XAMPP stands for Cross-Platform (X), Apache (A), Maria DB (M), PHP (P) and Perl (P). It is a simple, lightweight Apache distribution that makes it extremely easy for developers to create a local web server for testing and deployment purposes. Everything needed to set up a web server – server application (Apache), database (Maria DB), and scripting language (PHP) – is included in an extractable file. XAMPP is also cross-platform, which means it works equally well on Linux, Mac and Windows. Since most actual web server deployments use the same components as XAMPP, it makes transitioning from a local test server to a live server extremely easy as well.

Apache

The Apache HTTP Server commonly referred to simply as Apache is a web server notable for playing a key role in the initial growth of the World Wide Web. The majority of all web servers using Apache are Linux web servers. Apache is developed and maintained by an open community of developers under the auspices of the Apache Software Foundation. The application is available for a wide variety of operating systems, including UNIX, FreeBSD, Linux, Solaris, Novell NetWare, Mac OS X, Microsoft Windows, OS/2, TPF, and E-Com Station. Released under the Apache License, Apache is characterized as free software and open-source software. Apache is primarily used to serve both static content and dynamic Web pages on the World Wide Web. Many web applications are designed expecting the environment and features that Apache provides. Apache is the web server component of the popular LAMPweb server application stack, alongside MySQL, and the PHP/Perl/Python (and now also Ruby) programming languages.

Apache is redistributed as part of various proprietary software packages including the Oracle Database or the IBM WebSphere application server. Mac OS X integrates Apache as its built-in web server and as support for its WebObjects application server. It is also supported in some way by Borland in the Kylix and Delphi development tools. Apache is included with Novell NetWare 6.5, where it is the default web server. Apache is also included with many Linux distributions.

MySQL

MySQL is a relational database management system (RDBMS) that has more than 11 million installations. The program runs as a server providing multi-user access to several databases. MySQL is owned and sponsored by a single for-profit firm, the Swedish company MySQL AB, now a subsidiary of Sun Microsystems, which holds the copyright to most of the codebase. The project's source code is available under terms of the GNU General Public License, as well as under a variety of proprietary agreements. MySQL is popular for web applications and acts as the database component of the LAMP, BAMP, MAMP, SAMP, and WAMP platforms and for open-source bug-tracking tools like Bugzilla. Its popularity for use with web applications is closely tied to the popularity of PHP, which is often combined with MySQL. Several high-traffic websites (including Flickr, Facebook, Wikipedia, Google, Nokia and YouTube) use MySQL for its data storage and logging of user data.

7.   Project Description

Problem definition

The problem with the current system is that people need to drive around, find parking, and get stressed out in traffic. Customers have to travel to ascertain the distance for the product. Not all stores will have the exact item for the customer. Crowds may annoy some people and standing around in queue is a waste of time.

Overview of the project

The proposed system is a website that can be used by anyone who has an account on the website. The customer can browse the products and can buy the same online. The administrator/manager can manage all the details regarding the products and the orders of the customers. The data is stored in the database and can be retrieved later for future reference. The proposed website can be used to buy products. It also stores all the details of the products and the customers in the database. The manager can view the orders placed by each customer.

Once the order is received, the respective customer will get a call from the store to ensure the delivery address and that the product is delivered to their doorstep.

8.   Module Description

Customer Sign-up Module

The People who wish to purchase through this respective store have to register on this site initially. Only authenticated users can make purchases through this site. The system automatically rejects unauthenticated users who try to enter the site. To Sign up, they need to fill in the required basic info like name, email, address, etc…

Login Module

People who have completed the sign-up process can log in to their account using the username and password they set during the sign-up.

Product Category

After login into the product category which is available for sale is displayed on the user page, the customer can view the product category and start their purchase.

They have some different product categories like

- Groceries

- Vegetable

- Fruits

- Snacks

List of Product

The customer clicks on the product the details of the products are viewed as a list that will help the customer to know more about the product like the pictures of the product, there price, description and quantity. Add to cart option will be available for all the customers have logged in to add particular products to their cart.

Add to Cart

The customer wishes to buy a product, they can click on the add to cart box, and now the product will be added to the cart. When the cart has been selected the products stored in the cart can be seen here we can place the product.

Order/Delivery

Once the order is placed the delivery page will be open the customer details will fill in automatically and move to the payment page. While the customer wants to change the address they also change the delivery page like address, and mobile Email. Then the number, click proceed to payment.

Payment

After all the process gets successfully executed, the final payment page is viewed where the customer can pay their bill using the credit/debit card and confirm their order.

Data flow diagram

A Data flow diagram (DFD) is a graphical representation of the "flow" of data through an information system. DFD can be also used for the visualization of data processing (structured design).On a DFD, data items flow from an external data source or an internal data store or an external data sink, via an internal process.
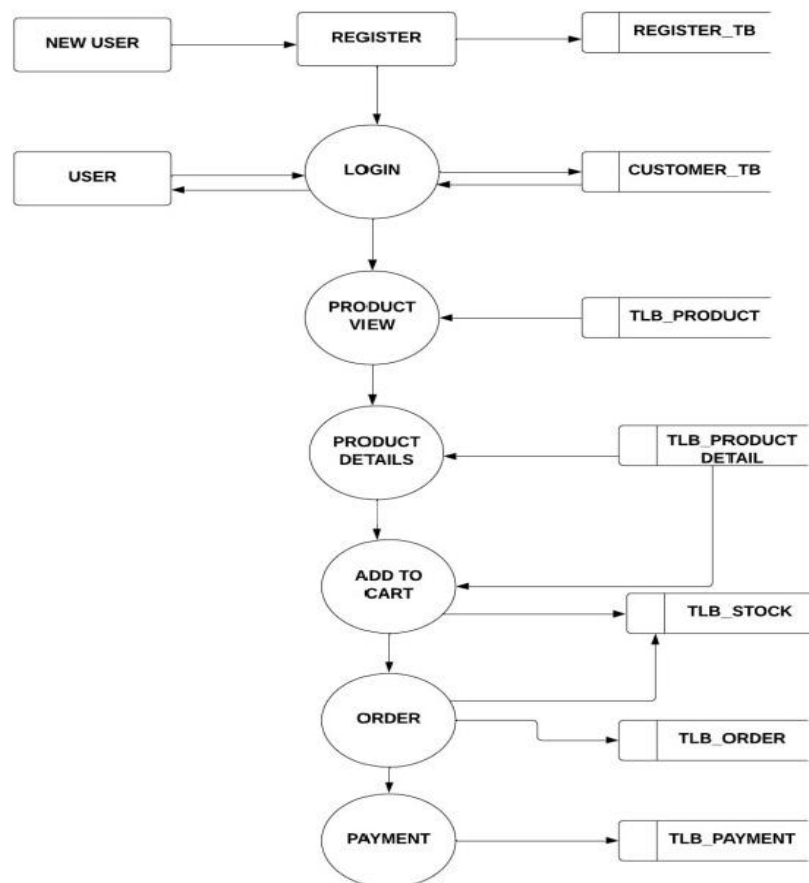
Level 0:

The level 0 DFD shows the complete flow of data through the proposed system (Online

shopping cart). Admin will add the items in the store that will be purchased by the customer. Admin can control and view all the information.

Figure 1: Level 0 DFD

Level 1

Figure 2: Level 1 DFD

Customers have to register by entering required information and the customer details are stored in the customer table (tlb_customer) in the database. The flow of data is shown in figure 1 and 2.

Login

Customers can log in to the system by entering their username and password and the login details are checked with the customer table (tlb_customer).

Product view

The customers can view the items available in the store that have been added by the Admin. The details regarding the items are retrieved from the item table (tlb_item).

Product detail

The customer can view the complete detail of the product from the (tlb_product). The product details were added by the admin.

Add To Cart

Customers can add the items to the cart one by one and purchase them all together at the end.

Place Order

The customers can place the order after adding the items to the cart. All the details regarding the orders are stored in the order table (tbl_order).
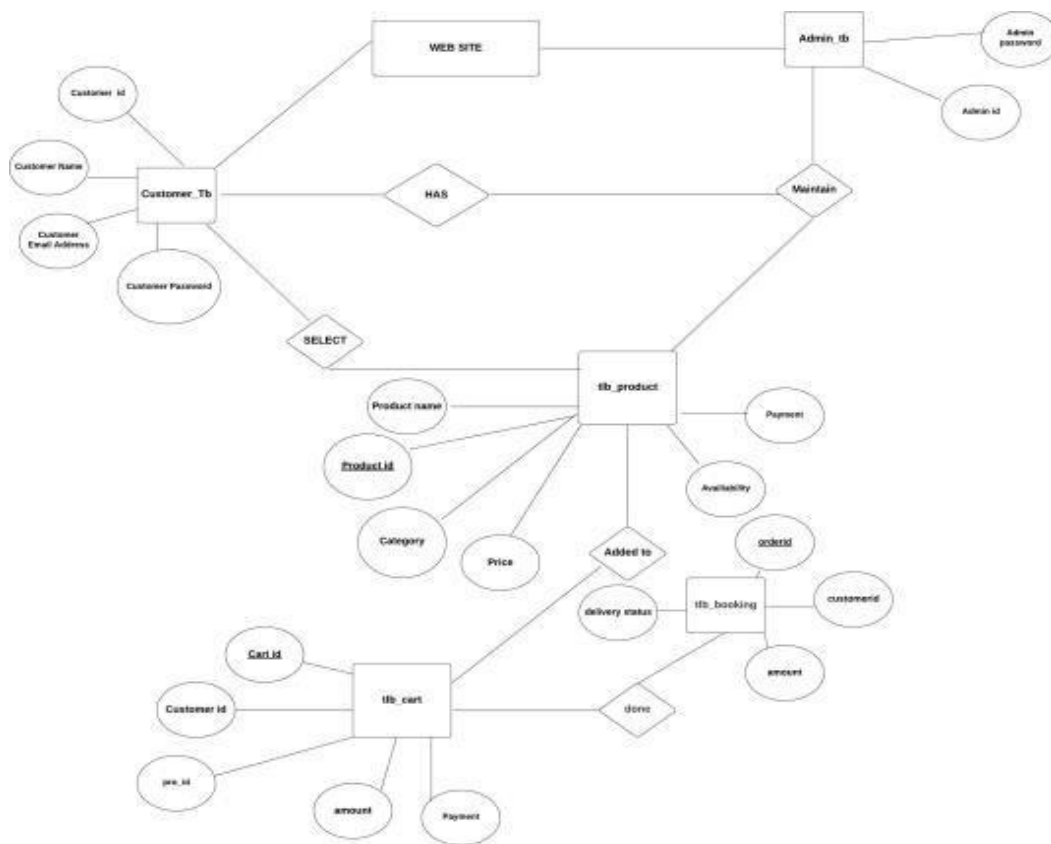
View Order

The customers can view their previous orders whenever necessary. All the details regarding the previous orders are retrieved from the order table (tbl_vieworder).

ER diagram

In software engineering, an entity–relationship model (ER model) is a data model for describing the data or information aspects of a business domain or its process requirements, in an abstract way that lends itself to ultimately being implemented in a database such as a relational database. The main components of ER models are entities (things) and the relationships that can exist among them. The relationship between entity is shown in figure 3.

Figure 3: E-R Diagram

Input design

Input design is the process of converting a user-oriented description to the system's understandable format. Here both mobile phones and PC involved in the input design.

Customer Registration

Customers can give input values such as full name, address, contact, E-mail id, username, and password.

Login Details

A login form will allow the admin and the customer to give input values such as username and password.

Product Details

Item details form will ask the admin to give input values such as item name, item price, item description, item image etc.

Output design

The output design is GUI-based activity; almost from the beginning of the project, this project provided the best user interface model. Effects and well define output design improve the relationship between the system and the user, thus facilitating decision- making for both the seeker and provider.

Product Category

All the Items under various categories are displayed. The categories are Groceries, Home & Kitchen, Electronics, Beauty products, Sports, Vegetable will be displayed for the customer.

Cart Details

All the items that have been added by the customer to the cart will be displayed.

Order Details

Once the customer will place the order. All the order details will be displayed (Total price, quantity).

Product Details

All the item details will be displayed for the admin.

9. System Testing Software

Testing

The primary purpose of testing is to detect software failures so that defects may be discovered and corrected. Testing cannot establish that product functions properly under all conditions but can only establish that it does not function properly under specific conditions. The scope of software testing often includes the examination of code as well as execution of that code in various environments and conditions as well as examining the aspects of code: does it do what it is supposed to do and does it what it needs to do? In the current software development culture, a testing organization may be separate from the development team. There are various roles for testing team members. Information derived from software testing may be used to correct the process by which software is developed.

Software faults occur through the following processes. A programmer makes an error (mistake), which results in a defect (fault, bug) in the software source code. If this defect is executed, in certain situations the system will produce wrong results, causing failure. Not all defects will necessarily result in failures. For example, defects in dead code will never result in failures. A defect can turn into a failure when the environment is changed. Examples of these changes in environment include the software being run on a new computer hardware platform, alterations in source data, or interactions with different software. A single defect may result in a wide range of failure symptoms.

Unit testing

Unit testing provides a sort of living documentation of the system. Developers looking to learn what functionality is provided by a unit and how to use it can look at the unit tests to gain a basic understanding of the unit's API. Unit test cases embody characteristics that are critical to the success of the unit. These characteristics can indicate appropriate/inappropriate use of a unit as well as negative behaviors that are to be trapped by the unit. A unit test case, in and of itself, documents these

critical characteristics, although many software development environments do not rely solely upon code to document the product in development.

Testing will not catch every error in the program, since it cannot evaluate every execution path in any but the most trivial programs. The same is true for unit testing. Additionally, unit testing by definition only tests the functionality of the units themselves. Therefore, it will not catch integration errors or a broader system.

Level errors (such as functions performed across multiple units, or non-functional test areas such as performance). Unit testing should be done in conjunction with other software testing activities, as they can only show the presence or absence of particular errors; they cannot prove a complete absence of errors. To guarantee correct behavior for every execution path and every possible input, and ensure the absence of errors, other techniques are required, namely the application of formal methods to prove that a software component has no unexpected behavior.

Customer Registration

All the fields in the customer registration form are inputted with relevant data, once the create account button is clicked all the data is stored in the database.

Login Details

All the fields in the manager/customer login form are inputted with relevant data, once the Submit button is clicked it will switch to their account.

Product Details

All the fields in the add item form are inputted with relevant data, once the add item button is clicked all the data is stored in the database.

Stock Details

All the fields in the add store form are inputted with relevant data, once the add store button is clicked all the data is stored in the database.

Integration testing

Bottom Up Testing is an approach to integrated testing where the lowest-level components are tested first and then used to facilitate the testing of higher-level components. The process is repeated until the component at the top of the hierarchy is tested.

Top-Down Testing is an approach to integrated testing where the top integrated modules are tested and the branch of the module is tested step by step until the end of the related module.

Customer Registration

Once all the field in the Customer registration form is inputted and submitted, then it will show a message called "You're An account Has Been Created. Login from Here' and navigates to the login form.

Login Details

All the fields in the manager/customer login form are inputted with relevant data, once the Submit button is clicked, it navigates to their account.

Store Details

Once all the fields in the add store form are inputted with relevant data and add store button is clicked, it will navigate to add item page.

System Implementation

System implementation is the practice of creating or modifying a system to create a new business process or replace an existing business process. Technology integration is the practice of integrating multiple system activities to interact and generate information efficiently. In both cases, the system development lifecycle (SDLC) is heavily integrated with these practices. A CPA professional may be involved in designing a system, performing end-user testing, or training others on how to utilize the financial system. As with the other phases of the system development life cycle, the system implementation phase has multiple components or sub-phases. Up to now in the life cycle, the system has been planned, it has been analyzed, and the system has been designed. Now, the system needs to be developed, which is known as coding and is the first sub-phase. The second sub-phase is to test the newly coded system on multiple levels. The third phase is the planning and implementation of the new system. Finally, post-implementation is the final sub-phase of system implementation.

Once the system has been coded, the system goes through different degrees of testing. It is important to make sure the system works and performs the duties the system was intended to perform. The rest of this section deals with the quality assurance process. Based upon Kendal and Kendal, quality should be tested on internal and external factors (2005). The internal factors deal with the duties the systems should perform. The external factors are the perceptions of the customers or other external parties such as suppliers.

10. Conclusion and Future Enhancement

Conclusion

In conclusion, an online Shopping Cart is developed for a relatively small supermarket to simplify their routine managerial and operational task and to improve the shopping experience of the customers. This application nullifies the need of going physically to a store and waiting in the crowd to buy items. The advantage is that in a crowded store, there will be chances that the shopkeepers are overloaded with orders and they are unable to meet the requirements of the customer adequately. Therefore, by using this application, users can directly place an order for the items online without wasting their time by physically wandering around the store. This also helps the store owners develop healthy customer relationships by providing reasonably good services.

This application software has been computed successfully and was also tested successfully by taking "test cases". It is user-friendly and has the required options, which can be utilized by the user to perform the desired operations. The goals that are achieved by the software are:
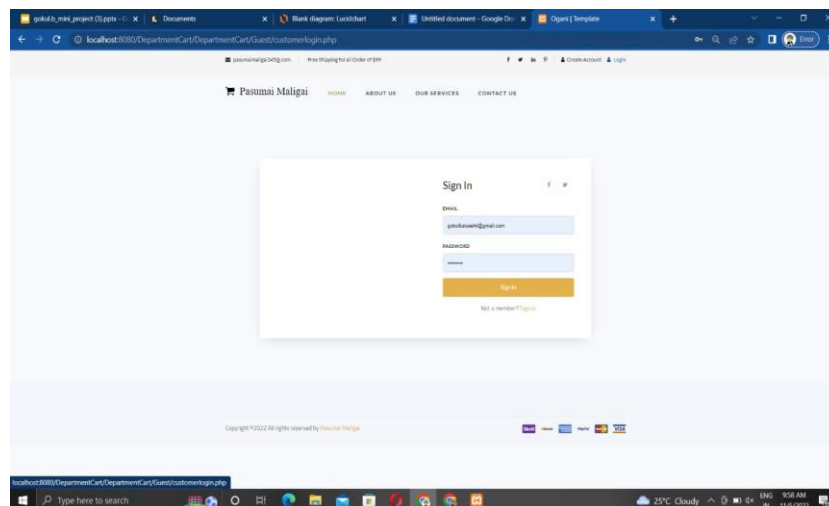
1. Instant access.

2. Improved productivity.

3. Optimum utilization of resources.

4. Efficient management of records.

5. Simplification of the operations.

6. Less processing time and getting the required information.
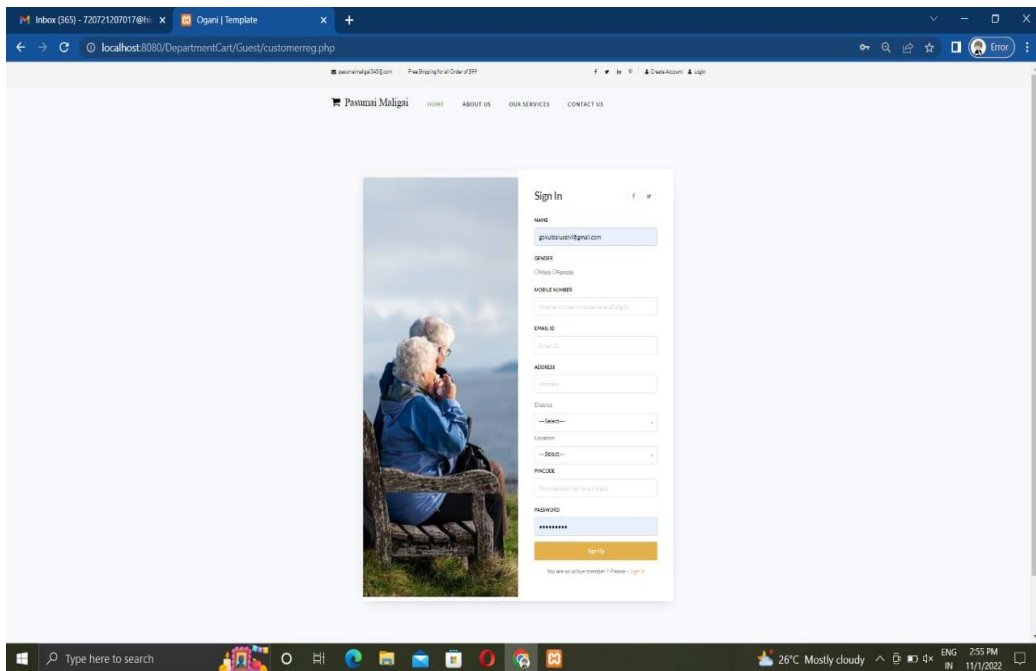
7. User-friendly.

Future Enhancements

This system is aimed at developing an online purchasing system that can be used in small stores first and then on large scale. This project plans to improve design, implementation and documentation in such a way that anyone can use this project for better performance. This system can be developed more dynamically and the database works as well. The following section describes the work that will be implemented with future releases of the software.

1. Enhance the User Interface by adding more user-interactive features.

2. Online transaction system.

3. Payment Options: Add different payment options such as Google Pay,Paytm, PayPal, Gift Cards etc.
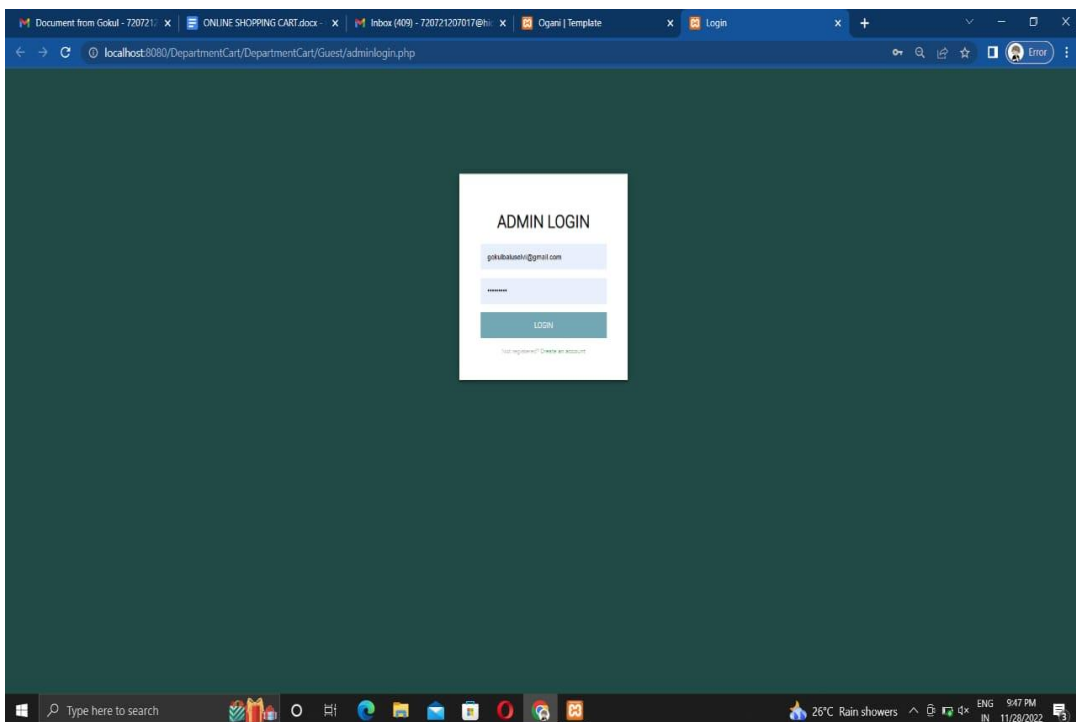
4. More security in the system.
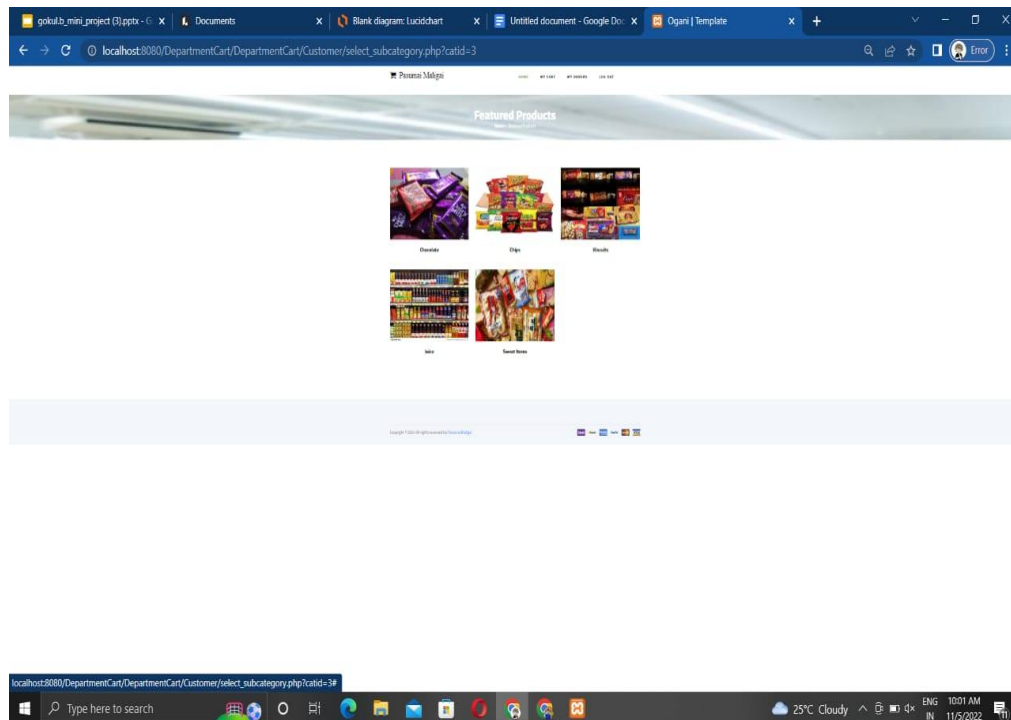
The outcome of the project is shown in Figure 4,5,6 and 7.

Figure 4: Sign in Page

Figure 5: User Page

Figure 6: Admin Page

Figure 7: Home Page

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