FMCG e-Business

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Abstract:
The Online Shopping is a web based application intended for online retailers. The main objective of this application is to make it interactive and its ease of use. It would make searching, viewing and selection of a product easier. It contains a sophisticated search engine for user's to search for products specific to their needs. The search engine provides an easy and convenient way to search for products where a user can Search for a product interactively and the search engine would refine the products available based on the user’s input. The user can then view the complete specification of each product. They can also view the product reviews and also write their own reviews. The application also provides a drag and drop feature so that a user can add a product to the shopping cart by dragging the item in to the shopping cart. The main emphasis lies in providing a user friendly search engine for effectively showing the desired results and its drag and drop behavior.

1. INTRODUCTION

1.1 Goal

Shopping has long been considered a recreational activity by many. Shopping online is no exception. The goal of this application is to develop a web-based interface for online retailers. The system would be easy to use and hence make the shopping experience pleasant for the users. The goal of this application is

• To develop an easy to use web-based interface where users can search for products, view a complete description of the products and order the products.
• A search engine that provides an easy and convenient way to search for products specific to their needs. The search engine would list a set of products based on the search term and the user can further filter the list based on various parameters.
• An AJAX enabled website with the latest AJAX controls giving attractive and interactive look to the web pages and prevents the annoying post backs.
• Drag and Drop feature which would allow the users to add a product to or remove a product from the shopping cart by dragging the product in to the shopping cart or out of the shopping cart.
• A user can view the complete specification of the product along with various images and also view the customer reviews of the product. They can also write their own reviews.

1.2 Need of the application

There are large numbers of commercial Online Shopping websites offering large number of products tailored to meet the shopping interests of large number of customers. These online marketplaces have thousands of products listed under various categories.

Problem:
• The basic problems with the existing systems are the non-interactive environment they provide to the users.
• The use of traditional user interfaces which make continuous post backs to the server; each post back makes a call to the server, gets the response and then refreshes the entire web form to display the result. This scenario adds an extra trade off causing a delay in displaying the results
• A search engine that would display the results without allowing the users to further filter the results based on various parameters.
• Use of traditional and non user friendly interfaces that are hard to use.

Solution:
• The motive of this Online Shopping Web Application is to allow the user to play with the search tool and create different combinatorial search criterion to perform exhaustive search.
• Making the application AJAX enabled gets rid of these unnecessary delays letting the user to perform exhaustive search. The users of this application can easily feel the difference between the Ajax empowered user interfaces vs. traditional user interfaces.
• Provide Interactive interface through which a user can interact with different areas of application easily.

2. REVIEW OF LITERATURE

2.1 Literature Review

Online shopping indicates electronic commerce to buy products or services directly from the seller through the Internet. Internet-based or Click and Order business model has replaced the traditional Brick and Mortar business model. More people than before are using the web to shop for a wide variety of items, from house to shoes to airplane tickets. Now people have multiple options to choose their products and services while they are shopping through an online platform. Online shopping has unique characteristics. Huseynov and Yildirim (2014) emphasized that the lack of physical interaction tends to be the critical impediment in online retail sales followed by the privacy of individual information and security of financial transactions over the Internet. Demangeot and Broderick (2010) also revealed that perceived ease of use does not affect the behavioral pattern in this case rather influenced by security and privacy issues. No relationship is built between the customer and the online shop in the presence of perceived online risk even if a customer spent hours on the Internet (Zuroni& Goh, 2012).
2.2. Related Work
The central concept of the application is to allow the customer to shop virtually using the Internet and allow customers to buy the items and articles of their desire from the store. The information pertaining to the products are stores on an RDBMS at the server side (store). The Server process the customers and the items are shipped to the address submitted by them. The application was designed into two modules first is for the customers who wish to buy the articles. Second is for the storekeepers who maintains and updates the information pertaining to the articles and those of the customers. The end user of this product is a departmental store where the application is hosted on the web and the administrator maintains the database. The application which is deployed at the customer database, the details of the items are brought forward from the database for the customer view based on the selection through the menu and the database of all the products are updated at the end of each transaction. Data entry into the application can be done through various screens designed for various levels of users. Once the authorized personnel feed the relevant data into the system, several reports could be generated as per the security. This system can be implemented to any shop in the locality or to multinational branded shops having retail outlet chains. The system recommends a facility to accept the orders 24*7 and a home delivery system which can make customers happy. If shops are providing an online portal where their customers can enjoy easy shopping from anywhere, the shops won’t be losing any more customers to the trending online shops such as flipkart or ebay. Since the application is available in the Smartphone it is easily accessible and always available. The system consists of two parts. A web application which can provide the online shopping service and an android application for the customer to Online Shopping System access the web service from his Smartphone. Web application should be able to help the customer for selecting his item and to help the owner in managing the orders from the customers. Problem Statement: As online shopping became a trend nowadays the regular shops are losing their customers to online brands. Customers have effortless shopping experience and saving time through shopping online. For competing with those online brands. If shops are providing an online portal where their customers can shop through internet and get the products at their doors it will increase the number of customers.

3. WORK DONE / PROPOSED SYSTEM

3.1 Proposed Approach
In the proposed website there are different parts or modules which are summarized as follows

CUSTOMER REGISTRATION:
Customers are required to register on the website before they can do the shopping. The website also provides several features for the non-registered user. Here they can choose their id and all the details regarding them are collected and a mail is sent to the email address for confirmation.

SHOPPING CART:
Shopping cart module tries to simulate the working of a store where user can view each design, color, size and price of the product available. The items they like can be added to the logical cart and can be removed if not required later. Billing and other payment related matters are handled here.

ADMINISTRATION:
This is the part of the website where the administrators can add delete or update the product information. Administrators are also responsible for adding and deleting the customers from the website. In addition, newsletter and promotions are also handled by the site administrator via e-mail.

SEARCH:
This facility is provided to both registered and unregistered user. User can search for the availability and type of products available on the website.

EMAILING:
Emailing module is concerned about promotions and newsletter and is handled by the administrator. This module is also concerned about sending activation and warning mails.

![Flowchart of the proposed system](image)

Figure 1: Flow chart showing entire process Shopping Site.
3.3 Algorithm Stages:
The system after careful analysis has been identified to be presented with the following modules and roles.
The modules involved are:

I. Administrator
The administrator is the super user of this application. Only admin have access into this admin page. Admin may be the owner of the shop. The administrator has all the information about all the users and about all products. This module is divided into different sub-modules.

1. Manage Moderators :-

Add Moderator:
Only admin is having the privilege to add a moderator. A moderator can be considered as a staff who manages the orders or owner of a group of products.

Block moderator:
Admin can restrict a moderator from managing the orders by blocking them. Admin can unblock a blocked user if needed.

Remove Moderator:
Admin has privilege to delete a moderator who was added.

Search moderator:
All existing moderators can be viewed by the administrator as a list. If there is number of moderators and admin need to find one of them, the admin can search for a moderator by name.

2. Manage Products:

Add Products:
The shopping cart project contains different kind of products. The products can be classified into different categories by name. Admin can add new products into the existing system with all its details including an image.

Delete Products:
Administrator can delete the products based on the stock of that particular product.

Search products:
Admin will have a list view of all the existing products. He can also search for a particular product by name.

3. Manage Users

View Users:
The admin will have a list view of all the users registered in the system. Admin can view all the details of each user in the list except password.

Add Users:
Admin has privileges to add a user directly by providing the details.

Delete &Block Users:
Administrator has a right to delete or block a user. The default status of a new user registered is set as blocked. The admin must accept the new user by unblocking him.

4. Manage Orders

View Order:
Administrator can view the Orders which is generated by the users. He can verify the details of the purchase.

Delete order:
Admin can delete order from the orders list when the product is taken for delivery.

II. Moderators
A moderator is considered as a staff who can manage orders for the time being. As a future update moderator may give facility to add and manage his own products. Moderators can reduce the work load of admin. Now moderator has all the privilege an admin having except managing other moderators. He can add products and users. He can also check the orders and edit his profile.0020

• Manage products
• Manage users
• Manage orders

III. Users:-

1. Registration:
A new user will have to register in the system by providing essential details in order to view the products in the system. The admin must accept a new user by unblocking him.

2. Login:
A user must login with his user name and password to the system after registration.

3. View Products:
User can view the list of products based on their names after successful login. A detailed description of a particular product with product name, products details, product image, price can be viewed by users.

4. Search Product:
Users can search for a particular product in the list by name.

5. Add to cart:
The user can add the desired product into his cart by clicking add to cart option on the product. He can view his cart by clicking on the cart button. All products added by cart can be viewed in the cart. User can remove an item from the cart by clicking remove.

6. Submit Cart:
After confirming the items in the cart the user can submit the cart by providing a delivery address. On successful submitting the cart will become empty.

7. History:
In the history the user will have a view of pending orders.

8. Edit Profile:
The user can view and edit the profile.
Chapter 4 Research Methodologies

4.1 System Requirement

Software Requirements:
- Java
- Maven
- Hibernate
- SpringBoot
- PostgresSQL

Hardware Requirements:
- CPU: Intel Pentium 4, 2.53 GHz or equivalent
- OS: Microsoft Windows 7, 8.1, 10
- Storage: 1.4 GB of free disk space

4.2 Design (ER Diagram)

![ER Diagram](image)

4.3 Project Plan

1. Competitor Analysis - In the early stages of the project, we conduct in-depth competitor and market research. It helps us to identify the weaknesses and strengths of the market leaders. Moreover, we receive insights on the mistakes we can avoid and the best practices we can adopt.

2. Feature List - This stage includes selecting the features we will integrate into the ecommerce website or the future online platform. The list of features has an impact on the user experience of your prospective customers.

3. Shipment and Payment Providers - Our team carefully selects the payment and shipment providers. The choice has a direct impact on the number of future sales, expenses, and the online shop trustworthiness.

4. Design - Our team could recommend using some particular layouts or design elements distinguished as your competitors best practices. The group also offers several options of themes from websites such as ThemeForest. Also, we can develop a custom e-commerce design according to your business needs.

5. Data Migration - In some cases, a customer already has an online shop with databases to import into the future project. We include the database migration to the workflow since it has an impact on the cost scope and the time of the online shop development.

6. The E-commerce Platform - We offer several options of the e-commerce platforms depending on the customer business needs, goals, budget, and other factors. In some cases, we develop custom e-commerce platforms.

Then, to keep the project progress transparent and measurable, we use six main deliverables described below:

- **Product Vision Statement** - A quick summary describes the goals of the product.

- **Product Roadmap** - It includes a high-level view of the product requirements that will help us achieve the product
vision. At this stage, we also outline a general timeframe of development and release those requirements. The product roadmap further will form the product backlog.

- **Product Backlog** - We create the full list of the tasks in the scope for the e-commerce website, ordered by priority.

- **Release Plan** - It is a high-level timetable for the release of the e-commerce website.

- **Sprint Backlog** - This document includes user stories, the goals, and tasks associated with the current sprint.

- **Increment** - The working functionality of the product that we demonstrate to a customer at the end of the sprint.

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**Chapter 5: Design & Implementation Methodologies**

This chapter includes the implementation part as well as the result part of the project which includes the code as well as the screenshot of the result generated on compiling the code.

**5.1 Code**

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![Code Snippet]

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**http://ijesc.org/**
5.2 Result

5.3 Motive to the Problem

• The basic problems with the existing systems are the non-interactive environment they provide to the users.
• The use of traditional user interfaces which make continuous post backs to the server; each post back makes a call to the server, gets the response and then refreshes the entire web form to display the result. This scenario adds an extra trade off causing a delay in displaying the results.
• A search engine that would display the results without allowing the users to further filter the results based on various parameters.

5.4 Solution Approach

• Use of traditional and non-user friendly interfaces that are hard to use.
• The motive of this Online Shopping Web Application is to allow the user to play with the search tool and create different combinatorial search criterion to perform exhaustive search.
• Making the application AJAX enabled gets rid of these unnecessary delays letting the user to perform exhaustive search. The users of this application can easily feel the difference between the Ajax empowered user interfaces vs. traditional user interfaces.
• Provide Interactive interface through which a user can interact with different areas of application easily.

6. SUMMARY & CONCLUSION

The ‘Shopping Site’ is designed to provide a web-based application that would make searching, viewing and selection of a product easier. The search engine provides an easy and convenient way to search for products where a user can search for a product interactively and the search engine would refine the products available based on the user’s input. The user can then view the complete specification of each product. They can also view the product reviews and also write their own reviews. Use of Ajax components would make the application interactive and prevents annoying post backs. Its drag and drop feature would make it easy to use. The system has been developed with much care and free of errors and at the same time it is efficient and less time consuming. The purpose of this project was to develop a web application and an android application for purchasing items from a shop. This project helped us in gaining valuable information and practical knowledge on several topics like designing web pages using html & css, usage of responsive templates, designing of android applications, and management of database using postgresQL. The entire system is secured. Also the project helped us understanding about the development phases of a project and software development life cycle. We learned how to test different features of a project. This project has given us great satisfaction in having designed an application which can be implemented to any nearby shops or branded shops selling various kinds of products by simple modifications. There is a scope for further development in our project to a great-extend. A number of features can be added to this system in future like providing moderator more control over products so that each moderator can maintain their own products. Another feature we wished to implement was providing classes for customers so that different offers can be given to each class. System may keep track of history of purchases of each customer and provide suggestions based on their history. These features could have implemented unless the time did not limited us.

7. REFERENCES


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