University of Barisal

Project Proposal

Project Title : Online Shopping System, a modern approach using MERN stack.

Course Title : Project and Thesis

Course Code :CSE-4202

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Date of Submission: 28.03.21

Chapter 1
Introduction

1.1 Overview

Online shopping is the process whereby consumers directly buy goods or services from a seller in real-time, without an intermediary service, over the Internet. It is a form of electronic commerce. An online shop, eshop, e-store, internet shop, webshop, online store, or virtual store evokes the physical analogy of buying products or services in a shopping centre. The process is called Business-to-Consumer (B2C) online shopping.

The main purpose behind the proposed system is to provide a comprehensive computerized system, which can capture, collate and analyze the data and evaluate the impact of the program. Ecommerce has changed permanently the way business and consumer interact, which allows users to connect with their favorite shops and brands whenever and wherever they want and also helps stores to more actively approach consumers. It is believed that the growth of e-commerce for the next incoming years is increasing beyond measure rate with the release of modern technologies. Understanding this need, I want to create an e-commerce web application as an online shopping system in order for the startup to develop its business strategy.

The goal of the project is ease of use and provide an interactive interface. Creating the shopping cart system to organize the products record and the other information about the customers. Customers can buy products from website can be recognized from their username and password. Users will use a search term to find a list of products and can filter the results based on various parameters like product type, manufacturer, price range, platform supported etc. The users can view the complete specification of the product and various images at different zoom levels. The user can read the customer reviews for the product and the ratings provided. User can add a product to the shopping cart by dragging and dropping it in the shopping cart. A user can edit the contents of a shopping cart, update the quantities of the products that will add to the cart and remove the products from the cart.

1.2 Motivation

The reason behind my motivation is the current trends of web application integration and interactive features. The trends of online shopping came into existence in the early 90’s. In day to day life, we will need to buy lots of goods or products from a shop. It may be food items, house hold items etc. Nowadays, technology is growing incredibly fast. The rapid innovation of hardware devices makes software technologies to advance as well, automatically take place of

old technologies. Because of the significant expanding in the number of electronic devices that use Internet and real-time feature, performance is key. By tradition, web development has been carried out by technologies such as JAVA servlets, ASP.NET or PHP. While those technologies are quite widespread and have good features with many years of development and are supported by a large community, they still have some limitations concerning about today's need which is performance. The MERN stack (MongoDB, Express, React and Node) with their simplicity and uniformity, has been recently developed to become a better solution for this performance issue.

E-commerce and online shopping in Bangladesh are achieving remarkable and remarkable growth as more and more Internet facilities, high educational standards, lifestyle change, and the country's economic growth are being used more and more. Demand for electronic commerce techniques and tools.

- The versatile shopping experience and the rapid development of transaction facilities are further driving opportunities for the remaining market segments.
- The greatest advantage of e-commerce and online shopping is the ability to provide secure purchase transactions through the Internet and together with the almost instantaneous verification and validation of credit card transactions.
- This significant impact has led to a greater number of customers to exploit various fields of electronic commerce for their benefits.
- There is also a great national diversity in the adoption of electronic commerce, particularly in marketing and subsequent sales.
- Now Bangladesh is growing and now becoming the country with more amount of people with literate people in the world of the Internet.
- The effect of increasing the transparency of E-commerce with the highest productivity.

1.3 Objectives

The project objectives are :

- Authentication and authorization
- Search engine optimization
- To make the shopping easier and comfortable
- To serve the customers without wasting their precious time
- To reach the products to the customer's address with great care
- To represent as a compete in the e-commerce of Bangladesh

Chapter 2
Background study

2.1 Related Works

Online shopping is the process consumers go through to purchase products or services over the internet, An online shop, e-shop, e-store, internet shop, webshop, webstore, online store, or virtual store cause the physical analogy of buying products or services in a shopping centre or in a shopping mall.

All types of stores have retail websites, including those that do and do not also have physical storefronts and paper catalogs. Online shopping is a type of electronic commerce used for business-to-business and business-to-consumer transactions. Commonly, the teenager are more interest to shopping through the online, because they have more time sit in front of their computers and surfing internet.

Customers make purchases in order to satisfy needs. The wealth of products and services produced in a country make our economy strong. E-commerce and online shopping in Bangladesh are achieving remarkable and remarkable growth as more and more Internet facilities, high educational standards, lifestyle change, and the country's economic growth are being used more and more. E-commerce provides multiple opportunities involving many challenges as well. In the early 90's eBay and Amazon were founded, and today these are the major players in online shopping sphere. Today, there are many online shopping systems in place but there are many problems such as fraud and security concern, privacy, lack of full cost disclosure, product reviews and so on. I will try to overcome these problems in my project.

2.2 Technology and tools:

- **HTML:** HTML stands for Hyper Text Markup Language. HTML is the standard markup language for creating Web pages. HTML describes the structure of a Web page. HTML elements tell the browser how to display the content.
- **CSS:** In order to layout the papers and background images. border. line advanced places. tallness. breadth. founts. coloring material of the web site.
- **Bootstrap:** Bootstrap is a free and open-source CSS framework directed at responsive, mobile-first front-end web development. It contains CSS- and (optionally) JavaScript-based design templates for typography, forms, buttons, navigation, and other interface components.
- **JavaScript:** JavaScript is a lightweight, interpreted programming language. It is designed for creating network-centric applications. JavaScript is very easy to implement because it is integrated with HTML. It is open and cross-platform.
- **Node.js:** Node.js is a cross-platform, open source runtime environment for executing JavaScript code outside of the browser. It is also a preferred runtime environment built on Chrome's JavaScript runtime and is mainly used for building fast, scalable, and efficient network applications.
- **MongoDB:** MongoDB is a cross-platform document oriented database program. Classified as a NoSQL database program, MongoDB uses JSON-like documents with optional schemas.
- **Express:** Express is a minimal and flexible Node.js web application framework that provides a robust set of features for web and mobile applications.
- **React.js:** React.js is an open-source JavaScript library that is used for building user interfaces specifically for single-page applications. It's used for handling the view layer for web and mobile apps. React also allows us to create reusable UI components.
- **Visual studio code:** Visual Studio Code is a code editor redefined and optimized for building and debugging modern web and cloud applications.

Chapter 3
Proposed Methodology

3.1 Implementation Plan

The MERN stack is basically a JavaScript-based stack which is created to facilitate the development process. MERN comprises of four open-source elements: MongoDB as the database, Express as server framework, React.js serves as client library and Node.js is an environment to run JavaScript on the server. These technologies introduce an end-to-end web stack for web development.

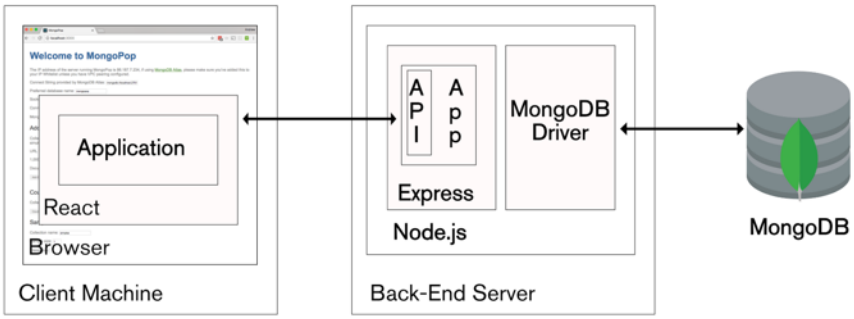

Figure 1: MERN stack architecture

Figure 1 explains the architecture of MERN stack. Firstly, Express with Node.js create API which is used for logic and to interact with MongoDB. When React client sends a HTTP request to the back-end server. The server analyzes the request, retrieves data from the database and responses with that data. React client is updated based on that returned data.

Chapter 4
Result Analysis

4.1 Feasibility study with timeline:

A feasibility study is a preliminary investigation of a proposed system to decide whether the system can run smoothly with the organization, will the organization realize the benefits that are expected and to decide will the organization go for it. The users will enjoy using this application, make their life easy and save lots of time. The feasibility study can be performed in three ways such as Operational Feasibility, Technical Feasibility and Economical Feasibility.

- ✓ Operational feasibility can be measured by using Unified Modeling Language (UML).
- ✓ This project is feasible on technical remarks also, as the proposed system is more beneficiary and can run on any machines supporting Windows and Internet services and works on the best software and hardware that had been used while designing the system so it would be feasible in all technical terms of feasibility.
- ✓ Economic feasibility determines whether there are sufficient benefits in creating to make the cost acceptable. So this signifies cost-benefit analysis and savings. On the behalf of the cost-benefit analysis, the proposed system is feasible and is economical regarding its pre-assumed cost.

This complete project can be completed in 3 months approximately. Following are the key tasks involved in the project and I am giving the approximate weeks to complete-

- Critical analysis of Online Shopping System using academic journals and articles and this will take 1 week.
- UML modeling of the application will take 2 weeks.
- Database design which includes design of back end database and tables will take 2 weeks.
- Front end design of all the required forms and this will take 2 weeks.
- Developing the business and database logic and this will take 2 weeks.
- Development of test cases will take 1 week.
- Unit testing in module level will take 2 weeks.
- Bug fixing and final release will take 1 week.

Chapter 5
Conclusion

“Online Shopping System” application will be developed for human being to achieve maximum efficiency in shopping online and to reduce the time taken to purchase items. It will be designed for people to shop online rather than searching for things by visiting the shop. It is a 365/24 service. The system will use HTML, CSS, Bootstrap, JavaScript, React as front end and Node.js and Express as a back end and MongoDB for the database. The system will strong enough to withstand regressive daily operations under conditions where the database is maintained and cleared over a certain time of span. The implementation of the system in the organization will considerably reduce data entry, time and also provide readily calculated reports.

Chapter 6
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