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(code and name of specialty)

(signature)

Kumar Priyanshu

(surname and initials)

Supervisor

(signature)

M. Fryz

(surname and initials)

Standards verified by

(signature)

O. Matsiuk

(surname and initials)

Head of Department

(signature)

I. Bodnarchuk

(surname and initials)

Reviewer

(signature)

(surname and initials)

6. Advisors of paper chapters

Chapter	Advisor's surname, initials and position	Signature, date	
		assignment was given by	assignment was received by
Occupational safety and labour protection	Lazaryk V.V, PhD, Assoc. Prof		

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Student

(signature)

Kumar Priyanshu

(surname and initials)

Paper supervisor

(signature)

Mykhailo Fryz

(surname and initials)

ANNOTATION

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Qualifying paper is dedicated to design and development of the commercial website to use for selling the electronic goods.

The goal of the paper is to develop a commercial website based on modern web programming and web design tools to meet the needs of users to search, order and purchase electronic goods.

In the first section of the qualification work the analysis of the subject area is performed, the review of development tools is carried out. The material of the first section helps to find the proper web tools to create modern commercial website satisfying the users requirements.

In the second section of the qualification work the user requirements for website have been represented, the design process has been considered including database design and user interface design. Also, dynamic content has been analysed.

The section "Occupational safety and labour protection" identifies the main psychological risk factors that lead to accidents, and considers the requirements of ergonomics for the organization of the workplace of the PC operator.

LIST OF SYMBOLS, UNITS, ABBREVIATIONS AND TERMS

HTML – Hypertext Markup Language

CSS – Cascading Style Sheet

CMS – Content Management System

WWW – World Wide Web

XAMPP – Cross-Platform(X), Apache (A), MySQL (M), PHP (p), Perl (P)

IDE – Integrated Development Environment

OSS – Open-source software

OSH – Occupational safety and health

OSHA – Occupational Safety and Health Administration

ILO – International Labour Office

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INTRODUCTION

Actuality of theme. Technology has always evolved with time. With the help of innovation in every sector of working life, life has become much easier. With evolving technology, it has become very easy to find everything needed remotely with the help of few clicks and browsing through stable internet connection. Unlike every sector, commercial sector has also been evolved alongside the growing technology. People no longer need to leave their house in order to gather information happening outside or even to get products they need.

The purpose and tasks of the study. The purpose of making this website is to make shopping fast, convenient and easily accessible to everyone from anywhere with the help of working internet connection. Anyone who is in need of electronic devices offered by the company is provided with not only in store visit but also through online shopping. In this website, user either can surf through products without registering their account or by putting in their details which enables them to visit back whenever convenient and continue from where they left. User must create a user account providing all the data required in order to place an order which is then delivered to them after making correct payment.

The main tasks of the paper are:

- To analyze the subject area related to commercial websites.
- To justify the software and methods selection for web site development.
- To develop website including database and user interface

The practical significance of the results obtained. The developed website is ready to be published on internet for using as a tool for selling the electronic products.

SECTION 1. ANALYSIS OF THE APPLICATION AREA AND TOOLS

1.1 Internet and e-commerce

Advance development of technology has changed day to day life of everyone in this world. Internet has become important part of human life. From children to older people everyone is using internet for specific purpose. Internet is used for free communication, business transactions, learning, shopping, storing data, sharing news worldwide, research and development. Internet travel through mass of cables, routers, satellites and Wi-Fi tower. Internet helps to design to shuttle a short message between two terminals. To share content quickly, effectively and in real time social media is used. Social media helps to reach a large audience in business. There will be direct connection with audience through social media. Many students have study and learn skills from social media sites and technology as well as some of people has damaged their career with bad addiction on entertainment aspect of internet sites. Productive use of internet will lead to successful path. People share anything including material in social media that may not be accurate and some time they are unverified or false information. Social media sites are the important aspect of digital marketing which provide high benefits and it also help to reach millions of customers.

E-commerce refers to buying and selling of goods or services via the internet, and the transfer of money and data to complete the sales. E-commerce also encompasses activities like online auctions, internet banking, payment gateways and online ticketing. Business transaction in E-commerce can be completed in six ways: Consumer to Consumer, Consumer to Business, Business to Business and Business to Consumer, Business to Administration, and Consumer to Administration [1].

E-commerce is a popular term also known as electronic commerce or even internet commerce provides the most efficient and convenient way to perform transactions involved in this trade. E-commerce substantially lowers the transaction cost. E-commerce helps to save time, effort and energy for both buyers and sellers. E-commerce has developed into large company which helps to make huge amount of profit. Traditional companies are forced to change their business techniques and to

develop their own websites as well. All over the world more than 75% of people use internet every day for business and private purposes. With e-commerce platforms, retailers build online stores where they showcase their products and services. Digital marketing uses search engine optimization (SEO) is main tool to promote the products and services in E-commerce website. (Fernandes, 2014.)

E-commerce concept is rapidly growing as it has brought new ideas and opportunities in the field of business. E-commerce attracts consumers by providing services 24 hour with wide variety of product. Technical issue is one of the risk factors of E-commerce website as it is based on technical system and sometimes it may lead to failure of whole E-commerce site. E-commerce attracts consumers and retailers despite of having low business expenses

. Website plays an important role in development of any sort of business bet it small scale of large scale. In today's convenience-based society, people tend to remotely shop rather than going to local stores for buying items. Website helps on broadening the service by taking your brand form traditional brick to a well-managed and loved brand. Online store makes it possible for customers to shop or visit your store at any time of the day which makes it convenient for both buyers and sellers. Reach is the other advantage that one can get from having a well-made website. Internet has made it possible to browse the website from across the globe at any given point of time. There is no comparison between the number of people physically visiting the store and traffic coming through the website. (Fernandes, 2014.)

Website is a good place for users to gather information about the products they are interested in or in the overall business they are interested in. Credibility is another major factor that shapes up having a proper looking website. It does not only give credibility but also provides an impression that the business is much superior and more successful than it might actually be.

1.2 Web tools and techniques

Rapid development of web tools and technologies bring more conveniences in our daily life. Millions of data can be transmitted easily from one place to another

with the help of internet. In one-way technology development has not only simplified our daily lives but also has reduced cost and time in general. Online business has changed traditional method of buying and selling products. People save time and effort with wide variety of products available 24/7. E-commerce website should be attractive and always updated with all new techniques for better profit. For Our GS electronics E-commerce website, we have used various tools and technologies such as Notepad++ for programming, chrome, HTML, CSS, JavaScript, jQuery, SQL database which are described below.

1.2.1 Open source software (OSS)

The source code within the software which anyone can inspect, enhance and modify is called open source software. LAMP is one of the most popular results of open source development model. LAMP stands for Linux, Apache, MySQL and PHP. Linux is immensely popular project in the world of open source operating systems. Likewise, MySQL is an open source database management system which is used by many websites and applications. The Mozilla Firefox and Android mobile operating systems are other two significant examples of successful open source software [2].

1.2.2 Frontend and backend web development

Front end refers to anything that a user sees first in their application or a webpage such as form fonts, colors, side bar and dropdown menu. The look and feel of a site is the main responsibilities of frontend developers. Front end web development is also known as client side of development. HTML, CSS and JavaScript are Front end developing languages whereas PHP, Java, Python and .NET are Backend web development. Backend development makes server, database and application communicate with each other with the help of server-side languages such as PHP, Ruby, Python and Java [3].

The illustration of Front end and Back end web developing is shown in the following diagrams.

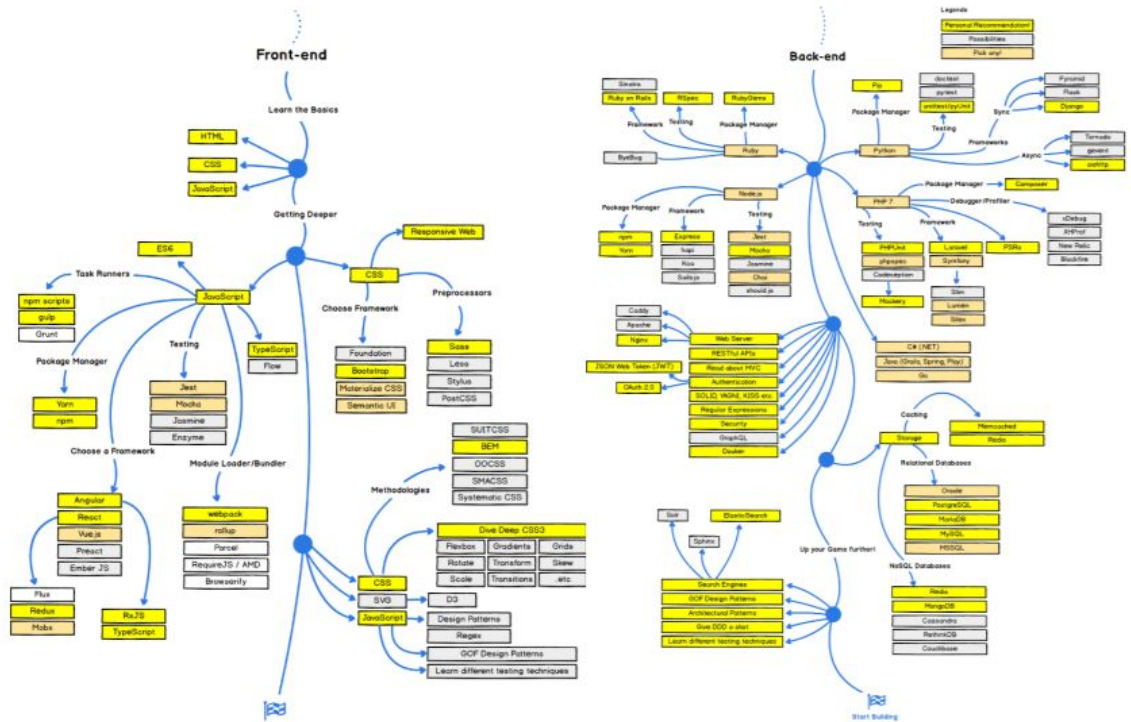


Figure 1.1 - Front-end and Back-end development [4]

On the diagram the tree structure of front-end and back-end has been represented and it has been used for the development of the website.

1.2.3 HTML

HTML describes the structure of web page. It stands for Hyper Text Markup language. In 1989, HTML was created by Tim Berners-Lee, Robert Calliau and others. HTML2.0 was published in late 1999. HTML5 is the latest version of HTML. HTML is one of the most widely used languages over web to display documents. HTML is the basic block whereas other technologies besides HTML such as CSS are for decoration of page and JavaScript is for more functionality and behavior of web page. When users save file name with HTML extension and views through browser such as Internet explorer, browser reads files and translates code into visible form and displays designed web page (see figure 1.2) [3].

```
<!DOCTYPE html>
<html>

  <head>
    <title> Title here </title>
  </head>

  <body>
    Web page content goes here.
  </body>

</html>
```

Figure 1.2 - Autocomplete structure of HTML [5]

DOCTYPE declaration must be in the first line of web document which tells browser that codes are written in HTML5. HTML tag is container for whole HTML document and tells browser in which language document is written. Head tag especially works behind the scene and contains information about documents. Only few elements inside head tag are displayed in web pages. Character attribute specifies character encoding for HTML document. UTF-8 can support almost all the character and symbol inside HTML document. Title tag is displayed on search engine of browser and defines title of document. Body tag is visible part and defines the document body. Body element is the actual content of document. It contains different text images, videos, links and other. HTML element contains start tag and end tag and contents are written in between [6].

1.2.4 Cascading style sheets (CSS)

Cascading style sheets is a mechanism for adding styles such as font spacing, colors to web documents written in HTML. CSS reduce work and save time. CSS can change layout of multiple web pages just by changing styling one page. CSS is a prominent technology of the worldwide web styles for different rendering method likes onscreen, in print, by voice and Braille based tactile devices. CSS also has rules for alternate formatting for the content accessed on mobile devices. In 1994 October

10, Hakon Wium Lie introduces CSS. There are three ways of inserting CSS on web page: Inline CSS, External CSS, and Internal CSS [7]. Figure 1.3 represents the syntax of CSS.

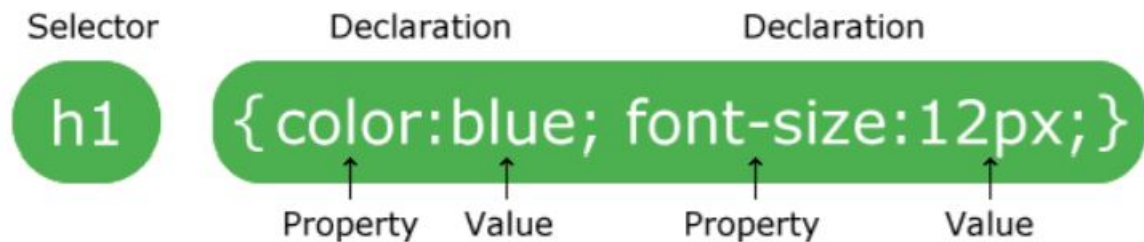


Figure 1.3 - CSS syntax [8]

We can see that each declaration consists of Property and Value of the property. The mechanism is very important for adding styles.

1.2.5 JavaScript

JavaScript (JS) is a dynamic, weakly typed programming language which is compiled at run time. JavaScript is one the most popular programming languages. Enormous companies like Netflix, Walmart and PayPal build entire application with JavaScript. It can be executed as a part of web page in browser. Java script was invented to make webpage more dynamic and to change the content on page directly from inside the browser. Real time networking applications like chats and video streaming services command-line tools and game can be built with JavaScript. In 1995 Netscape introduced Live Script but due to the popularity of Java it was renamed as JavaScript. However, it is totally independent from Java and has nothing in common with Java. JavaScript was mainly used for a spamming, annoying overlays, and pop-ups but another problem was writing different scripts for different browsers. In late 1996 people noticed fragmentation could be a problem and JavaScript language was submitted to ECMA committee to start standardization. New features are being added and it is getting better and better programming languages. It

is interpreted language which means it is compiled before it runs and not compiled during development. JavaScript was originally designed to run only in browser.

Every browser has JavaScript engine to executed JavaScript code. JavaScript engine reads and understands JavaScript code then compile it to machine code because machine code executes faster and execute machine codes. Google's JavaScript was extracted to run JavaScript anywhere and many non-browser environments such as Node.js, Adobe Acrobat use JavaScript. JavaScript can manipulate the HTML code, CSS, send background Http requests. In HTML, JavaScript code must be between `<script>` and `</script>` tag [9].

1.2.6 Bootstrap

Bootstrap is defined as a collection of HTML, CSS and Java script tools for creating and building web pages and web applications. Bootstrap is flexible and easy to work. Bootstrap is also known as a frontend development framework that enables developers and designers to build fully responsive websites quickly. Bootstrap can be used with any IDE or editor and any server-side technology and language from ASP.NET to PHP to Ruby on Rails [6].

Bootstrap is a responsive grid so there will be no more spending hours coding your own grid. Bootstrap comes with a whole barrel full of components that can easily tack into webpages including navigation 9 bars, dropdowns, progress bars, thumbnails and more. Every piece of code is described and explained in explicit detail on their website. As with so many open-source projects bootstrap has a large community of designer and developers behind it. Being hosted on GitHub makes it easy developers to modify and contribute to bootstrap codebase. Automatic resizing images based on the current screen size are possible with Bootstrap.

Dozens of custom jQuery plugins are available in bootstrap. One of the main critiques when it comes to frame works such as bootstrap is their size the weight, they throw around can really slowdown your application upon first load. Bootstrap is as popular among developer as they have started to create template based on bootstrap to accelerate the web development process. Precompiled version and source code

version are the forms of bootstrap. The source code version comes with styles source code written in LESS, all the JavaScript and accompanying documentation. If the people are not familiar with LESS, or they are just not interested in changing the source code at that time they can use the precompiled vanilla CSS [6].

1.2.7 JSON

JSON is a standardized format which is used to transfer data in form of text that can be sent over a network. In simple way, it is a used to store information in an organized, easy to access manner. The data must be in the form of a text when exchanging between the browser and a server. JSON is light weight and easy to use when compared to other open data interchange option. JSON has a more compact style as compared to XML. This means it is more readable. JSON uses fewer data which reduces the cost and increases the parsing speed. The structure of JSON is straight forward and easily readable. JSON uses a map data structure. JSON is text, we can convert any JavaScript object into JSON and send JSON to the server. We can also include the same basic data types inside JSON as we can in a standard JavaScript. JSON is purely a data format it contains only properties no method. The JSON format is often used to transmit structured data with the help of network connection [6].

1.2.8 PHP

PHP is widely used, popular server scripting language. PHP stands for “PHP: Hypertext Preprocessor “. In 1995, Rasmus Lerdorf developed CGI script toolset which was called personal home page (PHP). PHP can be used for collecting form data, encrypt data, sending and receiving cookies, creating dynamic page content quickly. PHP can easily modify database by adding and deleting data. PHP files can be combination of text, HTML, JS, CSS and PHP. Basic knowledge in HTML, CSS, and JS is required for PHP code. PHP files must have .php extension. PHP is case sensitive for variable names, but function names are not case sensitive. PHP is

suitable for almost all server and PHP runs on various operating system such as windows, Linux, Mac. PHP is free to download and use. PHP code is executed on server side. Web server is needed on PC to execute PHP and MySQL [6].

1.2.9 SQL and NONSQL databases

SQL stands for Structured Query language. It is used to access and manipulate relational database management systems (RDBM) such as MySQL, MS SQL Server, Oracle, Microsoft Access, etc. The data in such databases are organized in the form of table that consists of columns and rows. The columns are the vertical fields whereas the rows are the horizontal records. To perform any kind of action on a database, SQL statements are needed. We need to use following SQL statement to get all the records of a student table: `SELECT * FROM Student`.

So, the basic syntax is: `SELECT column_name FROM table_name`; to select particular column. If we want to select all the columns then we use `*`. SQL queries can be categorized into following four categories. DDL (Data Definition Language) is used to perform various operations on the structure of table, schema and modify it. Some of the DDL queries are `CREATE`, `DROP`, `ALTER` and `DELETE`. DML (Data Manipulation Language) is used to manipulate data in the database such as `SELECT`, `INSERT`, `DELETE`, `UPDATE`. DCL stands for Data Control Language and some of DCL examples are `REVOKE` and `GRANT`. These are used basically to deal with access rights and permissions. TCL (Transaction Control Language) are transaction-based queries like `COMMIT`, `ROLLBACK` and `SET TRANSACTION`.

SQL is a declarative language and is very easy to use. With SQL, we can create database, store data, access database and can be used in integration with other programming language for web development. We can use phpMyAdmin, a free and open-source software tool for managing the MySQL over the web.

NONSQL database are built for specific data models that have flexible schemas for building modern application. NoSQL databases are widely recognized for the ease of development, functionality and performance at scale. NoSQL database use variety of data models for accessing and managing data. Modern applications

such as mobile, gaming and web requires flexible, scalable, high performance and high functional database use NoSQL database which provide great user experience. NoSQL database generally provide flexible schemas for more iterative development and to enable faster for these applications. NoSQL database is generally designed to scale out by using distributed cluster of hardware instead of scaling up by adding expensive and robust servers. NoSQL databases are optimized for specific data models and access pattern that enables higher. Key value, Document Graph, in memory and search are types of NoSQL database. NoSQL database stores and manages data in such a way that allows for high operational speed and great flexibility for developers [6].

1.2.10 XAMPP

XAMPP stands for cross-platform (X), Apache (A), MySQL (M), PHP (P) and Perl (P). It was created by Apache friends. XAMPP helps in creating a local web server for developers which enables them to perform test runs. Languages such as Apache, PHP and MySQL are needed to build web servers which are all later accumulated together in a simple XAMPP file. Since it is cross platform product, XAMPP works equally good on mac, windows and Linux [10].

XAMPP consists of four important components which are Apache, MySQL, PHP and Perl. Apache helps in delivering web contents to a computer which is also the most used web server application. More than half of the websites are using Apache as their web server which makes it very popular among the categories [10].

MySQL is simply a database which is then needed to collect data to make website operate properly. It helps a lot in making or altering data by providing options such as add, remove, and modify data in a web server. PHP is a server scripting language which is used to develop static or dynamic websites or applications. Perl is a dynamic programming language which is used in network programming and system admin. The fully configured XAMPP control panel before starting to run is displayed the figure 1.4 below.



Figure 1.4 - XAMPP control panel

The results of using XAMPP for website development are represented in the following section 2.

1.2.11 REST

Rest is an architectural style for web developing. It is popular among developers due to its simplicity and the fact that it builds upon existing systems and features of the internet HTTP to achieve its purposes as opposed to create new frameworks and technology. In the REST architecture clients send request to retrieve or modify resources and servers send responses to these requests. Some of the constraints of rest are client server, stateless, cacheable, layered, optional code on demand, uniform interface. REST uses a standardized set of request methods including GET, POST, PUT, DELETE and other existing HTTP capabilities. REST is based on standard HTTP. REST architecture allows developers to quickly implement the data validation because of the performance, security, flexibility, extensively and ease of use.

1.2.12 Node.js

Node.js is free open-source server environment which uses asynchronous programming to build and run web applications. Ryan Dahl introduced Node.js in 2009. We can run Node.js on various platform such as Linux, Windows, Mac OS and so on. Node.js can be easily downloaded to user Pc from nodejs.org. Users can easily create, read, write, and close files on server and also easily delete add and modify data in database. Node.js is light-weighted as this uses event-driven architecture. Everything done within Node.js, every call is chain of asynchronous callbacks. Node.js uses non-blocking I/O models. Node.js has built-in modules is a set of functions which can be easily used while developing application without any further installation. Many cloud-based servers support hosting of Node.js. Node js application can use different object database such as MongoDB, traditional SQL database. Node.js plays a critical role in the technology stack of many high-profile companies who depend on its unique benefits of Node.js.

1.3 Website development process

Building a well-functioning website is an integral part of a successful business. Developing a website can be hectic and lengthy if ignored the basic process involved. Some of the basic process involved is information gathering, design, content writing and assembly, planning, coding, testing, review and launch. Here in this thesis we are going briefly about the topics such as user requirement, design, implementation and publishing.

1.3.1 User requirements and design

Requirements are needed to complete the project as well as for visualizing the project. Web programming's languages or tools for making the websites are the requirements for the construction of the website. There are various tools and technologies that can help to create the website. Choosing of the tools or technologies

must be proper because higher level technologies give the better website. More requirements will give more focus and help with the website. Website requirements tell not only the functions and capabilities that the website must have but also what it allows the user to do. Before even explaining what the requirements are, one needs to specify the stakeholders [11].

There are various types of requirements which come together during the process. Business requirements, functional requirements and user requirements are the categories of website requirements. Business requirements in the website are often the objectives that the clients are looking forward to solving problem with. Functional requirements are all about what is needed for the development of the website and how the website should operate. Likewise, user requirements in the website development specify the user expectations and their interaction with the website. Website requirements tell what the website should have and how they allow the users to interact with the site [11].

Design of web structure diagram is needed during planning of website development to understand purpose and navigation. Website structured diagram will give clear vision of website from which developer and customer can discuss whether adding or removing some features are necessary or not. Well structure diagram and discussion give focus and main idea to develop good website. Structured web-diagram is represented on the figure 1.6.

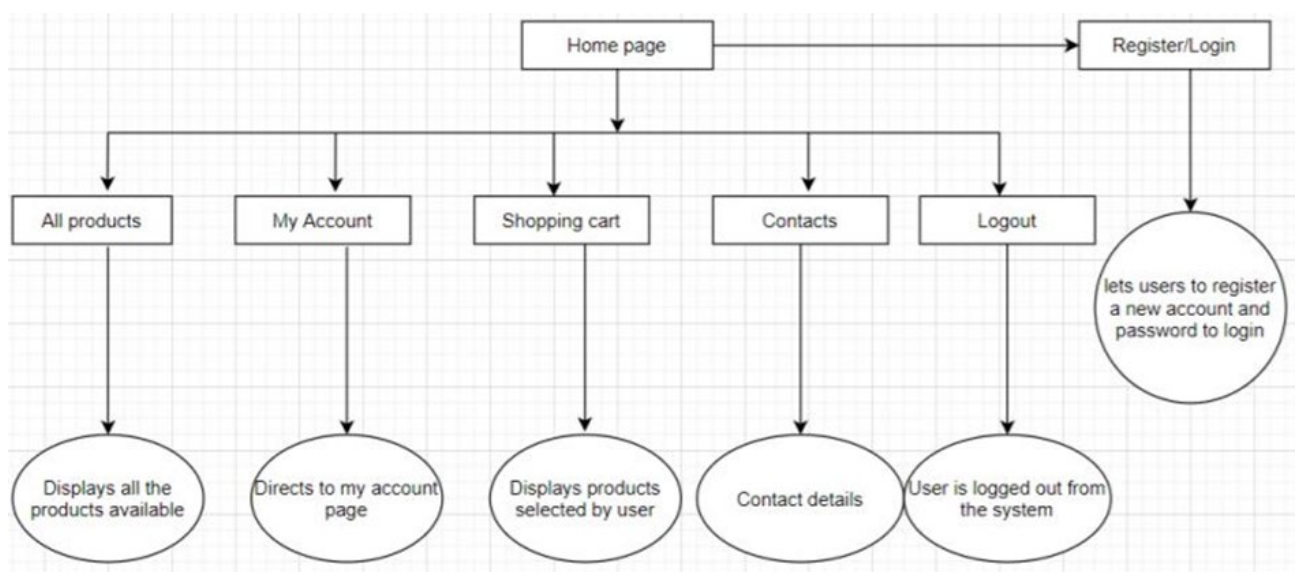


Figure 1.6 - Structured web-diagram

Database designing helps in producing database systems that meets the user requirement along with high performance. In terms of storage space, well designed database helps in easy maintenance, consistency in data improvement and making it cost effective.

1.3.2 Implementation

The process of putting a plan into effect is Implementation. In order to make the website ready to be published, all the steps mentioned above were executed and followed with care. Implementation involves all the practical work done during creating process such as creating webpages, posts, creating navigation bar, side menu and placing the contents. Technologies such as HTML, CSS, JavaScript and PHP are used as per the requirement of a website. This part also includes testing, testing of website is done time to time to inform it is running smoothly and in correct form. The website becomes ready to be published once all the steps described above are executed for the development of a website [11].

1.3.3 Website testing and publishing

Web testing ensures a site is working for users by testing functionality, reliability and performance. The various questions such as: is the website responding well regardless of the user's model of device, operating system, does the website perform securely, without leaking any information or losing any data, does the website performs good under low internet connection with consistency, should all be answered while testing website. A fully tested website helps in increasing user confidence, improving search engine ranking, drawing more inbound links, and driving enquiries and interactions. To be effective, a website must run properly and the only way to ensure that is by testing the website before publishing it online for users. Based on requirements, there are many types of testing performed such as usability testing, interface testing, security testing, database testing, functionality testing and compatibility testing.

SECTION 2. DEVELOPMENT OF A COMMERCIAL WEBSITE

This project is the making of an E-commercial website for a virtual electronic company called “GEEK SHOP”. In this project, the website is created where users can easily access any electronic devices offered by the company and make purchase if needed. Website can be updated at any given point of time if products must be added or reduced as per the user requirement. After the website is published online, anyone can get access to it by simply having a stable internet connection and correct web address.

After the connection is established, user can surf through the website, choose products, add them to cart and register their details before making payments. User registration was taken very seriously in this project as it brings a lot of convenience and ease for regular customers who often visit the site. For example, if a user registers their account once in the database, they can simply log in with their user id and password for the next visit. The website consists of a side bar where all the brands and products are listed, upper navigation bar and product page. Whereas the navigation bar consists of home page, all products, my account, shopping cart, contact us and logout.

2.1 User Requirements

E-commerce website was developed considering User Requirements. New users are able to register themselves, search products, add to cart, deselecting product from cart, login, logout, user account setting. Also from administration data manager can view the users and able to delete users. New product can be added to E-commerce website at any time. XAMPP is very important for a web developer which contains bundles of web application, database and scripting language which helps to create local web server for testing and deployment. First step was installation of XAMPP server to developer computer for testing website from starting of project. Apache and MySQL should be started to run local web server. Developer need to click start button of right side of apache and MySQL which is shown in fig 3. After

testing the user requirements from XAMPP server following diagram show how user going to interact with system. User requirement were tested from XAMPP server. Use case named Login and Register are described in description below in figure 2.1

Use Case ID:	001		
Use Case Name:	Login		
Created By:	PRIYANSHU KUMAR	Last Updated By:	16/01/2022
Date Created:		Last Revision Date:	
Actors:	Admin, Registered customer		
Description:	Actors can login with their credentials to use the system		
Trigger:			
Pre-conditions:	User has already created an account and can access it using email and password		
Normal Flow:	User is already registered and can access services provided by the system		
Alternative Flows:	User does not have an account and has to register		
Frequency of Use:	Every time user has to access more advanced system functionality		

Use Case ID:	002		
Use Case Name:	Register		
Created By:	PRIYANSHU KUMAR	Last Updated By:	16/01/2022
Date Created:		Last Revision Date:	
Actors:	New user		
Description:	New user can register with their personal information to use the system		
Trigger:			
Pre-conditions:	User want to check out or buy products.		
Normal Flow:	User should have real registering detail.		
Frequency of Use:	User wants to buy products		

Figure 2.1 - Table of description

Use case diagram is represented on the figure 2.2 below.

2.2 Design phase

XAMPP offers MySQL database server, apache web server, PHP and Perl in one package. MySQL database server is used in this project to create database. To run XAMPP Server developer need to start Apache and MySQL from control panel and browse localhost/phpMyAdmin/.

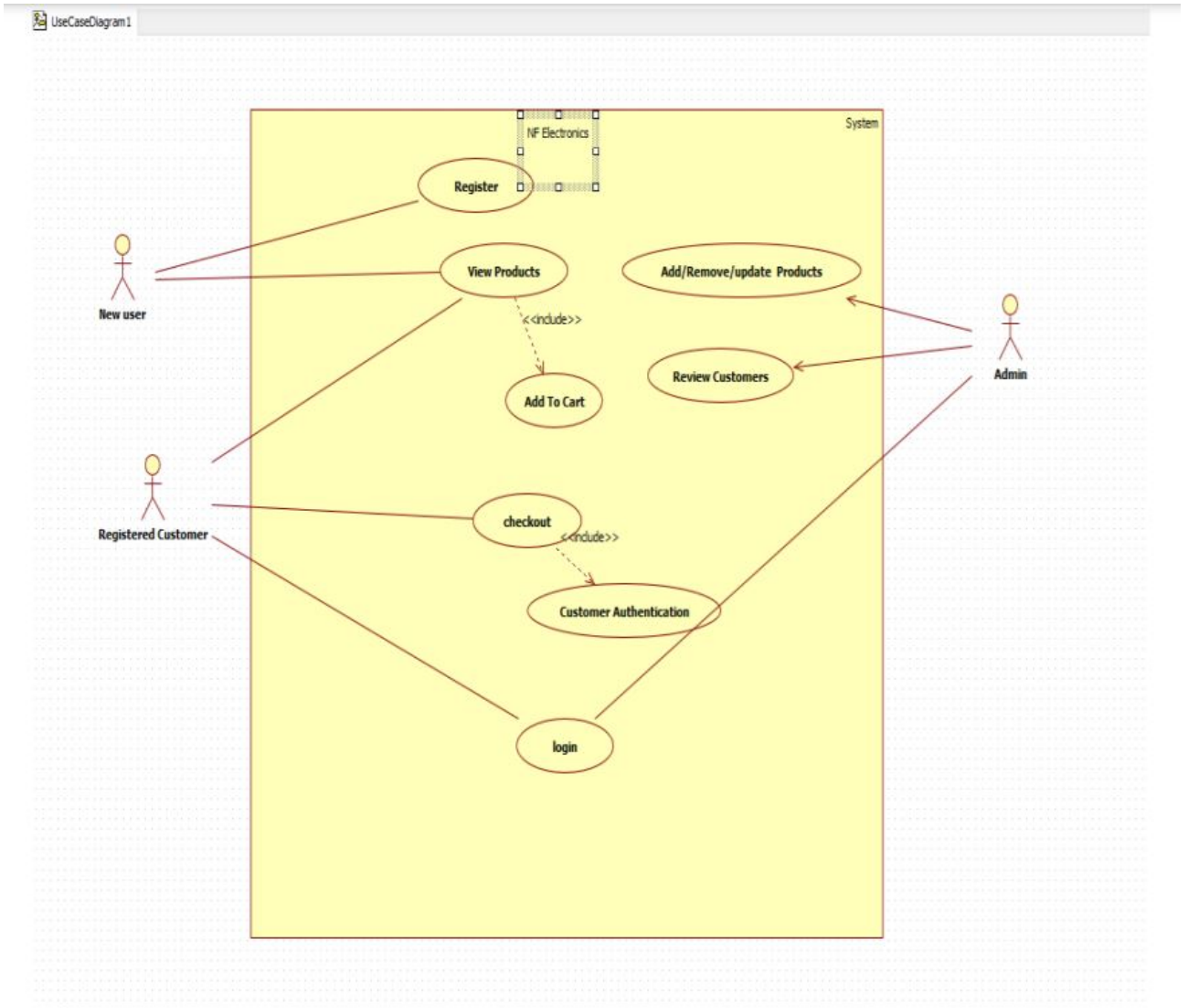


Figure 2.2 - Use Case diagram

This will lead to phpMyAdmin page database can be created in easy way. To create a database design, developer needs to click on database and type name of database, click creates and new database is ready to use. In this project, database named E-commerce_cms_electronics was created. Inside database, different table with table name and columns can be added to store data. The figures 2.3 and 2.4 show php script to connect server and proposed database design respectively.

Proper Connection to MySQL server was made from php script. Database host, username, password, and database name is needed. In our case database host is local host, username, password is root for XAMPP users and database name is E-commerce_cms_electronics.

```

File Edit Selection View Go Run Terminal Help
db.php - Visual Studio Code
header.php db.php x
c:\xampp\htdocs\ecommerce_cms_electronics\includes> db.php
1
2 <?php
3 $con = mysqli_connect("localhost","root","","ecommerce_cms_electronics");
4
5 if(mysqli_connect_errno()){
6     echo "Failed to connect to MySQL: " . mysqli_connect_error();
7 }
8
9
10 mysqli_query($con,"SET NAMES 'utf8' ");
11
12 ?>

```

Figure 2.3 - Establishing connection with database

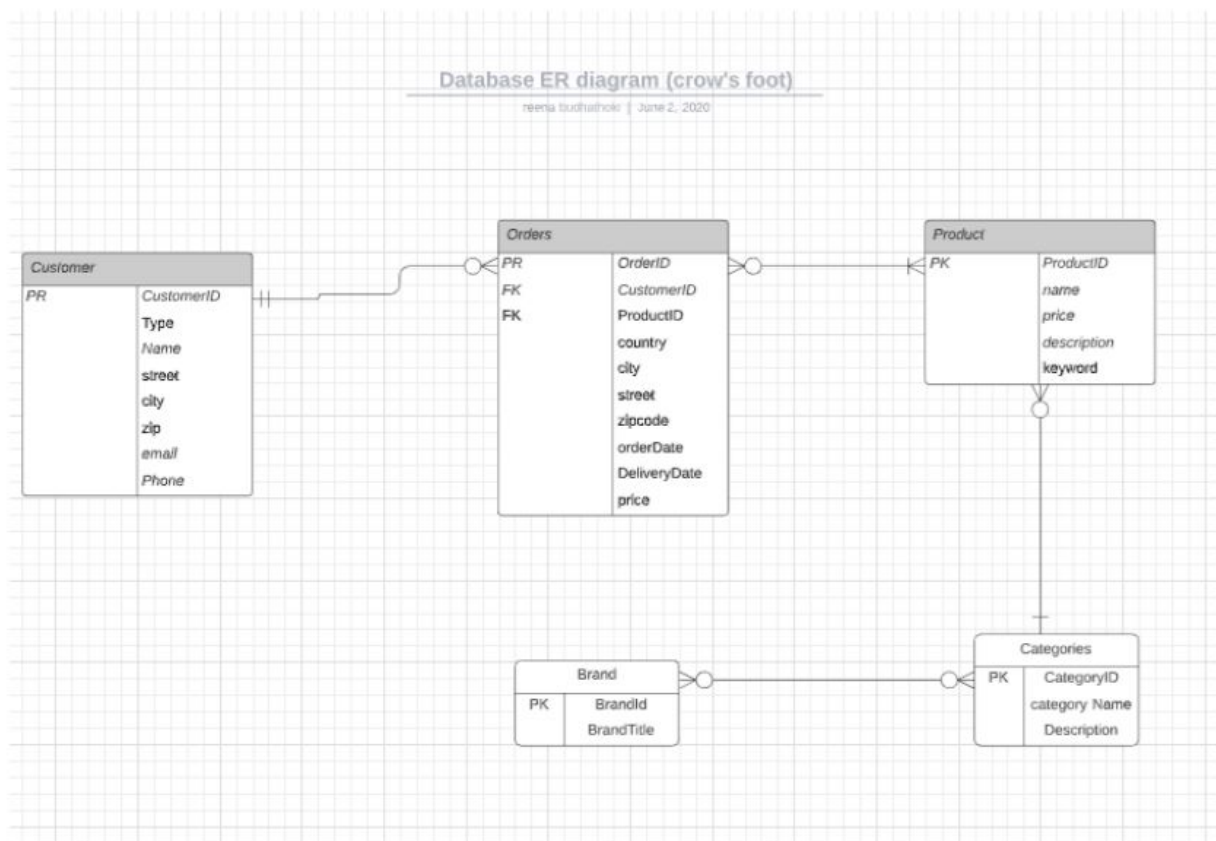


Figure 2.4 - Database ER diagram

Designing was by far the trickiest part of the website project. After gathering all the requirements, next step in a website development is to determine what type of design should be implemented in the website. It is one of the most important steps in a website development process. Designing in website development is almost like

making a blueprint for the website. The initial phase of the designing involves steps such as navigation structure and planning a site structure.

Creating a wireframe and a layout of a website is the final and the most important phase in web development which can also be called as a skeletal structure of the website which clients have been waiting for. Designing is something that must be done not only in website development but also in almost every software development. A website is the collection of well-structure WebPages which involves different phases like database design, server design and webpage design. To run the website in real-time, there must be the server installed. The website design and database design can be designed after designing the server. Figure 2.5 illustrates the main page design.

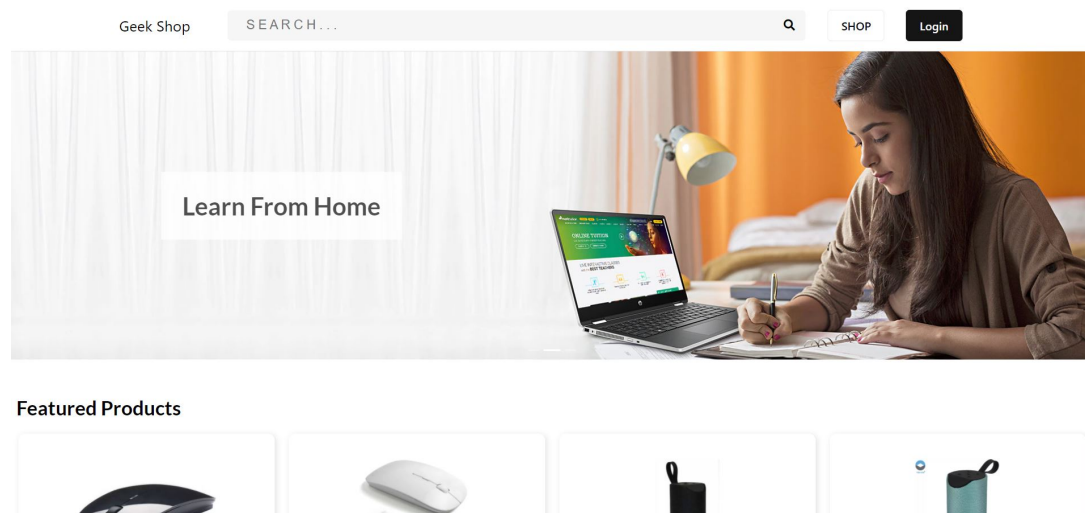


Figure 2.5 - Front page design

In order to store the information, database is needed which further helps in storing every single detail provided by user while signing up.

2.2.1 Database design

Database designing produces logical and physical designs model of the given database system. Brand table was created to store brand name with unique brand_id. There are 2 columns, one is for brand_id and another is for brand name. In this project, brand names which is termed as brand title HP, Samsung, LG, Apple

Lenovo, Canon, Sony, OnePlus, Huawei with brand_id 1,2,3,4,5,6,7,8 respectively (figure 2.6).

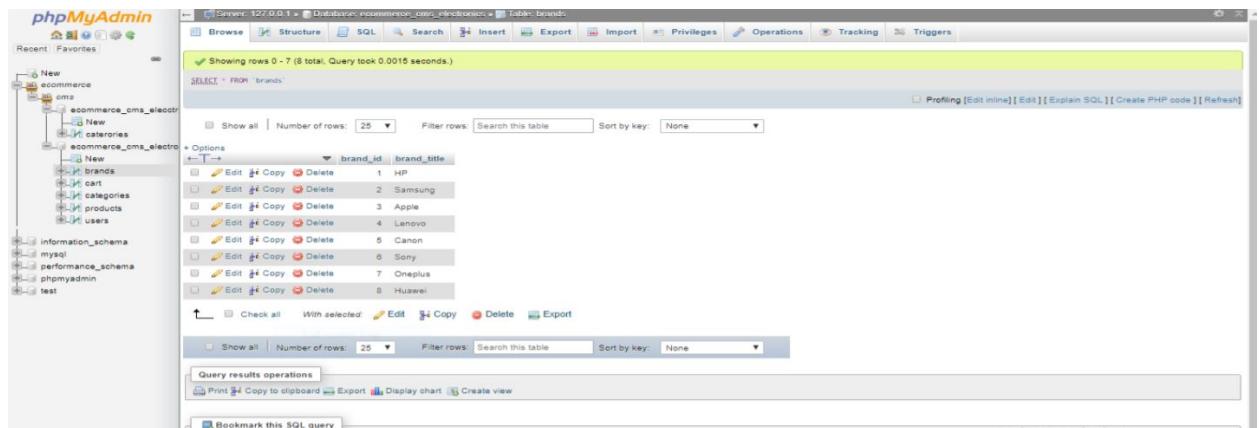


Figure 2.6 - Brand table in phpMyAdmin

Cart table is used to store cart products which are selected by users. When user visits our electronics website, they will select products they want to buy and add it to cart. In fig 8, one user added two items iPhone XR and Huawei P30 on cart and these items were stored on cart table. If user removes iPhone XR from cart, then only one item will be stored on cart table (see figure 2.7).

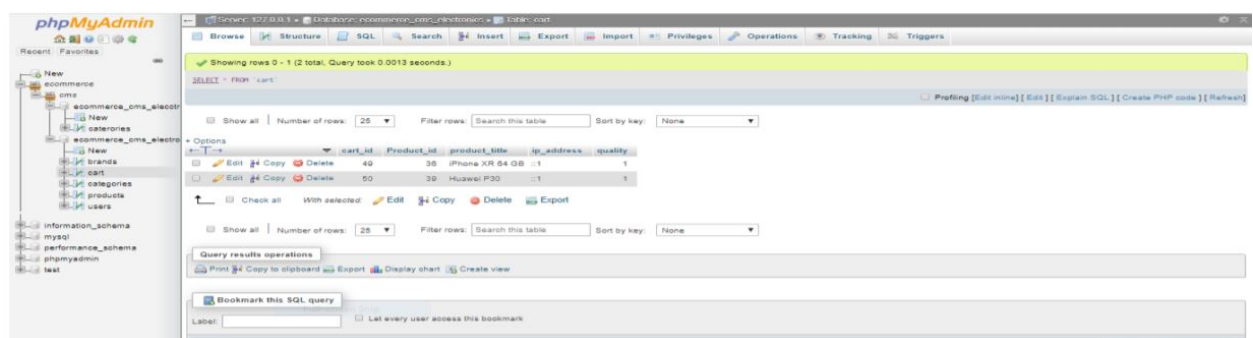


Figure 2.7 - Cart table in phpMyAdmin

Categories table is to store the category of products with unique id. There are five types of category of electronics product in our project. There are two columns of table (figure 2.8) one is cat-id which is id of product 31 categories and cat-title which means category of products such as laptop, cameras, and mobiles. Admin can edit and delete category of products from database.

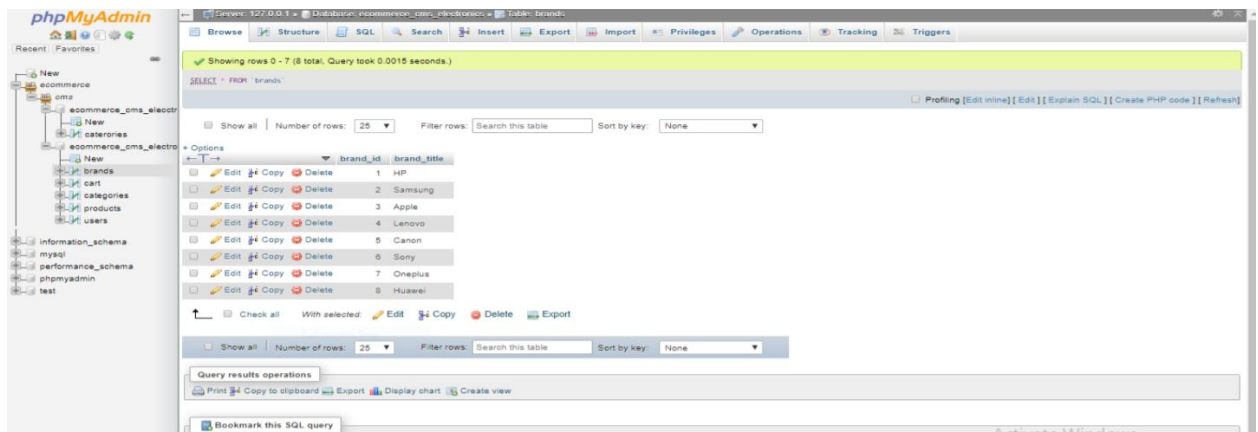


Figure 2.8 - Categories table in phpMyAdmin

Product table is to store all products of our E-commerce website. More than 30 products with product information are stored in products table. There are 8 columns in this table. Product_id is id number of product and it is unique for each product. In Product_cat columns cat-id of categories table can be seen. Product_brand of products is also same as brand_id of brand table. Product_title is name of product and Product_price was stored as per market value. Admin can add edit and delete product from database as per necessity (figure 2.9).

Product_id	product_cat	product_brand	product_title	product_price	product_desc	product_image	product_keywords
19	1	1	HP Elite Dragonfly	1200		HP Elite Dragonfly.jpg	HP Laptop
20	1	1	HP Spectra Touchscreen	1190		HP Spectra Touchscreen.jpg	HP Laptop
21	1	4	Lenovo Thinkpad X1	499		Lenovo Thinkpad X1.jpg	Lenovo Laptop
22	1	4	Lenovo Legion Y540	999		Lenovo Legion Y540.jpg	Lenovo Laptop
23	1	3	Apple MacBook Air 2019	1199		MacBook Air 2019.jpg	Apple Laptop
24	1	3	Apple MacBook Pro 13	1099		MacBook Pro 13.jpg	Apple Laptop
25	2	5	Canon EOS R	2000		Canon EOS R.jpg	Canon camera
26	2	5	Canon EOS 90D	1100		Canon EOS 90D.jpg	Canon camera
27	2	6	Sony A7Riii	2899		Sony A7R iii.jpg	Sony camera
28	2	6	Sony A6600	1500		Sony A6600.jpg	so
29	3	2	Samsung Q80R QLED 4K	1700	49 inches Smart 4K TV	Q80R QLED 4k.jpg	Samsung QLED 4K
30	3	2	Samsung Q80R QLED 4K	1900	75 inches Smart 4K TV	Q80R QLED 4k.jpg	Samsung QLED 4K
31	3	6	Sony 32" LED TV	349		Sony LED TV.jpg	Sony TV
32	3	6	Sony Bravia 4K	579		Sony Bravia 4k.jpg	Sony TV
33	4	2	Samsung S9 64GB	999		Samsung S9.png	Samsung Phone
34	4	2	Samsung S10 64GB	800		Samsung Galaxy S10.jpg	Samsung Phone
35	4	3	iPhone 11 Pro Max 64 GB	1278		iPhone 11 pro max 64GB.jpg	Apple Phone
36	4	3	iPhone XR 64 GB	539		iphone XR 64GB.jpg	Apple Phone
37	4	7	OnePlus 7T 128GB	599		OnePlus 7T.jpg	OnePlus Phone

Figure 2.9 - Products table in phpMyAdmin

User table is last table of E-commerce_cms_electronics database. Users should fill registration form with all personal detail such as name, email, password, address, contact and image. All this information will be saved on this user table with unique id. Admin can edit and delete user information if needed.

2.2.2 User interface design

The user interface design is also often called a website wireframe which specifies the size and parameter on the elements on the page. Layouts are often very simple without any color grading, logo or any contents really. Layout is very important part in website development process because it acts as sketch or blueprint for designing a website.

The homepage of the website has a navigation section, left side bar section, product section, login and register button, cart, navigation and finally the footer section.

Navigation is always a top priority for any websites as it makes surfing menus easy and effective. The simple and easiest way to create a layout is with the help of pen, pencil or paper. There are several other tools that can be used to sketch a wireframe such as Flair builder, Microsoft Visio, Axure for PC and Smart Draw. The coding of fig shows the styling of GEEK SHOP with CSS. Design layout can be changed anytime by using CSS style. The Layout for the project is created as shown in figure 2.10 below.

Navigation is always a top priority for any websites as it makes surfing menus easy and effective. For this project the navigation bar is placed at the topmost section horizontally.

There are many advantages of having a simple horizontal navigation bar and saving a lot of content are space is one of them. For this website, following menus were created in the navigation bar as per the user requirement: home, all products, and my account, shopping cart, contact and logout as shown in figure 2.11 below.

The search bar is also created in the navigation panel to find desired product easily available in a single search and click instead of browsing through all the products.

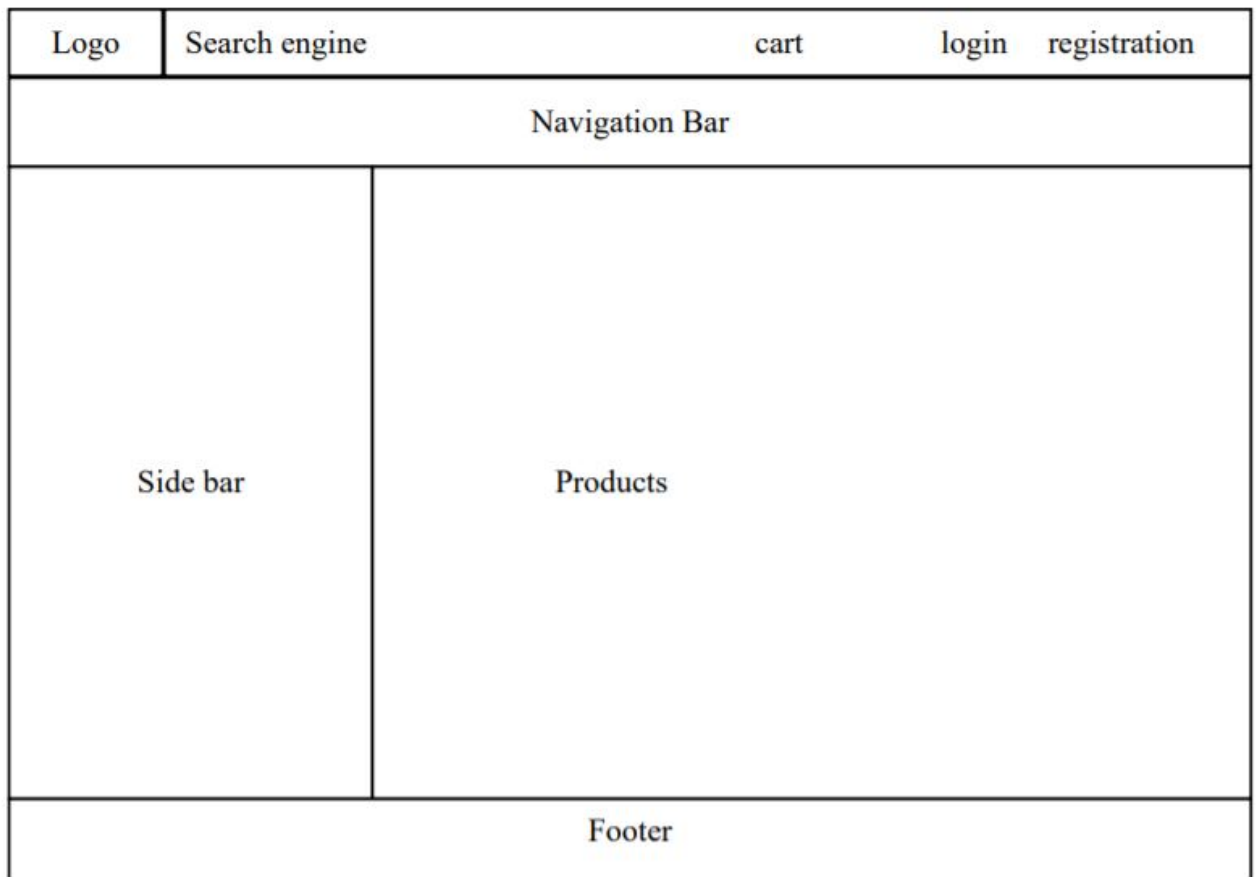


Figure 2.10 - User interface design

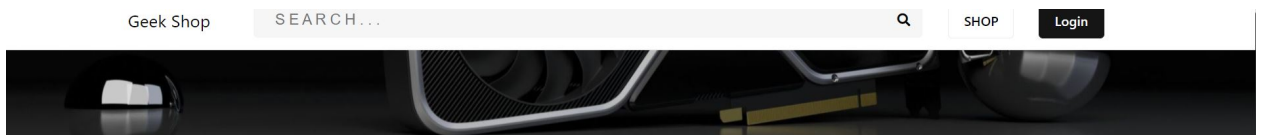


Figure 2.11 – Navigation Bar

For this website, the side bar is created at the far left hand side of the page leaving space on the right hand side to view all the element of contents from home page. The side bar is simple and smooth to navigate through which contains categories and brand names.

The categories tab contains items such as Laptops, cameras, mobiles and desktops. Whereas, the brand name shows the same items by sorting it out with brand names (figure 2.12).

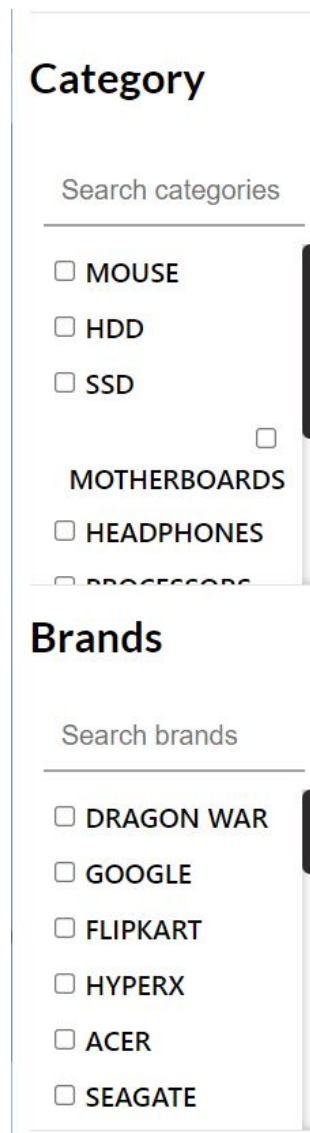


Figure 2.12 – Side Bar

In the context of World Wide Web and HTML dynamic content refers to the content that is delivered to user depending on user interactions, timing, needs and various other parameters.

2.3 Dynamic content

Each individual is always looking for different products while surfing on the internet. Thus, the content differs from users to users. In other word it is also known as adaptive content. It is very customizable and each response can be made based on the request made by the user. Dynamic content provides result to the users and allows the user to submit their request or information which makes it very interactive. In this

project, we have tried to give our client a very dynamically responsive website by putting contents such as insert product page, database table for insert record, displaying dynamic content by user ID on homepage, detail page, all products page and search engine. Since this is online store, it is very vital for clients to add and remove their products from their online store. Thus, the insert product page was created where clients can easily modify their products as per their needs. The product page contains table which gives them option to choose product title, product category, product brand and product images, product price, description and keywords about each individual product as shown in figure 2.13 below.

Insert new post here	
Product Title:	MOBILE
Product Category:	Mobiles
Product Brand:	Apple
Product Image:	Choose file iphone.jpg
Product price:	\$ 1278
Product Description:	iphone 11 pro max 64 GB
Product keywords:	iphone
Insert Product Now	

Figure 2.13 – Insert product page

When the products are modified in their website it is essential to make changes in the database as well. PhpMyAdmin is used to store and modify data as per the need of client. After the product is added from insert product page, it is automatically stored in the database and it also can be modified directly from database table itself.

After adding or removing products from insert product page or database table the result should be shown directly on the home page as the homepage should be displaying all the dynamic content. For example, if a client adds a product named 'Lenovo laptop' in their database then the home page shows the respective product automatically on it gathering all the requests and information given on the insert product page. In case of user wanting to look at all the available products offered by

the store, they can do so by going to ‘All products’ menu (figure 2.14) which is available on the navigation bar on the topmost part of the website. Similarly, in case of only wanting to look at one particular product, that can also be done by just going on to ‘search product’ menu which is made available for the convenience of users.

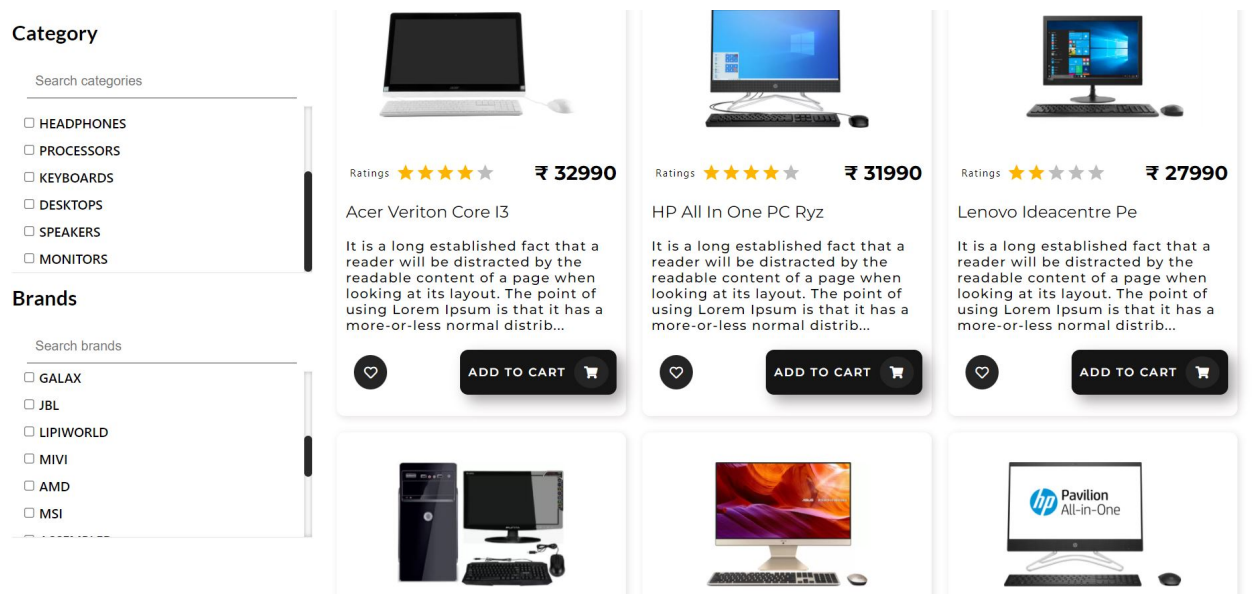


Figure 2.14 - All product pages

For example, if a user wants to look a product called ‘Desktop dell’, he/she can go on to the search bar and type in the keyword and result only shows a product called desktop dell.

2.4 Shopping cart and user registration

Shopping cart in internet is not much different then shopping cart in real world. It is a function that enables users to make a purchase of products or services. Having a well-made shopping cart is extremely important as it acts as the bridge between shopping and buying. In this project, users can add and remove products from cart as per their need. There are four columns which consist of remove option, product name, and quantity of products and price of a product as shown in figure below. User can add product from main page by clicking on add to cart button .The products which are selected to add in cart can be seen in shopping cart page .User can remove product by click on remove box which is on left side of each selected product after

that user have to update cart. Continue shopping page will redirect customer to main page where user can search for more products. Checkout button will redirect user to payment page where user can make purchase of their choices (figure 2.15).

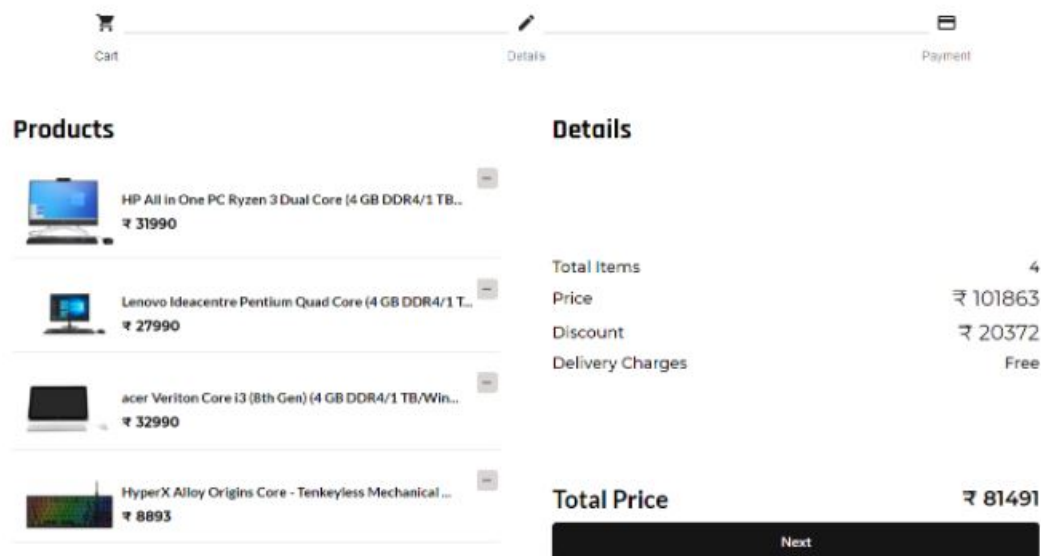


Figure 2.15 – Shopping Cart

Registering user into system is always a smart and systematic approach to database. For a website to be user friendly it must have user friendly registration system which is simple and clear to user's visiting. In this project, the registration form is very simple which contains Name of a user, E-mail address, password, user Image, country, city, contact number and lastly user address. Users are compulsory required to fill in their Name, e-mail address, matching passwords, country and address, whereas images and city are optional. User cannot have two accounts from one email id. If email is already registered and exist in system database the error message saying "Sorry, email is already taken, please try again with another email" will be displayed on screen. When all the required fields are filled out, the registration will successful and the record will be saved on database unless the user personally wants to edit or delete their user account. The registration form is as follows (figure 2.16).

Login

Signup

SIGN UP

Developed by [PRIYANSHU KUMAR](#)

Figure 2.16 – Registration form

After the user completes successful registration of their details on the website, they can login on the website with correct email address and password given while registering. Upon entering incorrect email address or a password the error message saying “password or email is incorrect, please try again” will be displayed in screen. Forgot password option is made available if in case any user finds it hard to remember. The password recover message is send via link to users email address where they can create new password for further use.

User interface can simply be put as a connection between human and a computer on a webpage, applications or in any devices. The user interface should be efficient, simple, easy and user friendly in order to be successful. After a user is logged into a system, it is very essential to give them their freedom of changing their own details provided to website. Since the goal of this project was to create a very user-friendly website for e-commerce store, we have provided users that opportunity to tweak and edit their account details later on even after registering an account.

SECTION 3. OCCUPATIONAL SAFETY AND LABOUR PROTECTION

3.1 Occupational safety

Workplace safety is an important part of any job and requires that everyone in the company adhere to the safety guidelines and policies in place. Carefully following appropriate safety guidelines can go a long way toward preventing workplace injuries. Here are some ways you can work to stay safe on the job.

Always be alert to what's happening in your surroundings; remember that your safety is your responsibility. Understand the particular hazards related to your job or workplace, and keep clear of potentially hazardous areas or situations. Be awake and attentive on the job, and be particularly aware of machinery. Avoid going to work under the influence of alcohol or drugs, which can compromise your concentration, coordination, judgment, motor control and alertness.

Use correct posture to protect your back while at work. If you sit at a desk, keep your shoulders and hips in line and avoid hunching over. Use correct form when lifting objects and avoid twisting and stooping. The following tips provide information about lifting correctly:

- Use both hands to lift or carry a heavy object.
- Adopt a proper lifting stance by putting the strain on your legs, keeping your back.
- Wear a back brace for heavy work.
- Test the weight before picking up the item.
- Lift items smoothly and slowly.
- Move your feet instead of your back when traveling or turning with a heavy object.
- Hold the load close to your body.
- Ask for help to move loads that are too heavy for you.

Feeling tired and burned out makes you less likely to be aware of your surroundings and is a common cause of workplace injuries. Regular breaks help you

stay fresh and alert on the job. It is particularly important to take short breaks when you have a task that requires repetitive movements over a long period of time.

Always take the proper precautions when operating machinery or using tools. Taking shortcuts is a leading cause of workplace injuries. Use the appropriate tool for the job, and use it in the right way. When using tools and machinery, put safety first with the following tips:

- Only use machinery you are trained and authorized to use.
- Keep tools clean and in good working order.
- Organize tools and always return them to their proper place.
- Make sure the machine operator sees you, don't approach from a blind spot or from behind.

- Only perform tasks you have been properly trained to perform.
- Never leave machinery unattended while it is running.
- Always obey operating instructions.
- Never remove or tamper with safety guards.
- If something seems wrong, immediately stop the machine and get assistance.
- Communicate with those around you.
- Never walk in front of heavy equipment.
- Read and follow all labels and instructions.
- Don't tamper with hazardous items, including cords, switches and electric controls.

- Wear appropriate and compact clothing; loose, billowing clothing and accessories can easily get caught in moving parts.

- Never place fingers or other objects into moving machinery.
- Turn off equipment before moving, cleaning, adjusting, oiling or un-jamming.

Always know where emergency exits are located and keep the path to them clear. You should also have clear access to emergency shutoffs on machinery.

If you notice a potential safety hazard or risk, report it to your supervisor immediately so they can address the situation.

3.2 Labor protection management

The need to improve the conditions of labour that exist “involving such injustice, hardship and privation to large numbers of people as to produce unrest so great that the peace and harmony of the world are imperiled”, as stated in the Preamble to the ILO Constitution, was the underlying motivation for the ILO’s creation in 1919. Almost 90 years later, the ILO Declaration on Social Justice for a Fair Globalization, 2008, reaffirmed the importance of the constitutional objectives of the ILO and stressed the need to develop and enhance measures of labour protection, including “healthy and safe working conditions; and policies in regard to wages and earnings, hours and other conditions of work, designed to ensure a just share of the fruits of progress to all and a minimum living wage to all employed and in need of such protection”.

Labour protection is grounded in the ILO’s founding values that labour is not a commodity and that improving conditions of work is central to social justice, countries’ prosperity and universal and lasting peace.

As set out in the ILO Declaration on Social Justice for a Fair Globalization, social protection comprises two pillars: social security and labour protection. At its 100th Session (2011), the International Labour Conference held a recurrent discussion on social protection (social security); this year, the theme of the recurrent discussion will be social protection (labour protection). Labour protection and social security are complementary and together are intended to provide most of the protection those workers, and their families, need.

In line with the guidance provided by the Governing Body at its 320th Session (March 2014), this year’s recurrent discussion will focus on four policy areas: wage policies; working-time arrangements; occupational safety and health (OSH); and maternity protection. These policy areas were at the heart of the ILO’s founding in 1919. They are central to the employment relationship and are important determinants of the competitiveness and innovativeness of enterprises. Almost a century later, they are more than ever a chief concern of ILO constituents.

This recurrent discussion will allow the ILO's tripartite constituents to review the evolving realities and needs of Members as regards labour protection, as well as the related action taken by ILO member States and the Organization in recent years. The discussion is a timely occasion for assessing the relevance and effectiveness of responses, while considering options for the future, bearing in mind the outcomes of the recurrent discussions on the other strategic objectives and the forthcoming 100th anniversary of the Organization.

3.3 Work-related diseases caused by inhalation of asbestos dust

Asbestosis is widespread scarring of lung tissue caused by breathing asbestos dust. Asbestos can cause serious disease when inhaled over a long period. Minute asbestos fibers are taken up by the lung cells. Unlike many ordinary dust particles, they cannot be removed by the lung. Because the fibers are small, thin, and narrow, they can penetrate the deepest lung tissues, where they remain permanently. Continued exposure can increase the amount of fibers that remain in the lung, causing one of several diseases to develop even two to three decades after exposure. These diseases include asbestosis, lung cancer, mesothelioma, and some less common conditions. Asbestosis is the most common form of asbestos-related lung disease. Smoking increases the risk of developing illness from asbestos exposure.

Symptoms of asbestosis appear gradually only after large areas of the lung become scarred. The scarring causes the lungs to lose their elasticity. The first symptoms are a mild shortness of breath and a decreased ability to exercise. Smokers who have chronic bronchitis along with asbestosis may cough and wheeze. Gradually, breathing becomes more and more difficult. In about 15% of people with asbestosis, severe shortness of breath and respiratory failure develop. People with a noncancerous asbestos effusion may have difficulty breathing because of fluid accumulation. Pleural plaques cause only mild breathing difficulty resulting from stiffness of the chest wall. Mesothelioma is a form of cancer caused by exposure to asbestos. Persistent pain in the chest and shortness of breath are the most common symptoms of mesothelioma.

The term “asbestos” is a generic name given to a fibrous variety of six naturally occurring minerals that have been used for decades in thousands of commercial products. Asbestos is a commercial name given to a group of minerals that possess high tensile strength, flexibility, resistance to chemical and thermal degradation, and electrical resistance. These minerals have been used in many products, including insulation and fireproofing materials, automotive brakes and textile products, and cement and wallboard materials.

Asbestos has over 3,000 uses, including insulation for boilers and pipes, automobile brake linings, and, until recently, insulating hair dryers. An estimated 30 million tons have been used in the United States since 1900. Most products made today do not contain asbestos. Those few products made which still contain asbestos that could be inhaled are required to be labeled as such. However, until the 1970s, many types of building products and insulation materials used in homes contained asbestos. Refer to the EPA Asbestos website listed under references for more information.

Naturally occurring asbestos (NOA) includes fibrous minerals found in certain types of rock formations. NOA can take the form of long, thin, separable fibers. Natural weathering or human disturbance can break NOA down to microscopic fibers, easily suspended in air. There is no health threat if NOA remains undisturbed and does not become airborne. Covering NOA with clean soil or planting grass reduces exposure.

Asbestos is a well recognized health hazard, and is highly regulated by the government. When disturbed, the asbestos minerals have a tendency to separate into microscopic-size particles that can remain in the air and are easily inhaled. Although the use of asbestos and asbestos products has dramatically decreased, they are still found in many residential and commercial settings and continue to pose a health risk to workers and others. The more a person is exposed to asbestos fibers, the greater the risk of developing an asbestos-related disease. People who regularly work with asbestos are at the greatest risk of developing lung disease, and can develop several types of life-threatening diseases, including lung cancer. Asbestosis is a much more

common consequence of asbestos exposure than cancer. Between 1999 and 2004, there were 3,211 deaths due to asbestosis in the United States.

An estimated 1.3 million workers in the construction and general industry face significant exposure to asbestos on the job. Shipbuilders, textile and construction workers, home remodelers, workers who do asbestos abatement, and miners who are exposed to asbestos fibers are among the many workers at risk. The heaviest exposures are in the construction industry, especially during the removal of asbestos during renovation or demolition. Workers exposed to deteriorating, damaged, or disturbed asbestos-containing products such as insulation, fireproofing, acoustical materials, and floor tiles have an increased risk of exposure. Workers can also be exposed to asbestos during manufacturing of asbestos products (such as textiles, friction products, insulation and other building materials) and during automotive brake and clutch repair work.

Although the general public has become more aware of the risks of asbestos, people who have no occupational exposure have a very low risk of developing asbestos-related lung disease. However, secondhand exposure may occur among family members of exposed workers and among people who live close to mines. Persons living in buildings that have undergone renovation and repair without proper control of asbestos-containing materials or dust may also experience an increased risk of disease.

A thorough history, including a detailed work history over the patient's lifetime, physical exam, and diagnostic tests, is needed to evaluate asbestos-related disease. Chest x-rays are the best screening tool to identify lung changes resulting from asbestos exposure. Lung function tests and CAT scans also assist in the diagnosis of asbestos-related disease.

If diagnosis or screening is being done for a worker covered by the Coal Workers' X-Ray Surveillance Program as mandated by the Federal Mine Safety and Health Act of 1977, regulations mandate that all physicians who participate in the examination and/or classify chest radiographs under the Act must utilize the ILO System and Standard Films. This may also apply for asbestos-exposed workers covered by U.S. Department of Labor regulations, or for other medical screening,

surveillance, research, or compensation programs. B Reader approval is granted to physicians with a valid U.S. state medical license who demonstrate proficiency in the classification of chest radiographs for the pneumoconiosis using the International Labour Office (ILO) Classification System.

Asbestosis is a serious, progressive, long-term non-cancer disease of the lungs. It is caused by inhaling asbestos fibers that irritate lung tissues and cause the tissues to scar. The scarring makes it hard for oxygen to get into the blood. Symptoms of asbestosis include shortness of breath and a dry, crackling sound in the lungs while inhaling. Most treatments for asbestosis ease symptoms rather than cure the disease. Oxygen therapy relieves shortness of breath. Draining fluid from around the lungs may make breathing easier. Occasionally, lung transplantation has been successful in treating asbestosis. Asbestosis is not necessarily fatal. While asbestosis is not cancer, it may lead to cancer. If the patient smokes, he or she should stop because smoking significantly increases the risk of developing lung cancer in people with underlying asbestosis. Some patients can die from severe forms of the disease or from complications, such as pneumonia.

Lung cancer causes the largest number of deaths related to asbestos exposure. People who work in the mining, milling, manufacturing of asbestos, and those who use asbestos and its products are more likely to develop lung cancer than the general population. The most common symptoms of lung cancer are coughing and a change in breathing. Other symptoms include shortness of breath, persistent chest pains, hoarseness, and anemia.

Asbestos also causes cancer in the pleura, called mesothelioma, or in the membranes of the abdomen, called peritoneal mesothelioma. In the United States, asbestos is the only known cause of mesothelioma. Smoking is not a cause of mesothelioma. Mesotheliomas most commonly occur after exposure to crocidolite, one of four types of asbestos. Amorite, another type, also causes mesotheliomas. Chrysotile probably causes fewer cases of mesotheliomas than other types, but chrysotile is often contaminated with tremolite, which does. Mesotheliomas usually develop 30 to 40 years after exposure and can occur after low levels of exposure. Mesotheliomas are invariably fatal within 1 to 4 years of diagnosis. Chemotherapy

and radiation therapy do not work well, and surgical removal of the tumor does not cure the cancer. Other treatment is focused on controlling pain and shortness of breath in an effort to preserve as much quality of life as possible.

Diseases caused by asbestos inhalation can be prevented by minimizing asbestos dust and fibers in the workplace. Because industries that use asbestos have improved dust control, fewer people develop asbestosis today, but mesotheliomas are still occurring in people who were exposed as many as 30 to 50 years ago. Asbestos-containing materials in a home are typically only a concern if the materials are going to be removed or the home renovated, in which case they should be removed by workers trained in safe removal techniques.

Smokers who have been in contact with asbestos can reduce their risk of lung cancer by giving up smoking and should probably have a chest x-ray annually. Pneumococcal and influenza vaccination are recommended for people who have been in contact with asbestos to help protect against infections to which workers may be more vulnerable.

Worker exposures to asbestos hazards are addressed in specific U.S. Occupational Safety and Health Administration (OSHA) standards for the construction industry, general industry and shipyard employment sectors. These standards reduce the risk to workers by requiring that employers provide personal exposure monitoring to assess the risk and hazard awareness training for operations where there is any potential exposure to asbestos. Airborne levels of asbestos are never to exceed legal worker exposure limits. Where the exposure does, employers are required to further protect workers by establishing regulated areas, controlling certain work practices and instituting engineering controls to reduce the airborne levels. The employer is required to ensure exposure is reduced by using administrative controls and provide for the wearing of personal protective equipment. Medical monitoring of workers is also required when legal limits and exposure times are exceeded.

CONCLUSION

E-commerce business has replaced traditional shop of buying and selling product. Development of technology made rapid growth of online business in modern society. Demand of online purchasing is rapidly increasing. From business point of view E-commerce had created a lot of opportunity to fresh starter as they can startup business with low cost no need of physical store they just need to have one online website where they showcase their products and services. E-commerce business need modern attractive web design, effective marketing with quality product and good customer service to be successful.

The main purpose of this thesis project was learning development of E-commerce website with CMS in PHP and MySQL. Planning for making website was hardest part. Development of E-commerce website is often hard if one does not have proper knowledge where to start. Planning give more focus and clear path to create website Developer has used different web tools and technology to create website. With proper plan and implementation developer create E-commerce website names GS electronics which online store of electronics products where customer convenience. Customers can create account, easy access 24/7, choose variety of electronics products, compare prices, and finally order product. This will help to save time and effort of customers. Project will be modified in future with adding PayPal payment system and other new technologies as per necessity.

In conclusion, papers was about the development of E-commerce electronics website. We get good knowledge of E-commerce website, web tools and technologies which will be very useful in further study and working life.

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APPENDIX

Listings of the main files

Listing A.1 – Code of the file «home.jsk»

```
import React from "react";
import Hero from "./Carousel";
import styled from "styled-components";
import { useDispatch, useSelector } from "react-redux";
import Recommendations from
"../../Components/Recommendations/Recommendations";
import { getProductsHomeHandler } from
"../../Redux/Products/action";
import Loader from "../../Components/Loader/Loader";

const RecommendationDisplay = styled.div`
  display: flex;
  align-items: center;
`;

const ProductsCollection = styled.div`
  width: 100%;
  max-width: 1600px;
  margin: 50px auto;
  h2 {
    padding-left: 0.5%;
    margin: 10px 0;
    font-size: 28px;
  }
  > div {
    margin: 50px auto;
  }
`;

function Home() {
  const dispatch = useDispatch();
```

```

    const featured = useSelector((state) =>
state.productReducer.featured);
    const popular = useSelector((state) =>
state.productReducer.popular);
    const isLoading = useSelector((state) =>
state.productReducer.isLoading);

    React.useEffect(() => {
        dispatch(getProductsHomeHandler());
    }, []);

    return (
        <>
            {isLoading ? (
                <>
                    <Loader></Loader>
                </>
            ) : (
                <div>
                    <Hero></Hero>
                    <ProductsCollection>
                        <div>
                            <h2>Featured Products</h2>
                            <RecommendationDisplay>
                                {featured?.map((item) => (
                                    <Recommendations key={item?._id} {...item}
                                ))}
                            </RecommendationDisplay>
                        </div>
                        <div>
                            <h2>Popular Products</h2>
                            <RecommendationDisplay>
                                {popular?.map((item) => (
                                    <Recommendations key={item?._id} {...item}
                                ))}
                            </RecommendationDisplay>
                        </div>
                    </ProductsCollection>
                </div>
            )}
        </>
    );

```

```

        </RecommendationDisplay>
      </div>
    </ProductsCollection>
  </div>
  )}
</>
);
}

export default Home;
{
  /* <div>
    <img src={preLoader} alt="loader"></div>    */
  }
  {
    /* <div>
      <Hero></Hero>
      <ProductsCollection>
        <div>
          <h2>Featured Products</h2>
          <RecommendationDisplay>
            {featured?.map((item) => (
              <Recommendations key={item?._id} {...item} />
            ))}
          </RecommendationDisplay>
        </div>
        <div>
          <h2>Popular Products</h2>
          <RecommendationDisplay>
            {popular?.map((item) => (
              <Recommendations key={item?._id} {...item} />
            ))}
          </RecommendationDisplay>
        </div>
      </ProductsCollection>
    </div> */
  }
}

```

Listing A.2 – Code of the file «index.php»

```

<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="utf-8" />
    <link rel="icon" href="%PUBLIC_URL%/logo192.png" />
    <meta name="viewport" content="width=device-width,
initial-scale=1" />
    <meta name="theme-color" content="#000000" />
    <meta
      name="description"
      content="E-commerce Electronic Store"
    />
    <link rel="apple-touch-icon"
href="%PUBLIC_URL%/logo192.png" />
    <!--
      manifest.json
provides metadata used when your web app is installed on a
      user's mobile device or desktop.
See https://developers.google.com/web/fundamentals/web-app-manifest/
-->
    <link rel="preconnect" href="https://fonts.gstatic.com">
      <link rel="manifest" href="%PUBLIC_URL%/manifest.json" />
    <script src="https://kit.fontawesome.com
/249783f98b.js" crossorigin="anonymous"></script>
    <!--
      Notice the use of %PUBLIC_URL% in the tags above.
      It will be replaced with the URL of the `
public` folder during the build.
      Only files inside the `public` folder can
be referenced from the HTML.
      Unlike "/favicon.ico"
or "favicon.ico", "%PUBLIC_URL%/favicon.ico" will
      work correctly both with client-side
routing and a non-root public URL.
      Learn how to configure a non-root public

```

URL by running ``npm run build``.

```
-->
  <title>Geek Shop</title>
</head>
<body>
  <noscript>You need to enable
JavaScript to run this app.</noscript>
  <div id="root"></div>
  <!--
    This HTML file is a template.
    If you open it directly in the browser,
you will see an empty page.
    You can add webfonts, meta tags, or analytics to this file.
    The build step will place the bundled scripts
into the <body> tag.
    To begin the development, run `npm start` or `yarn start`.
    To create a production bundle, use `npm
run build` or `yarn build`.
  -->
</body>
</html>
```