ACKNOWLEDEMENT

ABSTRACT

This project titles "High Tech" is a web app to do online shopping & all monetary transactions using online payment system. The main objective of this web app is to develop the system which the seller and the customer can maintain good relation with each other is the main objective of the system, to shop goods in the comfort of your own home.

Keywords: *WordPress, MySQL*

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Chapter 1: Introduction

1.1 Introduction

The term e-commerce, or ecommerce, e-Commerce, E Commerce, e commerce, was a term coined from the original phrase "electronic commerce." Since its initial inception in 1994, the term ecommerce has been used to describe the buying and selling of products or services through the internet (internet commerce), and the associated movement of money and data which goes alongside it.

1.2 Problem Statement

Ecommerce is a process that has been well known only in the last few years to be precise. However, it focuses on consumers choosing their products and buying them online. The entire process is virtually done and there is no need for the person to be physically present at the place at the moment. It is an extensively fuss-free process which has saved a lot of precious time of people who are busy with their daily life. ecommerce project deals with all the online shopping sites and their proper functioning such that people can access it easily. However online shopping poses different problems. The quality of the product which we see online and the product we receive is often different. This creates a bad impression for the consumer. Also, delivery time may vary in the case of online [1].

In case of this area there is not many ecommerce systems for clothing stores so, it helps the people saving the time and secure the personal behavior. In case of owner, he/she can broaden their shop all over the world by using the internet.

1.3 Objectives

Objectives of the system are as follows:

- ➢ To shop goods in the comfort of your own home.
- ➢ Customer save their time.
- ➢ Selection among various categories.

1.4 Brief History of E-Commerce

1979: Electronic Shopping Invented 10 years after the foundation of Computer Serve, B inventor Michael Aldrich demonstrated how e-shopping could work by connection a modified television to a transaction-processing computer via phone.

1983: Electronic Commerce Acknowledged

California State Assembly holds its first hearing on "electronic commerce." Testifying are CPUC, MCI Mail, Prodigy, CompuServe, Volcano Telephone, and Pacific Telesis. A year later, California's Electronic Commerce Act would pass, imposing certain requirements on systems designed "to conduct the purchase of goods and services via a telecommunications network."

1990: Worldwide Web Launches

The first web browser launches, which will be a catalyst for online shopping as internet users can quickly find what they're looking for and retailers can reach a broader audience.

1995: Amazon, eBay, and the Online Marketplace Boom

Online marketplaces begin opening up. This includes Jeff Bezos' Amazon, initially designed for selling books, and Pierre Omidyar's Auction Web, the first online auction site which would soon become known as eBay.

Startups proliferate, with entrepreneurs being seduced by the get-rich-quick promise of the internet. Of course, the good times won't last forever...

2006: Online Shopping Platforms Increase

Shopify as we know it today is founded by Tobias Lütke, Daniel Weinand, and Scott Lake, making it easy for merchants to create online stores. Many other eCommerce platforms, such as Magento and BigCommerce, quickly enter the space and make a name for themselves.

2012: Food Shopping Goes Virtual

Though the aforementioned Webvan and other grocery delivery services failed or struggled in the past, food shopping finally finds its groove in 2012, with the founding of Instacart. Instacart sends shoppers to local stores to pick out groceries that consumers order online. Today, with advances in cold warehousing and delivery, online food shopping is big business.

2017: Ecommerce Remains Unstoppable

As brick-and-mortar sales decline, global e-commerce transactions soar, generating $29.267 trillion, including $25.516 trillion for B2B transactions and $3.851 trillion for B2C sales.

2020: The COVID-19 Boost

The coronavirus pandemic forces many physical stores to close their doors, and lockdowns keep many citizens quarantined at home. To purchase essentials and combat boredom, people embrace online shopping. According to data from IBM's U.S. Retail Index, the pandemic accelerated the shift away from physical stores to digital shopping by roughly five years [2].

1.5 The Elements of E-Commerce

As e-commerce, encompassing both research and buying, becomes increasingly simple for consumers, it grows more complex for the brands that sell in the digital age. Ecommerce competitors must now differentiate themselves with high-quality user experience, strong web and social media performance, and marketing strategies that both raise brand awareness and engage customers. These competitive areas now represent the three pillars of e-commerce, which need to be a priority for any online retailer.

1. User Friendly

If your store is easy to navigate, you will have a greater chance of making a sale from the start. The homepage should be inviting and encourage visitors to click on products or categories of items they are looking to purchase. Categories should be self-explanatory and should be broken down into subcategories so visitors can quickly find what they are looking for.

The search bar should be easy to find and quickly list all applicable items that are currently available for sale once the user types in their query.

2. A Shopping Cart

Adding items to the shopping cart should be simple. Color choices or style preferences should be easy to view and select. Customers like to view what they have in their cart while continuing to shop, so make sure you have a design and functionality that makes it easy.

3. Mobile Compatibility

80% of all online adults own a smartphone. Mobile visits, in many cases now, outrank desktop use. Your e-commerce site needs to be designed and built for all devices, not just a personal computer or laptops.

4. Calls to Action (CTA)

Make sure to lead your customers through your site with calls to action that are specific to what you want them to do. For example, if you have a sale, your CTA button could be "Click Here to Save 20%!" It may be obvious to you and even to most people, but there are still a lot of people out there that have lives, raised kids or are raising kids, own or run businesses that don't spend much time on the web. Adding that extra help builds confidence in your business, shows that you care about your customers and helps to make things less frustrating. Always avoid making your customer feel stupid because they not. If they are going to your website, they must be smart enough to buy from the best company out there.

5. Images and Descriptions

When people are searching for a product to buy, they want to know all the details about it before making their purchase.

Shopping online can have its drawbacks because one cannot physically see or touch the items they are looking at. Because of this, it's important to have professional quality images of your products and when applicable images from multiple angles, views, and even context.

It is also important to thoroughly describe the items in detail. Cover all aspects, including size, texture, uses, benefits, colors available, etc. You want your potential customer to feel confident that they know enough about your product to purchase it, instead of going elsewhere.

6. Customer Support

Some sort of customer support needs to be available in case of any problems or questions. There are several different types of customer support, such as 800 numbers, email support, and online chat. Decide which is the best choice for your budget and type of business. Keep in mind to always be friendly and respond in a timely manner to resolve any issues to keep your customers happy.

7. Security and Privacy

Last but not least is security. Make sure you have an SSL certificate installed to encrypt data coming and going to the browser. Today every website, e-commerce or not, should

have one. Also, have a transparent privacy policy that tells your customers how their information is used on your site and by your company.

1.6 Status of E-Commerce in Nepal

Now, talking about Status of E-Commerce in Nepal, as the popularity of E-Commerce is Increasing globally, so is in Nepal. Today, as of 2019, there are 31 private ISP's In Nepal with nearly 16.67 million internet users nationwide. And according to export.gov roughly 40% of these accounts are commercial. Online E-Commerce Activities is mainly concentrated on Kathmandu Valley and some major cities. However, with the increase of internet penetration the number of mobile users is increasing in rural areas and so is online activities. Today there are many E-Commerce Websites that are providing ecommerce in Nepal along with delivery service. Below is the list of some of the top ECommerce websites in Nepal.

List Of E-Commerce Website in Nepal

i)   Daraz(daraz.com.np):

> Daraz was founded in 2012 in Pakistan by a German Venture Capital Company, Rocket Internet as a fashion retailer. However, in 2015 daraz started operating with general marketplace strategy and business model in 2015, which means now, daraz was not only selling fashion products but also other general items Online. Daraz Started its service in Nepal after Daraz group acquired Kaymu, which was consumer-to-consumer online marketplace in South Asia. Later, in May 2018, Daraz group announced that it had been acquired by Alibaba Group for an undisclosed amount. Along with Nepal, Today Daraz is providing its logistic services in Pakistan, Bangladesh, Srilanka and Myanmar. With daraz you can order your favorite products along with the facility of delivery system. for more information, please have a look at https://www.daraz.com.np. daraz.com.np has an Alexa Ranking of 46.6K among all the websites ranked globally.Daraz

ii)   HamroBazar (hamrobazar.com):

> HamroBazar is another most popular Online E-Commerce Website. It is based on Consumer to Consumer(C2C) Business Model which means we can not only buy items but also sell our items. It enables individuals as well as companies to list wide varieties of new or used product online. It has Alexa Ranking of 60.4K. It was founded by Prabal Saakha who is also the Director of Saakha Group.

iii)   SastoDeal (sastodeal.com):

Sastodeal is also one of nepal's biggest online shopping website providing varieties of service. Sastodeal offers cash on delivery facility with delivery service to major cities in nepal. For more information please visit: https://www.sastodeal.com/.

Chapter 2: Requirement Analysis

2.1 Requirement Analysis

System requirement analysis allows developers to objectively carry out quantitative assessments of systems in order to select and/or update the most efficient system architecture and to generate derived engineering data. During engineering, assessments should be performed every time technical choices or decisions are made to determine compliance with system requirements. System analysis provides a rigorous approach to technical decision-making. It is used to perform trade-off studies, and includes modelling and simulation, cost analysis, technical risks analysis, and effectiveness analysis. Our system is fully analyzed and prepared for the common people out there.

2.1.1 Data Requirement

Data requirements definition establishes the process used to identify, prioritize, precisely formulate, and validate the data needed to achieve business objectives. When documenting data requirements, data should be referenced in business language, reusing approved standard business terms if available. If business terms have not yet been standardized and approved for the data within scope, the data requirements process provides the occasion to develop them. For patient demographic data, governance should be engaged in validating data requirements, with representation from supplying and consuming business areas across the lifecycle to ensure that their requirements are met.

2.1.2 Customer Requirement

Customer Requirements are the certain specific expectations of product features or characteristics with expected quality and value that should be present in a product for it to be deemed useful and desirable by the customer. These are evolving expectations which will never be same and keep evolving with changing times, generations, technology and trends.

Types of Customer Requirements

(a)Tangible Functional Requirements

These are mostly the tangible characteristics, features or specifications that a consumer expects to be fulfilled in the product. If a consumer is availing a service as a product, then various service requirements can take the form of output requirements. For example, if the consumer is hailing a metro cab, then on-time arrival becomes an output requirement. For

other products such as gadgets, the product specifications like the loudness and clarity of a pair of speakers becomes its output requirements.

(b) Intangible Requirements

Intangible aspects of purchasing a product that a customer expects to be fulfilled. It consists of elements like on-time delivery, service with a smile, easy-payment etc. It encompasses all aspects of how a customer expects to be treated while purchasing a product and how smooth his buying process goes. If a customer buys an AC, he/she expects the company to support after purchase in installation and setup seamlessly.

2.1.3 Process Requirement

Process requirements refer to a documented statement of needs a business organization intends to satisfy by identifying methodologies, approaches and techniques to be applied to producing a certain outcome (product or service) that materializes or realizes the initially stated needs. Process requirements establish rules and standards for planning and performing activities (workflows, processes, procedures, tasks). Determining requirements for a process means stepping through the following sequence of tasks:

Gathering – the first task is to determine and collect initial needs and expectations of customers.

Analyzing – the second task is to review gathered data and ensure it is clear, complete, unambiguous, and consistent.

Recording – the final task is to create a requirements specification document and submit it to customers for validation.

In terms of project management, process requirements refer to one of the four types of project requirements. Along with business, product and resource requirements, process requirements serve as a foundation for eliciting, analyzing, specifying and validating needs and expectations of project stakeholders.

2.2 Use Case Diagram

The use case diagram is usually referred to as behavior diagram used to describe the actions of all user in a system. All user describe in use case are actors and the functionality as action of system.

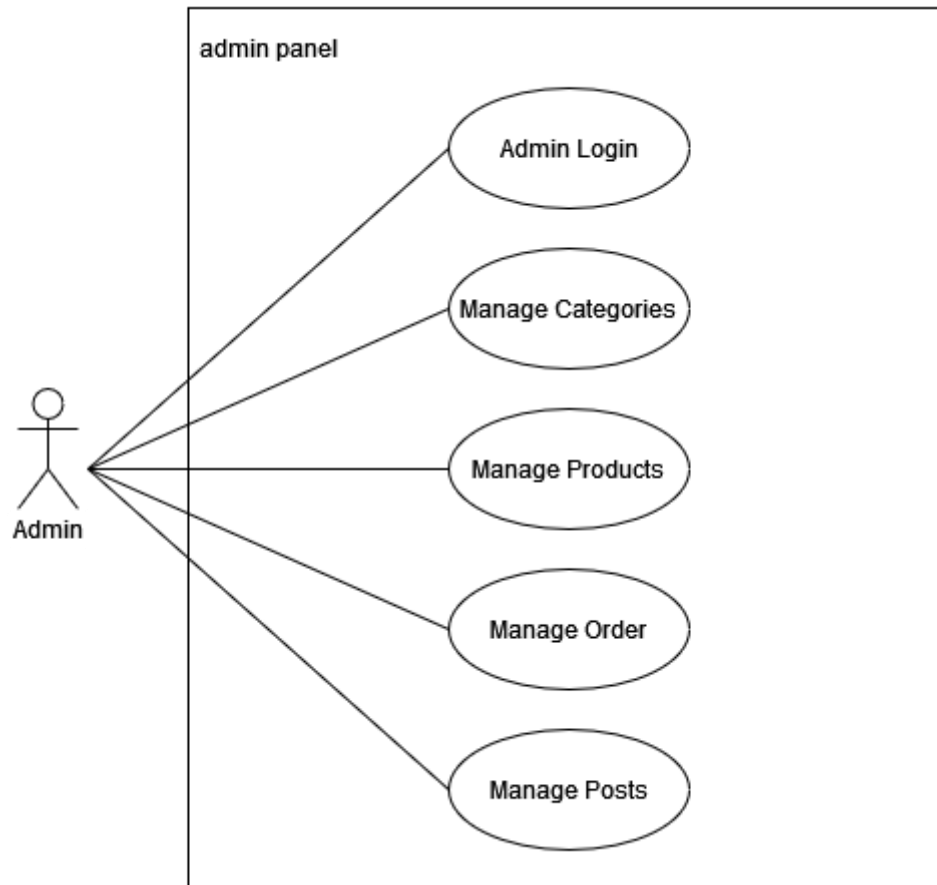2.2.1 Use Case Diagram Administrative Management System

Figure 1: Use Case Diagram for Admin in High Tech Web App

Top level use cases are View Items, Make Purchase and Client Register. View Items use case could be used by customer as top-level use case if customer only wants to find and see some products. This use case could also be used as a part of Make Purchase use case.

Customer Authentication use case is included in View Recommended Items and Add to Wish List because both require the customer to be authenticated. At the same time, item could be added to the shopping cart without user authentication.

Checkout use case includes several required uses cases. Web customer should be authenticated. It could be done through user login page, user authentication cookie ("Remember me") or Single Sign-On (SSO). Web site authentication service is used in all these use cases, while SSO also requires participation of external identity provider.
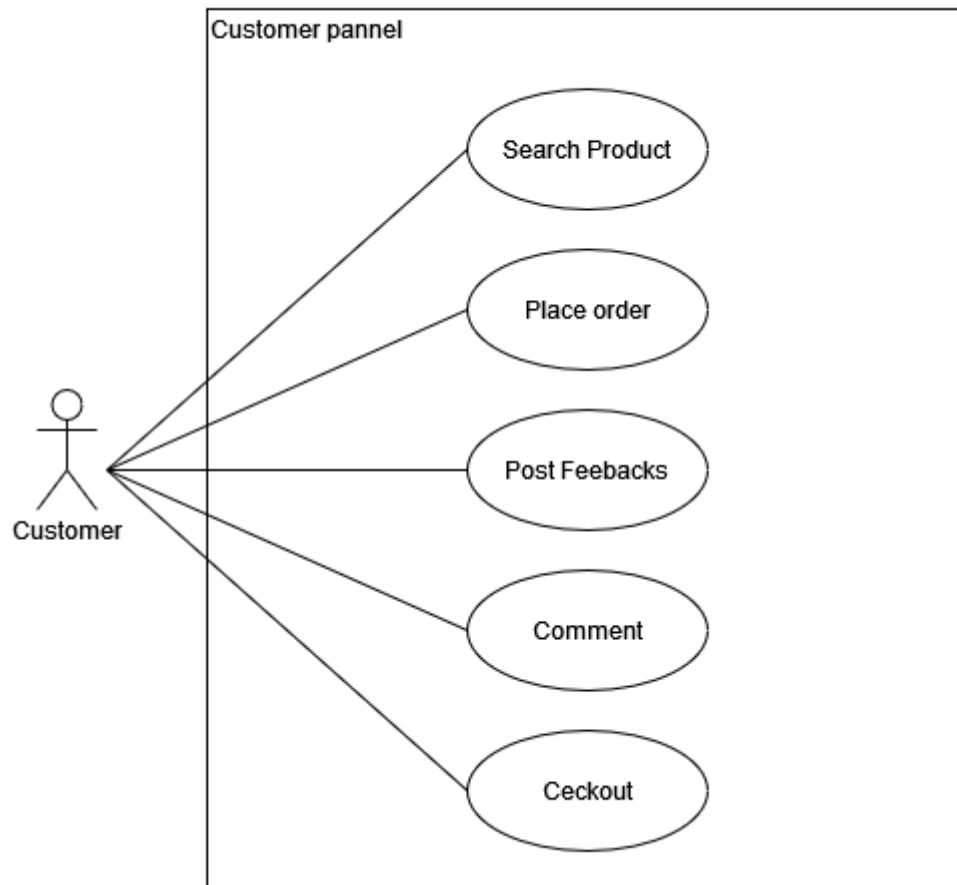
2.2.2 Use Case Diagram for Customer

Figure 2: Use Case Diagram for Customers in High Tech Web App

Web Customer actor uses some web site to make purchases online.

Client Register use case allows customer to register on the web site, for example to get some coupons or be invited to private sales.

Note, that Checkout use case is included use case not available by itself - checkout is part of making purchase.

View Items use case is extended by several optional use cases - customer may search for items, browse catalog, view items recommended for him/her, add items to shopping cart or wish list.

All these use cases are extending use cases because they provide some optional functions allowing customer to find item.

Checkout use case also includes Payment use case which could be done either by using credit card and external credit payment service or with PayPal.

2.3 Data Flow Diagram
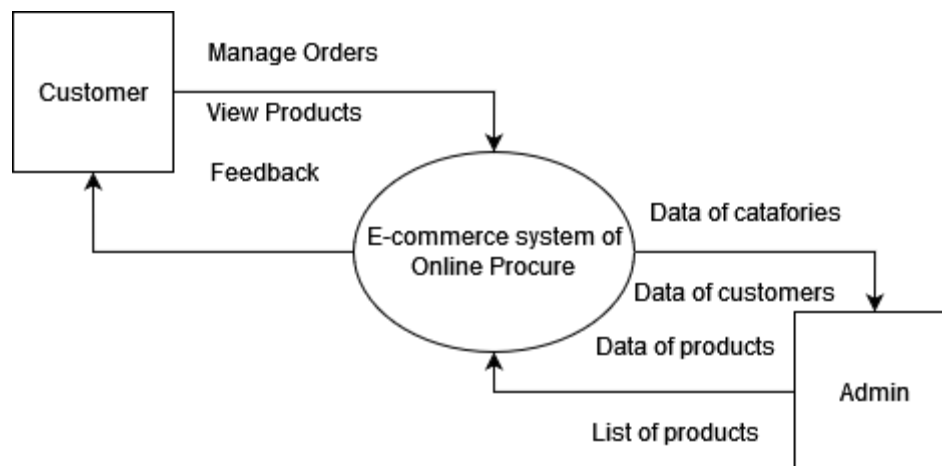
2.3.1 Context Level Diagram

Figure 3: Context Level Diagram for High Tech Web App

It's designed to be an abstraction view, showing the system as a single process with its relationship to external entities. It represents the entire system as a single bubble with input and output data indicated by incoming/outgoing arrows. It is also known as fundamental system model, or context diagram represents the entire software requirement as a single bubble with input and output data denoted by incoming and outgoing arrows.

2.3.2 First Level DFD
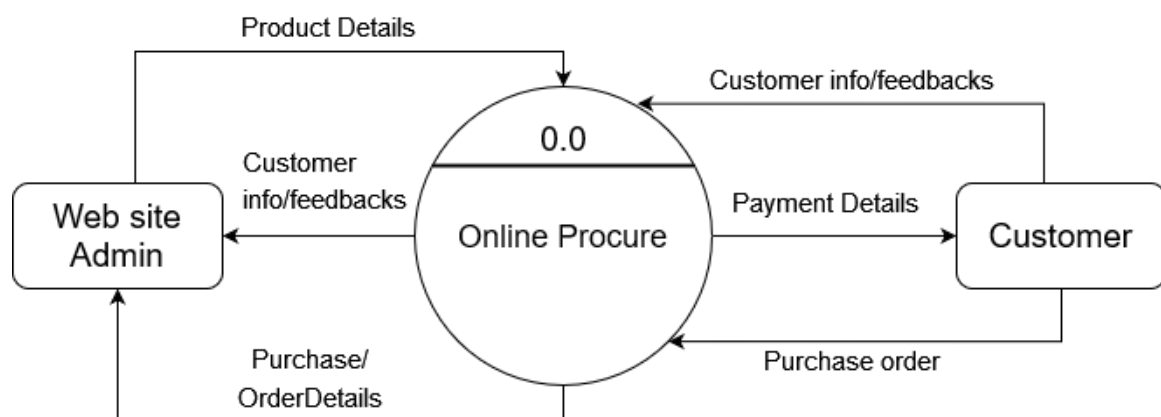
Figure 4: First Level DFD for High Tech Web App

Next to the context diagram is the level 1 data flow diagram. DFD Level 1 then goes one step deeper into parts of Level 0 of E-commerce portal. It may require more functionalities of the project to reach the necessary level of detail. Level 1 DFDs is still a general overview, but they go into more detail than a context diagram.   As these processes are added, the diagram will need additional data flows and data stores to link them together.   In the content of E-commerce, DFD level 1 must be single process node from the context diagram and is

broken down into sub processes. In this level, the system must display or reveal further processing information. And the actors that are going to use this system were the customers, hotel administrator and the hotel employees. The following are essential data to accommodate:

• Customer Information

• Product Information

• Manage Transactions

• Payment Management

Chapter 3: Design

3.1 Customer Interface

For custom UI, bootstrap 4, some CSS properties and php are used in the project. At first, php latest version was used to build the project. Some of the design and templates of bootstrap were used in the project to give a neat and clean interface of the site. The layout of a user interface design should also be clearly set out for users so that elements can be found in a logical position by the user. Analysis has been done in accordance to:

3.1.1 Home Page

3.1.2 Admin Login Page

3.1.3 Add to Cart Page

3.1.4 Select Payment Methods

3.1.5 Customer Shopping Notification

3.2 Admin Interface

The admin panel can help user-related functions, such as providing insight into user behavior, dealing with profiles that violate the site's terms and conditions, and tracking transactions. But you should know that admin sites are not just limited to user-related tasks. A well-built admin panel can be turned into a dashboard to either display business metrics and analytics without the viewer writing a single bit of code, or to export weekly data which can be used to create reports.

3.2.1 Admin Login

An administrator is someone who can make changes on a computer that will affect other users of the computer. Administrators can change security settings, install software and hardware, access all files on the computer, and make changes to other user accounts. To log on as an administrator, you need to have a user account on the computer with an Administrator account type. If you are not sure if the account that you have on the computer is an administrator account, you can check the account type after you have logged on. The steps that you should follow will vary, depending on whether your computer is on a domain or a workgroup.

3.2.2 Admin Dashboard

The High Tech Web App Administration homepage shows administrative tasks as catalog categories that provide administrators with quick access to all the items they need to

configure core features, such as homepages, user administration, and email notifications. The admin homepage is the entry point to Admin Center in the portal. It is a tile-based landing page that provides quick access to many administrative features and a user experience. As an administrator, we can personalize the admin homepage to suit your individual needs, by adding or removing tiles, products, registering users.
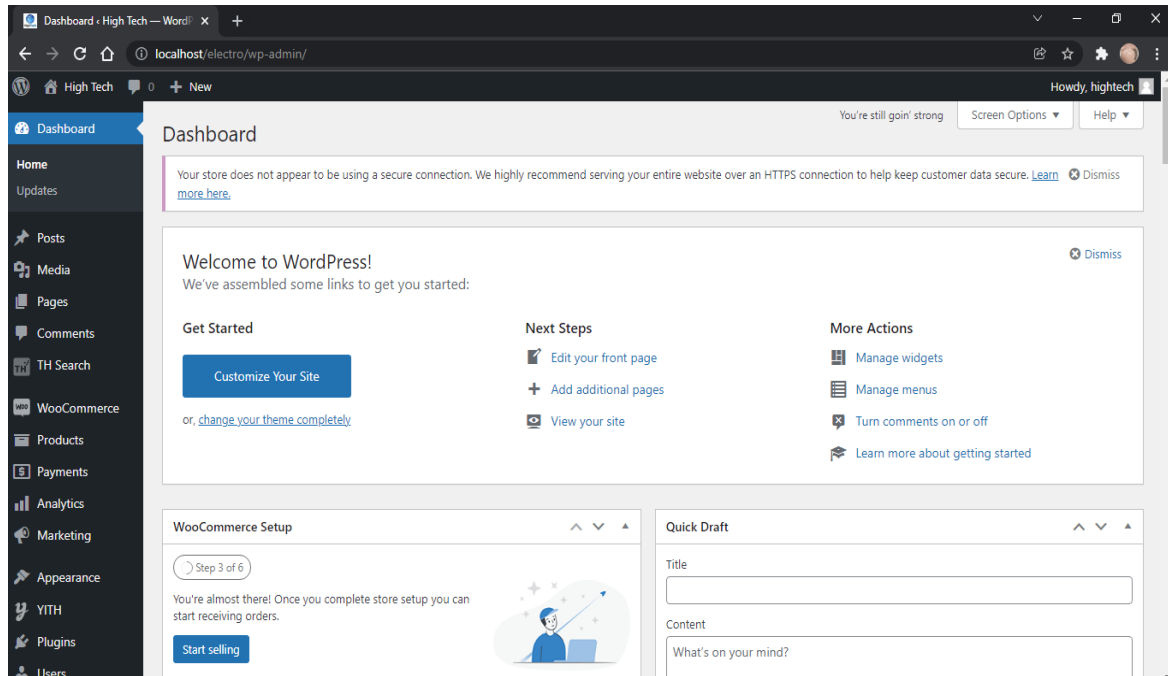
Figure 5: Admin Dashboard

Chapter 4: Model & Process

4.1 Model of E-Commerce
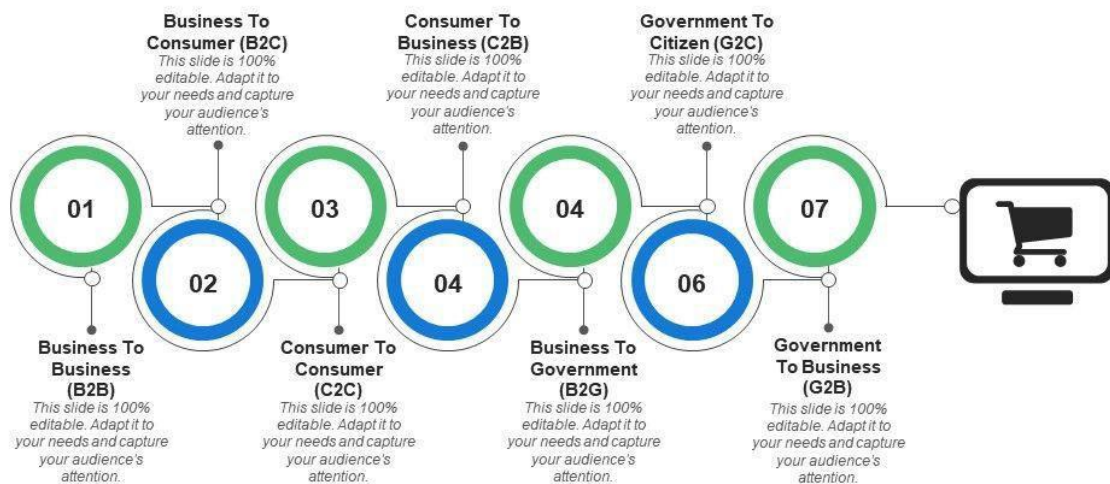
Figure 6: Models of E-Commerce

E-commerce or electronic commerce is an intangible business platform which enables the individuals, business entities and companies to sell their products or services and carry out various commercial activities, through an electronic network.

E-commerce has gained immense popularity among the customers who find it convenient to browse the products and services online instead of visiting a physical store.

Identifying this shift in customer's buying behavior, most of the sellers, including sole proprietors, corporates and other organizations are inclining towards e-commerce.

E-commerce Business Models

E-commerce business models are designed by keeping in mind the major two parties involved in it. One is the service provider or seller, and the other is the consumer or the customer. Let us now go through the different types of e-commerce business models:

a) Business to Business (B2B)

In B2B e-commerce, the companies sell their products or services online to other business entities. Even the sharing of information among the organizations take place through Electronic Data Interchange (EDI). E.g. Wholesalers can contact prospective buyer firms to sell bulk goods on the website Indiamart.com.

b) Business to Customer (B2C)

The most common of all the e-commerce models is the B2C. It refers to the sale of goods or services by the business entities to the customers (individuals) over the internet. E.g. Apparel companies sell their products to the consumers on Jabong.com.

c) Customer to Customer (C2C)

When a customer (any person) sells a product or service to another person or customer through an online medium, it is known as C2C e-commerce model. E.g. A person sells his used car to another person on cardekho.com.

d) Customer to Business (C2B)

It is that e-business model where the customer or an individual serves the needs of business organizations and also determines the price of the product or service over the internet. E.g. Content writers freelancing for large content writing firms or websites on freelancer.com.

e) Government to Citizen (G2C)

When the government releases any information or official notification or any other official communication for the individuals (i.e., the citizens of that particular country) through an online medium, it is termed as G2C model. E.g. usajobs.gov discloses the latest job openings for the citizens of the USA.

f) Citizen to Government (C2G)

The online communication or exchange of information by the citizens with the government is called a C2G e-commerce model. E.g. filling of income tax return on incometaxindia.gov.in

g) Business to Government (B2G)

The business organizations electronically provide services, goods or information to the government at some cost; this type of e-commerce is known as B2G. E.g. Government openly invites business entities to fill tenders for multiple government projects at etenders.gov.in.

4.2 E-Commerce Process

Working of Payment Gateways

Customer pays via phone or website

Payment details securely sent via payment gateway

Merchant account processes payment details

Customer notifies that payment has been successful or has been declined

Funds settled to merchant (minus process fees)

net solutions
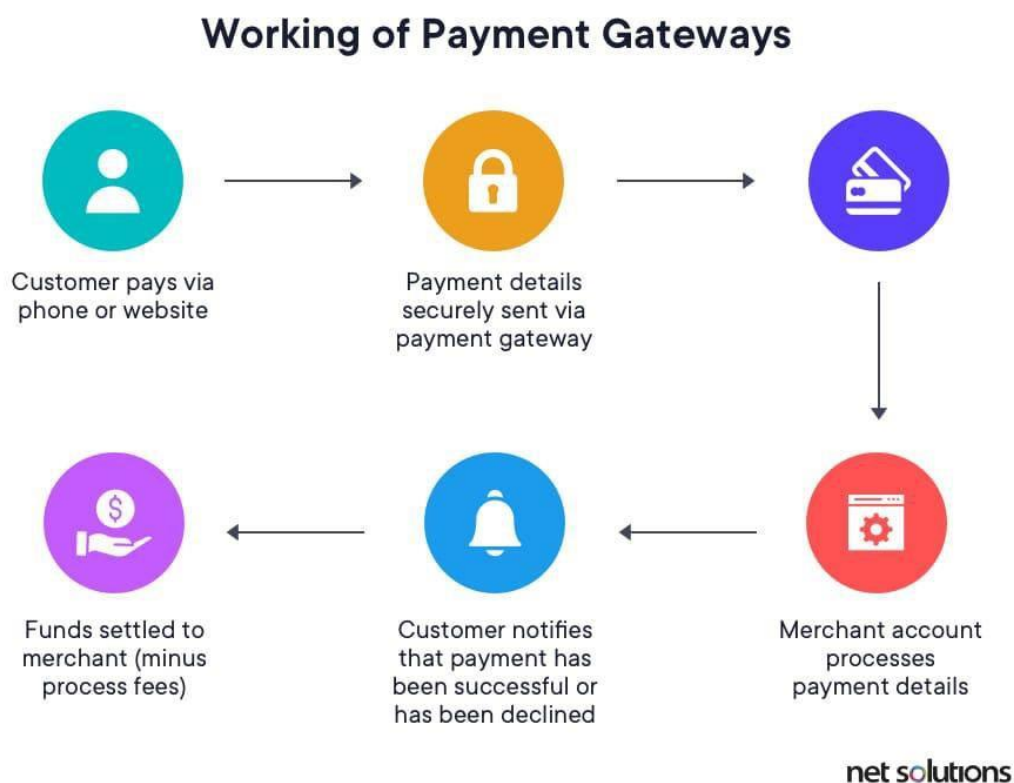
Figure 7: Payment process of E-Commerce

4.3 E-Commerce Payment Process

- Customer

The purpose of marketing is target to potential buyers, engage them to enter your website by using internet advertising, email or creating fairs. In addition, businesses should also establish communities (user groups), forums, chats or customer surveys through surveys to create the return of customers.

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- View Products

  Customers see the product on the website if the item is arranged by stall, category for easy search. Once customers are attracted to the items on sale or promotions, this is really a potential customer.

- Add To Cart

  On the e-commerce website, there is always a shopping cart for customers to shop most conveniently and easily. The shopping cart is simply a list of items selected by the buyer, quantity, price, attributes (colors, sizes, etc.) and any other information related to the order. The shopping cart often provides options to clean the basket, delete items, and update quantities.

- Checkout

  As soon as the customer has all the items to buy, they will begin the billing process. For the buying model between customers and businesses, customers will usually enter information about shipping addresses and billing. Customers can also add information on greetings, gift packs and other information for dependent services.

- Payment

  After calculating the total value of items (including tax and shipping) the buyer will present the payment method. For credit cards, there are options to process credit cards offline or online. The online processing on the internet through services is provided by reputable companies.

- Receipt

  After the order is completed, it may be necessary to send the customer a receipt. For a business-to-business e-commerce model, the receipt can be a list attached to the order. For customers, the receipt can be a reprint of the order on the screen or a list sent to the buyer by email. In both cases, this process can be easily automated.

4.4 E-Commerce Selling Process

In an online business, the most important role is played by the delivery segment. Whatever you sell online, it's very crucial that the same item is delivered to the end customer, and that too, on time. As an online business, strategize your selling process for a smooth user experience. Here are the steps involved in the process to sell online:

- Have a site of your own

  The very first step in eCommerce is having a website for your business to promote your products and services, at that same time building your brand presence. You should have all the required details on your website about your product and services that you wish to sell, alongside, have CTA forms and contact details to make it easy for the customers to contact you in case of queries and concerns.

- Have a smooth order processing strategy

  After being able to lure and convince the customer to purchase from site, the next step is to have a simple yet seamless order process. Have a checkout and order process that is easy to understand and perform for customers. Once the order is confirmed, it has to be quickly processed for packaging and shipping.

- Maintain a seamless shipping process

  After the order is processed and sent across to the shipping team, it needs to be packaged. The packaging has to be done in a way that the product remains undamaged and also the brand image and value is correctly portrayed. Moreover, the packages need to be less cumbersome to handle.

- Logistics need to be fool proof

  It should be on implementation so that the product reaches the customer on time. In this case, taking the services of a renowned logistics or courier agency can really help. In case of processing returns, the same logistics process needs to be availed of so that the product goes back to the retailer fast and the refund process get started.

Chapter 5: Implementation & Testing

5.1 Implementation

5.1.1WordPress

The web server combines the results of the interpreted and executed PHP code, which may be any type of data, including images, with the generated web page. PHP code may also be executed with a command-line interface (CLI) and can be used to implement standalone graphical applications making user with interact with beautiful and easy to use web user interface.

5.1.2 MySQL

MySQL Workbench is a unified visual tool for database architects, developers, and DBAs. MySQL Workbench provides data modelling, SQL development, and comprehensive administration tools for server configuration, user administration, backup, and much more. MySQL Workbench is available on Windows, Linux and Mac OS X.

5.1.43 Xampp Server

Everything needed to set up a web server – server application (Apache), database (MariaDB), and scripting language (PHP) – is included in an extractable file. XAMPP is also cross-platform, which means it works equally well on Linux, Mac and Windows. Since most actual web server deployments use the same components as XAMPP, it makes transitioning from a local test server to a live server extremely easy as well .

5.2 Testing

Testing is a process, to evaluate the functionality of a software application with an intent to find whether the developed software met the specified requirements or not and to identify the defects to ensure that the product is defect free in order to produce the quality product. Mainly there are two types of testing. They are: manual testing and automation testing. The testing process runs parallel to software development. Testing

Table 1: Unit Testing

S.N.	Test Cases	Test Data Input	Expected Outcome	Obtained Test Result
1.	Customers able to add to cart	Select the desired item	Successfully added to cart	Customers were able for add product to cart
2.	Signup for adding reviews and comments	Enter user details	Able to write comment and give review to products	Customer was unable to add reviews and comment
3.	Rating products	Rate some products	Product review views on the product details	Review can be viewed on the product details
4.	Show product as per category	Adding category to products	Product should be viewed as per category	Product is being displayed as per category.

separately is done just to make sure that there are no hidden bugs or issues left in the software.

Table 2: System Testing

S.N.	Test Cases	Test Data Input	Expected Outcome	Obtained Test Result
1.	Check with valid data	Correct email and other credentials	Able to access admin privileges	Pass
2.	Check with invalid data	Incorrect email and password	User email or password incorrect	Pass

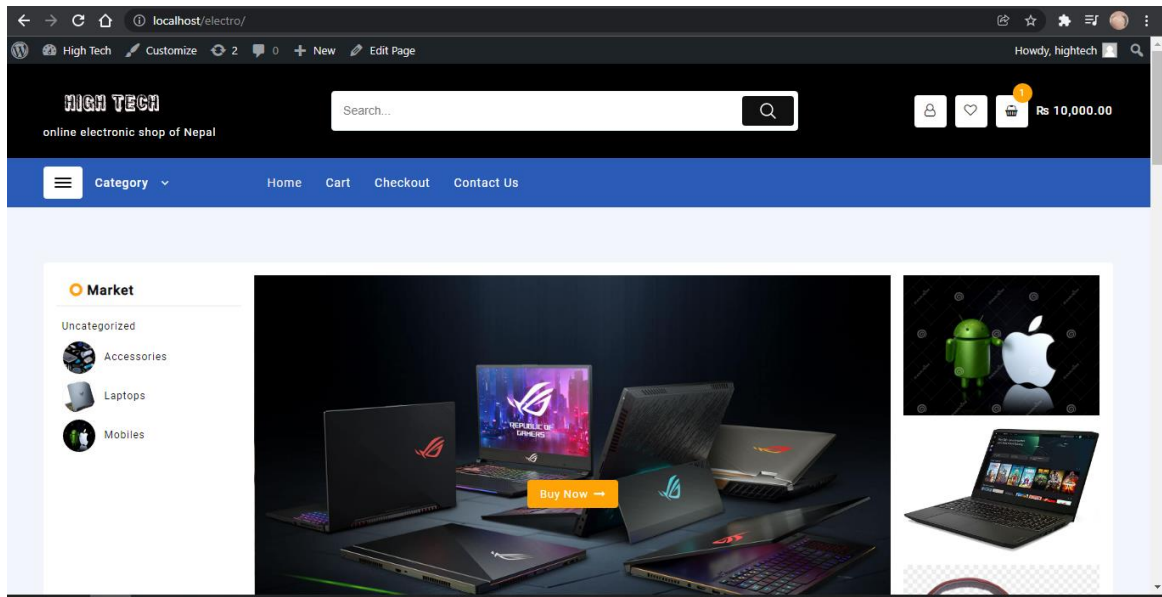| 3.	Give feedback without adding credentials	Giving product feedback	Please enter user information	Pass
4.	Adding feedback with user details	Adding comments and feedback review	Review display on the product details	Pass

Chapter 6: Conclusion and Future Enhancement

6.1 Outcome

Figure 8: Final Outcome

6.2 Conclusion

An e-commerce site needs to not only pleasing to the eye but a stress-free shopping experience as well. By developing an online store that is easy to navigate along with a seamless checkout process on any device, owners retain customers and expand business by acquiring new ones.

6.3 Future Enhancement

To survive and grow, eCommerce retailers will need to find their niche or find other ways to compete. One way to compete, of course, is by outsourcing shipping to a third-party logistics (3PL) company such as The Fulfilment Lab along with offering safe and secure storage and shipping, The Fulfilment Lab delivers an awesome customer experience.

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