# EShoppers

**A PROJECT REPORT**

**Submitted By**

**Abhishek Mishra**
**2100290140006**
**Achal Sharma**
**2100290140007**
**Ayush Tyagi**
**2100290140049**

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# MASTER OF COMPUTER APPLICATION

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**Dr. Shashank Bhardwaj**
**Associate Professor**

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# CERTIFICATE

Certified that **Abhishek Mishra (2100290140006), Achal Sharma (2100290140007), Ayush Tyagi (2100290140007)** have carried out the project work having "**EShoppers**" for Master of Computer Applications from Dr. A.P.J. Abdul Kalam Technical University (AKTU) (formerly UPTU), Technical University, Lucknow under my supervision. The project report embodies original work, and studies are carried out by the student himself / herself and the contents of the project report do not form the basis for the award of any other degree to the candidate or to anybody else from this or any other University/Institution.

**Date:**

**Abhishek Mishra (2100290140006)**
**Achal Sharma (2100290140007)**
**Ayush Tyagi (2100290140049)**

This is to certify that the above statement made by the candidate is correct to the best of my knowledge.

Date:

**Dr. Shashank Bhardwaj**
**Associate Professor**
**Department of Computer Applications**
**KIET Group of Institutions, Ghaziabad**

**Signature of Internal Examiner** **Signature of External Examiner**

**Dr. Arun Tripathi**
**Head, Department of Computer Applications**
**KIET Group of Institutions, Ghaziabad**

# ABSTRACT

This project is based on the concept of E-Commerce. In order to ensure the reliable, secure and convenient transactions of goods and money between merchant and customers. E-commerce and online shopping in India is getting a noticeable growth as more usage of internet facilities, high educational standards, changing lifestyle and economic growth of the country are reasons for the demand for ecommerce techniques and tools. Versatile shopping experience and rapid development of transaction facilities is further boosting opportunities for the remaining market segments. The biggest advantage of e-commerce is the ability to provide secure shopping transactions via the internet and coupled with almost instant verification and validation of credit card transactions. One of the most important issues to be addressed in electronic commerce is the area of services. The primary purpose of this study is to examine and uncover the impact of e-commerce and also identify the issues and areas important to the implementation of e-commerce that may help in enhancing the productivity in the economic growth of the country.

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**Abhishek Mishra**

**Achal Sharma**

**Ayush Tyagi**

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# CHAPTER 1

# INTRODUCTION

## 1.1 DOMAIN SPECIFIC

In software development, a literature survey or literature review is an important part of the research process. It involves conducting a comprehensive search and evaluation of existing research and publications on a specific topic related to software development. The purpose of a literature survey in software development is to:

- Identify existing research and publications related to the topic of interest.
- Understand the current state of the art, practices, and trends in software development related to the topic.
- Identify gaps in the current knowledge, areas where more research is needed, and potential research directions.
- Identify best practices and approaches that can be used in software development related to the topic.
- Identify potential challenges and limitations related to the topic that need to be addressed in software development.

The literature survey in software development may include searching through academic journals, conference proceedings, technical reports, and other sources of information related to software development. The literature survey process may involve using specific keywords, phrases, and concepts related to the topic of interest to refine the search and find the most relevant information.

Overall, a literature survey in software development is an important tool for gaining a comprehensive understanding of the current state of knowledge on a particular topic, and for identifying areas where further research is needed to advance the field. It can also be used to identify best practices and approaches that can be used in software development, and to help ensure that software development practices are based on the best available evidence and knowledge

## 1.2 OBJECTIVE OF ECOMMERCE

The main objective of e-commerce is to facilitate the buying and selling of goods and services over the internet. Ecommerce provides a platform for businesses to reach a global audience and sell their products or services online.

Here are some of the key objectives of ecommerce:

- **Increase sales:** Ecommerce allows businesses to reach a larger customer base and increase sales by offering products or services online.

- **Improve customer experience:** Ecommerce provides customers with a convenient and easy-to-use platform to purchase products or services. It also allows businesses to provide a personalised shopping experience to customers.

- **Expand market reach:** Ecommerce enables businesses to reach a global audience, thereby expanding their market reach and increasing brand visibility.

- **Reduce costs:** Ecommerce can help businesses reduce costs associated with physical retail locations, such as rent, utilities, and employee wages.

- **Gather customer data:** Ecommerce allows businesses to gather valuable customer data, such as purchase history, browsing behaviour, and preferences, which can be used to improve marketing strategies and customer experiences.

Overall, the objective of e-commerce is to provide businesses with a powerful platform to sell products or services online, improve customer experiences, and drive sales and revenue growth.

## 1.3 PROJECT DESCRIPTION

- Any member can register and view available products.

- Only registered members can purchase multiple products regardless of quantity.

- Contact-Us page is available to contact Admin for queries.

- There are three roles available: Visitor, User and Admin.
    - Visitors can view available products.
    - Users can view and purchase products.
    - An admin has some extra privilege of visitor and user.

# CHAPTER 2

# LITERATURE REVIEW

## 2.1 OVERVIEW

In software development, a literature survey or literature review is an important part of the research process. It involves conducting a comprehensive search and evaluation of existing research and publications on a specific topic related to software development. The purpose of a literature survey in software development is to:

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## 2.2 EXISTING SYSTEM

The existing system of e-commerce is a vast and complex network of platforms, applications, and technologies that enable businesses to conduct online transactions with customers around the world.

Overall, the existing system of e-commerce is a complex and evolving ecosystem that requires businesses to stay up to date with the latest technologies and trends to remain competitive in today's global marketplace.

### 2.2.1 Disadvantage Of Existing E-Commerce System

There are several disadvantages of existing ecommerce platforms, including:

- **Limited customization:** Most ecommerce platforms offer a limited range of customization options, making it difficult for businesses to create a unique online store that stands out from the competition.
- **Lack of control:** Since ecommerce platforms are owned and operated by third-party companies, businesses may have limited control over the platform's features, functionality, and data.
- **Limited integration options:** Ecommerce platforms may not offer integration options with all the tools and services that a business needs to run its online store, leading to additional costs and complexity.
- **Security concerns:** Online security is a major concern for ecommerce platforms, and even small security breaches can result in significant financial and reputational damage for businesses.
- **Dependence on the platform:** Businesses that rely on ecommerce platforms may find it challenging to switch to a different platform later, which can limit their flexibility and growth potential.
- **Hidden costs:** Ecommerce platforms may have hidden costs, such as fees for additional features or add-ons, which can add up quickly and impact a business's budget.

## 2.3 LITERATURE SURVEY

The purpose of this study is to empirically investigate the dimensions and drivers of entrepreneurial perceptions in the pursuit of emerging e-business opportunities for traditional (or offline) firms. This study introduces the subjectivist theory of entrepreneurship into the IS research context and identifies three dimensions that make up entrepreneurial perceptions: collaboration perception, planning perception, and operation perception. The authors tested the proposed research model using structural equation modelling (SEM) with survey data collected from 203 firms in China. Results reveal that external pressures and IT infrastructure maturity are positively and significantly related to entrepreneurial perceptions. The results also suggest that IT infrastructure maturity has stronger effects on collaboration perception and planning perception than external pressures. This paper provides clear guidance for entrepreneurs to

understand the three entrepreneurial perceptions for emerging e-business opportunity discovery and the driving forces to the entrepreneurial perceptions.[1]

Due to the problems of poor evaluation accuracy and low evaluation efficiency existing in traditional social e-commerce platform user trust evaluation methods, a social e-commerce platform user trust evaluation method based on artificial neural network is proposed. According to the business factors, environmental factors and social factors, the evaluation system of user trust degree of social e-commerce platform is constructed, so as to build the objective function of user trust degree evaluation index weight calculation of social e-commerce platform. The objective function is optimised by using an artificial neural network to obtain the evaluation index weight, and the evaluation model is constructed combined with the calculation results, completing the user trust evaluation of the social e-commerce platform. Simulation results show that the proposed method has higher accuracy and shorter evaluation time.[2]

According to data published by the Spanish Foreign Trade Institute (ICEX, 2021), 84.5 % of households in Portugal had access to the Internet in 2020, that is, 3.6 percentage points more than in 2019. Likewise, the Internet penetration rate among the Portuguese population between the ages of 16 and 74 increased, going from 76.2 % in 2019 to 78.3 % in 2020 and, the penetration rate of online buyers was 56 %, below the EU-27 average of 72 %. According to Statista, Portugal ranked 43rd in the world income level in the B2C e-commerce market, with a turnover of € 3,054 M in 2020, experiencing a growth of 19.5 % compared to 2019. According to CaixaBank Research (2021), these figures show a reduction in in-store purchases and the willingness of Portuguese consumers to respect social distancing. This is also confirmed by Eurostat data (2021), where the percentage of people between the ages of 16 and 74 who made online purchases of goods and services over the last 12 months increased to 45 % in 2020 (it was 39 % in 2019), well above past growth trends. Portuguese adopters consider that the most important e-commerce qualities are detailed information, timeliness, ease of comparison and comfort (Oliveira & Reis, 2006). On the other hand, in Spain, according to the National Statistical Institute (INE, 2021) 93.9 % of the population aged 16 to 74 has used the Internet in the last three months, 0.7 points more than in 2020. This represents a total of 33.1 million users. Internet use is a majority practice among young people aged 16 to 24, with 99.7 % for men and 99.6 % for women. Following Valarezo Unda et al. (2021), the Spanish online consumer is an employed male, with higher education and income levels and digital skills.

As age increases, Internet use decreases in both men and women, with the lowest percentage corresponding to the group aged between 65 and 74 years old (74.6 % for men, and 72.0 % for women). Furthermore, according to the Spanish National Markets and Competition Commission (CNMC, 2022), e-commerce in Spain reached a turnover in the second quarter of 2021 that was 13.7 % higher in year-on-year terms, accruing a total of € 13,661 M, according to the most recent e-commerce data available on the website. Factors of concern include ease of access, detailed information, privacy and security and reliability (Gutiérrez-Rodríguez et al., 2020), as well as e-trust and online skills (Fernández-Bonilla et al., 2022), among other things.

The contribution made by this research is threefold. First, it addresses a gap in the recent academic literature by analysing the drivers and barriers to e-commerce adoption by integrating into the UTAUT2 model other related variables analysed in the scientific literature. In this sense, recent research has proposed different reviews of the importance of the UTAUT2 model (Taneja and Bharti, 2021, Tamilmani et al., 2021), concluding that it is one of the models most employed by the scientific literature in the study of technology adoption as well as in the use of new variables to improve its predictive capacity (Yawised et al., 2022, Kuriakose et al., 2022, Migliore et al., 2022). Secondly, although it is true that the adoption of e-commerce has been analysed on different occasions, this research is novel because of the comparative analysis between two countries that are very close and with very similar behaviour such as Spain and Portugal (Hofstede Insights, 2022). Thirdly, we contribute different findings for Spain and Portugal from the use of Hierarchical Tree-based Regression (HTBR) in the definition of the profiles of online shoppers and physical shopping in both countries independently and comparatively after the end of the COVID-19 pandemic.[3]

The high volume of money involved in e-commerce transactions draws the attention of fraudsters, which makes fraud prevention and detection techniques of high importance. Current surveys and reviews on fraud systems focus mainly on financial-specific domains or general areas, leaving e-commerce aside. In this context, this article presents a systematic literature review on fraud detection and prevention for e-commerce systems. Our methodology involved searching for articles published in the last six years into four different literature databases. The search of articles employs a search string composed of the following keywords: purchase, buy, transactions, fraud prevention, fraud detection, e-commerce, web commerce, online store, real-time, and stream. We apply six filtering criteria to remove irrelevant articles. The methodology resulted in 64 articles, which we carefully analysed to answer five research questions. Our contribution appears in the updated perception of fraud types, computational methods for fraud detection and prevention, as well as the employed domains. To the best of our knowledge, this is the first survey on combining prevention and detection of e-commerce frauds, linking also architectural insights, artificial intelligence methods, and open challenges and gaps in the research area. The study's main findings demonstrate that from 64 articles, only five focus on the fraud prevention problem, and credit card fraud is the most explored fraud type. In addition, current literature lacks studies that propose strategies for detecting fraudsters and automated bots in real-time.[4]

In the late 1990's, the internet promoted the formation of e-commerce, and information technology’s development in the intervening years has driven the rapid development of e-commerce over the past 20 years. For example, Web2.0 led to the emergence and development of the platform-based e-commerce model (Yu, 2019). Moreover, the emerging technologies—such as social media, cloud computing, big data, and artificial intelligence (AI)—have also scaled up e-commerce development (Ilmudeen, 2021). e-Commerce has been driven by these technologies’ rapid advancement, which might also have steered the evolution of research themes in this field.

Prior studies have applied various methods to understand research in the e-commerce field. For instance, Ngai and Wat (2002) presented a literature review and classification scheme for e-commerce research based on 275 journal articles published between 1993 and 1999 in nine e-commerce–related journals. They found exponential growth in research on the applications, technological issues, support and implementation, and other categories in the e-commerce field. Wareham et al. (2005) studied 582 academic articles pertaining to e-commerce that had been published in academic journals between 1997 and 2003. With a meta-analysis method, they found that business-to-business (B2B), strategy, business-to-consumer (B2C), trust, and technology adoption were popular research topics in this field. Moreover, they found that survey was a dominant research method in the e-commerce field during the studied period. Their findings indicated great diversity in e-commerce research topics due to the field's interdisciplinary nature. Wareham et al. also pointed out that research topics in this field should have been developed alongside new technologies continuously applied to the e-commerce domain, providing a general understanding of e-commerce as an important research area in information systems (IS), management information systems (MIS) and international business research.[5]

This research quantifies how privacy concerns and consumer characteristics are associated with e-commerce participation and consumer response to social media advertising by accounting for both individual-level and country-level covariates. This study uniquely analyses a rich micro-level data set that includes responses of 153,053 individuals from 29 European countries. Through multilevel logit modelling, authors account for the country's nested structure of consumer behaviour and report odds ratios for relations between privacy measures and e-commerce activities of consumers in Europe. Privacy risk knowledge and online information sharing levels are positively correlated with probability of e-commerce participation. Odds of e-commerce participation are negatively associated with level of concern on online activity recordings. Consumers who take more protective actions against online privacy risks are more likely to participate in e-commerce and make purchases in response to social media advertisements. Firms that offer credible tools to help consumers protect their online privacy can benefit from increased e-commerce participation and higher effectiveness in social media advertising. Representative sampling in data collection offers external validity and generalizability of findings to the European market, which is unique for this study and an empirical contribution.[6]

With an increasing number of platform retailers introducing e-commerce brands (EBs), national brands (NBs) manufacturers choose to open self-operating channels as anti-entry tools for fighting against EB introduction. Motivated by this observation, we investigate the interaction and timing of firms' e-commerce brand introduction and self-operating channel opening in a cooptative supply chain with a platform retailer and an NB manufacturer, who is

the platform retailer's upstream co-operator and downstream competitor. Using game theory, we give and analyse the equilibrium results of six different scenarios, which characterise the platform retailer's strategies about whether and which quality of EB should be introduced and the manufacturer's strategies about whether to open the self-operating channel. Our results show that when the platform retailer is a first-mover, his optimal EB introduction strategy depends on the platform fee, consumers' self-operating channel preferences, the NB's quality, and the manufacturer's self-operating strategy. When the manufacturer is a first-mover, the platform retailer is best to introduce a higher-quality EB irrespective of the manufacturer's self-operating strategy. Furthermore, the manufacturer prefers the platform retailer to concentrate on her NB's sale rather than introduce an EB in most cases, and the self-operating channel as an anti-entry approach to the platform retailer's EB introduction is effective in some scenarios.[7]

The rise of e-commerce today has allowed retailers to connect with potential customers in entirely new ways, and a downgrade in the importance of physical shops seems inevitable. Dense collections of academic studies have highlighted how e-commerce impacts consumer behaviours and retail services, but few studies have focused on the change in shop prices or shop rents. E-commerce substitutes offline consumption with online consumption. Dropping shop income may then reduce the shops' reliance on location and spur lower rents. If shop managers also provide online services, increasing management costs could even lower the shop's willingness to pay high rent. Online consumption could also change the value of agglomeration externalities and shop convenience – since people must still rely on offline shops for daily goods provision and catering services, the agglomerated externality of daily services and catering services might increase. And the importance of the shopping environment could be reduced as well since the investment in décor would hardly attract more visitors. Are all these deductions true? What would be the impacts on the shop rents? Such questions have seldom been discussed in real estate studies. The changes in shop prices or shop rents are regarded as a by-product of the market rebalance in response to the consumer behaviour changes. Yet depicting the changes and understanding the logic behind them remain important for both individual decision-making and urban management.[8]

It is always a challenge to predict the customers on the verge of churn accurately in e-commerce due to the complexity of features and dynamicity of data and develop effective churn prediction models to predict potential churners accurately. This paper presents an in-depth comparison between four machine learning techniques namely neural network, support vector machine, Naïve Bayes and random forest, and Adam deep learning technique, for predicting customer churn in e-commerce. The classification techniques are implemented on a benchmarked Brazilian e-commerce dataset. For the feature selection, principal component analysis and neighbourhood component analysis techniques have been used. A balanced dataset, consisting of 11224 samples, is taken for study. The performance of the developed models is evaluated using the performance metrics viz. accuracy, sensitivity, specificity, true positive value, and true negative value. It has been found that the random forest classifier for

the features selected using the neighbourhood component analysis technique gives the highest prediction accuracy of 99.35% in comparison to classifiers used in this work as well as classifiers used by previous researchers. Additionally, the accuracy of the classifiers for features selected using the neighbourhood component analysis technique is higher as compared to the principal component analysis technique. In future, authors are working further to improve the performance of the developed model by incorporating more features as well as evaluation parameters and proposing new models using convolutional neural networks. The authors also intend to use more than one dataset for the training of the models in the future.[9]

This research examines the influence of information sharing amongst consumers on e-commerce platforms. On this basis, we develop a model for predicting consumers' purchase decisions on social commerce platforms. We use PLS-SEM to analyse online and paper surveys from 310 consumers. The findings suggest that social commerce information sharing increases consumer perceptions of familiarity, perceived ease of use, and perceived usefulness of social commerce platforms. Consumer learning and training of social commerce systems also increased their stated intention to purchase using the platform. We theorise the rise of the hyper-informed consumer that conducts pre-purchase product and shopping platform research to improve purchasing outcomes and as a form of socialising. The authors explain the theoretical contributions and practical implications at the end of the paper.[10]

E-commerce has the potential to change consumers' shopping habits and establish itself as a significant commerce channel. People rely on digital devices more than ever before, and the growth in M-commerce predicts that mobile will become the preferred channel for online shopping soon. This study is aimed at examining the effect of personal factors, economic factors, ease of doing factors, and safety-related factors due to Covid-19 on the adoption and use of M-commerce services among customers in Saudi Arabia. The study is empirical and is based on survey responses from 340, M-commerce customers in Saudi Arabia. The questionnaire method was used to collect the data. ANOVA and bivariate regression analysis were used to evaluate the collected data. The results showed that four independent variables, namely, personal, economic, ease of doing, and safety factors during the Covid-19 pandemic, are significant predictors of the dependent variable, adoption and use of M-commerce services by the customers. These factors influence customers' purchasing decisions when they use M-commerce services. The study also concluded that the frequency of using M-commerce has increased during the Covid-19 pandemic because of health, safety, and social distancing guidelines. One of the main limitations of the study is the few selective constructs for the research. The finding of the study will be beneficial to the customers to understand the significance of M-commerce services, especially during pandemic situations.[11]

Online retail channels increasingly shape consumers' purchase behaviour: we access a diversity of product types through web-shops; employ both smartphones and digital screens in stores; navigate the retail space by browsing online; and order pantry items, fresh groceries as

well as prepared foods to be delivered at our doorsteps. The profound impact of online retail on mobility in cities, where the concentration of consumers resides, is, therefore, an extensively investigated and growing topic of interest in research. In the field of urban logistics, studies that evaluate the various impacts of e-commerce or propose efficiency or sustainability-enhancing applications are plentiful. Regardless, the general lack of solid urban e-commerce logistics data is supported widely. In this study, we systematically review the literature to identify and compare the types of e-commerce data that are currently known, employed and disclosed in urban logistics research as well as the data sources that provide access to them. Within the set of identified data, knowledge concentrates on consumer preferences and number of deliveries related to e-commerce. However, our findings confirm the general data paucity, specifically on delivery trip-related information such as deliveries per trip, number of delivery rounds and vehicle specificities. Discrepancies are found in methodologies to collect and compile data, as well as data units used (e.g., orders, parcels, deliveries) that cause large variations in information possibly diverging from reality. The study contributes to current literature and practice by compiling and analysing currently available data on urban e-commerce logistics and by presenting recommendations and best practices for future enhancements in this research field. Based on the systematic literature review, we propose a common data agenda for urban e-commerce logistics research, focused on addressing data gaps and topics that are under-developed and undeveloped; pursuing data collection standardisation; disclosing data collection methodologies and sources; and specifying temporal and spatial information as well as units of data. Some data methodologies and sources can be recommended for future research: using interviews to collect quantitative data; collaborating with sector organisations; exploring open maps; employing existing household and time use surveys; and leveraging technological opportunities and new ways of collecting data.[12]

As an emerging technology, flexible sensing can meet the requirements of small packaging, high stability, and complex working environments, which is considered for micro-environment monitoring (Xiao et al., 2022; Zhang et al., 2022). Meanwhile, flexible material can ensure the integrity of the packaging, avoid quality deterioration and environmental fluctuations caused by packaging damage (Rahman & Chowdhury, 2022). Additionally, as an artificial intelligence (AI) optimization method, machine learning can mine implicit laws from historical data, and make decision-making support for unknown factors (Sun et al., 2020). Based on decision-making knowledge by HACCP and massive data processed by AI, the difficulties with the exponential growth of data and the increase of model complexity can be effectively solved and optimised. Then the evaluated results are used to maintain internal micro-environmental stability and reduce quality loss, and economic characteristics should be fully considered during packaging practices, which provide a theoretical basis for packaging performance optimization (Amaral et al., 2015; Escursell et al., 2021). Ultimately, through a specific combination of effective packaging methods and strict temperature control, etc., the impact of DMFs on sustainable loss reduction was evaluated and the optimal control method was selected by packaging performance optimization.

To effectively improve the packaged lamb loss reduction in e-commerce supply chain, this paper comprehensively considered the dynamic correlation between lamb loss reduction and micro-environmental, quality, and economic factors in e-commerce based on HACCP, and obtained micro-environmental information through flexible sensing with the Internet of Things (IoT), quality results in laboratory, and economic analysis through collaborative research. After analysing the importance and influence weight of each indicator on final packaging performance, the FS-PPOS could realise sustainable packaging performance evaluation and dynamic results grading as the supply chain process proceeded. Simultaneously, the continuous improvement of loss reduction, systematic optimization, and applicability in other fields were also discussed.[13]

As mobile commerce (m-commerce) plays an increasingly significant role in retailing, opportunities exist for organisations to shape or reshape their reputations. Therefore, it is important to understand the mechanism through which organisational reputation is shaped and perceived by customers through m-commerce. This study addresses whether organisational efforts in m-commerce are linked to reputation through mobile service quality, perceived value, and customer satisfaction using the cues-images-impressions model. Using an online survey with 744 valid responses (440 physical product shopping and 304 virtual product shopping), the results show that perceived m-commerce effort affects mobile service quality. In addition, the relationship among mobile service quality, value, and satisfaction, which was previously proposed in the literature and tested in various contexts, is confirmed. Finally, impressions are a result of mobile service quality, value, and satisfaction. This study contributes knowledge on the organisational reputation formation in m-commerce research.[14]

The development of information and communication technologies in recent years has had a huge impact on the interaction between companies and customers. Internet technologies and mobile communication are becoming increasingly important. This development brought about such concepts as e-commerce and, more broadly, e-business. The aim of the article is to show the impact of the development of communications infrastructure, in particular the availability and bandwidth of the Internet, on the development of e-commerce.[15]

# CHAPTER 3

# PROJECT REQUIREMENTS

## 3.1 TECHNOLOGIES & SOFTWARE USED

- **Servlet**

    - Java Servlets are programs that run on a Web or Application server and act as a middle layer between requests coming from a Web browser or other HTTP client and databases or applications on the HTTP server.

    - Using Servlets, you can collect input from users through web page forms, present records from a database or another source, and create web pages dynamically. Java Servlets often serve the same purpose as programs implemented using the Common Gateway Interface (CGI). But Servlets offer several advantages in comparison with the CGI.

- **Java Server Page**

    - Java Server Pages (JSP) is a technology for developing Web Pages that supports dynamic content. This helps developers insert java code in HTML pages by making use of special JSP tags, most of which start with <% and end with %>.

    - A Java Server Pages component is a type of Java servlet that is designed to full-fill the role of a user interface for a Java web application. Web developers write JSPs as text files that combine HTML or XHTML code, XML elements, and embedded JSP actions and commands.

    - Using JSP, you can collect input from users through Web Page forms, present records from a database or another source, and create Web Pages dynamically.

- **Tomcat**

    - It is an open-source Java servlet container that implements many Java Enterprise Specs such as the Websites API, Java-Server Pages and last but not least, the Java Servlet. The complete name of Tomcat is "Apache Tomcat" it was developed in an open, participatory environment and released in 1998 for the very first time. It began as the reference implementation for the very first Java-Server Pages and the Java Servlet API. However, it no longer works as the reference implementation for both of these technologies, but it is considered as the first choice among the users even after that. It is still one of the most widely used java-server due to several capabilities such as good extensibility, proven core engine, and well-test and durable. Here we used the term "servlet" many times, so what is java servlet; it is a kind of software that enables the webserver to handle the dynamic(java-based) content using the Http protocols.

- **Postman**

    - Postman is an API platform for developers to design, build, test and iterate their APIs. As of April 2022, Postman reports having more than 20 million registered users and 75,000 open APIs, which it says constitutes the world's largest public API hub. The company is headquartered in San Francisco and maintains an office in Bangalore, where it was founded.

| | |
|---|---|
| **APPLICATION** | Eclipse , VS Code |
| **DESIGNING** | HTML, CSS, JavaScript, JSP |
| **BACKEND** | Java-J2EE |

Table No. 3.1 Technologies and Software

## 3.2 Language Used (Designing and Developing)

- **Hypertext Mark-up Language**

    - The Hyper Text Markup Language or HTML is the standard markup language for documents designed to be displayed in a web browser. It can be assisted by technologies such as Cascading Style Sheets (CSS) and scripting languages such as JavaScript. Web browsers receive HTML documents from a web server or from local storage and render the documents into multimedia web pages. HTML describes the structure of a web page semantically and originally included cues for the appearance of the document.

- **Cascading Style Sheet**

    - **Cascading Style Sheets (CSS)** is a style sheet language used for describing the presentation of a document written in a markup language such as HTML or XML (including XML dialects such as SVG, MathML, or XHTML). CSS is a cornerstone technology of the World Wide Web, alongside HTML and JavaScript.

- **JAVASCRIPT**

    - JavaScript, often abbreviated as JS, is a programming language that conforms to the ECMAScript specification. JavaScript is high-level, often just-in-time compiled, and multi- paradigm. It has dynamic typing, prototype-based object orientation, and first-class functions.

- **Java**
    - Java programming language was originally developed by Sun Microsystems which was initiated by James Gosling and released in 1995 as a core component of Sun Microsystems' Java platform (Java 1.0 [J2SE]). The latest release of the Java Standard Edition is Java SE 8.
    - With the advancement of Java and its widespread popularity, multiple configurations were built to suit various types of platforms. For example: J2EE for Enterprise Applications, J2ME for Mobile Applications. The new J2 versions were renamed as Java SE, Java EE, and Java ME respectively. Java is guaranteed to be **Write Once, Run Anywhere.**

# CHAPTER 4

# SOFTWARE REQUIREMENTS SPECIFICATIONS

## 4.1 GENERAL DESCRIPTION

This combined aggregation of information and workplace activity constructs a general, specific program or aim which is to be executed or produced within the workplace while working with others as a squad. The history of coaction began many centuries ago, long before the B.C. or A.D. epochs, where at least two persons had to pass on in the attempt of finishing an undertaking, undertaking, or written papers. Therefore, coaction is a new term, but an enhanced and improved one in the professional workplace.

## 4.2 PROBLEM STATEMENT

The problem without a E-Shoppers website is elaborated below:

- No information about the local merchant.
- Sometimes users buy expensive things even though they are cheap.
- Not a very clear understanding of the products or merchants.

## 4.3 SYSTEM OBJECTIVE

- **Providing secure and convenient mechanism for buying and selling**

EShoppers will act as an intelligent agent. The Online Shopping system (EShoppers) application enables vendors to set up online vendors, customers to browse through the various categories of the products, and a system administrator to approve and reject requests for new vendors and maintain lists of product categories.

Also, the developer is designing an online shopping site to manage the items in the shop and also help customers to purchase them online without visiting the shop physically. The online shopping system will use the internet as the sole method for selling goods to its consumers.

- **Broad Category of Products**

  Users can order multiple products from various categories and can add to cart if he/she likes any products. After adding products in the cart module, he/she can checkout and go further for the next step in order to place the order to the merchant. The emergence of electronic commerce has launched both enterprises and society into a new era of business and the effects of such are being felt all across the spectrum. Disintermediation and restructuring is affecting companies, competitors are re-evaluating relationships and consumers are becoming more empowered in the marketplace.

- **Secure Payment Mechanism**

  Electronic payments aren't as straightforward as they seem. They involve issues that need to be addressed: these issues are technical, juridical and ethical. The crucial issue in electronic commerce revolves around how consumers will pay businesses online for various products and services.

  It provides all the security mechanisms to provide secure transactions. Information confidentiality, Data Integrity and also Client/Merchant Authentication are the major components which provide a secure transaction.

## 4.4 REQUIREMENT SPECIFICATION

- The application requirement specification is produced at the analysis task. The function and performance allocated to application as part of system engineering are refined by establishing a complete information description, a detailed functional and behavioural description, an indication of performance requirements and design constraints.

## 4.5 FUNCTIONAL REQUIREMENTS

- **Sign-up & Log-in module :** Sign up module is for those who are new to the system and want to take advantage of the EShoppers. Those users who are registered are going to log in the system and use the services of the EShoppers.
- **Searching a Products:** Any user who is already registered or those who are visitors can avail this service by providing the products name in the search box .

- **Buying Products:** Only registered users can use this service if the product is available. Those who are visitors , they have to register themselves first.

- **Order Cancellation:** This service is only for those who have ordered/requested their seats in the Train for a particular journey.
- **Product Summary:** Users can view their products which are booked previously on their account.
- **Online Payment Mechanism:** Users can do online transactions in our system in a reliable and secure manner. If the transaction is unsuccessful then the deducted amount will be returned to the user's back account.
- **Selling Goods:** Admin can upload products along with product's pictures , description quantity etc. for selling using this platform.

## 4.6 NON-FUNCTIONAL REQUIREMENT

- **User friendly:** The system should be user friendly so that it can easily be understood by the user without any difficulty.
- **Ease of maintenance:** System should be easy to maintain and use.
- **Less time consuming:** The system should be less time consuming which could be achieved by good programming.
- **Error free:** The system should easily handle the user error in any case.
- **Static:** Application runs on a stand-alone machine . Support only supports several users.

## 4.7 SOFTWARE AND HARDWARE REQUIREMENT

This section describes the software and hardware requirements of the system.

### Software Requirements

1. **Operating System:** Windows/Linux Operating System This is the web Application which can run on any of the Operating System.
2. **Database –** Java Admin is used in storing the data in structured manner

3. **TOMCAT -** Tomcat is a Software used for server which is used to serve the client what he/she wants from the server.

4. **Browser -** Any of the browser can be used to run and test the web application's Appearance and working eg. Internet Explorer, Google Chrome, Mozilla Firefox etc.

5. **Development tools and Programming language-** HTML, CSS, Javascript, Java used to write the whole designing and operational code. Java is used for testing, maintenance and deployment purposes.

## 4.8 HARDWARE REQUIREMENT

- Desktop/Laptop any configuration.

## 4.9 EXISTING VS PROPOSED SYSTEM

Existing system does not have a secure facility of Employee Performance System application with transparency in Workplace whereas the proposed system is secure and transparent in the work of the people. Existing system does not have any facility of generating Email Online whereas the proposed system is working on the facility of generating email and password online by the admin with security .

Existing System does not have the facility of registering and generating organisational passwords Whereas proposed systems are more focused on it.

## 4.10 SOFTWARE SYSTEM ATTRIBUTE

- **Portability**:- The system should be machine independent.
- **Security**:- The system is designed in such a way that it will store the recorded data in the system of the owner. The system will be secure from unauthorised access of the application.
- **Maintainability**: The system will be designed in a maintainable order. The system can be easily modified and renewed according to the needs of the organisation.

## 4.11 FEATURE OF ESHOPPERS

- Multiple users can login and sign-up remotely.
- People can register and login in the system.
- Graphics with a classic look and the feel of a royal Web Application.
- Classic Profile Details to display the profile of each user.
- Security of data to be stored.

- Ensures data accuracy (number of alerts/product/order generated).
- Minimise manpower.
- Minimise time consumption.
- Greater efficiency.
- Fast.
- Better services.
- User friendliness and Interactive.
- Minimum time required.
- Easy to add, update and delete orders.
- User friendly.
- Free for the user.

## 4.12 Preliminary Investigation

After obtaining the background knowledge, we began to collect data on the existing system.

The tools that are used in information gathering are as follows:

- Online Apps observation.
- Review of the people.

The model we have used is the Incremental Model. In this model, first the existing system is observed, then customer requirements are taken in consideration then planning, modelling, construction and finally deployment and again adding the new system if asked by the customer to do so.

## 4.13 MODEL USED : INCREMENTAL MODEL

Incremental Model is a software development process where requirements are divided into several stand-alone software development modules. In this project, the first increment is often a core product where the basic requirements are addressed, and supplementary features are added in the next increments.

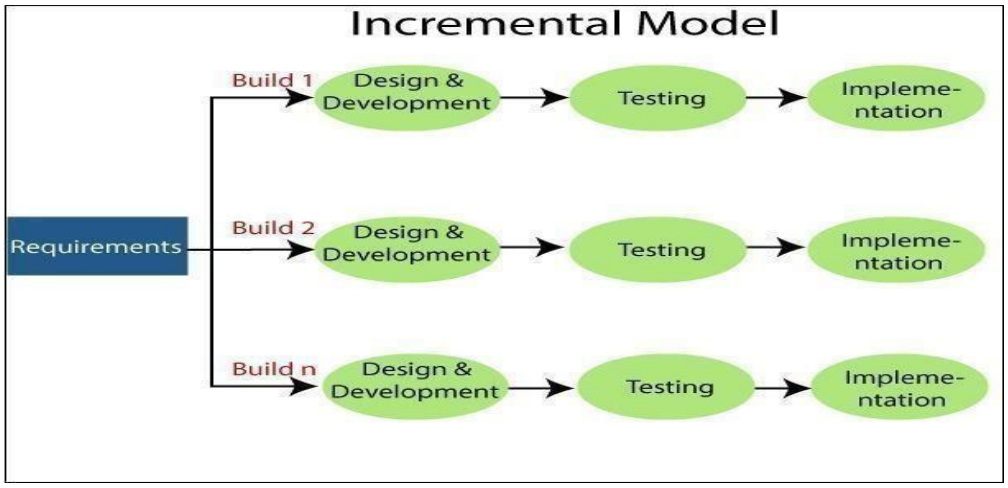


Fig 4.1 Incremental Model

## 4.12 Preliminary Description

The first step in the system development life cycle is the preliminary investigation to determine the feasibility of the system. The purpose of the preliminary investigation is to evaluate project requests. It is not a design study nor does it include the collection of details to describe the system in all respects. Rather, it is the collecting of information that helps committee members to evaluate the merits of the project request and make an informed judgement about the feasibility of the proposed project.

## An analyst working on the preliminary investigation should accomplish the following objectives:

- Clarify and understand the project request.
- Determine the size of the project.
- Access costs and benefits of alternative approaches.

- Determine the technical and operational feasibility of alternative approaches.
- Report the findings to management with recommendations outlining the acceptance and rejection of the proposal.

# CHAPTER 5

# ANALYSIS

## 5.1 Feasibility Study

After studying and analysing all the existing and required functionalities of the system, the next task is to do the feasibility study for the project. The feasibility study includes consideration of all the possible ways to provide a solution to a given problem. The proposed solution should satisfy all the user requirements and should be flexible enough so that future changes can be easily done based on future upcoming requirements.

- **Economical Feasibility**

  For economic feasibility, Economic analysis or cost/benefits analysis is the most frequently used technique for the effectiveness of a proposed system. It is a procedure to determine the benefits and savings that are expected from the proposed system and compare them with cost. If the benefits outweigh the costs, a decision is taken to design and implement the system. otherwise, further justification or alternative in the proposed system will have to be made if it is to have a chance of being approved this is an ongoing effort that improves in accuracy at each phase of a system life cycle

- **Technical Feasibility**

  This included the study of function, performance, and constraints that may affect the ability to achieve an acceptable system. For this feasibility study, we studied the complete functionalities to be provided in the system, as described in the System Requirement Specification (SRS), and checked if everything was possible using different types of front-end and back-end platforms.

- **Operational Feasibility**

  No doubt the technically growing world needs more enhancement in technology, this system is user-friendly and all inputs to be taken are all self-explanatory even to a layman. As far as our study is concerned, the students will be comfortable and happy as the

system has cut down their loads and brought the young generation to the same virtual world where they are growing dramatically.

Operational feasibility covers two aspects. One is technical performance aspects and the other is acceptance within the organisation. Operation feasibility determines how the proposed system will fit in with the current operation and what needs to be implemented in the system.

# CHAPTER 6

# PLANNING AND SCHEDULING

## 6.1 Gantt Chart

A Gantt chart can be developed for the entire project, or a separate chart can be developed for each function. A tabular form is maintained where rows indicate the task with milestones and columns indicate duration (Days).

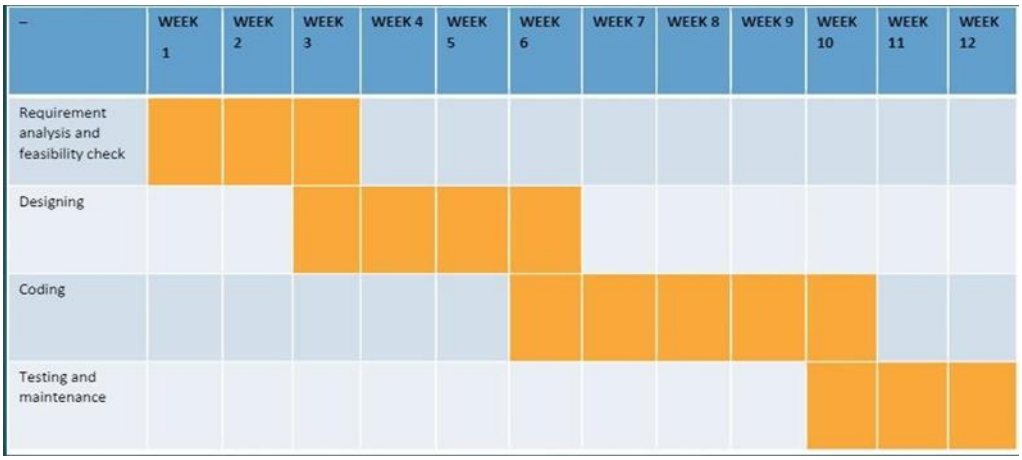


Fig 6.1 Gantt Chart

## 6.2 Software Requirements with specifications

| **Name of Components** | **Specifications** |
|---|---|
| Operating system | Windows |
| Language | Java, HTML, CSS, JavaScript |
| Software Development kit | JDK(J2EE), Google Chrome |
| Markup Language Enable | HTML |

Table No 6.1 Software Requirement

## 6.3 Hardware Requirements with specifications

| Name of Components | Specifications |
|---|---|
| Desktop/Laptop | Any Configuration |
| Memory Used | 6.31 MB |

Table No. 6.2 Hardware Requirement

## 6.4 Data Flow Diagram

Users will enter the source & destination locations for train information, registered users can book their ticket and can see their upcoming and past journey in the system for user experience.

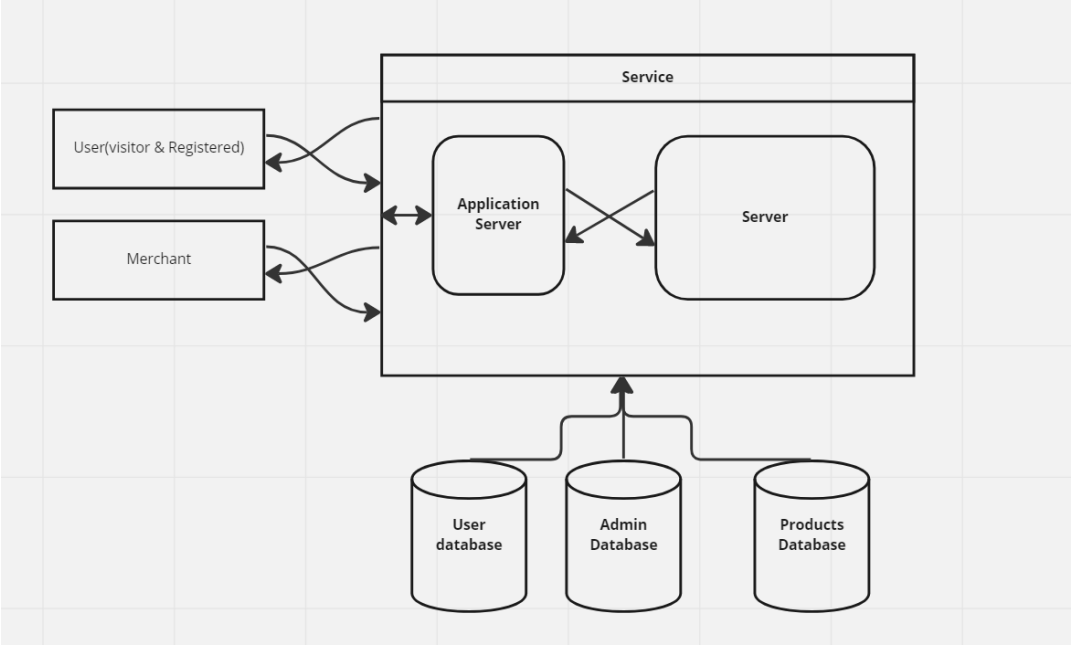


Fig. 6.2 Data Flow Diagram

## 6.5 Activity Diagram

Activity Diagrams describe how activities are coordinated to provide a service which can be at different levels of abstraction. Typically, an event needs to be achieved by some operations, particularly where the operation is intended to achieve a number of different things that require coordination, or how the events in a single use case relate to one another, in particular, use cases where activities may overlap and require coordination. It is also suitable for modelling how a collection of use cases coordinates to represent business workflows

- Identify candidate use cases, through the examination of business workflows.
- Identify pre- and post-conditions (the context) for use cases.
- Model workflows between/within use cases.

- Model complex workflows in operations on objects.
- Model in detail complex activities in a high level activity Diagram

### 6.4.1 Activity diagram for a Login page

Many of the activities people want to accomplish online—checking email, managing finances, ordering clothes, etc.—require them to log into a website. This activity diagram shows the process of logging into a website, from entering a username and password to successfully logging in to the system. It uses different container shapes for activities, decisions, and notes. Lucid chart is the ideal tool for creating any kind of UML flowchart, whether it's an activity diagram, a use case diagram, or a component diagram. Lucidchart offers in-editor collaboration tools and instant web publishing so you can demonstrate the functionality of your system to others.

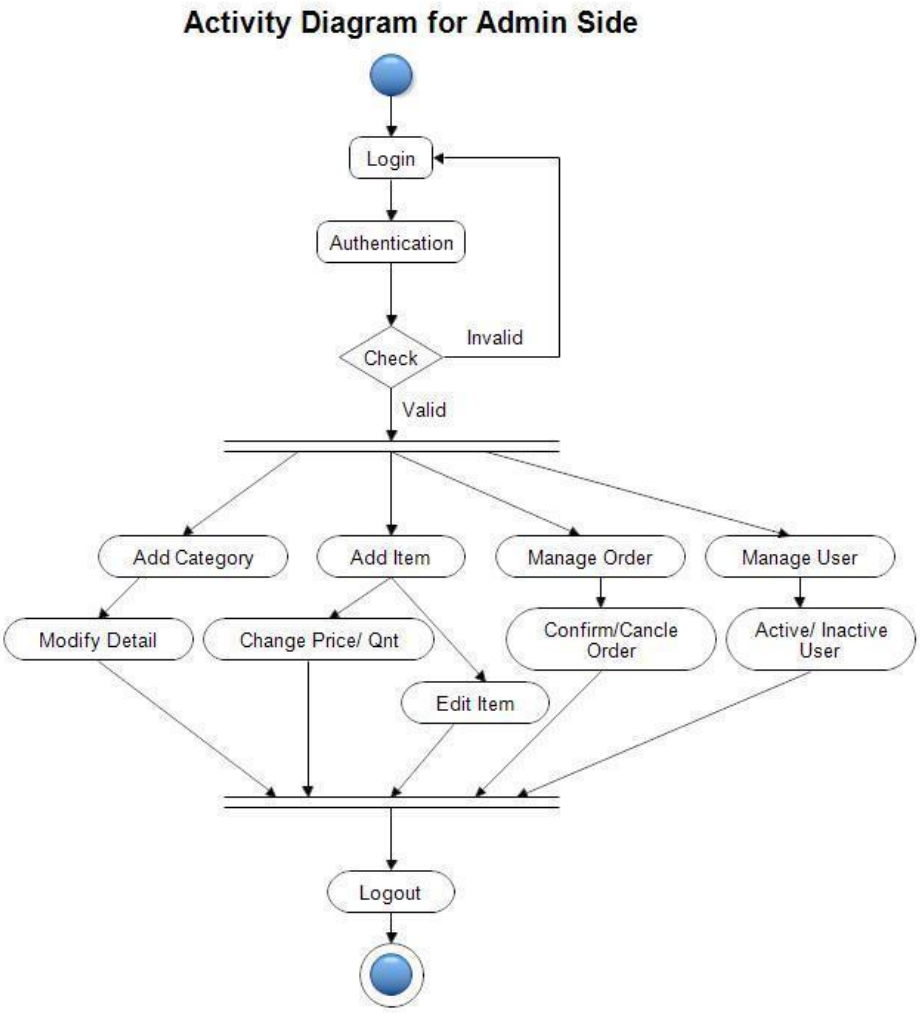


Fig 6.3 Activity Diagram

Online E commerce Website web application project provides activity diagrams while in development stage, this article explains about user and admin workflow features with diagrams. The below attached User of the shopping cart system activity diagram explains about how login activity of user and admin works, here user enters username and password in the login web form and system validates the user details with the database, if the user details are equal to the database details then it can accept the user login form and proceeding to the next level or else it can reject the user login.

## 6.5 Sequence Diagram

A **sequence diagram** or **system sequence diagram (SSD)** shows process interactions arranged in time sequence in the field of software engineering. It depicts the processes involved and the sequence of messages exchanged between the processes needed to carry out the functionality. Sequence diagrams are typically associated with use case realisations in the 4+1 architectural view model of the system under development. Sequence diagrams are sometimes called **event diagrams** or **event scenarios.**

In the below diagram, as you can see that panel is the automated program who will check if the information provided by the user is correct in the syntax form and if the user's details are corrected, he/she will get the message of registration successfully along with using customer ID. This customer ID will be used by the system to identify the user in the system. The user ID system will add the user's cart products and will manage the user's information in the database.

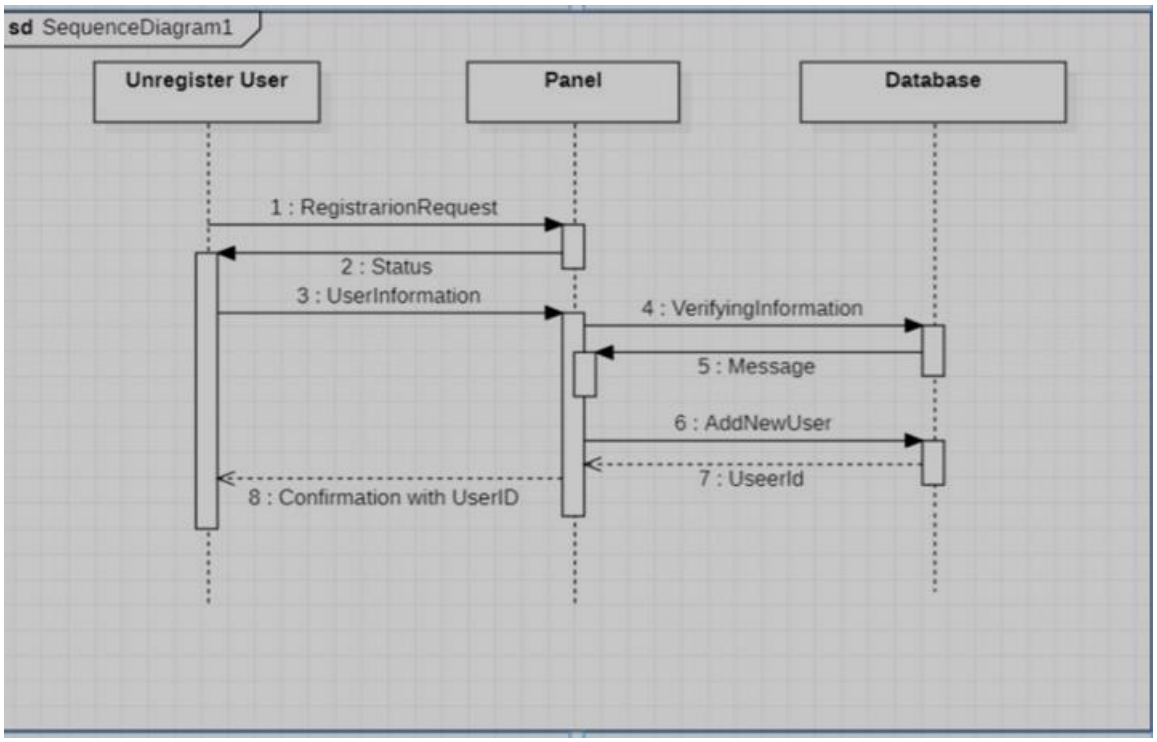


Fig 6.4 Sequence Diagram

As you can see in the diagram, how the control flow is transferring from the user and the control panel.

The **importance of Sequence Diagram for E-commerce Websites (EShoppers)** is that it could help understand the project requirements. This also helps in describing the existing processes of the project.

The **E-commerce Website** is given to expound its ideas. This sequence diagram is shown and is based on the concept of Website Management.

It is essential for you to know the diagrams used to design and develop the E-commerce Website. That is because you cannot perfectly create a fully-functional system without it.
But if you create this sequence diagram, you will know the possible inputs and scenarios that the system should process and perform. Not only that, you will find out the needed processes and connect them to the other UML Diagrams.

System objectives can include planning overall requirements, validating a hardware design, testing and debugging a software product under development, creating an online help reference or performing a consumer-service-oriented task. For example, use cases in a product sales environment would include item ordering, catalogue updating, payment processing, and customer relations. A use case diagram contains four components.

- The boundary, which defines the system of interest in relation to the world around it.
- The actors, usually individuals involved with the system defined according to their roles.
- The use cases, which are the specific roles played by the actors within and around the system.
- The relationships between and among the actors and the use cases.

## 6.6 Use Case Diagram

Use-case diagrams model the behaviour of a system and help to capture the requirements of the system. Use-case diagrams describe the high-level functions and scope of a system. These diagrams also identify the interactions between the system and the student.
A use case diagram is used to represent the dynamic behaviour of a system. It encapsulates the system's functionality by incorporating use cases, actors, and their relationships. It models the tasks, services, and functions required by a system/subsystem of an application. It depicts the high-level functionality of a system and also tells how the user handles a system.

The purposes of a use case diagram are given below:

1. It gathers the system's needs.
2. It depicts the external view of the system.
3. It recognizes the internal as well as external factors that influence the system.

4. It represents the interaction between the actors

This Use Case Diagram for E-Commerce Websites is a behavioural diagram summarising e-commerce website activities and user information. It depicts a graphical representation of the behavioural structure of the system. The diagram also includes processes and users or actors. It describes the overall workflow of the e-commerce website using defined symbols. The use case diagram in software engineering depicts an example of adaptive e-commerce behaviour. It encapsulates the functionality of the project by incorporating use cases, actors, and their interactions.

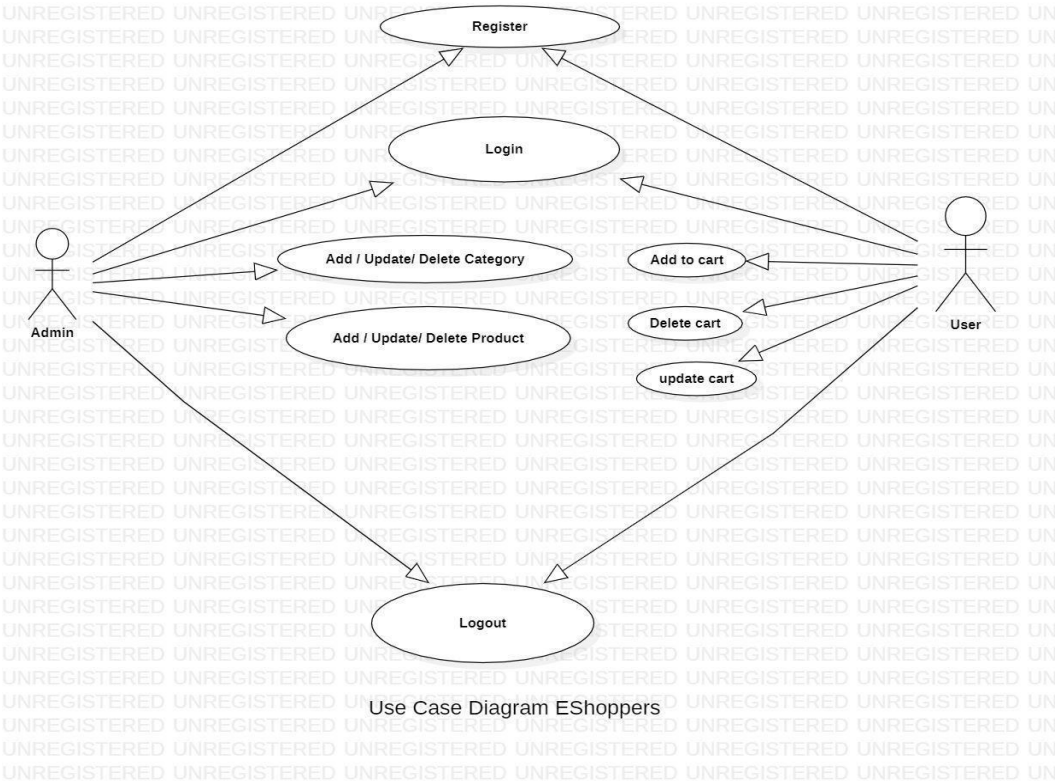


Fig 5.5 Use Case Diagram

To model a system, the most important aspect is to capture the dynamic behaviour. Dynamic behaviour means the behaviour of the system when it is running/operating.

Only static behaviour is not sufficient to model a system, rather dynamic behaviour is more important than static behaviour. In UML, there are five diagrams available to model the dynamic nature and use case diagrams are one of them. Now as we have to discuss that the use case diagram is dynamic in nature, there should be some internal or external factors for making the interaction.

These internal and external agents are known as actors. Use case diagrams consist of actors, use cases and their relationships. The diagram is used to model the system/subsystem of an application. A single use case diagram captures a particular functionality of a system.

Hence to model the entire system, a number of use case diagrams are used.

## 6.7 Purpose of Use Case Diagram

The purpose of a use case diagram is to capture the dynamic aspect of a system. However, this definition is too generic to describe the purpose, as other four diagrams (activity, sequence, collaboration, and State chart also have the same purpose. We will look into some specific purpose, which will distinguish it from the other four diagrams.

Use case diagrams are used to gather the requirements of a system including internal and external influences. These requirements are mostly design requirements. Hence, when a system is analysed to gather its functionalities, use cases are prepared and actors are identified.

When the initial task is complete, use case diagrams are modelled to present the outside view.

In brief, the purposes of use case diagrams can be said to be as follows −

- Used to gather the requirements of a system.
- Used to get an outside view of a system.
- Identify the external and internal factors influencing the system.
- Show the interaction among the requirements are actors.

# CHAPTER 7

# CONCLUSION

E-commerce still represents one of the business methods that take advantage if done the right way, even if the stock market and commodities fell, but E-Commerce is still able to survive and receive high transaction. E-commerce has a tremendous opportunity in the course of our business in Malaysia. In addition, it is also to introduce new techniques and styles in a transaction. Using the extensive E-Commerce in the Internet world is actually much better to bring the goodness of the individual or the state. E-Commerce has undeniably become an important part of our society. The successful companies of the future will be those that take E-Commerce seriously, dedicating sufficient resources to its development. E-Commerce is not an IT issue but a whole business undertaking. Companies that use it as a reason for completely re-designing their business processes are likely to reap the greatest benefits. Moreover, E-Commerce is a helpful technology that gives the consumer access to business and companies all over the world.

## 7.1 Future :

The E-Commerce business is on the rise and will evolve remarkably in the near future. It changes customer behaviour , needs, and shopping trends a lot. Within 25 years this industry has made over 2 trillion US dollars in sales worldwide. Adaptation of new technology, large customization, policy evolution, and smart integration with advanced solutions have taken the E-Commerce industry by storm. Also, now you can combine the online and offline selling procedures together to take the maximum advantage of these two channels. Today we will discuss the Future Ecommerce Trends that will reflect the revolving scenario of the E-Commerce industry for years to come.

## 7.2 Enhancement

- Loan Facility
- Email and mobile alerts.
- Active Tracing of Fraudulent activities
- Security upgrades like Visual Sensors with burglar alarms, Biometric Identification procedures etc.
- Try and Buy
- Demo of the products
- Verified Merchant

## 7.3 Additional Features

- Double Layered Security
- Secure Login
- Online Transaction
- Can add up to 4 different billing address

# CHAPTER 8

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