

# **Courier Management System For Kodeeo**

A Practicum Report Submitted By

**Sumya Afrin Nishe**

ID: 18103241

In Partial Fulfillment of the Requirements for the Award of  
Bachelor of Computer Science and Engineering



Department of Computer Science and Engineering  
College of Engineering and Technology  
IUBAT – International University of Business Agriculture and  
Technology

Fall 2021

# **Development of Courier Management System For Kodeeo**

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ID: 18103241

A Practicum in the Partial Fulfillment of the Requirements for the Award of  
Bachelor of Computer Science and Engineering (BCSE)

The project has been examined and approved,

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Chairman and Professor

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Dr. Hasibur Rashid Chayon  
Coordinator and Associate Professor

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Moumitu Tasnim  
Supervisor and Lecturer

Department of Computer Science and Engineering  
College of Engineering and Technology  
IUBAT – International University of Business Agriculture and Technology

Fall 2021

## Letter of Transmittal

15 November 2021

The Chairman, Practicum and Placement Board

Department of Computer Science and Engineering

IUBAT–International University of Business Agriculture and Technology

4 Embankment Drive Road, Sector 10, Uttara Model Town

Dhaka 1230, Bangladesh

**Subject:** Letter of Transmittal.

With due respect, I would like to approach you that it is a great opportunity as well as immense pleasure for me to submit this report titled “Development of Courier Management System for Kodeeo” for the fulfillment of my Practicum course.

It was undoubtedly a splendid opportunity for me to work on this project to actualize my theoretical knowledge and has an enormous exposure with the corporate culture of a renowned company. Now I am looking forward for your kind appraisal regarding this practicum report.

I shall remain deeply grateful to you if you kindly go through this report and evaluate my performance.

Yours sincerely,

---

Sumya Afrin Nishe

ID: 18103241

Program: BCSE

## **Student's Declaration**

I am Sumya Afrin Nishe student of BCSE - Bachelor of Computer Science and Engineering program, under the College of Engineering and Technology (CEAT) of IUBAT- International University of Business Agriculture and Technology declaring that, this report on the topic of Development of Courier Management System for Kodeeo has been prepared for the fulfillment of the internship CSC 490, Practicum as well as the partial requirement of BCSE- Bachelor of Computer Science and Engineering degree.

The report and the project on Development of Courier Management System for Kodeeo are originally prepared by me. All module and procedure of this project is being made after proper inspection and internet information.

It has not been prepared for any other purposes, rewards or presentations.

.....

Sumya Afrin Nishe

ID: 18103241

Program: BCSE

## Supervisor's Certification

This is to certify that Practicum report on “**Development of Courier Management System for Kodeeo**” has been carried out by Sumya Afrin Nishe bearing ID. 18103241, of IUBAT – International University of Business Agriculture and Technology as a partial fulfillment of the requirement of practicum defense course. The report has been prepared under my guidance and is a record of the accomplished work carried out successfully. To the best of my knowledge and as per her declaration, no parts of this report has been submitted anywhere for any degree, diploma or certification.

Now she is permitted to submit the report. I wish her success in all her future endeavors.

---

Moumitu Tasnim

Supervisor and Lecturer

Department of Computer Science and Engineering

IUBAT–International University of Business Agriculture and Technology

## **Departmental Declaration**

On behalf of the Department of Computer Science and Engineering of International University of Business Agriculture and Technology (IUBAT) we, the undersigned, certify that this practicum report on “Development of Courier Management System for Kodeeo” for the award of Bachelor of Computer Science and Engineering (BCSE) degree was duly presented by Sumya Afrin Nishe (ID No. 18103241) and accepted by the department.

---

Professor Dr. Utpal Kanti Das  
Chairman and Professor  
Dept. of Computer Science and  
Engineering  
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Dr. Hasibul Rashid Chayon  
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## **Dedication**

This humble effort, the fruit of my thoughts and study is dedicated to the people who have always been there to encourage and support me and especially to my beloved parents whose affection, love, and prayers of day and night make me able to get this project done.

I would also like to dedicate this to my friends, who have inspired me throughout my university.

## **Acknowledgement**

It's my pleasure to take this occasion to thank a few people, who have, assisted, encouraged, directed and supported me throughout my practicum program.

First of all, I want to thank my parents, who have endowed their immeasurable-innumerable support and encouragement to attain this exquisite event of my life.

My sincere thanks to our Vice Chancellor Dr. Abdur Rab to give me an opportunity to submit this report.

My outmost and sincere gratitude goes to Dr. Hasibul Rashid Chayon, my Co-supervisor and Coordinator of Department of Computer Science and Engineering, IUBAT-International University of Business Agriculture and Technology for allowing me to work on the project.

I would like to pay my gratitude to my faculty advisor Moumitu Tasnim, Faculty of Computer Science & Engineering Department, who has given me the opportunity to make such a report for not only in this semester but also throughout my education life at IUBAT-International University of Business Agriculture and Technology by giving her valuable suggestions and advices at any time, at any situation. I would able to make this report effectively and properly only for her right direction.

Their continuous encouragement and contribution gave me the courage and determination needed to complete the internship and project properly.



## **Abstract**

The primary objective of this report is to learn how to conduct a project and work in real field and write it down in a formal and specific way. The secondary objective of this report is to learn about how this Courier Management System can manage courier service for the customers those who want to request for their courier from online. The Courier Management System is developed for courier service and customer can do request for courier and track the courier time to time without facing any problem. Basically, there would be three types of users that can access this portal such as Admin, Customer and the Staff. Admin can manage the whole system that includes courier request, branch management, staff management, status management, report management. In customer interface, the customer can view the branches, can request for courier by giving information, they can also confirm and cancel their courier request and update their courier information through online. In Staff interface, the staff can view the status and update the status. This apparatus goal is to make courier system easy, reliable, user friendly, and corrective. I have plans to implement other features in future. At the end of the day, what I can say is I put honest effort and hard work to implement the system as efficient as possible. I wish to make it flawless in near future.

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# **Chapter-1**

## **Organizational Overview**

The organizational overview chapter will describe the organization's overview, the mission, company's vision and services of the company where I am doing my internship. It will also show the organizational hierarchy along with my position and their numerous services.

## **1.1 Organizational Overview**

Kodeeo is a multi-layered Bangladesh based software company that focuses highly qualitative, timely delivered and cost-effective Software development and training. Kodeeo is registered as private limited company assigned in Bangladesh with the express purpose of developing a skilled manpower in ICT sector of Bangladesh. It has industrial level experience and competence in rendering training and allied services to numerous customers over the years.

Kodeeo was founded by Sumon Mollah Selim. He is the CEO and Managing director of the organization.

*WE ARE KODEEO.* (n.d.). Retrieved from KODEEO: <https://www.kodeeo.com/>

## **1.2 Organizational Services**

There services consist of-

- ✓ Website and Web Development
- ✓ Website Design
- ✓ Mobile App Development
- ✓ Software Development
- ✓ Enterprise Resource Planning (ERP)
- ✓ Domain registration & Hosting

## **1.3 Organizational Location**

House#14, Road#8, Sector#6,

Uttara, Dhaka

Tel: 01854969657

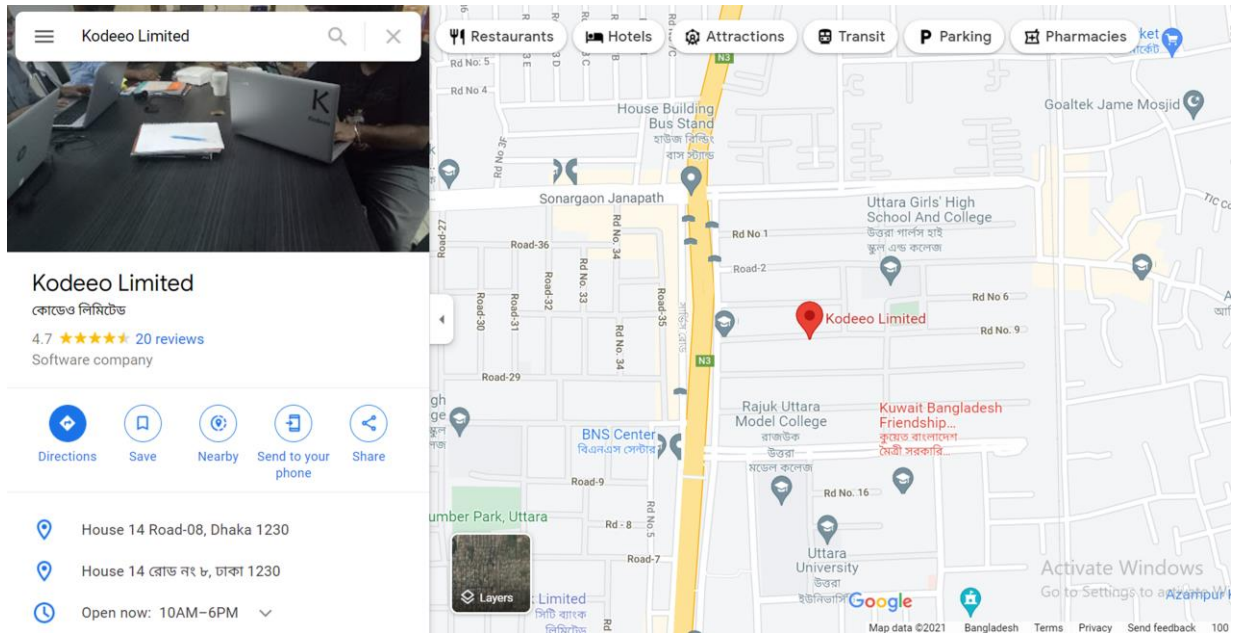


Figure 1.1 Organizational Location.

## 1.4 The Vision

To upraise the process of mass communication to the next generation standard through efficient, user friendly, and transparent tools and to maximize the impact of digitalization. Also contribute the socio-economic development of the country.

## 1.5 The Mission

To march ahead with a relentless pursuit to deliver unmatched design quality by never letting the learning curve drop. Our prior commitment is to develop a sustainable relationship with the customers all over Bangladesh and to ensure quality services in a profitable way.

## 1.6 My position in the Organization

I am an Intern of project management section of this organization. I am doing my internship by a supervisor in this organization. For me it's a new experience to maintain the office time. I am also maintaining the other rules and regulation of this organization. I am sure it'll create great impact in my future career.



## 1.7 Organizational Structure

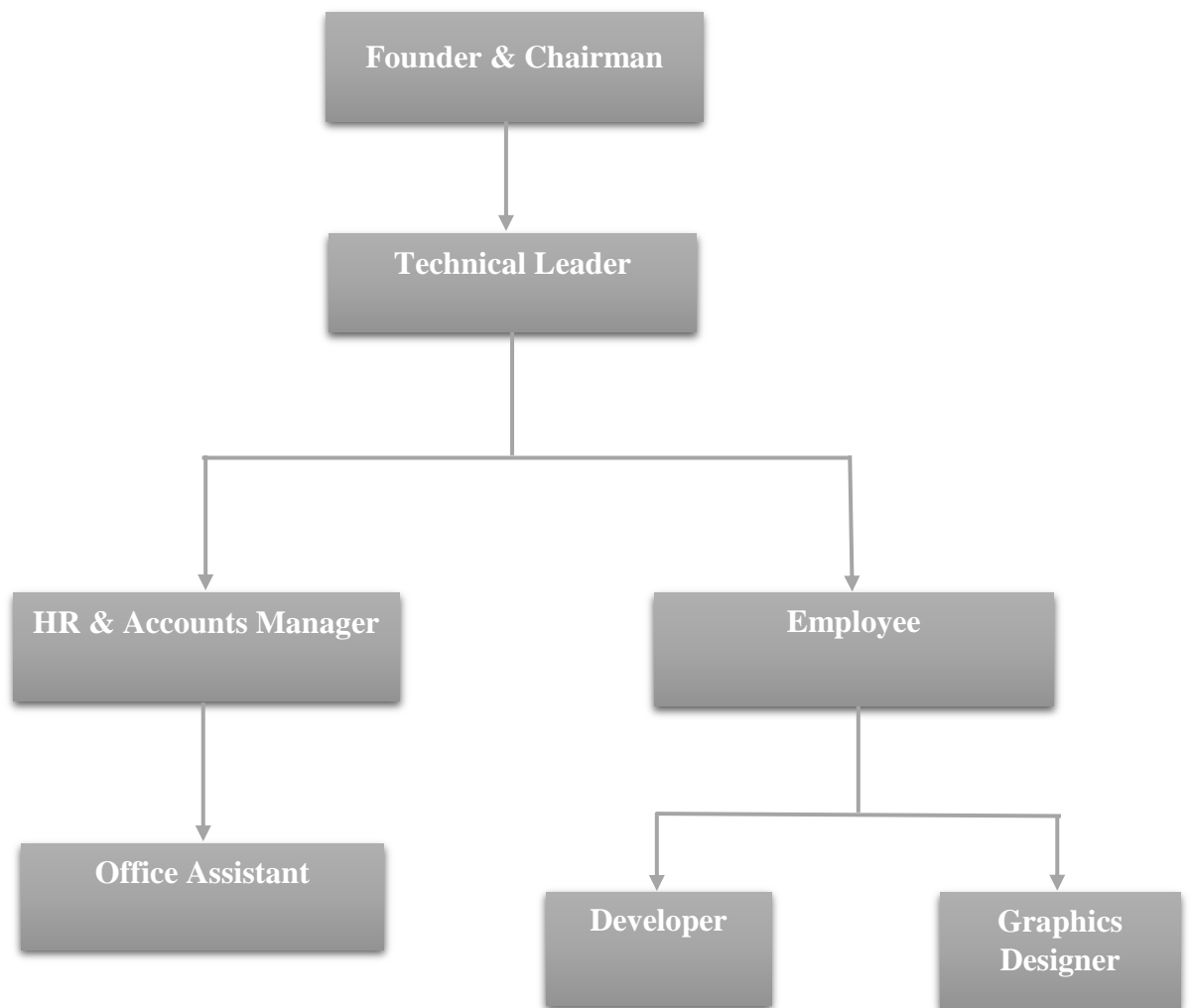


Figure 1.2 Organizational Structure of Kodeeo.

## **Chapter-2**

### **Project Introduction**

## **Introduction**

Internship is a practical experience of theoretically gained knowledge which allows gaining valuable experience to the workplace, provides the opportunity for skill development, and gives a competitive edge in the job search. This chapter attempts to describe the objectives, scope and all the related topics of initialization period of this project.

### **2.1 Project Overview**

A web-based application called "Courier Management System." The overall purpose of this system is to automate a courier service provider's day-to-day operations and make business administration easier. A courier service is a service that allows someone to send a parcel or consignment from one location to another. This application is primarily for courier service customers who wish to courier parcel from one to another via the internet. The application creates a complete web-based site where users or customers can request for courier and admin may accept their request and perform for customer service. Customers can request for their courier and after accepting their request they can see price proposal and if they satisfied with that price customer may confirm the courier and get their tracking number in automating way to track their courier easily. A user at a courier service firm can use this program to handle customers, manage branches, staffs, couriers, courier request, courier status, payments, manage the organization, and examine reports, among other things.

The major goal is to create a system that can supply all of these services online and be administered by both staff and customers from any device. This portal can be accessed by three sorts of users: User, Customer, and Staff. Customer, courier, courier request, courier status management, branch management, staff management, payment management, tracking management, report management are all managed by the user. The customer can view the home page, branches, courier request, track the courier, record of their courier in their profile and also take action through the customer interface. They can even cancel the request. The staff can view branch on the staff interface, and update the status of the courier. The project's goals are to make it more efficient for users, flexible for all members, and user-friendly

## **2.2 Background of study**

Today, we may discover a variety of management tools to help us with our day-to-day activities. The company where I'm interning is primarily involved with the creation of everyday life and financial management software. As a result, I've come up with the concept of creating a "Courier Management System" for the organization. Because nowadays, we always searching for easy way to make any work in a very short time. Every day, we need to parcel lots of products from one location to another. We are currently confronted with numerous issues. These include time wasters, harassment, and so forth. As a result, I believe that developing it online will be beneficial. The goal of this project is to design, create, and test a "Courier Management System" that is web-based. Courier is the business of parcel the products from one location to another that provides swift and efficient courier services to corporates and customers alike. It makes daily activities such as booking a courier, processing company data, providing staff details with the exact location of the consignment a reality.

## **2.3 Objectives**

The "Courier Management System" application has been designed to be as user-friendly as possible, so that anyone with a basic understanding of computer systems may use it. By storing all project details in the database, the CMS will make the arduous chore of system paperwork for courier servicing management much easier. This technology delivers real-time data that is impossible to obtain manually. This system's goal is to make courier servicing ,request for courier and tracking the courier simple, dependable, user-friendly, and corrective. Furthermore, compared to manual labor, it takes less time. This technology can also create reports on different elements of courier service. The major goal of this system is to mke courier request, accept that request and give some additional information, perform the courier from one location to another, track the courier using consignment number whice generate by system and so on.

### **2.3.1 Broad Objective**

The overall goal of this project is to apply my academic skills in a real-world setting by creating an "Courier Management System" for Kodeeo.

### **2.3.2 Specific Objective**

The Specific Objectives for this project are given bellow:

- This system can manage branches information. And can Add, Update, Delete branch details.
- This system can manage customer information and request. This system can Update, Delete customer details and Accept, Cancel customer request.
- Customer can request for courier according to their demand in which branch they want to send their courier and can confirm and cancel their request also.
- This system can manage staff information.
- This system can generate unique tracking number to track individual courier.
- Search individual courier information.
- Search individual branch and staff information.
- Provides a facility to generate the reports very easily.

### **2.4 Proposed System Benefits**

The System Benefits for this project are given bellow:

- This site may be simply maintained by the user.
- User has control over courier service.
- This technique allows us to make the best use of your time.
- Every user has the option of placing a standard or personalized order.

### **2.5 Methodology**

I gathered primary and secondary data for this project throughout the data collecting phase. Kodeeo provided all of the primary and secondary data required for the system's development. The approaches and processes I used to construct this system are detailed and illustrated in the Analysis and Design chapter.

### **2.5.1 Data Sources:**

The sources of data for the purpose of this project are:

- Primary Data
- Secondary Data

### **Primary Data**

Within the organization, primary data is generated. The core data was generated using the organization's practical experience, observation, and face-to-face interviews with users, customers, and our own web administrators. The major data is actually gathered through hands-on experience, observation, and face-to-face interviews with both operators and users.

### **Secondary Data**

Secondary data is derived from real-life experience as well as the study of many articles, periodicals, and research papers, as well as information gathered from the Internet. We gained a deeper understanding of the project by gathering data, facts, and statistics from many websites and sources. For this, I looked for courier service systems, as well as articles on courier management.

## **2.6 Limitation of the Project**

Some limitations of my project are:

- Customer do not have the option to change the date and time.
- User can not change or update the customer information.
- Customer do not have the feedback option.
- Customer can not track location of their courier.
- Staff can not be added by their selves.

## **2.7 Process Model**

Our proposed system model is “Agile Model”. The requirements are split into numerous little sections that can be developed incrementally in the Agile paradigm. Iterative development is used in the Agile methodology. Each incremental component is created iteratively. Each iteration is supposed to be short and manageable, and it should only take a couple of weeks to complete. One iteration is planned, built, and released to clients at a time. There are no long-term plans in place.

Iterative and incremental process models are combined in the agile paradigm. The following are the steps involved in agile SDLC models:

- Gathering requirements
- Analysis of Requirements
- Design
- Coding
- Testing of individual units
- Acceptability testing

A Time Box is the amount of time it takes to finish an iteration. The greatest length of time required to provide an iteration to clients is referred to as a time-box. As a result, the end date for an iteration remains unchanged. Though, if necessary, the development team might choose to limit the delivered functionality during a Time-box in order to meet the deadline. After each Time-box, the Agile model's primary principle is to deliver an increment to the customer.

PAL, S. K. (2021, July 7). Software Engineering | Agile Development Models. Retrieved from GeeksforGeeks:<https://www.geeksforgeeks.org/software-engineering-agile-development-models/>

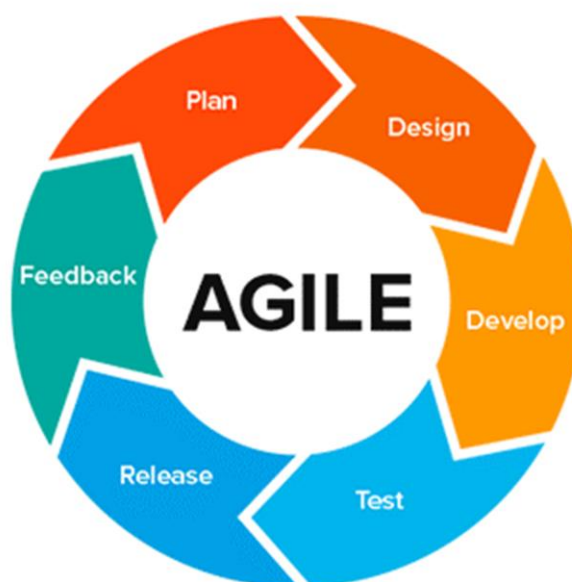


Figure 2.1 Agile Process Model

Source: *Liz Parody*. (2018, 12 27). Retrieved from How to Manage Modern Software Projects: Waterfall vs. Agile: <https://medium.com/@lizparody/waterfall-vs-agile-methodology-in-software-development-1e19ef168cf6>

### **2.7.1 Reason for choosing Incremental Process Model**

- Is a highly realistic software development technique.
- Encourages collaboration and cross-training.
- Functionality can be demonstrated and built quickly.
- The amount of resources required is little.
- Adaptable to a variety of requirements, both fixed and variable.
- Early partial working solutions are delivered.
- For environments that vary over time, this is a good paradigm to use.
- There are only a few rules, and documentation is simple to use.
- Allows for parallel development and delivery within the context of a larger strategy.
- There's no need to plan ahead of time if you don't want to.
- It's simple to use.
- Allows developers to be more creative.

## **2.8 Feasibility Study**

Feasibility study determines whether that solution is feasible or achievable for the organization. This means that the tasks that we will perform are worth enough or not. There are three major areas of investigation and generating ideas about a new system. On studying the feasibility of the system, three major considerations are dealt with, to find whether the automation of the system is feasible.

- Technical feasibility
- Economic feasibility
- Operational of

### **2.8.1 Technical Feasibility**

Technical feasibility addresses concern about hardware capability, reliability and availability and the skills of the development team. So, I found that this model is technically feasible, because this can be developed by the following lines. To develop this project, need a high-level programming language like HTML, CSS, Bootstarp, Laravel Framework of PHP. For database such as Xampp Server. To store data and an IDE (Sublime Text) need a cloud server and a computing device like a computer or Smartphone with a simple configuration and data



connection. All the technology which is mention above is ready to use. So, our project is technically feasible.

### **2.8.2 Economic Feasibility**

Economic feasibility determines to what extent a new system, is cost effective. My software is economically feasible. As I mention i need only one operating system and a browser. So the cost will be less. On the other way, this will reduce our paper cost. Because I am using a database to store all the data. From customer side, when any new customer wants to take a look that what type of loans and which bank is suitable, that time they do not need any money to pay. From bank side, when bank will operate the system, they do not need to pay any money. So I can say that this software is economically feasible.

### **2.8.3 Operational Feasibility**

Operational feasibility addresses concern about user acceptance, management support, and the requirements of entities and factors in the organizations external environment. It is operationally feasible. Anyone can easily understand the process of our software. They need not any extra training to understand it. Member can get their service by sign in and log in us site. So it is operationally feasible.

# **Chapter 3**

## **Requirement Engineering**

The process of establishing the services that the customer requires from a system and the constraint under which it operates and is developed. Requirement reflects the needs of user for a system that serves a certain purpose such as controlling a device, placing a command or finding information

### **3.1 Requirements Engineering**

Requirement's engineering is, as its name suggests, the engineering discipline of establishing user requirements and specifying software systems. There are many definitions of requirements engineering; however, they all share the idea that requirements involve finding out what people want from a computer system, and understanding what their needs mean in terms of design. Requirement's engineering is closely related to software engineering, which focuses more on the process of designing the system that users want.

- User requirements
- System requirements
- Functional requirements
- Non-Functional requirements
- Hardware requirements
- Software requirements

### **3.2 Requirement Analysis**

Requirement analysis provides the software designer with a representation of information, function and behavior that can be translated to data, architectural, interface and component level designs. In the following task phases the requirement analysis was done.

#### **3.2.1 User Requirements:**

- I. Admin can do login.
- II. Admin can manage courier request.
- III. Admin can manage branch information.
- IV. Admin can manage staff information.
- V. Admin can manage status.
- VI. Admin can generate report.
- VII. Customer need to do registration.

- VIII. Customer need to do login.
- IX. Customer can view the branch.
- X. Customer can request for courier.
- XI. Customer can update their information.
- XII. Customer can send request for change the price and confirm the courier also cancel the courier.
- XIII. Customer can track their courier by giving tracking number.
- XIV. Staff can update status.

### **3.2.2 System Requirements:**

#### **I. Admin can do login**

- ❖ Admin need to click on Login option from the homepage for enter into the system
- ❖ Fill up all the required filed & click on submit button
- ❖ System will show a message for invalid data.

#### **III. Admin can manage courier request**

- ❖ First of all, user will login into the system
- ❖ Check whether it is user or not
- ❖ Admin can view courier request by clicking and the system will show another feature of courier information.
- ❖ Admin can view courier request or information record.
- ❖ Admin can accept or cancel the request.
- ❖ Admin can give shipment charge alongwith pickup date and pickup time.
- ❖ Admin can delete the record.

#### **IV. Admin can manage branch information**

- ❖ First of all, user will login into the system
- ❖ Check whether it is user or not
- ❖ Admin can view add branch and branch list by clicking on Branch.
- ❖ Admin can add branch.
- ❖ Admin can view all branch record in branch list.
- ❖ Admin can update the branch information, view the specific branch information and delete the branch.

#### **V. Admin can manage staff information**

- ❖ First of all, user will login into the system
- ❖ Check whether it is user or not
- ❖ Admin can view add staff and staff list by clicking on Staff.
- ❖ Admin can add staff.
- ❖ Admin can view all staff record in staff list.
- ❖ Admin can update the staff information, view specific branch information.

#### **VI. Admin can manage status**

- ❖ First of all, user will login into the system.
- ❖ Check whether it is user or not.
- ❖ Admin can view status by clicking on Status.
- ❖ Admin can update the status.

#### **VII. Admin can generate report**

- ❖ First of all, user will login into the system.
- ❖ Check whether it is user or not.
- ❖ Admin can view report by clicking on Report.

#### **VIII. Customer need to do registration**

- ❖ Customer need to click on Registration option from Customer panel.
- ❖ Fill up all the required filed & click on submit button.
- ❖ System will show a message for blank field.
- ❖ System will show a pop-up for successful registration.

#### **IX. Customer need to login**

- ❖ Customer need to click on Login option from the homepage for enter into the system
- ❖ Fill up all the required filed & click on submit button
- ❖ System will show a message for invalid data.

**X. Customer can view the branch**

- ❖ First of all, registered customer will login into the system
- ❖ For new customer, registration is needed
- ❖ Customer can view branch by clicking Branch.
- ❖ Customer can view the branch with information which added by admin.

**XI. Customer can request for courier.**

- ❖ First of all, registered customer will login into the system
- ❖ For new customer, registration is needed
- ❖ Customer can view courier request form by clicking Courier Request.
- ❖ Customer can fillup the form with required information for sending courier request.
- ❖ Customer can submit the form by clicking submit button.

**XII. Customer can view their own profile**

- ❖ First of all, registered customer will login into the system
- ❖ For new customer, registration is needed
- ❖ Customer can view profile by clicking Profile.
- ❖ Customer can view My Courier Record and click this button and also view Click Here.

**XIII. Customer can view and manage their record .**

- ❖ Whenever customer click on Click here button, customer can view their courier record or request.
- ❖ Customer can manage their request.
- ❖ Customer can take decision for confirm or cancel the request.
- ❖ Customer can update their request information by clicking Update Information button.
- ❖ Customer can give payment method by clicking two methods like Paid and Condition.
- ❖ Customer can view other information with status column where customer can see admin decision whether it is accepted or cancelled.
- ❖ Customer can view approve button when admin accept their request from admin panel.

- ❖ Customer can view price amount.
- ❖ Customer can take action for decrease price by clicking Change Price.
- ❖ Customer can view tracking number whenever customer confirm the courier request by clicking Approved.

**XIV. Customer can track their courier by giving tracking number.**

- ❖ First of all, registered customer will login into the system
- ❖ For new customer, registration is needed
- ❖ Whenever customer will get their tracking number from their courier record then they can take their tracking number.
- ❖ Customer can input their tracking number in Track Your Courier field and click on track button.
- ❖ After clicking track button, customer can view their courier details based on that tracking number.

**XV. Customer can logout.**

- ❖ After login in the customer panel, customer can logout from their panel.

**XVI. Staff can update status.**

- ❖ First of all, staff will login in admin panel which login information is given by admin.
- ❖ Staff can view ten sorts of status by clicking status.
- ❖ Staff can view the details of courier record information and update the status only.

### **3.2.3 Functional Requirements:**

- ❖ Admin can maintain whole system.
- ❖ Admin can view, search, update, delete, accept, cancel and print individual courier record information.
- ❖ Admin can add, view, search, update, delete and print branch information
- ❖ Admin can create, view, search, update, delete and print staff information

- ❖ Admin can view, update, & delete status information
- ❖ Admin can generate and print report of individual courier record information
- ❖ Customer can track their courier by their given tracking number.
- ❖ Customer can give request by filling the form with required information.
- ❖ Customer can update their courier request information.
- ❖ Customer can take action like Change Price, Confirm and Cancel Courier.
- ❖ Customer can give payment method Paid and Condition.
- ❖ Customer get their tracking number when admin accept the courier request.
- ❖ Staff can update status.

### **3.2.4 Non-Functional Requirements:**

- ❖ Admin can log in by using email and password.
- ❖ Customer can log in by using email and password.
- ❖ Staff can log in by using email and password.
- ❖ Only user can maintain the whole system.
- ❖ This system supports only Windows 10.

### **3.2.5 Hardware Requirements:**

The hardware listed by no means a minimum requirement to run the system, but rather a base limit for running the system smoothly and comfortably. This is also considering the potential amount of traffic that may go through the server.

- Intel(R) Core(TM) i3 – 10110U CPU
- 8192MB RAM
- 150 GB Hard Drive
- x 10/100/1000 Ethernet, 1 PCIe 2.0x16 sl

### **3.2.6 Software Requirements:**

- Web Server: Xampp Server Bitnami 3.3.0
- Server Side Scripting: Laravel Framework of PHP
- Database Engine: MySQL 5.1.34 17
- Database Tools: MySQL Administrator, MySQL Query Browser



- Designing Tools: Draw.io, Creately
- Text Editor: Sublime Text

### 3.3 Use Case Diagram of the System

#### 3.3.1 Use case symbols

- **Important parts in a use case**

**1. Actor:** An Actor is outside or external the system.

**2. Use case:** A use case represents a function or an action within the system. Its drawn as

an oval and named with the function.

**3. System Boundary:** System is a sequence of events which happen when a user interacts

with the system and drawn as a rectangle. This an optional element but useful when your visualizing large systems.

**4. Relationship:** Relationship is an association between use case and actor.

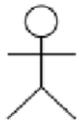

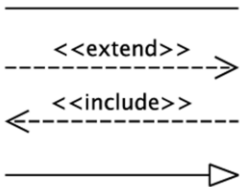
| Symbol  | Reference Name |
|---|----------------|
|  | Actor          |
|  | Use case       |
|  | Relationship   |

Figure 3.1 Use Case symbols.

### 3.3.2 Use case diagram

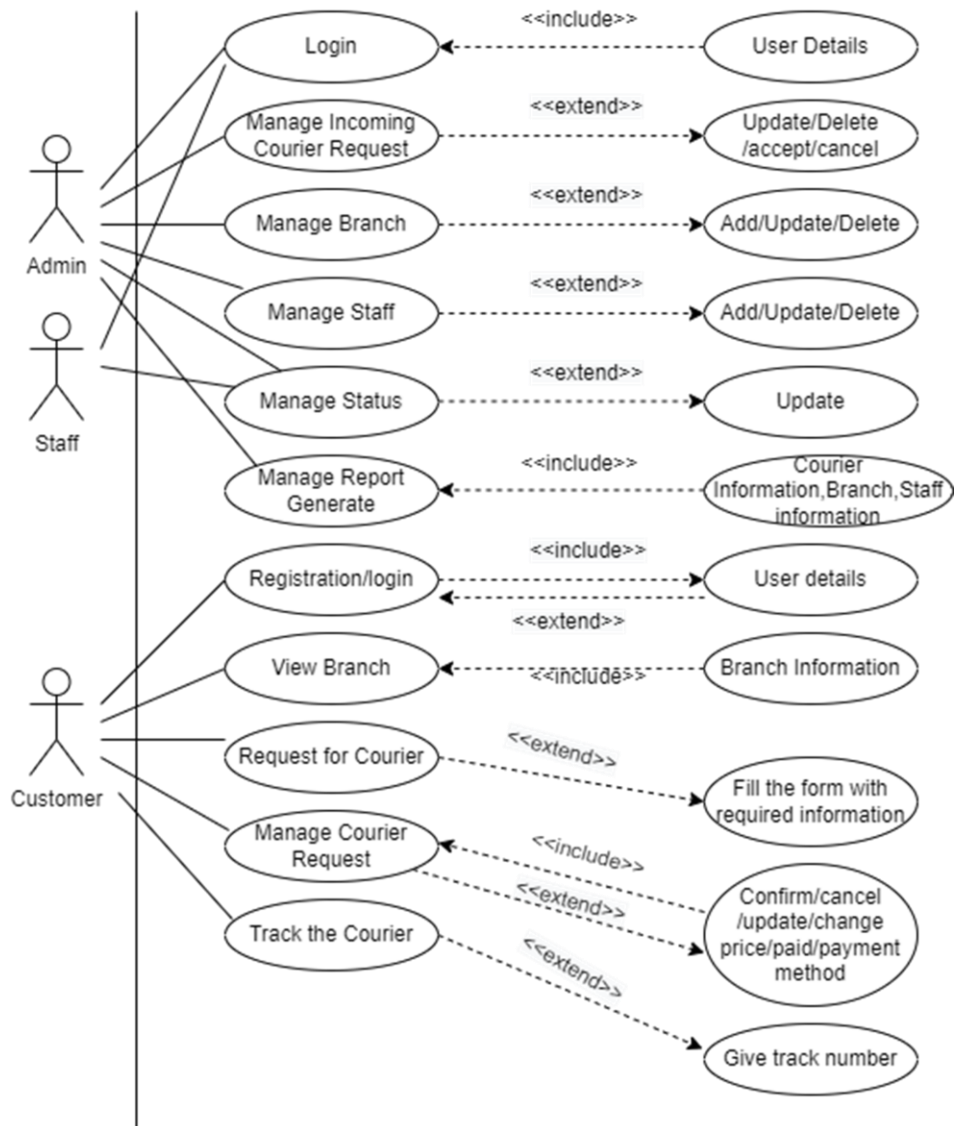


Figure 3.2 Use Case Diagram of Courier Management System.

### 3.3.3 Use case text

In the project 'Development of Courier Management System', the use case diagram is used to visualize the different types of roles in a system and how those roles interact with the system. This system is basically a platform where user, customer and distributor can meet.

**1. Login:** Admin can login in this module. Without login user can not access. Login information like (name, email, phone, password) set up by the system

**1. Manage courier request:** Admin can handle this module. User can add price, pickup date pickup time and delivery status he/she can view, update, delete, accept or deny the request.

**2. Manage branch:** Admin can handle this module. User can add branch, he/she can view, update or delete the branch.

**3. Manage staff:** Admin can manage this module. User can add staff, he/she can view, update or delete the staff .

**4. Manage status:** Admin and staff can manage this module. User can view ten sorts of status, update the status.

**5. Manage report generate:** Admin can manage this module.

**6. Manage wastage food request:** Admin can manage this module. User can view request details.

**7. Manage organization:** Admin can manage this module. User can view organization details.

**8. Registration/Login:** Admin Can Login to the system if they are registered. Users are User, Customer. But staff isn't able to login in this system.

**9. View branch:** Customer can handle this module. Customer can view the branch.

**10. Request for Courier:** Customer can handle this module. Customer can give information by filling the form and send request for courier.

**11. Manage Courier Request:** Customer can handle this module. Customer can view their courier record in their profile and can take action in that courier record table. They can update their given information, confirm and cancel the request, request for change amount of

shipment (price), give their payment method. Customer may select paid or condition. Customer can get their tracking number after confirm their courier request.

**12. Track the courier:** Customer can handle this module. Customer can track their courier by giving tracking number in the track input field.

# **Chapter-4**

## **Project Planning**

Project planning chapter shows the functions of the project "Courier Management System.". The function point estimation, effort distribution and project schedule chart are also shown in this chapter.

## **4.1 System Project Planning**

Before starting any project, it is compulsory to estimate the work to be done, the resources that will be required, the time that will elapse from start to finish and to analyze the project to determine whether it is feasible or not.

The following activities of software project planning that have followed in this project are:

- System Project Estimation
- Function Oriented Metrics
- Process Based Estimation
- Effort Distribution
- Task Scheduling
- Project Schedule Chart
- Cost Estimation

### **4.1.1 System Project Estimation**

The accuracy of a software project estimate predicated based on a number of things:

- i. Properly estimated the size of the product to build.
- ii. The ability to translate the size estimation into human effort, calendar time and money.
- iii. The degree to which the project plan reflects the abilities of the software team or engineer.
- iv. The stability of the product requirements and the environment that supports the software engineering effort.

Software size estimation is the most important matter that I have to consider during the software project. If the software size not calculate properly, then this will cause various problems such as scheduling problems, budget problem etc. As the project goes on, before estimating the software size, I have to confirm that software scope is bounded.

### 4.1.2 Function Oriented Metrics

Function point-based estimation focuses on information domain values rather than software values. Function points are computed by comparing five information domain characteristics. The information domain values are as follows:

**Number of external inputs (EI)** – Each user input that provides distinct application-oriented data to the software is counted. Inputs should be distinguished from inquiries.

**Number of external outputs (EO)** – Each user output that provides application-oriented information to the user is counted.

**Number of external inquiries (EQ)** – An inquiry defined as an on-line input whose results in the generation of some immediate software response in the form of an on-line output. Each distinct inquiry is counted.

**Number of Internal logical files (ILF)** – Each logical master file is counted. Database tables where data is modified by application.

**Numbers of external interfaces files (EIF)** – All machine-readable interfaces that are used to transmit information to another system are counted. The weights of the domains are fixed, which are provided in appropriate table location. Weights can be divided into three categories according to the functionality of the system. They are simple, average and complex. The total system is a complex system but the part of the total system. Once these data have been collected, a complexity value is associated with each count. To find out the FP count the following formula

is used, Value Adjustment Factor (VAF) =  $(0.65 + (.01 \times \text{TDI}))$

$\text{UFP} = \text{UFP (Data Fn)} + \text{UFP (Transaction Fn)}$

$\text{Adjusted Function Point Count (AFP)} = \text{UFP} \times \text{VAF}$

$\text{Effort for PHP} = \text{AFP} \times \text{Productivity}$

## 4.2 Function Point Estimation

This table shows the functionality with input and output of User.

Table 4.1: Functional point Estimation (Admin)

| Functionality          | Input   | Output  |
|------------------------|---|---|
| Login                  | Email, password   | Enter the admin dashboard   |
| Manage courier request | Click on courier request.<br>Price, Pickup Date, Pickup Time, click on delivery status and update the status. | Display courier request list<br>And also added into database table. |
| Manage branch          | Branch name, email, contact, address, state, city, pincode, country   | Added into database table   |
| Manage staff           | Staff name, email, contact, password, branch.   | Added into database table   |
| Manage status          | Click on status and update status   | Display status list   |
| Manage report generate | Click on report generate  | Display report list   |

Table 4.2: Functional point Estimation (Customer)

| Functionality       | Input  | Output                    |
|---------------------|--|---------------------------|
| Registration        | name, email, phone, password,  | Added into database table |
| Login               | Email, password  | Enter the customer panel  |
| View Branch         | Click on branch button   | Display branch details    |
| Request for courier | Fill the form receiver name, receiver address, receiver contact, Pickup branch, receive branch, type of shipment, courier description, quantity and weight | Added into database table |



|                      |   |                                  |
|----------------------|---|----------------------------------|
| Manage Courier Reord | Confirm/cancel/change price the request/update request information,<br>Paid/Condition | Added into database table        |
| Track the courier    | Give tracking number and click track button   | Courier status with details page |

Table 4.3: Functional point Estimation (Staff)

| Functionality | Input                             | Output                |
|---------------|-----------------------------------|-----------------------|
| Login         | Email, password                   | Enter the staff panel |
| Manage status | Click on status and update status | Display status list   |

### 4.3 Identifying complexity

Table 4.3: Identifying Complexity (Admin)

| Transition Function            | Field/ file involvement  | FTRs | DETs |
|--------------------------------|--|------|------|
| Login<br>(EQ)                  | <b>Fields-</b> email, password<br><b>File-</b> Login   | 1    | 2    |
| Manage courier request<br>(EI) | <b>Field-</b> Price, Pickup Date, Pickup Time,<br>click on delivery status and update the<br>status.<br><b>File-</b> Courier Request | 1    | 4    |
| Manage Staff<br>(EI)           | <b>Field-</b> Staff name, email, contact,<br>password, branch.<br><b>File-</b> Staff   | 1    | 5    |
| Manage branch<br>(EI)          | <b>Fields-</b> Branch name, email, contact,<br>address, state, city, pincode, country  | 1    | 9    |

|                                |   |   |   |
|--------------------------------|---|---|---|
|                                | <b>File- Branch</b>   |   |   |
| Manage status<br>(EQ)          | <b>Fields-</b> Accepted By Courier, Courier Collected, Ready to pickup, Out for delivery, Shipped, Intransit, Arrived at destination, Delivered, Unsuccessful delivery attempt<br><br><b>File-</b> Status | 1 | 1 |
| Manage report generate<br>(EQ) | <b>File- Report</b>   | 1 | 0 |

Table 4.4: Identifying Complexity (Customer)

| <b>Transition Function</b>    | <b>Field/ file involvement</b>   | <b>FTRs</b> | <b>DETs</b> |
|-------------------------------|--|-------------|-------------|
| Registration<br>(EI)          | <b>Fields-</b> name, email, phone, password<br><br><b>File-</b> Registration   | 1           | 4           |
| Login<br>(EQ)                 | <b>Fields-</b> email, password<br><br><b>File-</b> Login   | 1           | 2           |
| View Branch<br>(EO)           | <b>Field-</b> Branch name, email, contact, address, state, city, pincode, country<br><br><b>File-</b> Item   | 1           | 9           |
| Request for courier<br>(EI)   | <b>Field-</b> Fill the form receiver name, receiver email, receiver contact, Pickup branch, receive branch, type of shipment, courier description, quantity and weight<br><br><b>File-</b> Courier Request | 1           | 9           |
| Manage Courier Record<br>(EQ) | <b>Field-</b> update request information, Paid/Condition<br><br><b>File-</b> My Courier Record   | 1           | 11          |

|                           |   |   |    |
|---------------------------|---|---|----|
| Track the courier<br>(EQ) | <b>Field</b> -track_number<br><br><b>File</b> - Track | 1 | `1 |
|---------------------------|---|---|----|

Table 4.3: Identifying Complexity (Staff)

| <b>Transition Function</b> | <b>Field/ file involvement</b>  | <b>FTRs</b> | <b>DETs</b> |
|----------------------------|---|-------------|-------------|
| Login<br>(EI)              | <b>Field</b> -Email, password<br><b>File</b> - Login  | 1           | 2           |
| Manage status<br>(EQ)      | <b>Field</b> - Accepted By Courier, Courier Collected,<br>Ready to pickup, Out for delivery, Shipped,<br>Intransit, Arrived at destination, Delivered,<br>Unsuccessful delivery attempt.<br><b>File</b> -Status | 1           | 1           |

#### 4.4 Identify Complexity of Data Function

Table 4.5: Identifying Complexity (DF)

| <b>Transition Function</b>   | <b>Field/ file involvement</b>   | <b>RETs</b> | <b>DETs</b> |
|------------------------------|--|-------------|-------------|
| Registration<br>(ILF)        | name, email, phone, password,  | 1           | 4           |
| Login<br>(ILF)               | Email, password  | 1           | 2           |
| Request for courier<br>(ILF) | Receiver name, receiver email, receiver contact,<br>Pickup branch, receive branch, type of shipment,<br>courier description, quantity and weight | 2           | 9           |
| Branch<br>(ILF)              | Branch name, email, contact, address, state, city,<br>pincode, country   | 1           | 9           |

|                            |   |   |   |
|----------------------------|---|---|---|
| Staff<br>(ILF)             | Staff name, email, contact, password, branch. | 2 | 5 |
| Status<br>(ILF)            | status  | 1 | 1 |
| Track the courier<br>(ILF) | track_number                                  | 1 | 1 |

## 4.5 Unadjusted function point contribution

Table 4.6: Unadjusted Function Point Contribution for Transaction Function

| Transition Function            | FTRs | DETs | Complexity | UFP |
|--------------------------------|------|------|------------|-----|
| Registration<br>(EI)           | 1    | 4    | Low        | 3   |
| Manage courier request<br>(EI) | 1    | 9    | Low        | 3   |
| Manage branch<br>(EI)          | 1    | 9    | Low        | 3   |
| Manage staff<br>(EI)           | 1    | 5    | Low        | 3   |
| Manage status<br>(EQ)          | 1    | 1    | Low        | 3   |
| Manage report generate<br>(EQ) | 1    | 2    | Low        | 3   |
| Manage courier record<br>(EQ)  | 1    | 11   | Low        | 3   |
| Login<br>(EI)                  | 1    | 2    | Low        | 3   |
| <b>Total</b>                   | 42   |      |            |     |

## 4.6 Unadjusted function point contribution

Table 4.6: Unadjusted Function Point Contribution for Data Function

| Transition Function        | RETs | DETs | Complexity | UFP |
|----------------------------|------|------|------------|-----|
| Registration<br>(ILF)      | 1    | 4    | Low        | 7   |
| Login<br>(ILF)             | 1    | 2    | Low        | 7   |
| Courier Request<br>(ILF)   | 2    | 9    | Low        | 7   |
| Branch<br>(ILF)            | 1    | 9    | Low        | 7   |
| Staff<br>(EIF)             | 2    | 5    | Low        | 5   |
| Status<br>(EIF)            | 1    | 1    | Low        | 5   |
| Track the courier<br>(EIF) | 1    | 1    | Low        | 5   |
| <b>Total</b>               | 48   |      |            |     |

## 4.7 Performance and Environmental Impact

Table 4.7: Performance and Environmental Impact

| <b>General system characteristics (GSC)</b> | <b>Degree of Influence (DI)</b> |
|---|---------------------------------|
| 1. Data communication                       | 3                               |
| 2. Distributed Data processing              | 0                               |
| 3. Performance                              | 4                               |
| 4. Heavily used configuration               | 4                               |
| 5. Transaction Rate                         | 3                               |
| 6. Online Data Entry                        | 0                               |
| 7. End-User Efficiency                      | 4                               |
| 8. Online update                            | 3                               |
| 9. Complex processing                       | 0                               |
| 10. Reusability                             | 0                               |
| 11. Installation Ease                       | 3                               |
| 12. Operational Ease                        | 3                               |
| 13. Multiple sites                          | 0                               |
| 14. Facilitate Change                       | 3                               |
| <b>Total Degree of Influence (TDI)</b>      | <b>30</b>                       |

$$\begin{aligned}
 \text{Value Adjustment Factor (VAF)} &= (0.65 + (0.01 \times \text{TDI})) \\
 &= (0.65 + (0.01 \times 30)) \\
 &= 0.95
 \end{aligned}$$

$$\begin{aligned}
 \text{UFP} &= \text{UFP (Data Fn)} + \text{UFP (Transaction Fn)} \\
 &= (48 + 42) \\
 &= 90
 \end{aligned}$$

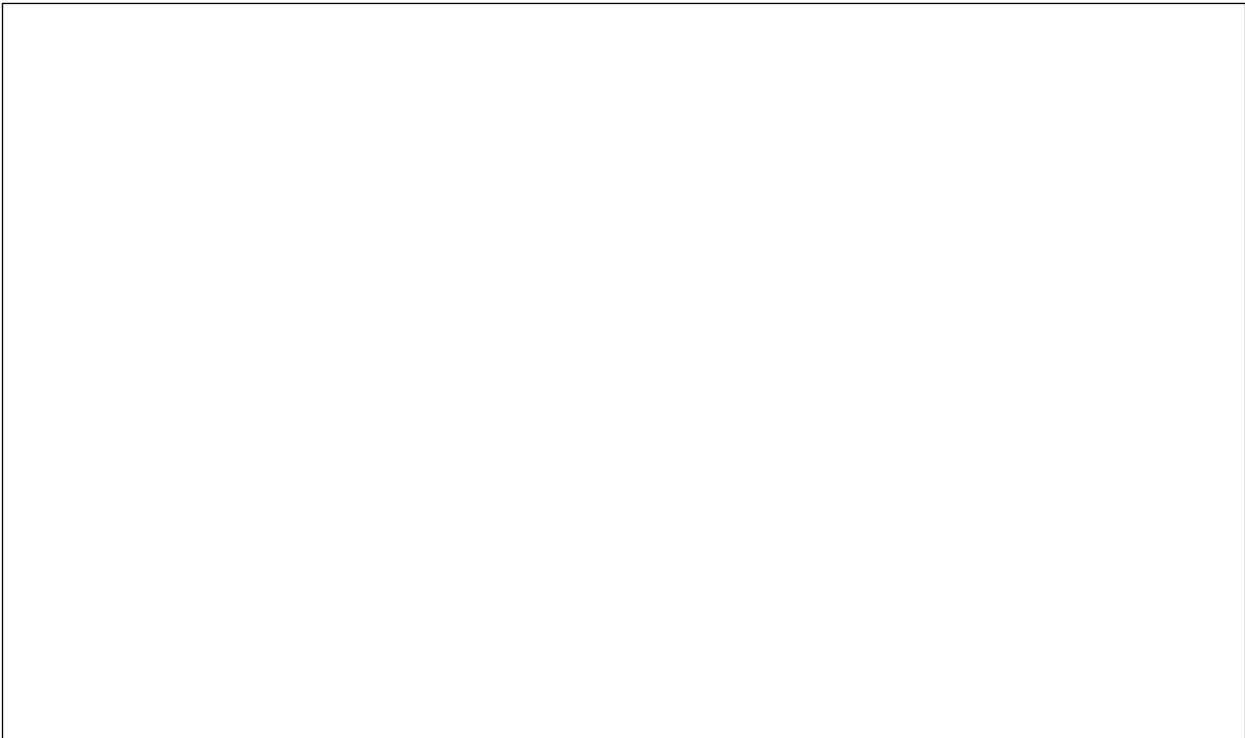
| Language     | Hours<br>Per<br>Function<br>Point |
|--------------|-----------------------------------|
| ASP*         | 06.1                              |
| Visual Basic | 08.50                             |
| Java         | 10.6                              |
| SQL          | 10.8                              |
| C++          | 12.4                              |
| C            | 13.0                              |
| C#           | 15.5                              |
| PHP          | 15.5                              |

$$\begin{aligned}
 \text{Adjusted Function Point Count} &= (\text{UFP} \times \text{VAF}) \\
 &= (90 \times 0.95) \\
 &= 85.5
 \end{aligned}$$

$$\begin{aligned}
 \text{Efforts for SQL} &= \text{AFP} \times \text{Productivity} \\
 &= 85.5 \times 15.5 \text{ [PHP= 15.5]} \\
 &= 1325.25 \text{ per hours/10} \\
 &= 132.525 \text{ person days/30} \\
 &= 4.4084 \text{ person months}
 \end{aligned}$$

Time Frame Calculation = 4.4084 ≈ 4 month needed for 1 person.

## 4.8 Project Schedule Chart



## 4.9 Cost Estimation

The approximation of the cost of a program is cost estimation. In this project, there are five factors to analyze and calculate the cost. Given bellow,

- Personnel cost
- Software cost
- Hardware cost
- Other cost



#### 4.9.1 Personnel cost-

Number of days in a year = 365

Number of government holidays in a year = 24

Number of weekly holidays in a year = 52

Total number of working days to develop the project =  $365 - (52 + 24) = 289$  days

Total number of working days per months to develop the project =  $289 / 12 = 24.083$  days

Organization working hours per day = 8 hours

Organization working hours per month =  $(24.083 \times 8) = 192.66$  hours

Table 4.9: Personnel Cost

| Type         | No. of Members | Months | Salary/month  |
|--------------|----------------|--------|---------------|
| Coder        | 1              | 4      | 10,000        |
| <b>Total</b> |                |        | <b>40,000</b> |

#### 4.9.2 Hardware Cost

Cost of the computer that used to complete the project.

Table 4.10: Hardware cost

| Name       | Number | Price  | Description | Total  |
|------------|--------|--------|-------------|--------|
| MSI Laptop | 1      | 50,000 | 45,000      | 50,000 |

Total Hardware Cost = 50,000 TK

### 4.9.3 Software Cost

Table 4.11: Software Cost

| SL | Software        | Number | Amount  | Total |
|----|-----------------|--------|---------|-------|
| 1  | OS (Windows 10) | 1      | 100 Tk. | 180tk |
| 2  | MS Office 2019  | 1      | 80 Tk.  |       |
| 4  | Xampp           | 1      | Free    |       |

### 4.9.4 Other Cost-

Table 4.12: Other cost

| Name          | Price           |
|---------------|-----------------|
| Pen and paper | 300 Tk.         |
| Mobile        | 200 Tk.         |
| Transport     | 500 Tk.         |
| <b>Total</b>  | <b>1000 Tk.</b> |

## 4.10 Accounts Table

Table 4.13: Total cost

| Particulars       | TK                  |
|-------------------|---------------------|
| Salary-           |                     |
| • Coder           | 40,000              |
|                   | 40,000              |
| Hardware Cost –   |                     |
| • MSI Laptop      | 50,000              |
|                   | 50,000              |
| Software Cost –   |                     |
| • OS (Windows 10) | 100.00              |
| • MS Office 2019  | 80.00               |
| • Xampp           | Free                |
|                   | 180.00              |
| Other Costs-      |                     |
| • Pen and paper   | 300.00              |
| • Mobile          | 200.00              |
| • Transport       | 500.00              |
|                   | 1,000.              |
| <b>Total cost</b> | <b>100,180 Taka</b> |

# **Chapter-5**

## **Project Management**

A risk is a serious problem that might or might not happen. It is necessary to analyze the potential risks in a project. If the risks of a software project are not properly analyzed and estimated, many problems can plague the software project. Anyone developing any type of system encounter with it and it has to be managed.

## 5.1 Risk Management

Risk analysis and management are a series of steps that help a software team understand and manage uncertainty. Many problems can plague of software project. A risk is a potential problem; it might happen, it might not. But regardless of the outcome, it's a really good idea to identify it, assess its probability of occurrence, and estimate its impact, and establish a contingency plan should the problem actually occur. Risk analysis and management are a series of steps that help a software them to understand and manage uncertainty.

To establish a risk management, model the following phases are followed:

**Identification:** Risk identification is the process of detecting potential risks or hazards through data collection. A range of data collection and manipulation tools and techniques exists. The team is using both automated and manual techniques to collect data and begin to characterize potential risks to Web resources. Web crawling is one effective way to collect information about the state of Web pages and sites.

**Classification:** Risk classification is the process of developing a structured model to categorize risk and fitting observable risk attributes and events into the model. The team combines quantitative and qualitative methods to characterize and classify the risks to Web pages, Web sites, and the hosting servers.

**Assessment:** Risk assessment is the process of defining relevant risk scenarios or sequences of events that could result in damage or loss and the probability of these events. Rosenthal describe the characteristics of a generic standard for risk assessment as "transparent, coherent, consistent, complete, comprehensive, impartial, uniform, balanced, defensible, sustainable, flexible, and accompanied by suitable and sufficient guidance.

**Analysis:** Risk analysis determines the potential impact of risk patterns or scenarios, the possible extent of loss, and the direct and indirect costs of recovery. This step identifies vulnerabilities consider the willingness of the organization to accept risk given potential

consequences, and develops mitigation responses.

**Implementation:** Risk management implementation defines policies, procedures, and mechanisms to manage and respond to identifiable risks. The implemented program should balance the value of assets and the direct and indirect costs of preventing or recovering from damage or loss.

To take comprehensive care of a web-based system we must consider the following points:

- Hardware and software environment including any upgrades to the operating system and Web server, the installation of security patches, the removal of insecure services, use of firewalls, etc.
- Administrative procedures such as contracting with reputable service providers, renewing domain name registration, etc.
- Network configuration and maintenance including load balancing, traffic management, and usage monitoring.
- Backup and archiving policies and procedures including the choice of backup media, media replacement interval, number of backups made and storage location.

There are different categories of risks that should be considered in any software project.

The following categories of risks have been considered in this software project.

- **Project risks:** These risks threaten the project plan. If these risks become real, it is likely that the project schedule will slip and that costs will increase. Project risks identify potential budgetary, schedule, personnel, resource, customer and requirement problems and their impact on the software project.
- **Technical risks:** These risks threaten the quality and timeliness of the software to be produced. If a technical risk becomes a reality, implementation may become difficult or impossible. Technical risks identify potential design, implementation, interface, verification and maintenance problems. Moreover, specification ambiguity, technical uncertainty, technical obsolescence is also risk factors.
- **Business risks:** These risks threaten the viability of the software to be built. The business risks can be market risks, building a system that no one really wants. Strategic risks, building a system that no longer fits into the overall business strategy for the company. Management risks, losing the support of senior management due to a change in focus or a change in people. Budget risks, losing

budgetary or personnel commitment.

## 5.2 The RMMM Plan

- **Risk Mitigation:** Proactive planning for risk avoidance.
- **Risk Monitoring:** Assessing whether predicted risks occur or not, ensuring preventive steps are being properly applied, collect information for future risk analysis, attempt to determine which risks caused which problem.
- **Risk Management:** Actions to be taken in the event that mitigation steps have failed and the risk has become a live problem.

**Type of Impact:** Catastrophic (1), Marginal (2), Tolerable (3), Critical (4).

**Type of Probability:** very low (75%).

**Project Risks:** Threaten the project plan. In my system, the bellow mentioned projects risks I needed manage.

Table 5.1: Project Risk (P01)

| Project Risk (P01)      |  | Date: 27-10-2021 |
|-------------------------|--|------------------|
| Name                    | Changes the requirements   |                  |
| Probability             | Low (25%)  |                  |
| Impact                  | Marginal (2)   |                  |
| Description             | Customer may change their requirements.  |                  |
| Mitigation & Monitoring | Requirements are redefined by the company due to time or business needs. Meeting will be held with the company regularly. This insures that the product we are producing solves a problem. |                  |
| Management              | Emergency meeting between both parties to identify new project requirements and goals.   |                  |
| Status                  | Not occur  |                  |

Table 5.2: Project Risk (P02)

| <b>Project Risk (P02)</b> |  | <b>Date: 3-11-2021</b> |
|---------------------------|--|------------------------|
| Name                      | Poor Quality Documentation   |                        |
| Probability               | Low (15%)  |                        |
| Impact                    | Catastrophic (1)   |                        |
| Description               | Poor quality documentation of the members.   |                        |
| Mitigation & Monitoring   | Meeting will be held routinely to offer documentation suggestions and topics. The progress on documentation will also have a monitor in each meeting |                        |
| Management                | The addition of new topics or removal of unnecessary topics into the documentation will assigned to responsible person.                              |                        |
| Status                    | Monitoring it.   |                        |

Table 5.3: Project Risk (P03)

| <b>Project Risk (P03)</b> |   | <b>Date: 08-11-2021</b> |
|---------------------------|---|-------------------------|
| Name                      | Lack of Development Experience.   |                         |
| Probability               | Moderate (30%)  |                         |
| Impact                    | Catastrophic (1)  |                         |
| Description               | Lack of developmental experience of the members.  |                         |
| Mitigation & Monitoring   | Each member of the team should watch and see areas where another team member may be weak.   |                         |
| Management                | The members who have the most experience in a particular area will be required to help for overcome problem arises for this risk. |                         |
| Status                    | We have not encountered such issues yet   |                         |



Table 5.4: Project Risk (P04)

| <b>Project Risk (P04)</b> |  | <b>Date: 18-11-2021</b> |
|---------------------------|--|-------------------------|
| Name                      | Poor Comments in Code  |                         |
| Probability               | Low (15%)  |                         |
| Impact                    | Marginal (2)   |                         |
| Description               | Code of the developed system is not up to the mark.  |                         |
| Mitigation & Monitoring   | A formal written standard must be established to ensure quality of comments in all code.                                   |                         |
| Management                | We should call a meeting with the development team to get rid of this problem and improve the quality of comments in code. |                         |
| Status                    | We are monitoring the issue.   |                         |

**Technical Risks:** threaten product quality and the timeliness of the schedule. As this is my practicum project, therefore these types of risks need to be take care of properly.

Table 5.5: Technical Risk (TR01)

| <b>Technical Risk (TR01)</b> |   | <b>Date: 26-11-2021</b> |
|------------------------------|---|-------------------------|
| Name                         | Computer Crash  |                         |
| Probability                  | Moderate (25-40%)   |                         |
| Impact                       | Catastrophic (1)  |                         |
| Description                  | Computer may crash due to several reasons.  |                         |
| Mitigation & Monitoring      | We should take proper follow up of computers. We also take regular data backup every day, We can use IPS to stop unexpected shutdown. |                         |
| Management                   | If our computer has been crashed then we will restore backup.   |                         |
| Status                       | We have not encountered such issue yet  |                         |

Table 5.6: Technical Risk (TR02)

| Technical Risk (TR02)   |   | Date: 02-12-2021 |
|-------------------------|---|------------------|
| Name                    | Technology Doesn't Meet Specifications.   |                  |
| Probability             | Low (25%)   |                  |
| Impact                  | Catastrophic (1)  |                  |
| Description             | Customer doesn't have the technology to their desired specification.  |                  |
| Mitigation & Monitoring | That ensures that the product we are producing, and the specifications  |                  |
|                         | of the customer are equivalent.   |                  |
| Management              | The customer should be immediately notified and whatever steps necessary to rectify this problem should be done. Preferably a meeting should be held between the development team and the customer to discuss at length this issue. |                  |
| Status                  | We have not encountered such issue yet  |                  |

Table 5.7: Technical Risk (TR03)

| Technical Risk (TR03)   |  | Date: 08-12-2021 |
|-------------------------|--|------------------|
| Name                    | Poor Training Skill in Team Members.   |                  |
| Probability             | Moderate (30%)   |                  |
| Impact                  | Catastrophic (1)   |                  |
| Description             | Poor Training Skill in Team Members to Train the Client.   |                  |
| Mitigation & Monitoring | The training team should have a clear knowledge about the entire functionality of the software. System analyst need to ensure and monitor it while training session start. |                  |
| Management              | We should arrange a meeting with the train team and come to a point to solve this problem.   |                  |
| Status                  | We have not encountered such issue yet   |                  |

**Business Risk:** Threaten the viability of the software to be built (market risks, strategic risks, management risks, budget risks). As I am developing it as my practicum project by myself, classic business risks won't be encountered here. The Probability of all type of Business Risks is therefore, determined as Low.

Table 5.8: Business Risk (B01)

| <b>Business Risk (B01)</b> |   | <b>Date: 18-12-2021</b> |
|----------------------------|---|-------------------------|
| Name                       | Insufficient Budget   |                         |
| Probability                | Low (10%)   |                         |
| Impact                     | Marginal (2)  |                         |
| Description                | If the budget is low project may not complete.  |                         |
| Mitigation & Monitoring    | The project needs streaming server that is costly to set-up. We ing services to reduce the budget risk. |                         |
| Management                 | Refinement in project goal. A new plan for regulate the budget.   |                         |
| Status                     | Not encountered   |                         |

Table 5.9: Business Risk (B02)

| <b>Business Risk (B02)</b> |  | <b>Date: 27-12-2021</b> |
|----------------------------|--|-------------------------|
| Name                       | End Users Accept System  |                         |
| Probability                | Low (10%)  |                         |
| Impact                     | Critical (4)   |                         |
| Description                | The system fails to gain user's faith.   |                         |
| Mitigation & Monitoring    | In order to prevent this from happening, the software will develop with the end user in mind. The user-interface will design in a way to make use of the program convenient and pleasurable. |                         |
| Management                 | Training the users to familiarize them with the new system.<br>Releasing patches/bug fixes for greater user satisfaction.  |                         |
| Status                     | The risk has not been arisen yet.  |                         |

Table 5.10: Business Risk (B03)

| <b>Business Risk (B03)</b> |  | <b>Date: 30-12-2021</b> |
|----------------------------|--|-------------------------|
| Name                       | Not pay the installment of Software Cost.  |                         |
| Probability                | Very Low (05%)   |                         |
| Impact                     | Catastrophic (1)   |                         |
| Description                | Customer doesn't pay for the installment of Software Cost.   |                         |
| Mitigation & Monitoring    | We should make a good communication between customers and ensure that the entire Installment will be completed |                         |
| Management                 | The only course of action available would be find out the Reason and come in a solution.                       |                         |
| Status                     | Not encountered.   |                         |

Table 5.11: Business Risk (B04)

| <b>Business Risk (B04)</b> |   | <b>Date: 3 -01-2022</b> |
|----------------------------|---|-------------------------|
| Name                       | Late delivery of the project  |                         |
| Probability                | Very Low (05%)  |                         |
| Impact                     | Catastrophic (1)  |                         |
| Description                | The project may take more time to complete what was Estimated                                       |                         |
| Mitigation & Monitoring    | Steps have been taken to ensure a timely delivery by determining the scope of project.              |                         |
| Management                 | The only course of action available would be to request an extension to the deadline from customer. |                         |
| Status                     | My project is completed in time.  |                         |

# **Chapter-5**

## **Project Management**

A risk is a serious problem that might or might not happen. It is necessary to analyze the potential risks in a project. If the risks of a software project are not properly analyzed and estimated, many problems can plague the software project. Anyone developing any type of system encounter with it and it has to be managed.

## **5.1 Risk Management**

Risk analysis and management are a series of steps that help a software team understand and manage uncertainty. Many problems can plague of software project. A risk is a potential problem; it might happen, it might not. But regardless of the outcome, it's a really good idea to identify it, assess its probability of occurrence, and estimate its impact, and establish a contingency plan should the problem actually occur. Risk analysis and management are a series of steps that help a software them to understand and manage uncertainty.

To establish a risk management, model the following phases are followed:

**Identification:** Risk identification is the process of detecting potential risks or hazards through data collection. A range of data collection and manipulation tools and techniques exists. The team is using both automated and manual techniques to collect data and begin to characterize potential risks to Web resources. Web crawling is one effective way to collect information about the state of Web pages and sites.

**Classification:** Risk classification is the process of developing a structured model to categorize risk and fitting observable risk attributes and events into the model. The team combines quantitative and qualitative methods to characterize and classify the risks to Web pages, Web sites, and the hosting servers.

**Assessment:** Risk assessment is the process of defining relevant risk scenarios or sequences of events that could result in damage or loss and the probability of these events. Rosenthal describe the characteristics of a generic standard for risk assessment as "transparent, coherent, consistent, complete, comprehensive, impartial, uniform, balanced, defensible, sustainable, flexible, and accompanied by suitable and sufficient guidance.

**Analysis:** Risk analysis determines the potential impact of risk patterns or scenarios, the possible extent of loss, and the direct and indirect costs of recovery. This step identifies vulnerabilities consider the willingness of the organization to accept risk given potential consequences, and develops mitigation responses.

**Implementation:** Risk management implementation defines policies, procedures, and mechanisms to manage and respond to identifiable risks. The implemented program should balance the value of assets and the direct and indirect costs of preventing or recovering from damage or loss.

To take comprehensive care of a web-based system we must consider the following points:

- Hardware and software environment including any upgrades to the operating system and Web server, the installation of security patches, the removal of insecure services, use of firewalls, etc.
- Administrative procedures such as contracting with reputable service providers, renewing domain name registration, etc.
- Network configuration and maintenance including load balancing, traffic management, and usage monitoring.
- Backup and archiving policies and procedures including the choice of backup media, media replacement interval, number of backups made and storage location.

There are different categories of risks that should be considered in any software project. The following categories of risks have been considered in this software project.

- **Project risks:** These risks threaten the project plan. If these risks become real, it is likely that the project schedule will slip and that costs will increase. Project risks identify potential budgetary, schedule, personnel, resource, customer and requirement problems and their impact on the software project.
- **Technical risks:** These risks threaten the quality and timeliness of the software to be produced. If a technical risk becomes a reality, implementation may become difficult or impossible. Technical risks identify potential design, implementation, interface, verification and maintenance problems. Moreover, specification ambiguity, technical uncertainty, technical obsolescence is also risk factors.
- **Business risks:** These risks threaten the viability of the software to be built. The business risks can be market risks, building a system that no one really wants.

Strategic risks, building a system that no longer fits into the overall business strategy for the company. Management risks, losing the support of senior management due to a change in focus or a change in people. Budget risks, losing budgetary or personnel commitment.

### The RMMM Plan

- **Risk Mitigation:** Proactive planning for risk avoidance.
- **Risk Monitoring:** Assessing whether predicted risks occur or not, ensuring preventive steps are being properly applied, collect information for future risk analysis, attempt to determine which risks caused which problem.
- **Risk Management:** Actions to be taken in the event that mitigation steps have failed and the risk has become a live problem.

**Type of Impact:** Catastrophic (1), Marginal (2), Tolerable (3), Critical (4).

**Type of Probability:** very low (75%).

**Project Risks:** Threaten the project plan. In my system, the bellow mentioned projects risks I needed manage.

Table 5.1: Project Risk (P01)

| Project Risk (P01)      |  | Date: 27-10-2021 |
|-------------------------|--|------------------|
| Name                    | Changes the requirements   |                  |
| Probability             | Low (25%)  |                  |
| Impact                  | Marginal (2)   |                  |
| Description             | Customer may change their requirements.  |                  |
| Mitigation & Monitoring | Requirements are redefined by the company due to time or business needs. Meeting will be held with the company regularly. This insures that the product we are producing solves a problem. |                  |
| Management              | Emergency meeting between both parties to identify new project requirements and goals.   |                  |
| Status                  | Not occur  |                  |



Table 5.2: Project Risk (P02)

| <b>Project Risk (P02)</b> |  | <b>Date: 3-11-2021</b> |
|---------------------------|--|------------------------|
| Name                      | Poor Quality Documentation   |                        |
| Probability               | Low (15%)  |                        |
| Impact                    | Catastrophic (1)   |                        |
| Description               | Poor quality documentation of the members.   |                        |
| Mitigation & Monitoring   | Meeting will be held routinely to offer documentation suggestions and topics. The progress on documentation will also have a monitor in each meeting |                        |
| Management                | The addition of new topics or removal of unnecessary topics into the documentation will assigned to responsible person.                              |                        |
| Status                    | Monitoring it.   |                        |

Table 5.3: Project Risk (P03)

| <b>Project Risk (P03)</b> |   | <b>Date: 08-11-2021</b> |
|---------------------------|---|-------------------------|
| Name                      | Lack of Development Experience.   |                         |
| Probability               | Moderate (30%)  |                         |
| Impact                    | Catastrophic (1)  |                         |
| Description               | Lack of developmental experience of the members.  |                         |
| Mitigation & Monitoring   | Each member of the team should watch and see areas where another team member may be weak.   |                         |
| Management                | The members who have the most experience in a particular area will be required to help for overcome problem arises for this risk. |                         |
| Status                    | We have not encountered such issues yet   |                         |

Table 5.4: Project Risk (P04)

| <b>Project Risk (P04)</b> |  | <b>Date: 18-11-2021</b> |
|---------------------------|--|-------------------------|
| Name                      | Poor Comments in Code  |                         |
| Probability               | Low (15%)  |                         |
| Impact                    | Marginal (2)   |                         |
| Description               | Code of the developed system is not up to the mark.  |                         |
| Mitigation & Monitoring   | A formal written standard must be established to ensure quality of comments in all code.                                   |                         |
| Management                | We should call a meeting with the development team to get rid of this problem and improve the quality of comments in code. |                         |
| Status                    | We are monitoring the issue.   |                         |

**Technical Risks:** threaten product quality and the timeliness of the schedule. As this is my practicum project, therefore these types of risks need to be take care of properly.

Table 5.5: Technical Risk (TR01)

| <b>Technical Risk (TR01)</b> |   | <b>Date: 26-11-2021</b> |
|------------------------------|---|-------------------------|
| Name                         | Computer Crash  |                         |
| Probability                  | Moderate (25-40%)   |                         |
| Impact                       | Catastrophic (1)  |                         |
| Description                  | Computer may crash due to several reasons.  |                         |
| Mitigation & Monitoring      | We should take proper follow up of computers. We also take regular data backup every day, We can use IPS to stop unexpected shutdown. |                         |
| Management                   | If our computer has been crashed then we will restore backup.   |                         |
| Status                       | We have not encountered such issue yet  |                         |

Table 5.6: Technical Risk (TR02)

| Technical Risk (TR02)   |   | Date: 02-12-2021 |
|-------------------------|---|------------------|
| Name                    | Technology Doesn't Meet Specifications.   |                  |
| Probability             | Low (25%)   |                  |
| Impact                  | Catastrophic (1)  |                  |
| Description             | Customer doesn't have the technology to their desired specification.  |                  |
| Mitigation & Monitoring | That ensures that the product we are producing, and the specifications of the customer are equivalent.  |                  |
| Management              | The customer should be immediately notified and whatever steps necessary to rectify this problem should be done. Preferably a meeting should be held between the development team and the customer to discuss at length this issue. |                  |
| Status                  | We have not encountered such issue yet  |                  |

Table 5.7: Technical Risk (TR03)

| Technical Risk (TR03)   |  | Date: 08-12-2021 |
|-------------------------|--|------------------|
| Name                    | Poor Training Skill in Team Members.   |                  |
| Probability             | Moderate (30%)   |                  |
| Impact                  | Catastrophic (1)   |                  |
| Description             | Poor Training Skill in Team Members to Train the Client.   |                  |
| Mitigation & Monitoring | The training team should have a clear knowledge about the entire functionality of the software. System analyst need to ensure and monitor it while training session start. |                  |
| Management              | We should arrange a meeting with the train team and come to a point to solve this problem.   |                  |

|        |  |
|--------|--|
| Status | We have not encountered such issue yet |
|--------|--|

**Business Risk:** Threaten the viability of the software to be built (market risks, strategic risks, management risks, budget risks). As I am developing it as my practicum project by myself, classic business risks won't be encountered here. The Probability of all type of Business Risks is therefore, determined as Low.

Table 5.8: Business Risk (B01)

| <b>Business Risk (B01)</b> |   | <b>Date: 18-12-2021</b> |
|----------------------------|---|-------------------------|
| Name                       | Insufficient Budget   |                         |
| Probability                | Low (10%)   |                         |
| Impact                     | Marginal (2)  |                         |
| Description                | If the budget is low project may not complete.  |                         |
| Mitigation & Monitoring    | The project needs streaming server that is costly to set-up. We ing services to reduce the budget risk. |                         |
| Management                 | Refinement in project goal. A new plan for regulate the budget.   |                         |
| Status                     | Not encountered   |                         |

Table 5.9: Business Risk (B02)

| <b>Business Risk (B02)</b> |  | <b>Date: 27-12-2021</b> |
|----------------------------|--|-------------------------|
| Name                       | End Users Accept System  |                         |
| Probability                | Low (10%)  |                         |
| Impact                     | Critical (4)   |                         |
| Description                | The system fails to gain user's faith.   |                         |
| Mitigation & Monitoring    | In order to prevent this from happening, the software will develop with the end user in mind. The user-interface will design in a way to make use of the program convenient and pleasurable. |                         |

|            |   |
|------------|---|
| Management | Training the users to familiarize them with the new system.<br>Releasing patches/bug fixes for greater user satisfaction. |
| Status     | The risk has not been arisen yet.   |

Table 5.10: Business Risk (B03)

| <b>Business Risk (B03)</b> |  | <b>Date: 30-12-2021</b> |
|----------------------------|--|-------------------------|
| Name                       | Not pay the installment of Software Cost.  |                         |
| Probability                | Very Low (05%)   |                         |
| Impact                     | Catastrophic (1)   |                         |
| Description                | Customer doesn't pay for the installment of Software Cost.   |                         |
| Mitigation & Monitoring    | We should make a good communication between customers and ensure that the entire Installment will be completed |                         |
| Management                 | The only course of action available would be find out the  |                         |
|                            | reason and come in a solution.   |                         |
| Status                     | Not encountered.   |                         |

Table 5.11: Business Risk (B04)

| <b>Business Risk (B04)</b> |   | <b>Date: 3 -01-2022</b> |
|----------------------------|---|-------------------------|
| Name                       | Late delivery of the project  |                         |
| Probability                | Very Low (05%)  |                         |
| Impact                     | Catastrophic (1)  |                         |
| Description                | The project may take more time to complete what was Estimated                                       |                         |
| Mitigation & Monitoring    | Steps have been taken to ensure a timely delivery by determining the scope of project.              |                         |
| Management                 | The only course of action available would be to request an extension to the deadline from customer. |                         |
| Status                     | My project is completed in time.  |                         |

# **Chapter-6**

## **Analysis Modeling**

Analysis modeling uses a combination of text and diagrammatic forms to depict requirements for data, function, and behavior in a way that is relatively easy to understand, and more important, straightforward to review for correctness, completeness and consistency. This section presents resources for conventional and object-oriented analysis (OOA) methods as well as resources for UML.

## **6.1 Analysis Modeling**

Objectives of analysis model

- Domain Analysis
- Describe what the client requires
- Establish a basis for the creation of a software design
- Define a set of requirements that can be validated once the software is built

## **6.2 Activity Diagram**

Activity diagrams are graphical representations of workflows of stepwise activities and actions with support for choice, iteration and concurrency. In the Unified Modeling Language, activity diagrams are intended to model both computational and organizational processes.

## 6.2.1 Activity Diagram of Admin

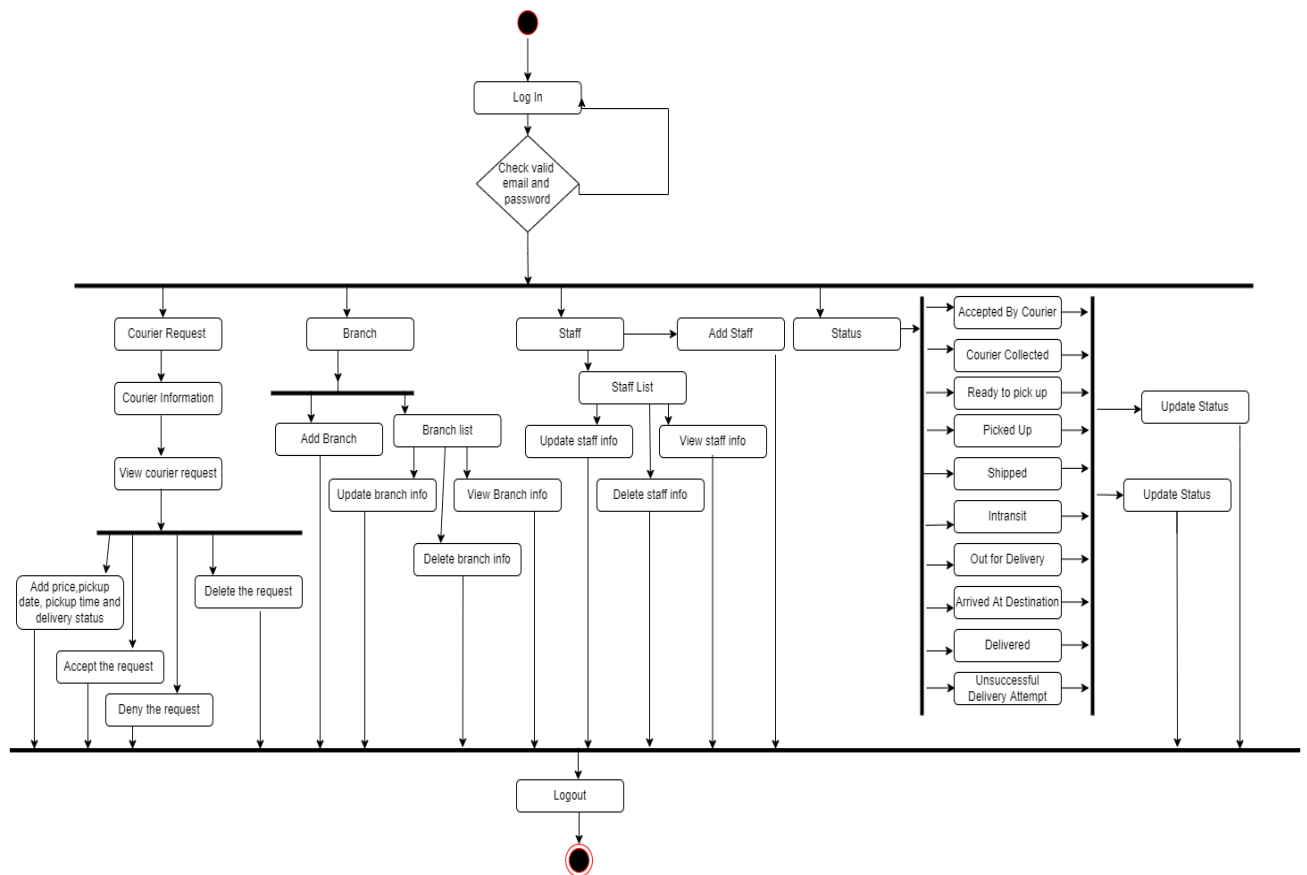


Figure 6.1 Activity Diagram for Admin



### 6.2.2 Activity Diagram of Customer

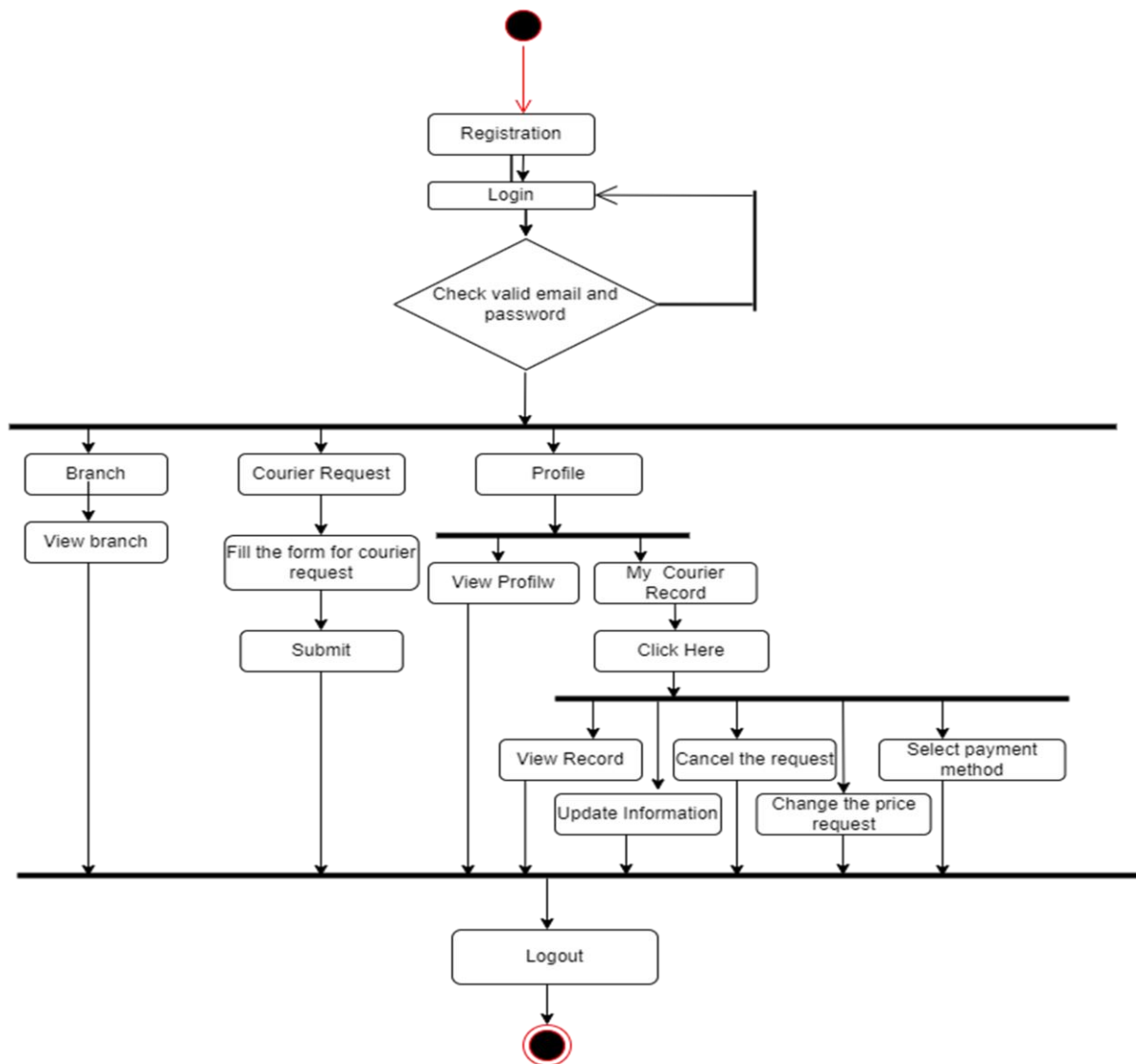


Figure 6.2 Activity Diagram for Customer

### 6.2.3 Activity Diagram of Staff

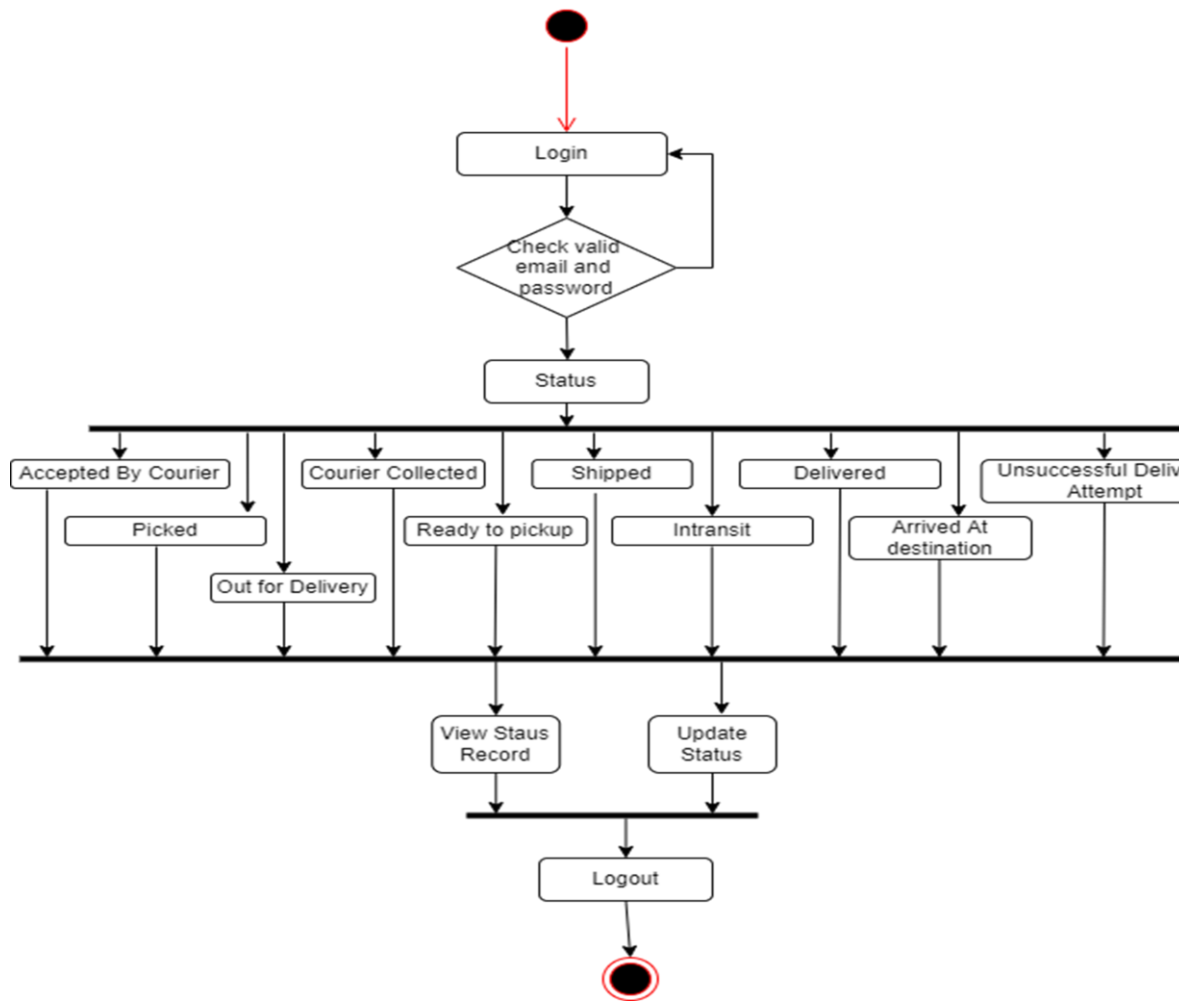


Figure 6.3 Activity Diagram for Staff

## 6.3 ER Diagram

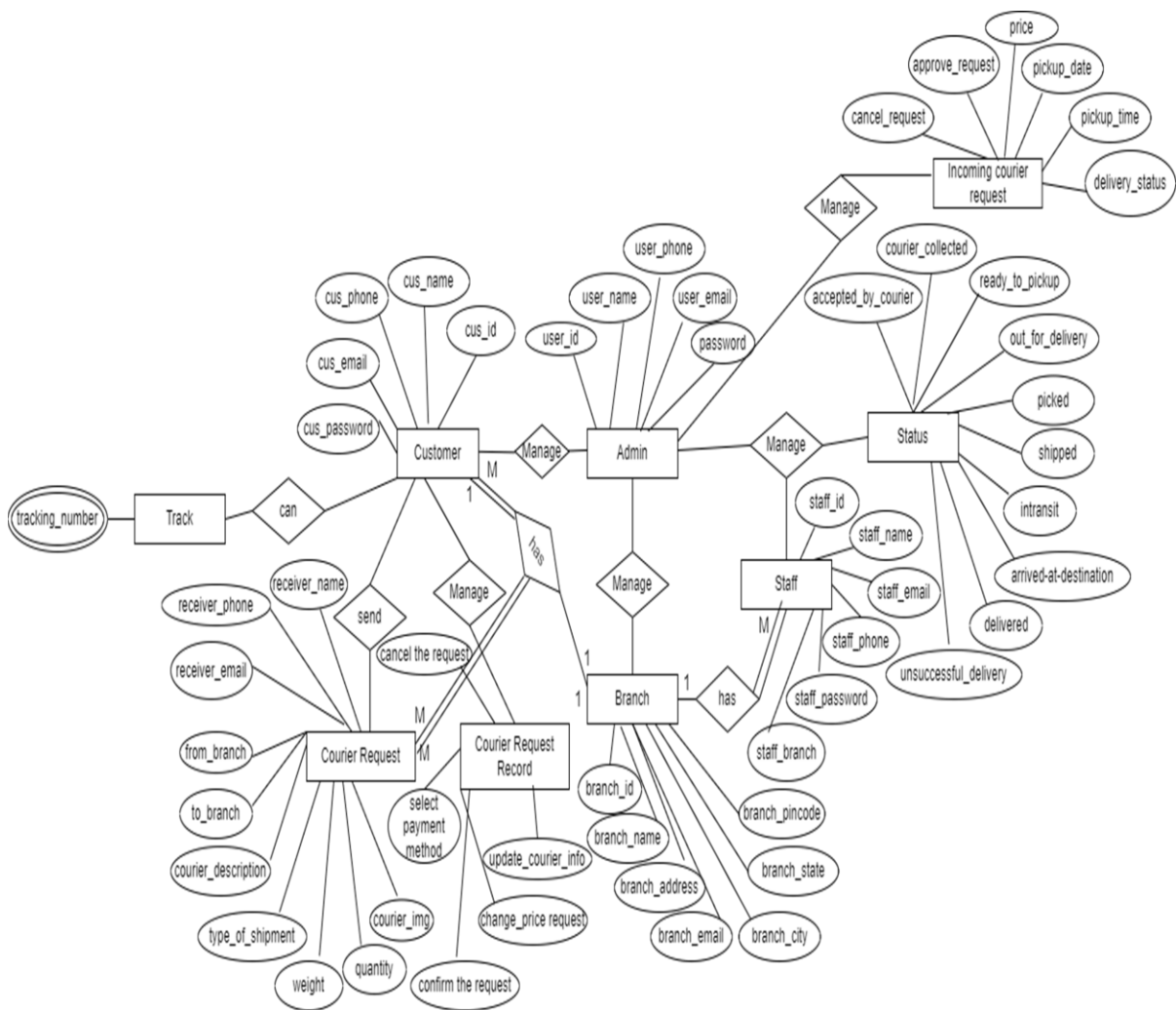


Figure 6.4 ER Diagram Courier Management System.

## 6.4 Data Flow Diagram (DFD)

A data flow diagram (DFD) is a graphical representation of the "flow" of data through an information system, modeling its process aspects. A DFD is often used as a preliminary step to create an overview of the system, which can later be elaborated DFDs can also, be used for the visualization of data processing.

A DFD shows what kind of information will be input to and output from the system, where the data will come from and go to, and where the data will be stored. It does not show information about the timing of process or information about whether processes will operate in sequence or in parallel.

### 6.4.1 Context Level Diagram

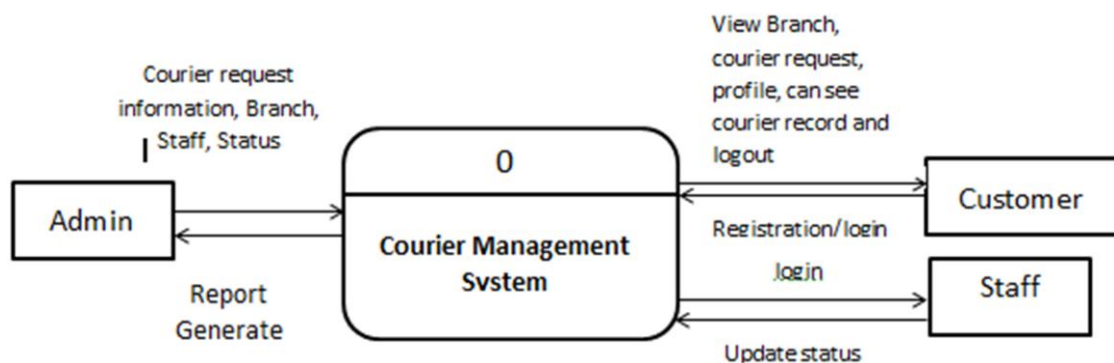


Figure 6.5 Context Level Diagram of Courier Management System

### 6.4.2 Level 1 DFD

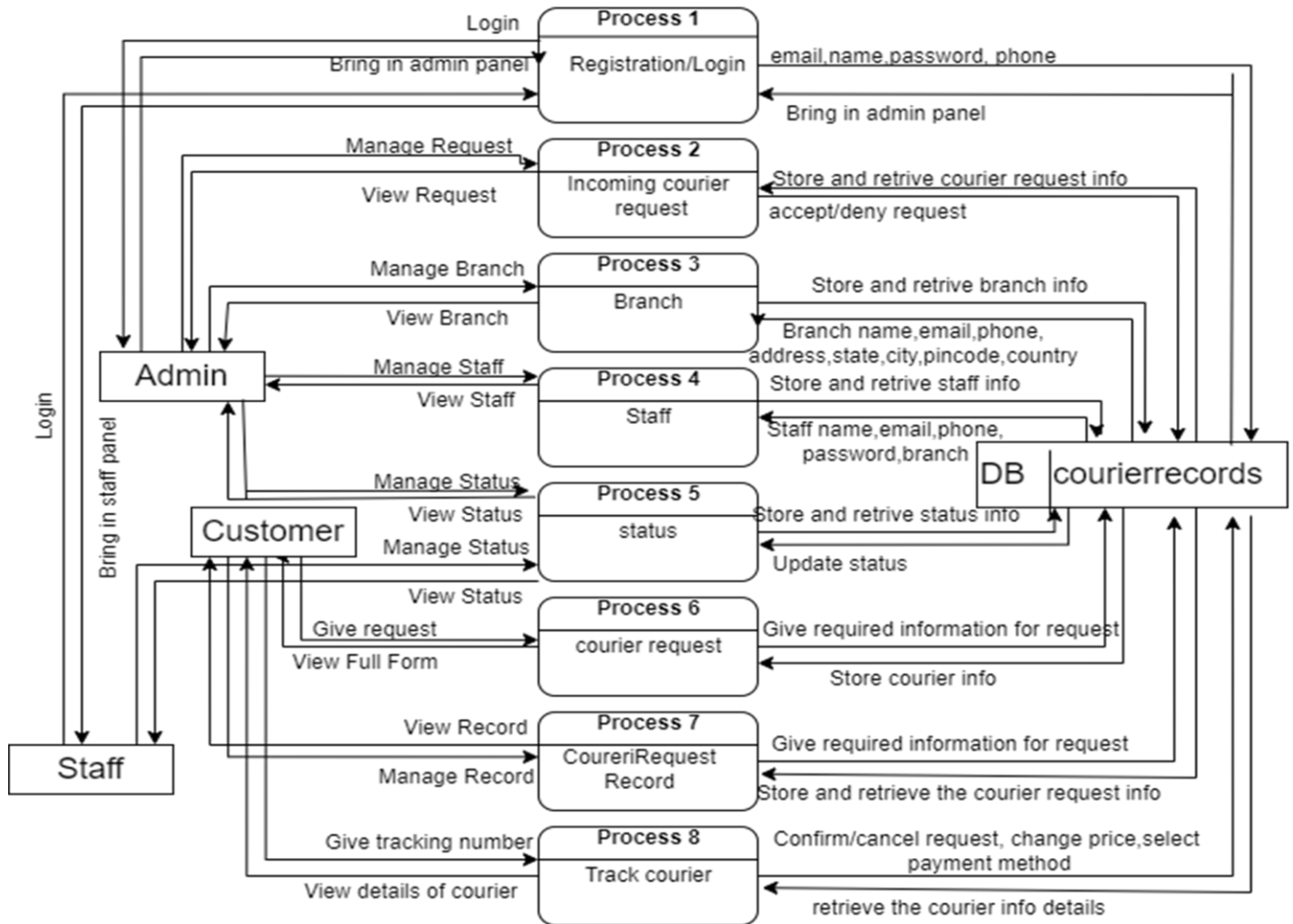


Figure 6.6 Level-1 Diagram of Courier Management System

### 6.4.3 Level 2 of process 1 DFD (Registration)

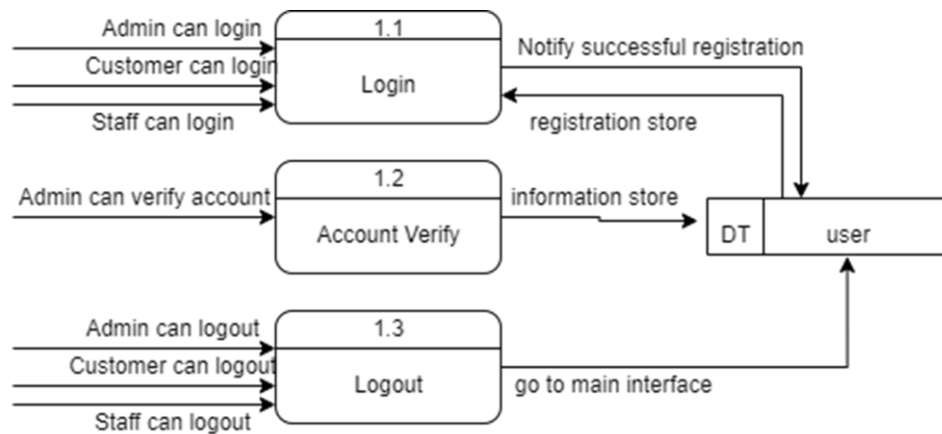


Figure 6.7 Level-2 of process 1 Diagram of Courier Management System

### 6.4.4 Level 2 of process 2 DFD (Incoming courier request)

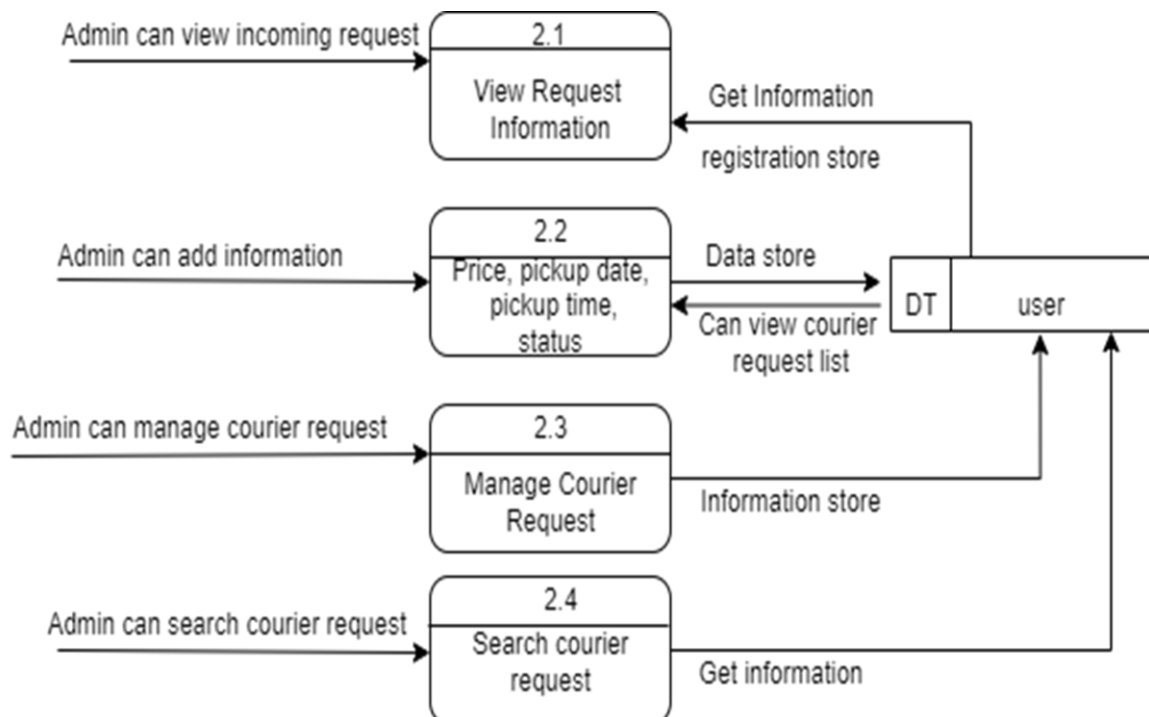


Figure 6.8 Level-2 of process 2 Diagram of Courier Management System

#### 6.4.5 Level 2 of process 3 DFD (Branch)

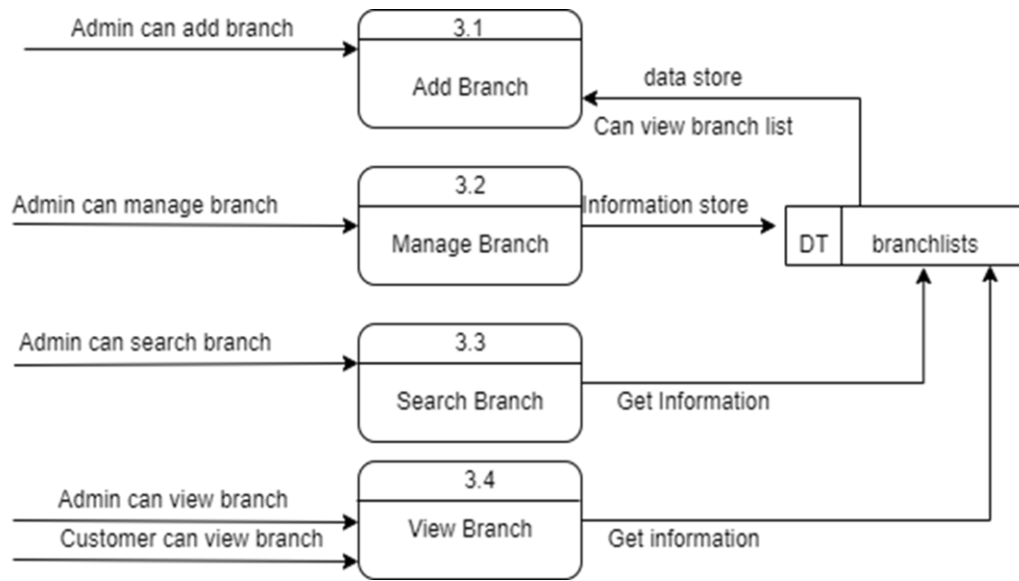


Figure 6.9 Level-2 of process 3 Diagram of Courier Management System

#### 6.4.6 Level 2 of process 4 DFD (Staff)

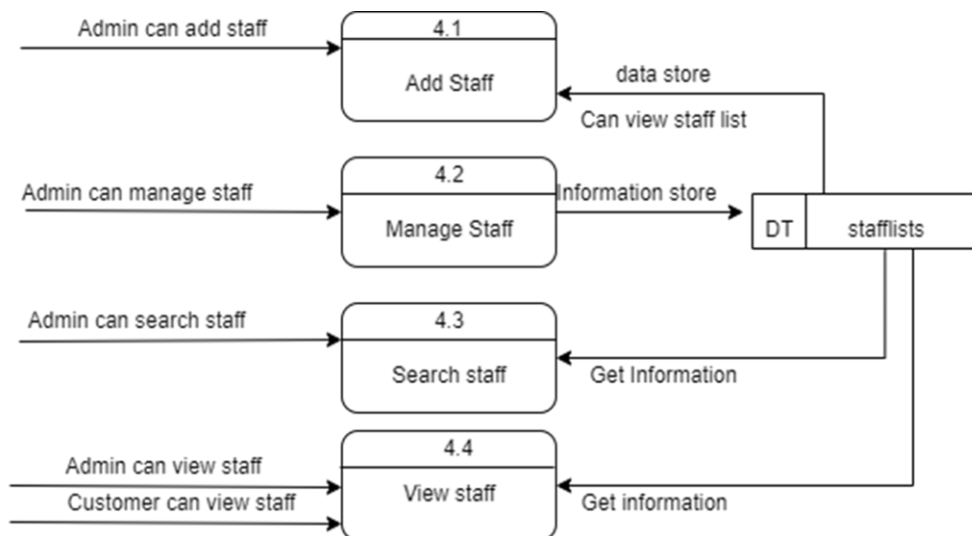


Figure 6.10 Level-2 of process 4 Diagram of Courier Management System

#### 6.4.7 Level 2 of process 5 DFD (Status)

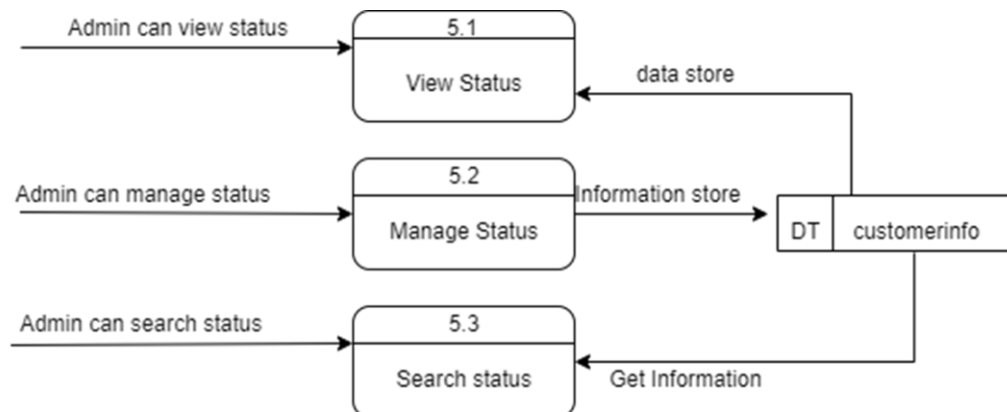


Figure 6.11 Level-2 of process 5 Diagram of Courier Management System

#### 6.4.8 Level 2 of process 6 DFD (Courier Request)

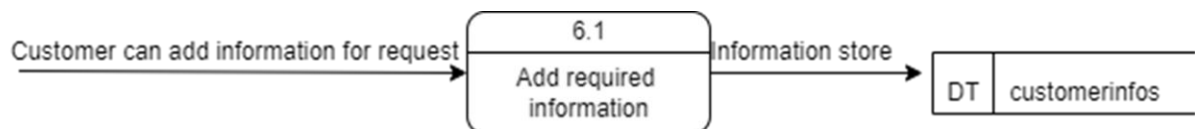


Figure 6.12 Level-2 of process 6 Diagram of Courier Management System



#### 6.4.9 Level 2 of process 7 DFD (Manage Courier Request in Customer Panel)

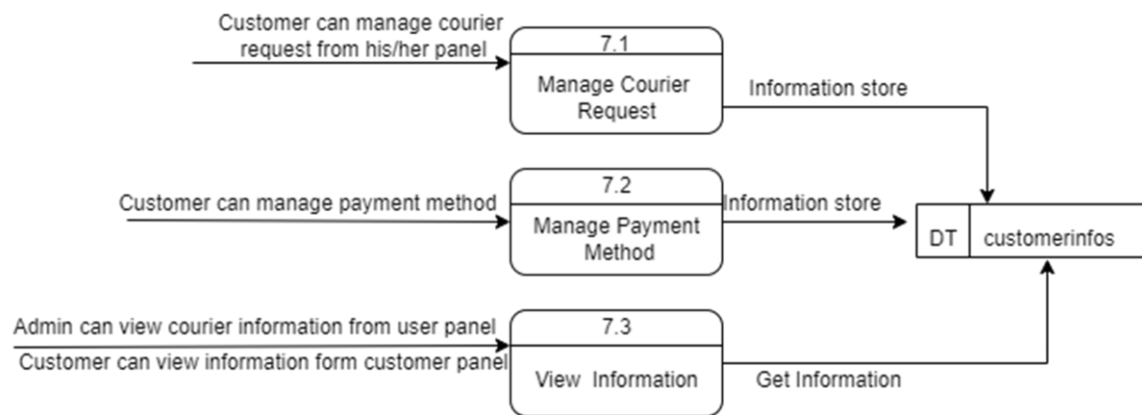


Figure 6.13 Level-2 of process 7 Diagram of Online Catering Service and Wastage Food Management System

#### 6.4.10 Level 2 of process 8 DFD (Track courier)

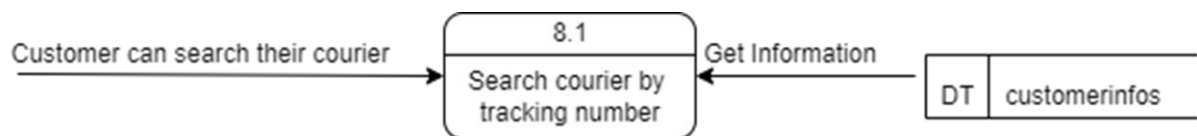


Figure 6.14 Level-2 of process 8 Diagram of Courier Management System

# **Chapter-8**

## **System Testing**

Software testing is the process of evaluation a software item to detect differences between given input and expected output also, to assess the features of a software item. Testing assesses the quality of the product. Software testing is a process that should be done during the development process. In other words, software testing is a verification and validation process.

**Verification:** Verification is the process to make sure the product satisfies the conditions imposed at the start of the development phase. In other words, to make sure the product behaves the way we want it to.

**Validation:** Validation is the process to make sure the product satisfies the specified requirements at the end of the development phase. In other words, to make sure the product is built as per customer requirements.

The objectives of software testing are:

Testing is a process of executing a program with the intent of finding an error.

A good test case is one that has a high probability of finding an as-yet-undiscovered error. A successful test is one that uncovers an as-yet-undiscovered error.

The design of tests for software can be challenging as the initial design of the product itself. Software can be tested in one of two ways:

Knowing the specified function that the software has been designed to perform, tests can be conducted that demonstrate each function fully while at the same time searching for errors in each function. This approach is known as black-box testing.

Knowing the internal workings of software, tests can be conducted to ensure that internal operations are performed according to specifications and all internal components have been adequately exercised. This approach is known as white-box testing.

## 8.1 Software Testing Strategy

A strategy for software testing integrates software test case design methods into a well-planned series of steps that result in the successful construction of a software. The strategy provides a road map that describes the steps to be conducted as part of testing.

Testing strategy that will be followed in this software project –

- Unit testing
- Integration testing
- Validation testing

## 8.2 System Testing Methodology

### Black-box Testing

Black-box testing which is also known as behavioral testing focuses on the functional requirements of the software. It enables the software engineer to derive sets of input conditions that will fully exercise all functional requirements for a program. Black-box testing method will be applied to test the modules of LMS.

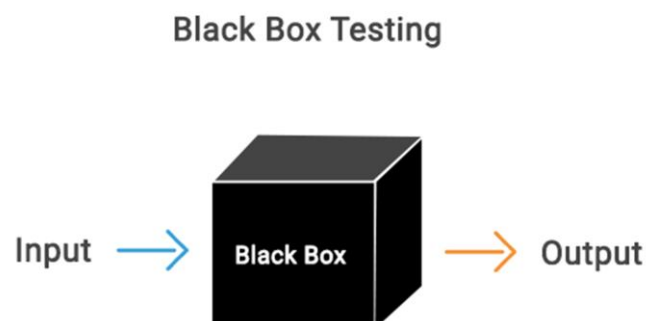


Figure 8.1: Black box testing

## Testing:

Table 8.1: System Testing Scenario 1

|                        |   |
|------------------------|---|
| Testing scenario No: 1 |   |
| Scenario               | Customer Registration   |
| Input's                | Name, email, phone, password  |
| Desired Output's       | When enter all basic info correctly, new customers will be registered in the system.  |
| Actual Output's        | For new customers registration my system work correctly   |
| Verdict                | Getting result from Desired Output's and Actual Output's decided this system is successful for new customers" registration. |

Table 8.2: System Testing Scenario 2

|                        |   |
|------------------------|---|
| Testing scenario No: 2 |   |
| Scenario               | User Login testing scenario of my system  |
| Input's                | E-mail, password of User for Login  |
| Desired Output's       | When enter E-mail, password then get access level define.   |
| Actual Output's        | For login my system work correctly  |
| Verdict                | Getting result from Desired Output's and Actual Output's decided this system is successful for login. |

Table 8.3: System Testing Scenario 3

|                        |   |
|------------------------|---|
| Testing scenario No: 3 |   |
| Scenario               | Admin can view and monitor customers details.                     |
| Input's                | Request to view customers basic information                       |
| Desired Output's       | Show the basic information to the admin                           |
| Actual Output's        | For showing all users basic information my system work correctly. |
| Verdict                | The process is worked correctly and successfully.                 |

Table 8.4: System Testing Scenario 4

|                        |  |
|------------------------|--|
| Testing scenario No: 4 |  |
| Scenario               | Customers can take services                                  |
| Input's                | Request to view and choose services                          |
| Desired Output's       | Show the list of list of services                            |
| Actual Output's        | For showing all available services my system work correctly. |
| Verdict                | The process is worked correctly and successfully.            |

Table 8.5: System Testing Scenario 5

|                        |  |
|------------------------|--|
| Testing scenario No: 5 |  |
| Scenario               | Customers can select bookings  |
| Input's                | Request to view bus list   |
| Desired Output's       | Show the list of transports  |
| Actual Output's        | For showing all type of list of transports my system work correctly. |

|         |   |
|---------|---|
| Verdict | The process is worked correctly and successfully. |
|---------|---|

Table 8.6: System Testing Scenario 6

|                        |  |
|------------------------|--|
| Testing scenario No: 6 |  |
| Scenario               | Package/Item view process by the customers   |
| Input's                | Customers have to choose their desired Package/Item  |
| Desired Output's       | Calculate and show the net billing amount.   |
| Actual Output's        | For calculating transaction amount, inputting data and showing details my system work correctly. |
| Verdict                | The process is worked correctly and successfully.  |

Table 8.7: System Testing Scenario 7

|                        |   |
|------------------------|---|
| Testing scenario No: 7 |   |
| Scenario               | Admin can view customer's bookings                |
| Input's                | Customers will click on view bookings             |
| Desired Output's       | Customers can cancel or delete bookings           |
| Actual Output's        | For reviewing orders my system work correctly.    |
| Verdict                | The process is worked correctly and successfully. |

## **Chapter-9**

## **Conclusion**



## 9.1 Practicum and Its Value

In our career development as with most life issues there is direct relationship between effort and reward. To me, practicum can be as a transition from engineering college study life to a real world workplace through hands on experience of engineering practices.

The four years of undergraduate engineering studies gives a student theoretical and practical knowledge. Using that knowledge and observing live operational system, the practicum program clarifies those subjects „matters to another level blessed with practical working skills. Considering this fact, it gives us an immense pleasure to say that my practicum was a successful event.

Practical work experience doesn't have any other alternatives. Before getting into the job student should have a real world work experiences in a major field of study. Now a day's recruiter no longer considers just high grades, good communication skill, part time work experiences. They highly consider the work experiences of an applicant. Students with better work experiences are getting the better job opportunities.

Kodeeo give me the opportunity of working in a professional working environment. During the internship period I have tried my level best to make my system efficient. I followed the lessons, methods, tools and techniques that I have learned during my study period at IUBAT. Successful software development is a blend of standard development practices, proper theoretical knowledge and the developer's creativity.

Student of College of Engineering and Technology (CEAT) at IUBAT go for this practicum program carrying 6 credit hours' weight, which goes for a semester long and usually after the completion of the course work.

