TRIBHUVAN UNIVERSITY

Office of the Dean

Faculty of Management

Kritipur, Kathmandu

An Internship Report

On

"Food Recipe"

In partial fulfillment of requirement for the degree of

Bachelor in Information Management

(BIM)

Submitted By:

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(NCCS)

Paknajol, Kathmandu

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DECLARATION

I hereby declare that this internship project entitled "Food Recipe" submitted to office of the dean, Faculty of Management, Tribhuwan University, is a result of my own internship study carried out in year 2023 at Swift Technology Pvt. Ltd., Panipokhari, Kathmandu, for the partial fulfillment of requirement of the Bachelor in Information Management (BIM). It has not been previously submitted to any other university or anywhere else.

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ACKNOWLEDGEMENT

ABSTRACT

This report serves as a comprehensive documentation of an iOS-based mobile application developed during my internship period, fulfilling the requirements of the BIM final semester syllabus and addressing the needs of the office. The project focuses on creating an iOS application that offers users recipe details based on their choices of categories of food items. Users can easily search for recipes, mark favorites for quick access, and even access integrated YouTube links for additional guidance. The primary objective of the Food Recipe App is to empower users to effortlessly discover, cook, and enjoy delicious recipes, providing a comprehensive solution for culinary enthusiasts and individuals seeking to enhance their cooking skills.

The document begins with the background of the related field along with the objective for preparing the report. It also states the methodology, tools used in the preparation of this report and the development of the software system. The document consists of the brief introduction of the information technology and software industry.

The brief introduction of the selected organization is highlighted with the objectives, vision and mission of the organization. The structure of the organization has also been mentioned to display its working process. Introduction to evolution of IT along with the objective of making the world a better and easier place is highlighted. More emphasis is given to the Nepalese sector, how IT has helped in Nepal and yet, the limitations and challenges too.

The research aims to design a mobile application that facilitates access to recipes. The application offers features such as detailed recipe information, instructions for proper ingredient usage, and the option to watch cooking videos for clear instructions. By incorporating these features, the application streamlines the process of finding and preparing recipes, playing a crucial role in creating delightful dishes.

Finally, the achievements and work performed during the internship training have been meticulously documented and presented in a coherent and understandable manner.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS

AI	Artificial Intelligence
API	Application Programmable Interface
BIM	Bachelor of Information Management
BLB	Branch Less Banking
CEO	Chief Executive Officer
CV	Curriculum Vitae
ERP	Enterprise Resource Planning
HR	Human Resources
HTTP	Hypertext Transfer Protocol
ICT	Information and Communication Technology
IME	International Money Express
IP	Internet Protocol
iOS	IPhone Operating System
IoT	Internet of Things
ISP	Internet Service Provider
IT	Information Technology
JSON	JavaScript Object Notation
NCCS	National College of Computer Studies
NFC	Near Field Communication
NTA	National Testing Agency
NTC	Nepal Telecom
OTT	Over the Top
P2P	Peer-to-Peer
PaaS	Platform-as-a-Service
PDA	Personal Digital Assistants
PPP	public-private partnership
RONAST	Royal Nepal Academy of Science and Technology
SDLC	Software Development Life Cycle
SMS	Short Message Service

TU	Tribhuwan University
UI	User Interface
UX	User Experience

Chapter 1

INTRODUCTION

1.1 Background

The Bachelor of Information Management (BIM) is a four-year course offered by TU. It combines 60% information technology and 40% management courses to equip students with technical expertise and management concepts needed in organizations. The program is conducted by major universities in Nepal on a semester system, spanning eight semesters and totaling 126 credit hours. BIM aims to produce professionals with both management skills and IT knowledge, preparing them to develop effective information systems for solving real-life organizational problems. Additionally, the program focuses on enhancing students' proficiency in computer usage, computational techniques, object-oriented software design methods, and data management systems.

An internship is a work arrangement where a student or trainee works in an organization, either paid or unpaid, to gain work experience or fulfill qualification requirements. It is a temporary position that emphasizes hands-on training and provides a real working environment to develop essential skills. In the context of the faculty of management at Tribhuwan University, internships are designed to offer pre-professional work experience to students, allowing them to understand organizational operations, communication processes, and coordination in the real world. Internships provide valuable insights into the professional world, allowing students to apply theoretical knowledge, enhance practical skills, and increase employability. They offer an opportunity to gain practical experience, explore career options, and understand specific organizations or career paths. This report is based on a 3-month internship at Swift Technology Pvt. Ltd., which provided real-life work experience, especially in programming. The internship not only improved programming skills but also increased self-confidence, self-motivation, and personal development.

1.2 Focus of the Study

Internship is one of the most vital part in the student's life, who are about to start their career. It provides real life experience about the work, procedures and methodologies followed in the organization. This study focuses on the following areas:

☐ **Career opportunities**

While working in an organization, students can get different opportunities to start their career. The knowledge they gain there can be very helpful in the future to work as an employee.

☐ **Gain real life experience**

One of the main purpose of internship program is to allow the students to gain real life experience. Students are restricted inside the classroom and do not get any platform to sharpen their skills. So internship provides a great platform where students can learn and showcase their knowledge and skills.

1.3 Statement of Problem

The main problem seen was lack of a comprehensive and user-friendly platform for accessing and cooking variety of recipes.

- Existing recipe apps often lack extensive categorization, personalized features, and convenient access to additional resources like video guidance.
- Users are struggling to find recipes that suit their preferences, face difficulty in following instructions, and experience limited options for exploring new dishes.

1.4 Objectives

1.4.1 Objectives of Internship

The most important objective of an internship is to make students familiar with the real working environment. By doing an internship, we get all of the personal and cultural perks while simultaneously reaping the professional benefits. The objectives of the internship program are as follows:

- To build interpersonal skills and confidence
- To implement the theoretical knowledge acquired from college in real working environment
- To pet career insight existing in the country
- To receive an introduction to an organization within the Information systems industry and to gain a better understanding of its design and structure.
- To get familiar with the real working scenarios, and accordingly tackle them

1.4.2 Objectives of the System

The objectives of the system can be listed as follows:

- To helps the user to save favorites and check cooking videos.
- To enhances the overall cooking experience for users by embedding the related YouTube link.
- To empower users to explore, cook, and enjoy a wide range of delicious recipes effortlessly and provide all-in-one solution for culinary enthusiasts.

1.5 Methodology

During internship program, the information was collected with the help of primary and secondary sources. There was much information that is collected directly from the organization through day-to-day operations. Also, the information gathered from the experience is included in this section. Much information was gathered from websites, manuals and other sources of the organization. Secondary data or the references are readily available data which are inexpensive to obtain.

1.5.1 Organization Selection

For the internship to be worthwhile, selection of organization is an essential factor. it is important to complete an entry level position. It is a medium through which we will pick up understanding and presentation to the outside world. The organization that we choose plays as the medium through which we get exposure to real world. The organization I selected is Swift Technology Pvt. Ltd. which was established in 2007 A.D. As per my interest, I had to choose a software company to enhance my skills and knowledge in the practical field. Swift Technology is a systematized

software company in Nepal, from where I gained valuable experiences and knowledge.

1.5.2 Placement and Duration

Organization's selection process placed me as an intern in the organization where l got the opportunity to learn the real organization process and software development process along with the importance of teamwork in achieving success. I was trained with the organization's work process that lead to an easy path for organization culture and process.

Table 1-1 Internship schedule

Start Date	April 2, 2023
End Date	July 2, 2023
Days of Work	Sunday to Friday (6 Days)
Office Hours	10:00 AM to 5:00 PM (7 hours)
Position	iOS App Developer
Internship Period	3 months

1.5.3 Work Procedure

As a part of requirement of internship of BIM program, the internship project must result in a module or a system that reflects the potentials and experience of the candidate in his/her internship period. Several activities were performed during the internship period following the procedures and rules of programming which were:

- Observation and Planning
- Requirement Analysis
- System Structure and Design

- Design, Development and Implementation

- Testing and Integration

- Documentation

Table 1.2 Tasks and their respective dates

Tasks	Start Date	End Date
Observation and Planning	April 2	April 3
Requirement Analysis	April 4	April 13
System Structure Design	April 14	April 24
Development and Implementation	April 25	May 22
Testing	May 23	May 25
Documentation	May 26	June 1

1.6 Nature and Source of Data

This internship report contains both primary and secondary data. Different sources of the data collected are:

- **Primary sources**: There was many information that were collected directly from the organization through day-to-day operation. Also, information from experience are included.

- **Secondary sources**: Many information was gathered from website, manuals and other sources of the organization.

1.7 Limitation of the Project

This report is prepared based on the observations, experience of the internship formal and informal interview with the staffs and the secondary data available in internet. However, the internship had some limitations. The main limitations of internship are listed below:

- Study of each and every activity within the company was not possible due to time constraint.
- Due to security policy research was done in surface and not in depth.
- Due to privacy policy maintained in an organization there was unavailability of adequate information.

1.8 Tools Used

1.8.1 Analysis and Design Tools

- Xcode
- Draw.io

1.8.2 Implementation tools

- Swift
- Restful framework for API
- Database:
    - o Core Data

Chapter 2

INTRODUCTION OF THE INDUSTRY

2.1 Introduction to Information Technology

Information technology (IT) is a rapidly growing sector in Nepal with significant potential for growth, investment, and profits. The increasing adoption of computers by individuals and businesses has fueled the growth of software companies. The IT industry encompasses various fields such as computer hardware, software, electronics, semiconductors, internet, telecom equipment, e-commerce, and computer services. It covers everything from computer systems to the design, implementation, study, and development of IT and management systems. The accessibility and wide range of IT products have led to a substantial increase in demand for IT services over the years. The IT sector is a major global source of both economic growth and employment. The government of Nepal has recognized IT as a priority export service sector, contributing to the creation of a knowledge-based economy, human resource development, effective management of other services, and overall national development. Information technology enables individuals and businesses to access real-time global market changes faster than ever before.

2.2 Introduction to Software Industry

As we know that the world is moving from analog to digital, IT is playing an important role in the people's life. IT has become a part of life for humans. As the world is becoming narrower and narrower, the influence of IT is becoming more and more. There are 17 revolutions in all of the countries in the world, due to the help of IT people, generating new techniques to improve their skills and talents.

Nowadays, in all operations the involvement of information technology is vital.

Information Technology helps in building the nation's strength, and also provides a way to economic development. Today, information technology continues to advance and change the way of business work in unexpected new ways. IT can be defined as a contemporary term that describes the combination of computer technologies with the telecommunication technologies. Its vast power to affect change has put it in the

forefront of all other industries. Today, IT is the fastest growing economic activity in the world and IT industry as such is the biggest industry.

IT has helped computerize the business process thus streamlining businesses to make them extremely cost-effective money-making machines. Thus, in turn increases productivity which ultimately gives rise to profit that means better pay and less strenuous working condition. IT has made it possible for businesses to be open 24 x7 for business over the globe.

The IT industry can serve as a medium of e-governance, as it assures easy accessibility to information. The use of information technology in the service sector improves operational efficiency and adds to transparency. It also serves as a medium of skill formation. In this new era, IT stands as the central force in shaping organization, societies and nations based on the presumption that it is the key to achieve progress today. At last, Information technologies are the product of developed countries and to make that technology suitable for developing countries like Nepal. There should be an effort to build a capacity to recognize the importance of implementing IT according to the development needs and requirements. So, IT is the most vital component to build up the nation and helps the economic growth.

2.3 Introduction to Mobile Application

As we have witnessed a revolution in the consumer space toward mobility, most analysts have identified that mobile devices are the major gateways to Internet as compared to desktop browsers. Mobile device is replacing all traditional channels to access the information. To align with this trend, enterprises too are designing the digital applications to cater to wide array of mobile devices and platforms. Mobile application development involves the process of developing the applications for mobile devices such as Personal Digital Assistants (PDA), tablets and smart phones and other mobile devices. Native mobile apps are designed to run on a specific mobile platform, sometimes specific mobile operating system and supported hardware.

Mobile applications are part of main stream digital strategy for Business to Consumer (B2C) enterprises. Most of the enterprises are now adopting

"MobileFirst" strategy wherein the digital applications are designed, developed and tested for mobile devices; mobile users attain the primary focus in the digital strategy (Out system, 2022). Disruption in mobility space has major impact on the revenues for the enterprises. Mobile apps are shaping user experiences and are providing realtime information and offer more engaging experiences for the users. This project uses the iOS Framework along with the swift as a backend.

2.3.1 iOS

It is a mobile operating system developed by Apple Inc. for its hardware, for example, iPhone and iPad. It is an operating system that supports the iPhone and iPod Touch; it also provided support for the iPad before introducing iPadOS in 2019. It is the second most popular mobile operating system globally after Android. The cross-platform development framework has the ability to write one code and can deploy on the various platform (Android, iOS, and Desktop). It saves a lot of time and development efforts of developers. In June 2010, iOS started supporting multitasking in certain devices like iPhone 4, iPhone 3GS, and iPod Touch 3rd Generation with iOS 4 (Oreilly, 2018). However, in iOS 4, multitasking was supported through the following seven Background APIs.

1. Background audio: application keeps running in the background until it finishes the active audio or video.
2. Voice over IP: The application is suspended when the phone call is not in progress.
3. Background location: notification services when the location of the device changes.
4. Push Notifications: app receives the push notifications from the server, whether it is in background or foreground mode.
5. Local Notifications: Local notifications can be scheduled in the app at a definite time.
6. Task Completion: App can ask the system for extra time to complete a given task.
7. Fast App Switching

2.3.2 Swift

Swift is a powerful and intuitive programming language for iOS, iPadOS, macOS, tvOS, and watchOS. Writing Swift code is interactive and fun, the syntax is concise yet expressive, and Swift includes modern features developers love. Swift code is safe by design and produces software that runs lightning-fast (Swift org, 2020).

Swift is the result of the latest research on programming languages, combined with decades of experience building Apple platforms. Named parameters are expressed in a clean syntax that makes APIs in Swift even easier to read and maintain. Even better, you don't even need to type semi-colons. Inferred types make code cleaner and less prone to mistakes, while modules eliminate headers and provide namespaces. To best support international languages and emoji, Strings are Unicode-correct and use a UTF-8 based encoding to optimize performance for a wide-variety of use cases. Memory is managed automatically using tight, deterministic reference counting, keeping memory usage to a minimum without the overhead of garbage collection. You can even write concurrent code with simple, built-in keywords that define asynchronous behavior, making your code more readable and less error-prone.

2.3.3 Postman

In JavaScript, Postman is a popular API development and testing tool that allows you to send HTTP requests, analyze responses, and collaborate with your team. It provides a user-friendly interface for constructing and sending requests to API endpoints, making it easier to interact with APIs during development (Software testing help, 2021).

To work with Postman in Swift, you can use the Postman API, which exposes methods and properties to interact with the Postman application programmatically. With the Postman API, you can automate tasks, integrate Postman into your development workflow, and extend its functionality.

2.3.4 Core Data

Core Data abstracts the details of mapping your objects to a store, making it easy to save data from Swift and Objective-C without administering a database directly.

Through Core Data's Data Model editor, you define your data's types and relationships, and generate respective class definitions. Core Data can then manage object instances at runtime to provide the following features.

2.4 Objectives of Information Technology in Business

- To ensure the availability of and access to information that enables customers to make timely, informed decisions by strengthening data and knowledge management approaches.

- To explore new horizon of challenges and opportunities that can boost the technological, economic and educational scenario of the country

- To manage the cost efficiencies

- To provide a robust and secure IT infrastructure that supports on demand access to information

- Globalization

- Promoting the growth of e-commerce and software export

- To improve end-to-end transparency and accountability between the customer and service provider

- To increase percentage of employees who enroll in IT training opportunities

2.5 History of IT in Nepal

In this revolution of IT, we have witnessed many changes from machine era to automated era. Coming to this long we are now totally living in a world of technology. A brief history of IT in Nepal is shown below:

- Use of computer for the first time in history of NEPAL in 1971 census by NCC.

- Another 2nd generation computer was used in 1981 census named ICL 2950/10.

- Telephone Service exchange was established by NTC in 1960 in Kathmandu Valley.
- RONAST E-Mail Service.
- Mercantile Communications in 1995 started Internet Service for the 1st time.
- In 1998, NTA, a telecommunications regulatory body, was formed as per the Telecommunications Act 1997, (Dhungel, 2019).
- Involvement of ISPs
- IT policy 2000 - place Nepal on global IT map, to make IT accessible to general public, creation of knowledge-based society/industries, (Bhurtyal, 2010)
- Telecommunication Policy 2004 - to create favorable environment to make the telecommunication service reliable and accessible
- eGovernment Master Plan 2005
- Electronic Transaction act 2008 - ADB supported ICT Development Project

Due to success of NCC's, there are more than 300 legal private computer training institutes. I.T Ministry established for advising and formulating plans and policies by NIC instead of NCC. NTC provide cellular and WLL network to private parties UTL, NCELL, Hello Nepal. NTA provide license to various ISPs like- World link Communications Private Limited Broad Link Network and Communications Private Limited Hotlink Nepal Private Limited. Traditional method of business and education are now replaced by advance I.T innovations rapid and efficient development of Telecommunication and transmission media (Soft, 2019). Now there are more than 4 million users of internet. Although there are a lot of encouraging signs for Nepal in the field of IT, the current quality of IT services and education still leaves a lot to be desired. Considerable amount of work needs to be done and the initiative should be taken early if we are to level and keep up with the world in the field of technologies. 21st century demands globalization.

2.6 Opportunities in Nepali It Sector

Smart irrigation project, digitization of land records, e-Haat Bazar are some of the services that ICT can contribute to the development of agriculture. Smart

classrooms, online learning platforms, biometric attendance systems, and mobile learning centers in rural areas can bring massive reform in our traditional education system. Electronic visas augmented, and virtual reality tours, electronic tour guides, tourist tracking systems, online information regarding tourism and websites, and mobile apps can expand the scope of tourism globally. Urban infrastructures such as smart building, intelligent waste management, public transport management, municipality mobile application, etc. could lead to a creative and prosperous Nepal. Electronic health records, mobile health units, centralized telemedicine centers would help in gaining better health care. Smart grid projects, smart metering can improve our energy system go digital. National payment gateway, information management system, mobile wallet system can lead to financial reform. ICT plays significant role in disaster prevention, mitigation response, and recovery. The use of Drone for security monitoring and delivery of emergency equipment can help in easing disaster. ICT has a consistently positive impact on job creation. The opportunities exist in infrastructure development, equipment manufacturing, distribution, maintenance, and also in the event of websites, mobile apps, information systems, etc. (Aryal, 2020)

2.7 Challenges in Nepali IT Sector

The successful use of ICT in these various sectors will require a high degree of emphasis on implementation. Technology and Infrastructure development, entrepreneurship/PPP so that private organizations would involve in every sector, talent, and skills development so that country will get the skilled technical workforce to implement the efficient use of ICT. Encourage private sector participation, improve professional education, facilitate the event of a robust financial ecosystem, encourage foreign direct investment in priority areas, making public servants digitally-ready will be essential. Emerging business models and disruptive technologies such as artificial intelligence (AI), robotics, the Internet of things (IoT) and over the top (OTT) are transforming the way work is done. These emerging technologies are allowing governments and enterprises globally to unlock the potential to achieve exponential growth (Aryal, 2020).

Chapter 3
INTRODUCTION OF ORGANIZATION

3.1 Introduction of Organization

Swift Technology Pvt. Ltd is a leading Fin-Tech company located at Panipokhari, Kathmandu and established in 2007. Being a part of IME group, Swift Technology expertise in digital financial services Mobile Banking, Internet Banking, Remittance System, Mobile Wallet and customized software development with implementation. Swift Technology is also an authorized bulk-sms provider for leading company in telecom space in Nepal such as NTC, Ncell and Smart Cell. We are a digitized solution provider with a diverse team of artistic and technical talents who have a very contemporary and out of the box thinking along with vast experience nationally and internationally. Swift Technology has carbon neutral and zero waste vision and our organization has been using Doko Recyclers since 2018 to manage its recyclable waste, requesting their employees and suppliers to grow at least 10 trees every year and recycle our waste!

3.2 Vision and Scope

Customer loyalty through customer satisfaction, delivery in time, quality assurance and management, innovation to improve efficiency, live support and to be recognized as the best company when it comes to delivering value to customers.

3.2.1 Vision:

Swift Technology strives to become one of the foremost Corporations by introducing innovation in all our business concerns and creating shared values for their stakeholders.

3.2.2 Mission:

Their mission is to deliver superior value products and services to empower their customers, stakeholders and to society as a whole by creating synergy between our business interests.

3.2.3 Core Values:

As the nation faces many difficulties in the field of financial service and mobile banking, Swift Technology was founded on the guiding principles of providing solutions to rising Financial Challenges. Their other principle is to actively guide and nurture the staff to innovation.

3.3 Services Offered

Primary services offered by Swift Technology are:

- **Digital Banking Solutions and Payments:** To accelerate digital transformation initiatives with highly scalable backend along with middle office solutions and the native mobile application which creates consistent as well as seamless user experience across channels.

- **Cross Border Remittance Solutions:** Fast Remittance is an innovative Remittance software developed by young Nepali Engineers to enable the digital channel for customers to access Remittance Software.

- **Digital Wallet Solutions:** Digital wallet solutions are digital applications or platforms that enable users to store, manage, and conduct various types of financial transactions using their mobile devices or computers. These solutions provide a convenient and secure way to make payments, transfer funds, and perform other financial activities without the need for physical cash or traditional banking methods. Here are some key aspects of digital wallet solutions:
  - Mobile Wallets
  - Contactless Payments
  - Peer-to-Peer (P2P) Transfers
  - Online Shopping
  - Loyalty and Rewards Programs
  - Security Measures
  - Integration with Other Services

● **Bulk SMS Service:** Process of sending a large number of SMS (Short Message Service) messages to a group of recipients simultaneously. It is a communication service commonly used by businesses and organizations to reach a wide audience quickly and efficiently. Here are some key points about bulk SMS service:

- Message Distribution
- Text-Based Messages
- Delivery Channels
- Customization
- Opt-In and Opt-Out
- Cost-Effectiveness
- Use Cases
- Reporting and Analytics

Other features and services offered by Swift Technology are:

1. **Consistent Customer Experience :** Providing customers with a consistent digital experience with the same UI / UX across various banking channels.

2. **Quick Bank Request:** Some of the basics yet important features require the customer to stop by the bank's branch and waste their personal time.

3. **Protect Your Customer's Data:** Customer Data are highly protected and made secure across all channels.

4. **Treasury Module:** Based on the exchange rate and currency used by the partner, exchange treasury setup can be done considering the margin.

5. **Send/Pay Cash payment:** There is a feature to send and receive cash transactions using different channels: web and mobile application for customers and API for partners.

6. **Agent Credit Margin:** There is flexibility to set the different credit margins for each partner associated with the system.

3.4 Milestones

- 2009
  - Introduced Swift ERP system package which included HR, Payroll, Fixed Assets and Inventory Management System.

- 2010
  - Introduced SIM Management System for country dealers.
- 2011
  - Developed an online balance top up system for NTC and Ncell mobile users.

- 2012

  o Developed BLB(Branch Less Banking) ad Online Remittance System.

- 2013
  - Developed and deployed Core Remittance System.
- 2014
  - VISA integrations for IME Remit Card.
- 2016
  - Digital Finance Service, Mobile Money, Payment Gateway
- 2019
  - NFC Payment (Tap n Pay), Mobile Banking, Core Banking
- 2021
  - Omni channel Digital Banking development completed
  - Virtual VISA Card

3.5 Current Focus

Swift Technology is continuously focused on learning new technology and evolving through adapting the changes in the future technologies. Currently the focus of Swift Technology remains on:

- Block chain
- Data Analytics
- Cloud Computing

- Cybersecurity
- AI and Robotics
- Platform-as-a-Service(PaaS)

3.6 Organization Structure

Organization structure is a system that is used to define a hierarchy within an organization. It helps for running the organization in a smooth manner. Therefore, Swift Technology has a systematic structure consisting of CEO, Technical Director, Developer, Senior Programmer and Junior Programmer who handle different field of the organization.
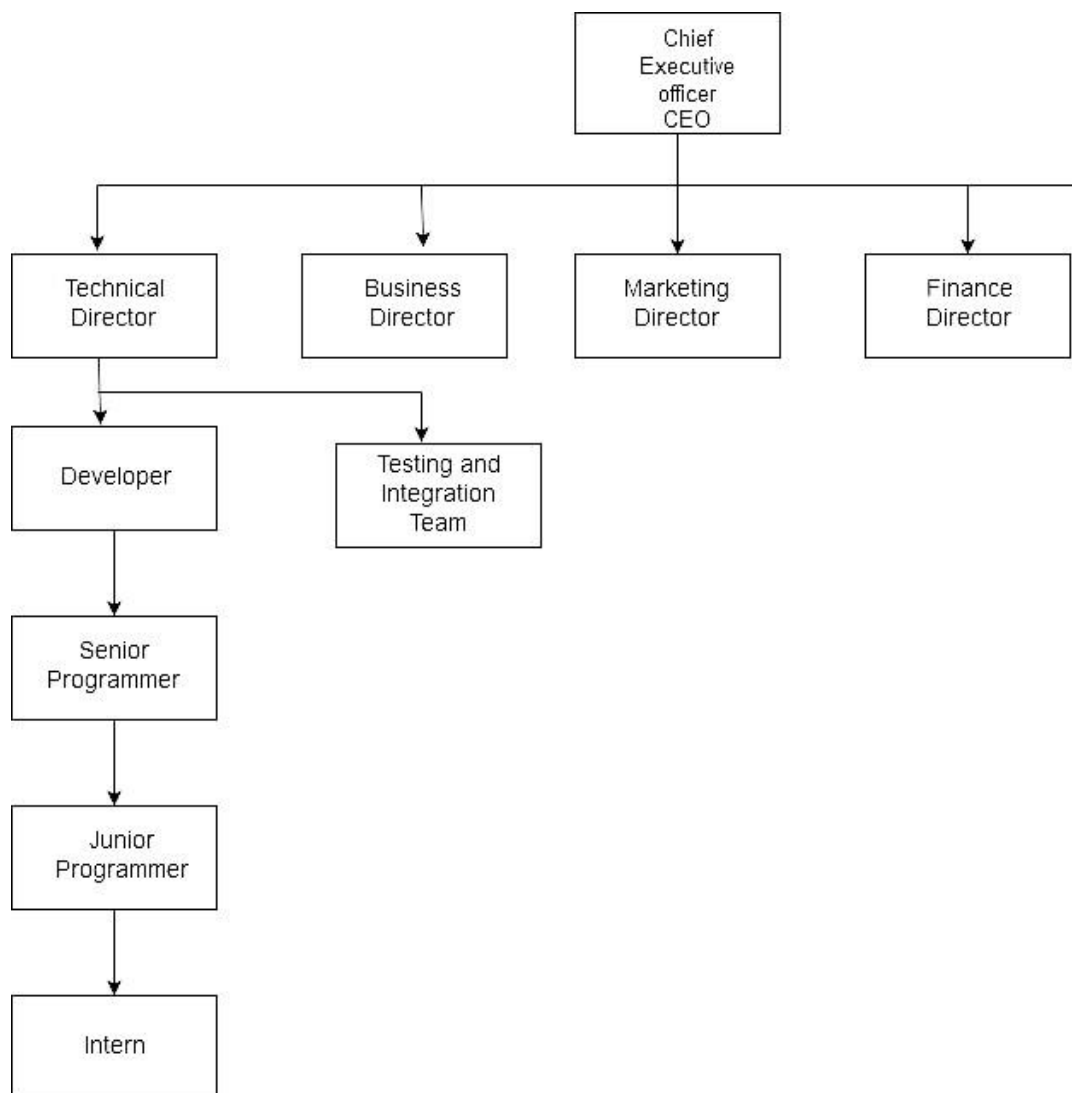
Figure 3-1: Swift Technology Organization Structure

Chapter 4

SYSTEM ANALYSIS, DESIGN AND DEVELOPMENT

4.1 Introduction to the System

Food Recipe is an iOS based mobile application developed to provide enjoyable cooking experience. With its intuitive interface, the app allows users to explore and prepare wide variety of recipes based on different categories. Users can easily search for recipes, mark them as favorites for quick access, and even seek guidance through integrated YouTube links if they need further assistance. The Food Recipe App aims to empower users to explore, cook, and enjoy a wide range of delicious recipes effortlessly and provide all-in-one solution for culinary enthusiasts and those looking to enhance their cooking skills. The project is only focused in mobile version. It has a simple and easy to use UI.

The Food Recipe application has been developed for people who want to cook for themselves with a proper instruction to the users so that they can choose the best option based on their concern by adding or searching the food recipes based on its availability.

The System is developed using swift programming language with database Core Data.

4.2 Functions of the System

- To provide a solution that addresses these challenges.
- To enhance the overall cooking experience for users.
- To empower users to explore, cook, and enjoy a wide range of delicious recipes effortlessly and provide all-in-one solution for culinary enthusiasts.

4.3 Activities Done

For one and half month, I have gone through the basics of the swift and iOS and build many small applications assigned by my mentor of the company. The Swift Language was totally new to me and due to my friendly seniors and mentor, I learned

a lot of things in a very less time due to the proper communication with my seniors and mentors. During the learning period, I was also making Storyboard design that was assigned by my mentors so that I could have knowledge to make a proper design that could be seen in different mobile without its size limitation. I was able to work and make design in different styles using Constraint Layout according to the need. Then my seniors told me to study from Hacking with Swift and from that course I learned how to handle the state or manage the state and also how to handle the HTTP API. After that, I have been assigned to a project named "Food Recipe" in which I had to make the UI and state management and also the functionality of state change and APIs calls. The API of the system was surf from the internet, so by the help of the API, I was given a task on Food Recipe where I have to manage the states and handle to API calls. Our organization have two meetings in a week where first meeting is held on first day of the week and the second is held at the last day of the week. In the meeting, mentors used to give me list of task and suggest me different ways to solve the problems I had faced during work period. In order to solve all those tasks, first I need to research by myself and try to achieve the desired result. If I could not do, then he would help me and give me a proper guidance. From the task my performance in the organization is also evaluated.

4.4 System Development Lifecycle

The systems development life cycle (SDLC) is a conceptual model used in project management that describes the stages involved in an information system development project, from an initial feasibility study. The systems development life cycle (SDLC) is a conceptual model used in project management that describes the stages involved in an information system development project, from an initial feasibility study through maintenance of the completed application (Synopsys, 2017). It is a process used to develop an information system that meets or exceeds customer expectations, reaches completion within time and cost estimates, works effectively and efficiently in the current and planned technology infrastructure. Major Steps Involved in SDLC process are:

- Planning
- Analysis
- Design
- Development
- Testing and Integration
- Implementation
- Maintenance
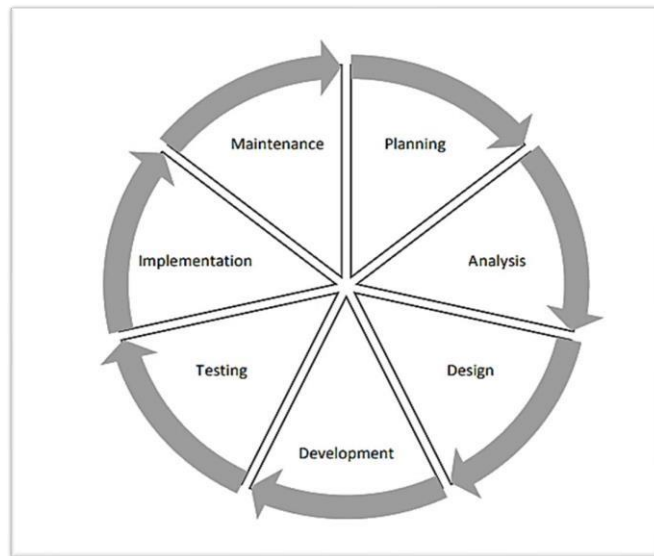
Figure 4-1: System Development Lifecycle

4.4.1 Planning

The initial stage of the development process starts with the actual planning of the system defining how the system is intended to operate whose major objective is to conduct a preliminary analysis, propose alternative solutions, describe costs and benefits and submit a preliminary plan with recommendations. In context of Food Recipe application project, considerable time was spent for planning, of the developed system. Feasibility study was carried out initially to identify whether the requirements can be met or not. Some of the feasibility study that were carried out were: Technical Feasibility Study, Economical Feasibility Study, Schedule Feasibility Study etc. Through this phase, project plan and actual schedule was designed.

4.4.2 Analysis

This stage defines project goals into defined functions and operation of the intended application. It is the process of gathering and interpreting facts, diagnosing problems and recommending improvements to the system. Analyzes end-user information needs and also removes any inconsistencies and incompleteness in these requirements. The analysis process is carried out to study the actual logic of the system, gather operational data and facts, understanding the information flow, finding out the loopholes in the planned phase.

During the development of Food Recipe, the operational flows and collected data were analyzed regarding how those data will be using during the execution of the system. Some loopholes were also identified and then were erased. From this stage, requirement document and logical structure of the system was also made.

4.4.3 Design

After the requirement were identified and detail analysis was done for a new system is to be deigned. This is the cost critical phase in the development of the system. Logical system design is the result of the system analysis and then is converted into physical system design. Various tools and technique were employed for the design of Food Recipe Application. They are:

- Use Case Diagram
- Activity Diagram
- Class Diagram
- Sequence Diagram

4.4.4 Development

Development is the phase where the actual coding is done. In this stage, all the procedures are now converted into control specifications with the use of computer. The design that had been decided in previous phase is converted into a complete information system. This phase includes acquiring and installing systems environment, creating and testing databases, preparing test files, coding, and compiling, refining programs. For Food Recipe Application, we have used Swift

language for the development of the system. Since, the required system was a Mobile Application, we used Swift and Core Data.

4.4.5 Testing and Integration

The subcomponents and modules of the system are integrated together to form a single system. Then the whole system is tested to identify whether the system is working as per its requirement or not. This phase demonstrates and develops the system to confirm the requirement as specified in the Functional Requirements Document. In context to Food Recipe Application, first various small modules were made and each of them were tested individually and separately and then they were integrated as a whole system. The major purpose of this phase is to verify functional, performance, and reliability requirement of Food Recipe Application.

Project Name: Food Recipe

Module Name: Recipe Display

Table 4-1: System Testing - test case 1

S_ID	Modules	TC_ID	Test cases
		TC_001	Verify that recipes are displayed with their title and image.
1	Recipe Display	TC_002	Verify that the ingredients and instructions are displayed in a clear and organized manner.
		TC_003	Verify that the users can visit YouTube to see videos of recipes through provided URL.

Test steps	Expected Result	Actual Result	Status
1. Visit app's homepage 2. Go to search 3. Select Category (Main category/Country Area) 4. Select Recipe	Users should see recipe details completely displayed.	As Expected	PASS
5. Click on recipe 6. Click on Ingredients 7. Click on Instructions	Instructions and ingredients should be displayed sequentially.	As Expected	PASS
8. Click YouTube button for recipe videos	User should be able to go through YouTube videos of recipes.	As Expected	PASS

Module Name: Recipe Categories

Table 4-2: *System Testing - test case 2*

S_ID	Modules	TC_ID	Test cases
2	Recipe Categories	TC_001	Verify that recipes are categorized into beef, chicken, desserts, etc.
		TC_002	Verify that recipe is arranged by country area.
		TC_003	Verify that selecting a category displays recipes specific to that category

Test steps	Expected Result	Actual Result	Status
1. Visit homepage 2. Click on search 3. Select category (Main category/Country Area)	Recipe information should be categorized. so that the user can view the details of the precise recipes for the required category.	As Expected	PASS

Module Name: Recipe Favorite

Table 4-3: *System Testing - test case 3*

S_ID	Modules	TC_ID	Test cases
3	Recipe Favorites	TC_001	Verify that users can mark recipes as favorites and view them later.
		TC_002	Verify that the list of favorite recipes is maintained correctly for each user.
		TC_003	Verify that users can easily add or remove recipes from their favorites list.

Test steps	Expected Result	Actual Result	Status
1. Visit homepage 2. Go to search 3. Select on category 4. Choose the recipe you want to save to your favorites 5. Click on save icon	Users should be able to add recipes to their favorites.	As Expected	PASS
6. Click on favorites icon 7. Check the recipes that is saved in your favorites	List of the recipes that users have added to their favorites should be kept so they may quickly and easily access them later.	As Expected	PASS

8. Visit favorites page 9. Click on edit 10. Select delete	The ability for users to add and remove recipes from their favorites list should be available at all times.	As Expected	PASS

Module Name: Compatibility

Table 4-4: *System Testing - test case 4*

S_ID	Modules	TC_ID	Test cases
4	Compatibility	TC_001	Verify that the recipes display properly on different devices (Mobile, Tablet, Desktop).
		TC_002	Verify that the app is quickly responsive.

Test steps	Expected Result	Actual Result	Status
1. Open app on your device 2. Click on recipe you want 3. Check through your favorite recipes.	Details of recipes should be displayed without any problems on every kind of devices.	As Expected	PASS
	Users should be able to quickly receive responses from the app on their needs.	As Expected	PASS

4.4.5 Implementation

System Implementation phase involves hardware and software acquisition, software development, testing of the programs, and procedures, development of documentation, and a variety of conversion alternatives. This is the phase where the developed system now actually been implemented for the use. System

Implementation is actually done by establishing the relationship between the user and system.

4.4.7 Maintenance

This is the last phase of system development where the bugs are identified and corrected. In this phase, activity is performed for the rest of the software life. The software should response to changes, correction, additions, and move to different computing platforms and more. Generally, it is the longest phase, where the modification of the system has to be done as per requirement.

4.5 Requirement of the System

4.5.1 Functional Requirement

These are statements of services the system should provide, how the system should react to particular inputs, and how the system should behave in particular situations. Food Recipe should be able to perform these activities:

- A search functionality should be provided for users to find recipes on keywords, ingredients, or recipe titles.
- Each recipe should have a dedicated page displaying detailed information, including ingredients, step-by-step instructions and cooking time.
- The recipe page should include a visually appealing layout and design for easy readability.
- Users should be able to mark recipes as favorites and have a separate section to access their favorite recipes quickly.
- The app should provide options to add or remove recipes from the favorite list.
- Each recipe page should include an integrated link to relevant YouTube videos for additional guidance or clarification.
- Users should be able to access the associated video directly within the app in the browser.

4.5.2 Non-Functional Requirement

Non-functional requirements are requirements that are not directly concerned with the specific delivery by the system to its users (College note, n.d.). They may relate to emergent system properties such as reliability, response time and store occupancy. NFR may come from required characteristics of the software or from external sources.

Product requirements Memory

The system must be taking up less memory space for data manipulation.

Compatibility

The system should be compatible with wide range of iOS devices and versions, ensuring a consistent experience across different platforms. Compatibility with different sizes, orientations, and aspect ratios should be considered to accommodate various devices.

Reliability and Stability

The system should be reliable and stable with minimal crashes, errors, or unexpected behavior. Regular testing and quality assurance processes should be implemented to ensure a robust and bug-free application.

Speed

The system should have fast response times and smooth performance, even with a large number of recipes and user interactions. Loading times for recipe pages, images, and videos should be optimizing to minimize waiting times.

User Interface and Design

The system should have an intuitive and visually appealing user interface (UI) design. UI elements should be easy to navigate, understand, and interact with ensuring a positive user experience. Its design should be responsive and compatible with various screen sizes and resolutions.

External requirements

The system must comply with legal and financial acts. It should maintain transparency but should not disclose information to unrelated parties. The system should be liable for providing ease of access for the users.

4.6 Feasibility Analysis

The main objective of feasibility study is to test the technical, operational, economic and schedule feasibility. All systems are feasible only if they are given unlimited resources and infinite time. It helps to determine the benefits of the proposed system in the society and organization. It also determines if the system can be built successfully with cost, time and effort.

4.6.1 Economic Feasibility

It contains the most basic features about financial operations like daily transactions, report generation, products management. The technologies and resources needed to build the software, is already available users only need an internet facility to access this software. So, this software is economical and can serve the user's purpose.

4.6.2 Operational Feasibility

There are some challenges such as users being reluctant to change, but there is high operational feasibility in this system otherwise, because of simple user interface for the users. Also, all the features will be implemented using its own databases and through API and it is compatible for all devices. Therefore, this system will meet the organization's operational requirements.

4.6.3 Technical Feasibility

The technical feasibility assessment is focused on gaining an understanding of the present technical resources available and their applicability to the expected need of the proposed system. All the necessary technology such as Swift, Core Data, etc. are already available (altexsoft, 2020). Also, other resources like laptop, internet, etc. are available. This is an iOS application so it can run on all iOS device. There will not be any problem while running this software on any personal device, making it technically feasible.

4.6.4 Schedule Feasibility

As for the features that we have planned and analyzed for this phase and release, the system has high schedule feasibility. For future works too, there are more things to

be explored, such as client requirement changes, which can also be amended in no time. Hence, we do save both time and cost with this system.

4.7 System Architecture

System architecture is an overview of the system in response to the conceptual and practical difficulties of the description and the design of complex systems. System architecture is a conceptual model that defines the structure, behavior, and more views of a system. It involves a block diagram which is a diagram of a system in which the principal parts or functions are represented by blocks connected by lines that shows the relationships of the blocks. Here, Food Recipe Application provides different services to the user of the system.
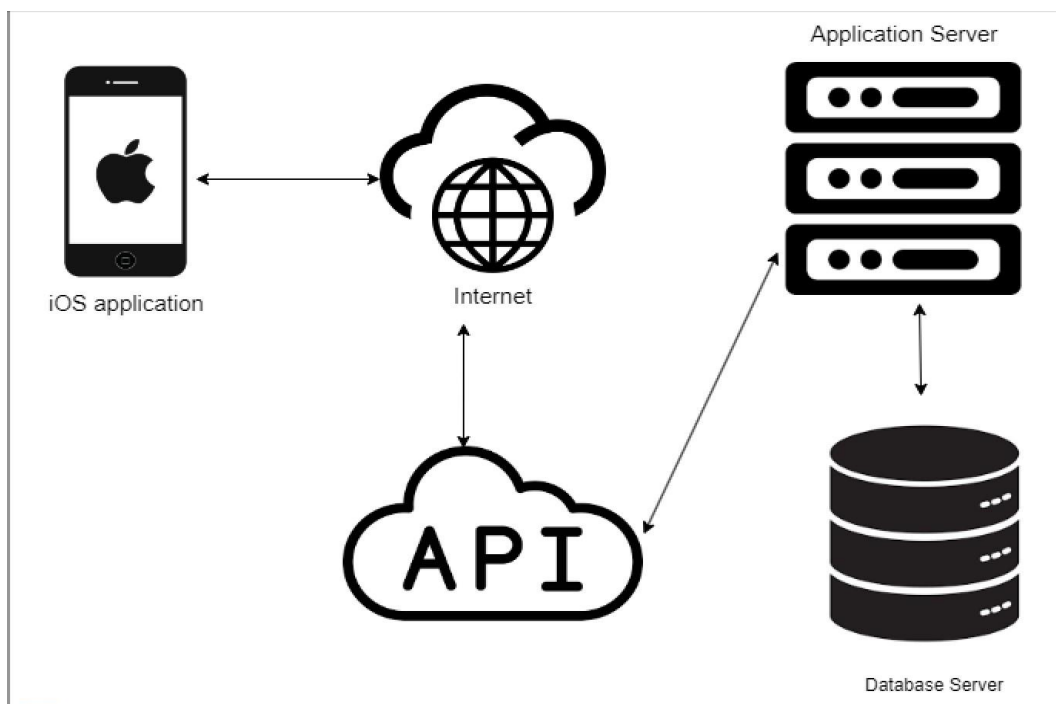
Figure 4-2: System Architecture

4.8 System Modelling

Systems modeling is the interdisciplinary study of the use of models to conceptualize and construct systems in business and IT development. Overall detail of the system is modeled using various modeling tools (Carole A. Lefebvre, 2009).

4.8.1 Use Case Diagram

The use case shows how the actor will be performing what activity within and application the following use case diagram show how user will be performing the different activity within the application. It provides an overview of all or part of the user requirement for system or an organization in the form of an essential model or a business model.
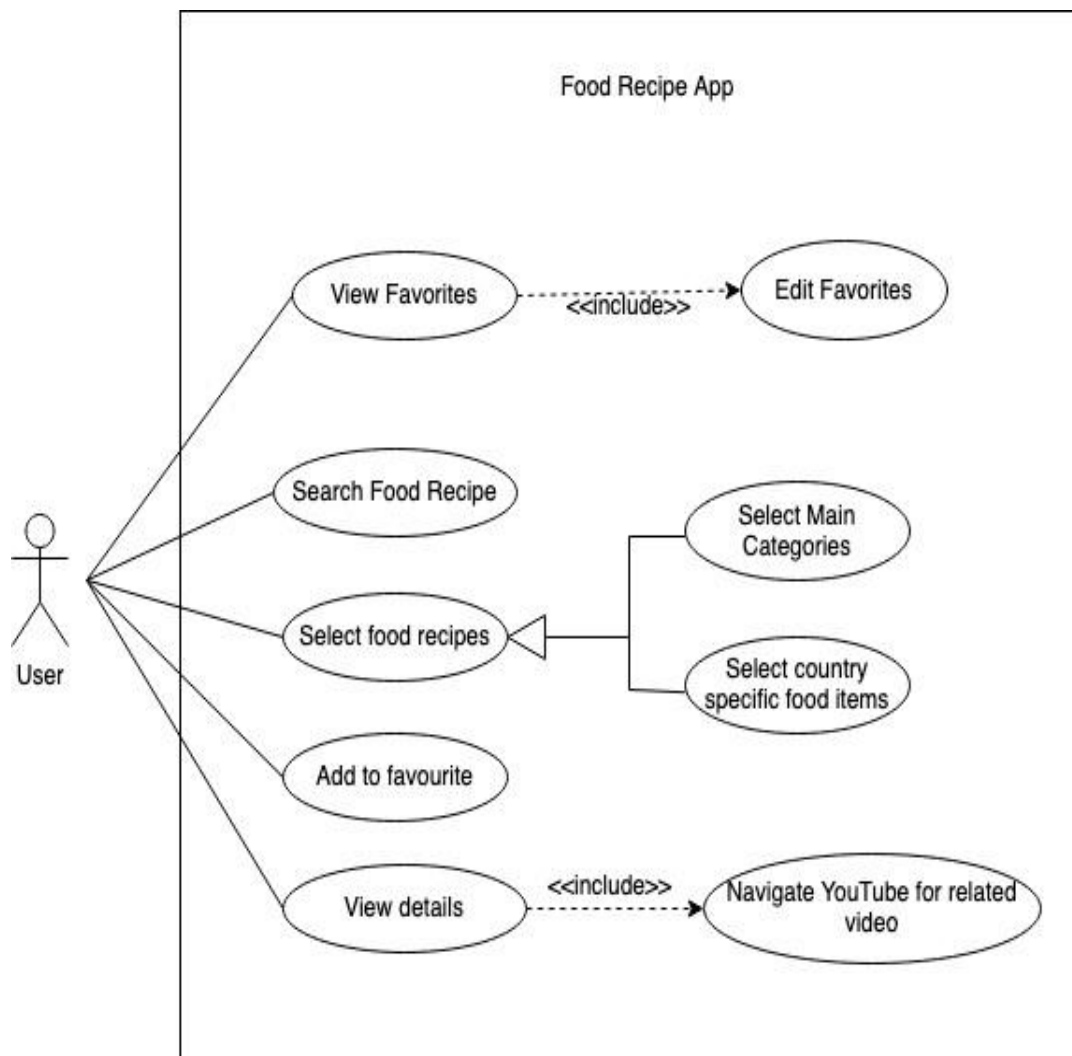
Figure 4-3: Use Case Diagram

Table 4-5: *Use Case Description of Food Recipe*

Actor	User
Description	The user is able to explore and prepare wide variety of recipes based on different categories. Users can easily search for recipes, select ad view the right recipe, mark them as favorites for quick access, and even seek guidance through integrated YouTube links if they need further assistance.
Data	Data includes the foods recipe information like duration, description and YouTube links.
Stimulus	The command can be issues by the user in which s/he can click the button to navigate to YouTube, click icon to keep it as favorite and type in search field to find recipe of food as needed.
Response	For the stimulus instance provided above, the system may respond by navigating to YouTube in browser, adding it to favorite list, deleting listed food recipe.
Comments	Users must have internet connection to access the information.

4.8.3 Activity Diagram

Activity diagram is another important behavioral diagram in UML diagram to describe dynamic aspects of the system. Activity diagram is essentially an advanced version of flow chart that modeling the flow from one activity to another activity. The activity diagram for this system is as follows:
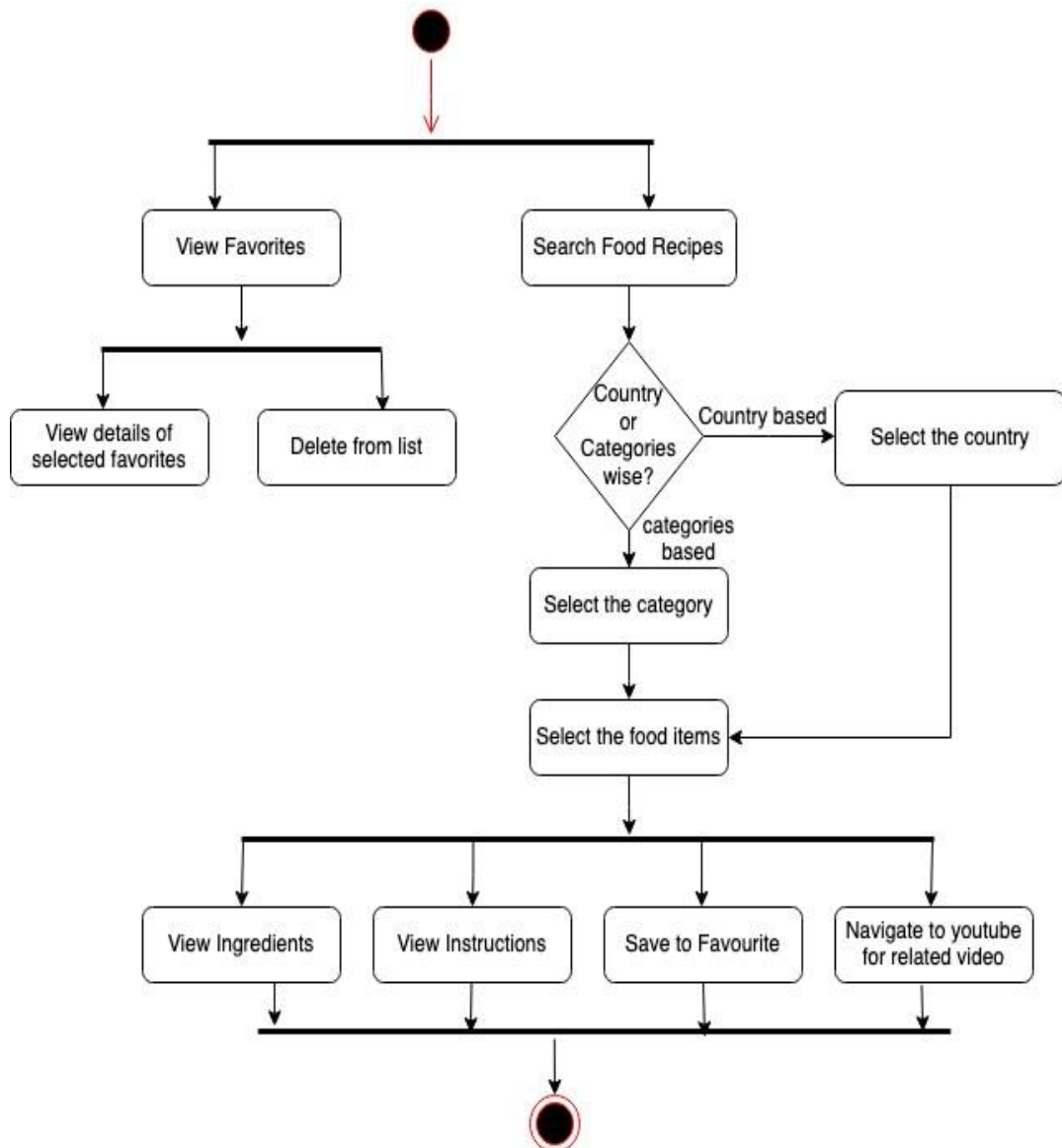
Figure 4-4: Activity Diagram

Table 4-6: Activity diagram description

Activity diagram description
The system starts form the screen where there is search field to search for the food recipe they prefer or else select the food items according to the categories listed in the app. The user can view ingredients, instructions, save to favorite and navigate to YouTube.

4.8.4 Class Diagram
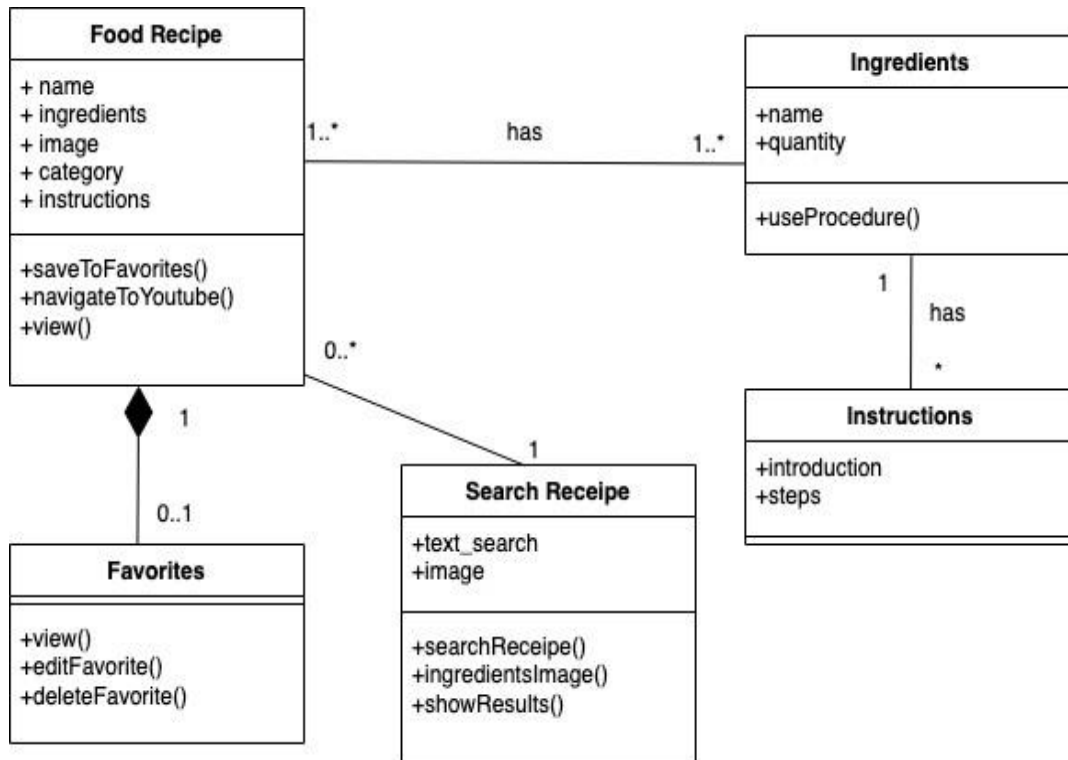
Figure 4-5: Class Diagram

Table 4-7: *Class diagram description*

Activities Description
In the above class diagram, there are five classes (i.e, Food Recipe, Ingredients, Instructions, Search Recipe and Favorites). These given classes and structure defines the static nature of our Food Recipe Application. Association exists between all the five classes. Without food recipe class, favorites and Search Recipe class do not exist.

Chapter 5

SUMMARY AND CONCLUSION

5.1 Findings

The internship program provided BIM students with valuable industrial experience in a variety of organizational contexts. The internship program not only exposed me to a real-world working environment, but it also gave me the opportunity to acquire and appreciate a variety of new concepts, abilities, and values. After three months of internship at Swift Technology Pvt. Ltd., I am aware of so many unlearnt topics. From the basics and principles of designing apps to applying those in professional corporate projects, I learned to value time, research and opportunities. The internship program not only introduced me to the real working environment but it also provided me a platform to grow professionally right at the end of undergraduate program. The following are some of the key conclusions from the three-month internship:

- Differences in the theoretical knowledge in college and practical working
- Coping up within real working environment
- Recognized the importance of connecting theoretical understanding to actual application.
- Working procedure in IT Company and procedures of getting projects from the clients
- Understood importance of coordination and cooperation in working environment
- Knowing the development procedure of effective and efficient system for any organization
- Skill to communicate and report to those parties in time regarding any kind of issues that are dealt in the organization
- Brief insight of career path

5.2 Conclusion

Internship provided a wonderful pool of opportunities for us to learn. It gave us a platform to judge our skills and our capabilities to apply the learnt knowledge into

actual practice. As a part of partial fulfillment of requirement of the degree of BIM, I had to be involved in Swift Technology to gain the practical knowledge and experience through the internship program. Being a part of the company as an intern has truly been a learning experience to remember. Staying in schedule, maintaining social relationships with other employees etc. can be said the major learning from the valuable two-month period of the internship period. With this industrial attachment assignment, we are going through the development phase from student to amateur and in the directional of professional.

With the internship program, I got a practical exposure to the actual environment resulting in gaining more and improved skills and knowledge. Also, through the internship program, I got a chance to get familiar with how IT is actually adopted and also idea about the real time work processing.

Learning new programming concepts, solving and debugging errors, getting familiar with new modules, methodologies, staying in schedule, maintaining social relationships with other employees etc. can be said the major learning from the valuable three-month period of internship period.

5.2 Recommendation

The project Food Recipe Mobile Application was developed in limited time with the guidance of senior developers. Despite the guidance and help from senior developers the module still lacks some changes and modifications. Though the project has been built, testing of the module still remains incomplete. Unit testing and integrated testing have been passed and the module works properly but the module has not gone to deployment yet so requirements can still be upcoming or modifications might still be waiting for Food Recipe Application.

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APPENDIX

Breakfast Potatoes

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Ingredients	Instructions

Potatoes	3 Medium
Olive Oil	1 tbs
Bacon	2 strips
Garlic Clove	Minced
Maple Syrup	1 tbs
Parsley	Garnish
Salt	Pinch
Pepper	Pinch

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Nanaimo Bars

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Ingredients	Instructions

Start by making the biscuit base. In a bowl, over a pan of simmering water, melt the butter with the sugar and cocoa powder, stirring occasionally until smooth. Whisk in the egg for 2 to 3 mins until the mixture has thickened. Remove from heat and mix in the biscuit crumbs, coconut and almonds if using, then press into the base of a lined 20cm square tin. Chill for 10 mins.
For the middle layer, make the custard icing; whisk together the butter, cream and custard powder until light and fluffy, then gradually add the icing sugar until fully incorporated. Spread over the bottom layer and chill in the fridge for at least 10 mins until the custard is no longer soft.
Melt the chocolate and butter together in the microwave, then spread over the chilled bars and put back in the fridge. Leave until the chocolate has fully set (about 2 hrs). Take the mixture out of the tin and slice into squares to serve.

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