A PRELIMENERY REPORT ON

Salon Sync : An Innovative Appointment Booking System

SUBMITTED TO THE SAVITRIBAI PHULE PUNE UNIVERSITY, PUNE IN THE PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE

BACHELOR OF ENGINEERING
(Computer Engineering)

SUBMITTED BY

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DEPARTMENT OF COMPUTER ENGINEERING

NBN Sinhgad Technical Institute Campus

2023-2024

CERTIFICATE

This is to certify that the Project Entitled

”Salon Sync : An Innovative Appoinment Booking System”

Submitted by

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is a bonafide work carried out by them under the supervision of **Prof. Priti Warunguse** andit is approved for the partial fulfillment of the requirement of Savtribai Phule Pune university, Pune for the award of the degree of Bachelor of Engineering (ComputerEngineering).

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Abstract

The Salon Appointment System is a comprehensive digital solution designed to revolutionize the way salons and beauty spas manage their appointments and enhance customer experience. Traditional appointment scheduling meth- ods often lead to inefficiencies, scheduling conflicts, and missed opportunities for personalized customer service. This system aims to streamline the entire appointment process, pro- viding salon staff and customers with an intuitive and efficient platform for scheduling, managing preferences, and receiving timely reminders.

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Android

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- computer vision
- Android Development
- Testing

1.6 PROBLEM STATEMENT

The existing manual or outdated digital systems used by salons are not efficient and user-friendly. Salon staff often struggle with managing appointments, keeping track of customer preferences, and ensuring timely service delivery. Customers also face challenges in booking appointments conveniently, rescheduling, or canceling them.

1.7 ABSTRACT

The Salon Appointment System is a comprehensive digital solution designed to revolutionize the way salons and beauty spas manage their appointments and enhance customer experience. Traditional appointment scheduling methods often lead to inefficiencies, scheduling conflicts, and missed opportunities for personalized customer service. This system aims to streamline the entire appointment process, providing salon staff and customers with an intuitive and efficient platform for scheduling, managing preferences, and receiving timely reminders.

1.8 GOALS AND OBJECTIVES

To streamline the appointment scheduling process, reduce scheduling conflicts, and optimize staff utilization, enhancing the overall operational efficiency of the salon.

To minimize the number of missed appointments by implementing automated reminders and notifications, ensuring customers are punctual and respecting their time as well as the salon's.

To maintain a comprehensive customer database with preferences and history, enabling staff to offer personalized services tailored to individual needs, enhancing the overall customer experience.

1.9 NAMES OF CONFERENCES / JOURNALS WHERE PAPERS CAN BE PUBLISHED

1. Gunther Eysenbach “Web-Based Medical Appointment Systems”, J Med Internet Res. 2020

2. Arthur Hylton III and Suresh Sankaranarayanan “Application of Intelligent Agents in Hospital Appointment Scheduling System”, International Journal of Computer Theory and Engineering, Vol. 4, No. 4, August 2020

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10. M. J. Vaishali and M. K. A. V, “Smart Hair Salon Management System,” no. Ncetete, 2019.

1.10 REVIEW OF CONFERENCE/JOURNAL PAPERS SUPPORTING PROJECT IDEA

1.Paper Name:BOOKAZOR - an Online Appointment Booking System
Author Name: Akshay V, Anish Kumar S ,Alagappan RM, Dr.Gnanavel S
Description: This application is streamlined in an ionic basis. It is an open source SDK for hybrid mobile application development. It uses technologies like CSS, HTML, and JavaScript. Firebase plays a vital role in fetching data for appointment scheduling that helps to enhance application development effectively. It provides functionalities like analytics, database, messaging, and crash reporting which helps in focusing the users. The system includes NodeJS for storing the number of requests, each of which specifies a sequence of regions to be visited by a particular user.

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Author Name: Maryani, Hendro Nindito, Hendra Alianto

Description: The aim of this research is to analyze and design an online Barbershop and Salon reservation system that suits the needs of its users, Owners and Customers. On the other hand this system can reduce waiting time for each barbershop and salon. The methodology used to analyze system requirements is to compile a list of ques- tions and disseminate with online Google docs and analyze using partial correlation.The data obtained is then processed to get an overview of the need for this system tobe developed. As a result of this research, the Online Reservation System is suitablefor use to reduce customer waiting time. Based on our research, it can be concludedthat the majority of respondents who go to a salon or Barbershop are young people aged between 21 and 30 years (52profession (85systems on barbershop and salon based on the Web.

3. **Paper Name:** Salon Management System

Author Name: Adarsh Kumar Gulshan, 2Amir Khan,

Description: A saloon management system is a website that manages the appoint- ment scheduling functionality. This system connects users and Salon in an online platform where user can browse salon and their services. Users can also write and read reviews of the salon and its management. Salon management system helps the industry to fill this void in such a way that is on-demand, easy to use, and effective. The final product will be a functioning web application that can handle use cases like user account registration, login/logout, appointment scheduling, writing, and read- ing review for specific salon.

4. **Paper Name:** QVID: AI based Salon Booking Application

Author Name::Asha S, Vaibhav Nair,Neeraj Sagar, Silpa P T,Merin Mary Sabu

Description: The current pandemic is restricting the scope of human crowding at places which otherwise seemed to be normal. Safety of the highest order being fol- lowed, a common man now has to think twice before proceeding for the most basic

of chores, like getting a haircut. The appointment booking system is a custom which has always existed in the community, but seldom used, except for the time-conscious individuals. But this pandemic has brought up the perfect opportunity to normalize this stratagem. And since all the power in the world is now at the tip of your fingers, in the form of a smartphone, we have come up with the idea of merging these two aspects and come up with an android application QVID for the ease of use and time-efficiency. The customer shall view various salons and the services they provide along with the fee. The customers shall proceed to make an appointment request where they have the feature of setting a Suitable-Time Slot.

5. **Paper Name:**Geographic Information System for Booking Beauty Salon and Barber Shop with an Android-Based ECRM Approach

Author Name:I Kadek Dharma Krisna Putra1 , I Nyoman Piarsa2 , I Made Sukarsa3

Description: Beauty salons and barbershop are a necessity for almost everyone. Nowadays, the business processes of them mostly still use conventional methods. The method gives obstacles to customers who have a lot of activities, for example, they have to come directly to the beauty salon or barbershop to take the queue. In addition, it is hard to promote, communicate, and assess without E-CRM media. The location is also difficult to find because there is no guiding mark on Google Maps. The Geographic Information System for Booking Beauty Salon and Barber Shop provides solutions for making scheduled bookings and transactions by using the e-CRM approach as in the application of promotional features to attract customers. There are some features offered in the application, such as chat features for communication, rating, and review feature to assess the services obtained, and route feature as a solution to show the location of selected vendors.

6. **Paper Name:**Android Based Smart Appointment System (SAS) for Booking and Interacting with Teacher for Counselling

Author Name:MD. Khairul Islam, Syeda Jannatul Boshra,Mahfuzur Rahman, MD. Mominul Islam Jony,

Description: An appointment system is going to be popular nowadays. The neces-

sity of these types of systems is increasing day by day specially in education sector. Worldwide COVID19 pandemic provoke the demand of these types of application. In this research paper, an Android-based appointment is built for booking an appointment and communicating with the teacher. To use this system both student and teacher have to an android device with connection of the internet. A single android application will be used for both types of users. Students can get the information of all teachers and book an appointment with teachers and teachers can accept or decline this appointment. Java programming language is used for this system and Google's Firebase is used for the database. In addition, the modern coding Architecture pattern MVVM (Model-View-View Model) followed to build this system. Hopefully, this system saves valuable time and makes the teacher-student interaction journey easier.

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Author Name: Akshaj Chandwani, Kartikey Shrivastava, Siddharth Sadashiv, Ishani Saha, Payal Mishra

Description: In the current day and age, systems that aid in carrying out tasks traditionally performed by human assistants are becoming more popular as human operators need more time for executing queries such as booking a ticket, purchasing items, or obtaining services. A single request may comprise many inquiries for information available on the Internet. Since business performance places a premium on time efficiency, an alternate method of accepting requests must be considered. Chatbot provides support 7 days a week, round-the-clock, and is not constrained by limited working hours. We studied various papers which approached this topic and presented their approach on creating a chatbot. Majority of the studies indicated that a retrieval-based chatbot is the best way to classify the user's context in a discussion using Utilizing Natural Language Processing (NLP) to assess the query and get some relevant keywords. Intent recognition, name entity recognition (NER) tagging, and information retrieval are essential processes in NLP.

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Author Name: Sabale Pankaj, Ashwin Tomar, Yadav Poojashree, Jadhav Saurabh, Shubhangi Bhatambrekar, Shashank Awasthi

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Author Name: Prof. Tomokazu Matsui 1,* , Kosei Onishi 1 , Shinya Misaki 1 , Manato Fujimoto 1 , Hirohiko Suwa 1,2 and Keiichi Yasumoto 1

Description: As aging populations continue to grow, primarily in developed countries, there are increasing demands for the system that monitors the activities of elderly people while continuing to allow them to pursue their individual, healthy, and independent lifestyles. Therefore, it is required to develop the activity of daily living (ADL) sensing systems that are based on high-performance sensors and information technologies. However, most of the systems that have been proposed to date have only been investigated and/or evaluated in experimental environments. When considering the spread of such systems to typical homes inhabited by elderly people, it is clear that such sensing systems will need to meet the following five requirements: (1) be inexpensive; (2) provide robustness; (3) protect privacy; (4) be maintenance-free; and, (5) work with a simple user interface. In this paper, we propose a novel senior-friendly ADL sensing system that can fulfill these requirements

1.11 PLAN OF PROJECT EXECUTION

Sr. No.	Name/Title	Start Date	End Date
1	Preliminary Survey		
2	Introduction and Problem Statement		
3	Literature Survey		
4	Project Statement		
5	Software Requirement And Specification		
6	System Design		
7	Partial Report Submission		
8	Architecture Design		
9	Implementation		
10	Deployement		
11	Testing		
12	Paper Publish		
13	Report Submission		

CHAPTER 2

TECHNICAL KEYWORDS

2.1 AREA OF PROJECT

Its main Area is Salon Appointment Android Application

2.2 TECHNICAL KEYWORDS

- computer vision
- Android Development
- Testing

CHAPTER 3

INTRODUCTION

3.0.1 Project Idea

- In the bustling world of today, where time is of the essence, people seek convenience in every aspect of their lives. One such area where convenience matters greatly is scheduling appointments, especially in the beauty and wellness industry. Whether it's a haircut, a massage, a facial, or any other salon service, individuals want a seamless and hassle-free way to book appointments and manage their schedules. This is where our Salon Appointment Android Application comes into play. With our Salon Appointment Android Application, we aim to revolutionize the salon industry by providing a seamless and efficient way for clients to book appointments and for salon professionals to manage their schedules effectively. Embracing the power of technology, our application is set to redefine the salon experience, making it convenient, transparent, and enjoyable for everyone involved. Experience the future of salon management with our innovative Android application.

3.0.2 Motivation of the project

The need to bridge the gap between the evolving technological landscape and the traditional salon industry. Several factors have driven the development of this application, aiming to address challenges faced by both salon owners and clients while capitalizing on the opportunities presented by modern technology

3.0.3 Literature Survey

1. Paper Name: BOOKAZOR - an Online Appointment Booking System
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CHAPTER 4

PROBLEM DEFINITION AND SCOPE

4.1 PROBLEM STATEMENT

The existing manual or outdated digital systems used by salons are not efficient and user-friendly. Salon staff often struggle with managing appointments, keeping track of customer preferences, and ensuring timely service delivery. Customers also face challenges in booking appointments conveniently, rescheduling, or canceling them.

4.1.1 Goals and objectives

- To provide users with a more interactive and engaging online shopping experience by allowing them to virtually try on clothes before making a purchase.
- To increase the likelihood of website visitors making a purchase by giving them confidence in how the clothes will fit and look on them.
- To enhance customer satisfaction and loyalty by providing a personalized and enjoyable shopping experience.

4.1.2 Statement of scope

The Salon Appointment Android Application aims to streamline the salon booking process, enhancing convenience for clients and optimizing operations for salon owners and staff. The application will serve as a user-friendly platform where clients can effortlessly schedule appointments, access detailed service information, and receive timely reminders, while salon professionals can manage their schedules efficiently, minimize no-shows, and provide exceptional services.

4.2 MAJOR CONSTRAINTS

The application will be developed exclusively for Android devices, limiting its availability to Android users..

4.3 METHODOLOGY OF PROBLEM SOLVING

- Gather detailed requirements from stakeholders, including salon owners, staff, and potential users.Gather feedback from stakeholders to refine the design, ensuring intuitive navigation and user-friendly interactions. Choose appropriate technologies and development tools for Android application development. Adopt an agile development methodology, breaking the project into smaller sprints with specific tasks and goals. Foster collaboration among developers, designers, and stakeholders to ensure alignment between technical implementation and user expectations.Implement automated testing procedures to validate the application's functionality, performance, and security.

4.4 APPLICATIONS

- Schedule Management
- Appointment Management
- Appointment Reminders

4.5 HARDWARE REQUIREMENT

- Hardware : intel core

- Speed : 2.80 GHz

- RAM : 8GB

- HardDisk : 40 GB

- Key Board: Standard Windows Keyboard

4.6 SOFTWARE REQUIREMENT

- Operating System: Windows 10

- IDE: Visual Studio

- Front End: Kotlin

- Back End: Firebase

CHAPTER 5

PROJECT PLAN

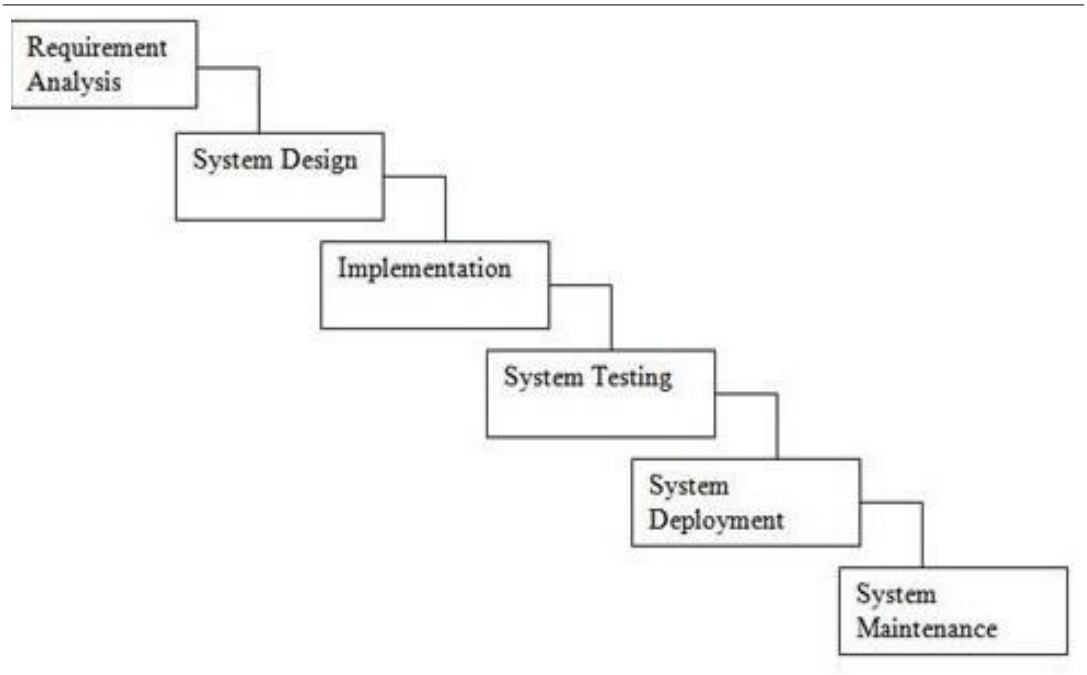
5.1 PROJECT ESTIMATES

We are using waterfall model for our project estimation.

1. **Requirement gathering and analysis:** In this step of waterfall we identify what are various requirements are need for our project such are software and hardware required, database, and interfaces.
2. **System Design:** In this system design phase we design the system which is easily understood for end user i.e. user friendly. We design some UML diagrams and data flow diagram to understand the system flow and system module and sequence of execution.
3. **Implementation:** In implementation phase of our project we have implemented various module required of successfully getting expected outcome at the different module levels. With inputs from system design, the system is first developed in small programs called units, which are integrated in the next phase. Each unit is developed and tested for its functionality which is referred to as Unit Testing.
4. **Testing:** The different test cases are performed to test whether the project module are giving expected outcome in assumed time. All the units developed in the implementation phase are integrated into a system after testing of each unit. Post integration the entire system is tested for any faults and failures.
5. **Deployment of System:** Once the functional and non-functional testing is done, the product is deployed in the customer environment or released into the market.
6. **Maintenance:** There are some issues which come up in the client environment. To fix those issues patches are released. Also to enhance the prod- uct some better versions are released. Maintenance is done to deliver these changes in the customer environment.

All these phases are cascaded to each other in which progress is seen as flowing steadily downwards like a waterfall through the phases. The next phase is started only after the defined set of goals are achieved for previous phase and it is signed off, so the name ”Waterfall Model”. In this model phases do not

overlap.



5.1.1 Reconciled Estimates

Project reconciliation management is a component of Project management which arranges every one of the parts of a project. Project reconciliation guarantees smooth execution of all procedures.

5.1.2 Project Resources

Well configured Laptop, eclipse IDE, 2 GHZ CPU speed, 8 GB RAM, Internet connection

5.2 RISK MANAGEMENT W.R.T. NP HARD ANALYSIS

1. **In appropriate dataset -**To overcome this risk we are trying to use well organized and complete dataset.
2. **Security-** To overcome and improving security we use multilevel security like access permissions of user.

5.2.1 Risk Identification

- Inaccurate shot detection: The system may encounter challenges in accurately identifying and classifying different types of shots, leading to incorrect scoring and analysis. This can occur due to variations in player techniques, occlusions, poor lighting conditions, or noise in the video feed.
- False positives or false negatives: The shot detection system may generate false positives, identifying shots where there was none, or false negatives, missing actual shots played by the batsmen. This can occur due to algorithmic limitations, technical issues, or inadequate training data.

5.2.2 Risk Analysis

The risks for the Project can be analyzed within the constraints of time and quality

ID	Risk Description	Probability	Impact		
			Schedule	Quality	Overall
1	Description 1	Low	Low	High	High
2	Description 2	Low	Low	High	High

Figure 5.1: Risk Table

Probability	Value	Description
High	Probability of occurrence is	$> 75\%$
Medium	Probability of occurrence is	$26 - 75\%$
Low	Probability of occurrence is	$< 25\%$

Figure 5.2: Risk Probability definitions

Impact	Value	Description
Very high	$> 10\%$	Schedule impact or Unacceptable quality
High	$5 - 10\%$	Schedule impact or Some parts of the project have low quality
Medium	$< 5\%$	Schedule impact or Barely noticeable degradation in quality Low Impact on schedule or Quality can be incorporated

Figure 5.3: Risk Impact definitions

5.3 PROJECT SCHEDULE

Figure 5.4: Project Schedule

5.4 TASK NETWORK

Major Tasks in the Project stages are:

- Task 1: correctness
- Task 2: availability
- Task 3: integrity

5.4.1 Task Network

Figure 5.5: Task Network

5.4.2 Timeline Chart

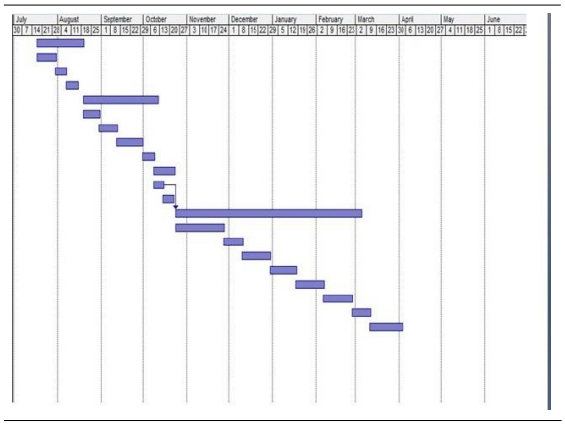


Figure 5.6: Timeline Chart

5.5 TEAM ORGANIZATION

Team consists of 4 members and proper planning mechanism are used and roles of each member are defined.

5.5.1 Team structure

The team structure for the project is identified. There are total 4 members in our team and roles are defined. All members are contributing in all the phases of project.

5.5.2 Management reporting and communication

Well planning mechanisms are used for progress reporting and inter/intra team communication are identified as per requirements of the project.

CHAPTER 6

SOFTWARE REQUIREMENT SPECIFICATION

6.1 INTRODUCTION

Our Salon Appointment Android Application is designed to simplify the process of booking salon services for clients and managing appointments for salon owners and staff. This innovative application harnesses the power of technology to create a user-friendly platform that benefits both clients and salon professionals.

6.1.1 Purpose and scope of documentation

- We will be building a model which will salon appointment androis application.
- 1. The purpose of documentation for the Salon Appointment Android Application is to provide comprehensive, clear, and organized information to various stakeholders involved in the development, implementation, and usage of the application.
- 2. It guides developers and designers by outlining the technical specifications, architecture, and design principles, ensuring a unified understanding of the application's structure and functionalities.

6.1.2 Overview of responsibilities of Developer

Researching, designing, implementing, and managing software programs. Testing and evaluating new programs. Identifying areas for modification in existing programs and subsequently developing these modifications. Writing and implementing efficient code.

6.2 USAGE SCENARIO

A case scenario is a made-up situation or problem using real-life constraints and affects in order to discuss and predict how a certain situation could turn

out in the real world. By testing the potential outcomes of a problem, those problems are sometimes easier to avoid and solve

6.2.1 User profiles

In the Project there are User, first user will Done their Login and Registration.

6.2.2 Use-cases View

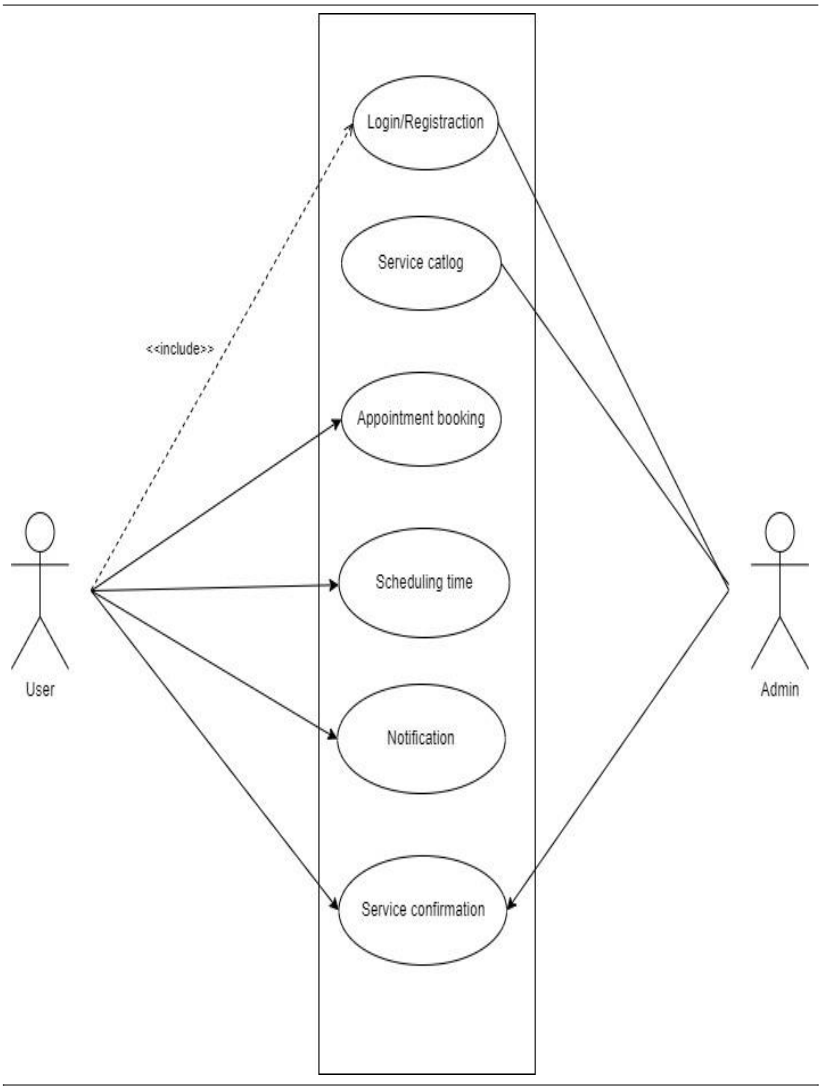


Figure 6.1: Usecaseview Diagram

6.3 DATA MODEL AND DESCRIPTION

6.3.1 Data Description

Java is a widely-used, object-oriented programming language known for its portability, scalability, and robustness. It has been the primary language for Android app development for many years. Kotlin is a modern, expressive, and concise programming language developed by JetBrains. It is fully interoperable with Java, meaning Kotlin code can seamlessly work with Java code.

6.4 FUNCTIONAL MODEL AND DESCRIPTION

• The performance of the functions and every module must be well.
• The overall performance of the software will enable the users to work efficiently.
• Performance of response should be fast.
• Performance of the providing virtual environment should be fast.

6.4.1 Data Flow Diagram

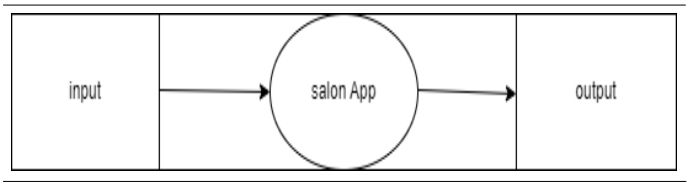


Figure 6.2: DFD0 Diagram

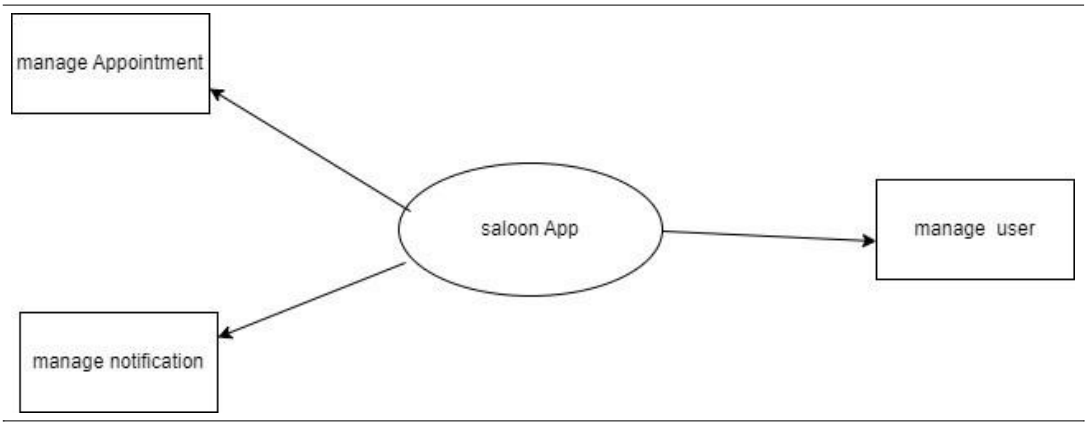


Figure 6.3: DFD1 Diagram

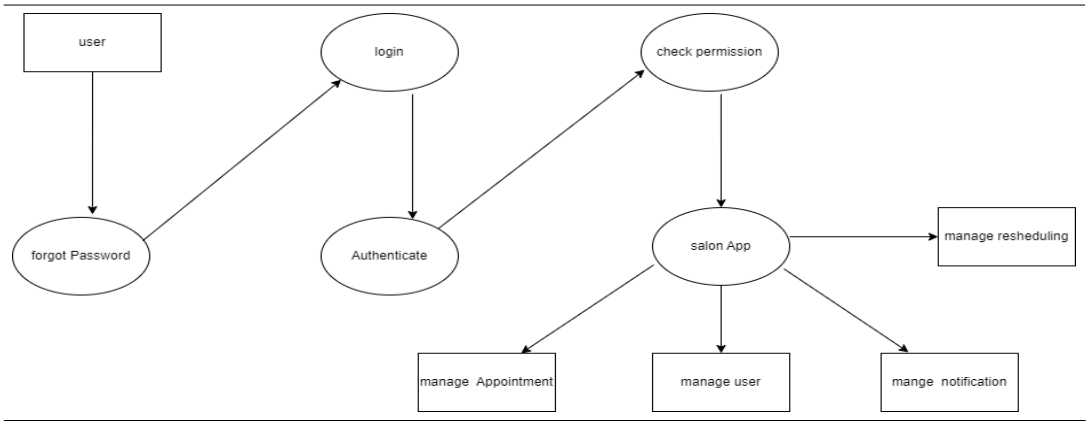


Figure 6.4: DFD2 Diagram

6.4.2 Activity Diagram

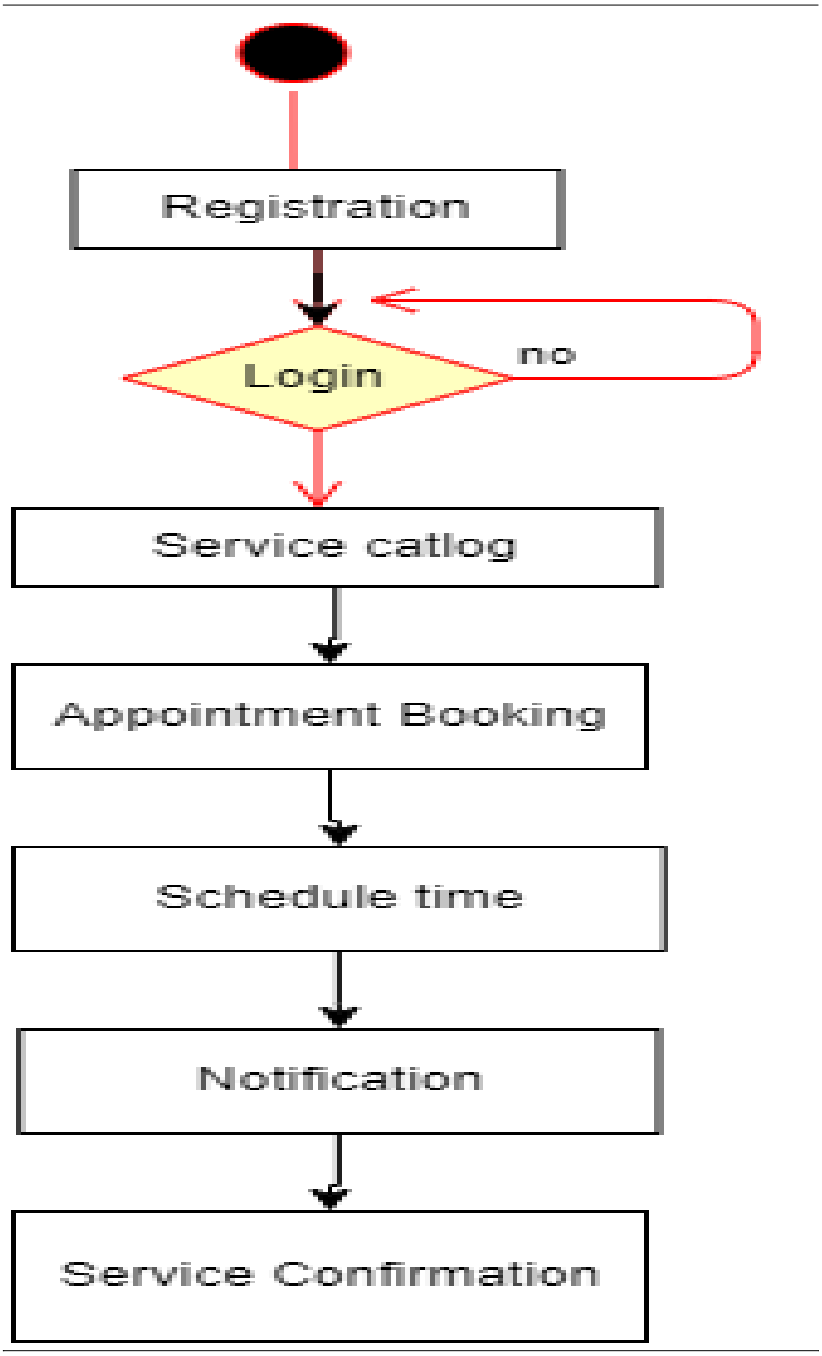


Figure 6.5: Activity Diagram

6.4.3 Non Functional Requirements

• The performance of the functions and every module must be well.

• The overall performance of the software will enable the users to work efficiently.

• Performance of response should be fast.

• Performance of the providing virtual environment should be fast.

6.4.4 State Diagram

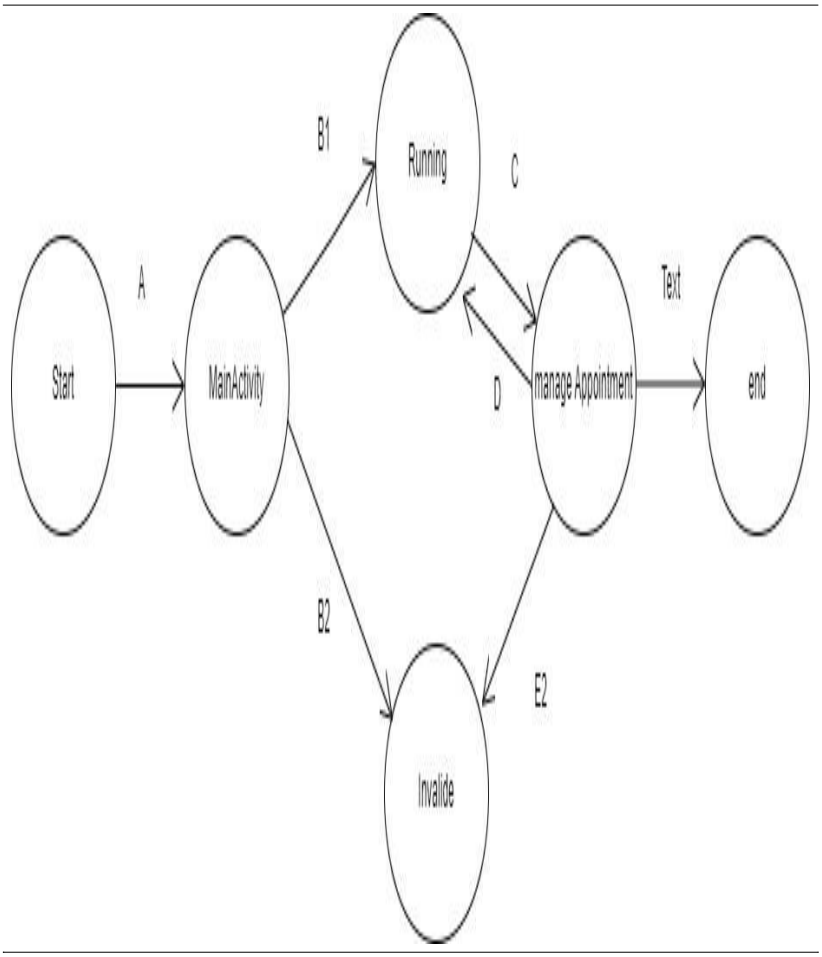


Figure 6.6: State Diagram

6.4.5 Software Interface Description

- Operating System: Windows 10
- IDE: Visual Studio
- Front End: Kotlin
- Back End: Firebase

6.5 ANALYSIS MODEL: SDLC MODEL TO BE APPLIED

- The software development cycle is a combination of different phases such as designing, implementing and deploying the project. These different phases of the software development model are described in this section. The SDLC model for the project development can be understood using the following figure The chosen SDLC model is the waterfall model which is easy to follow and fits bests for the implementation of this project.
- Requirements Analysis: At this stage, the business requirements, definitions of use cases are studied and respective documentations are generated. Design: In this stage, the designs of the data models will be defined and different data preparation and analysis will be carried out.
- Implementation: The actual development of the model will be carried out in this stage. Based on the data model designs and requirements from previous stages, appropriate algorithms, mathematical models and design patterns will be used to develop the agent's back-end and front-end components.
- Testing: The developed model based on the previous stages will be tested in this stage. Various validation tests will be carried out over the trained model. Deployment: After the model is validated for its accuracy scores its ready to be deployed or used in simulated scenarios.

CHAPTER 7

DETAILED DESIGN DOCUMENT USING ANNEXURE A AND B

7.1 INTRODUCTION

This document explores the multifaceted realm of Image-Based Virtual Try-On for clothes. It delves into the technical intricacies, user experience design, market trends, and the transformative impact of this technology on the fashion and e-commerce industries. By examining the challenges and opportunities presented by Image-Based Virtual Try-On systems, this exploration aims to provide a comprehensive understanding of this innovative approach to online shopping, paving the way for a more interactive, convenient, and enjoyable future in the world of fashion retail.

7.2 ARCHITECTURAL DESIGN

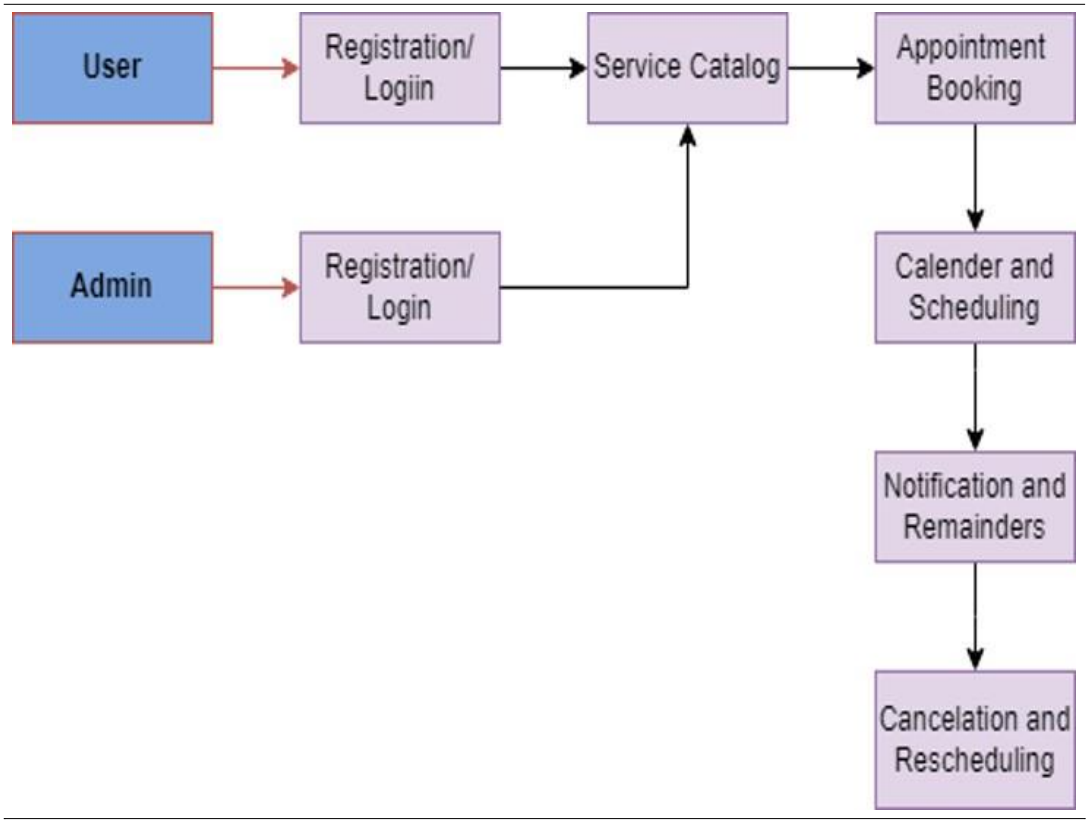


Figure 7.1: System Architecture

7.3 DATA DESIGN (USING ANNEXURES A AND B)

7.3.1 Global data structure

the data structure for a Salon Appointment Android app involves organizing the data in a way that allows efficient management of appointments, customers, stylists, and other relevant information

7.4 DATABASE DESCRIPTION

Firebase is a popular cloud-based platform developed by Google for building and managing web and mobile applications. It offers a variety of services and tools that help developers build high-quality apps, improve user engagement, and grow their businesses. Firebase supports various platforms, including iOS, Android, and web applications, making it versatile for cross-platform development. Firebase integrates seamlessly with other Google Cloud Platform services and third-party tools, offering extensibility and scalability for complex applications. Allow users to create accounts or log in using email/password or social media accounts. Firebase Authentication integrates seamlessly with other Firebase services. Use Firebase Storage to securely store images, videos, and 3D model files. You can generate secure URLs to access these files directly from the client-side application. Use Firebase Cloud Functions to handle complex server-side logic, such as sending notifications, processing payments, or analyzing user interactions. Cloud Functions can be triggered by database events or HTTP requests.

7.5 COMPOENT DESIGN

7.5.1 Class Diagram

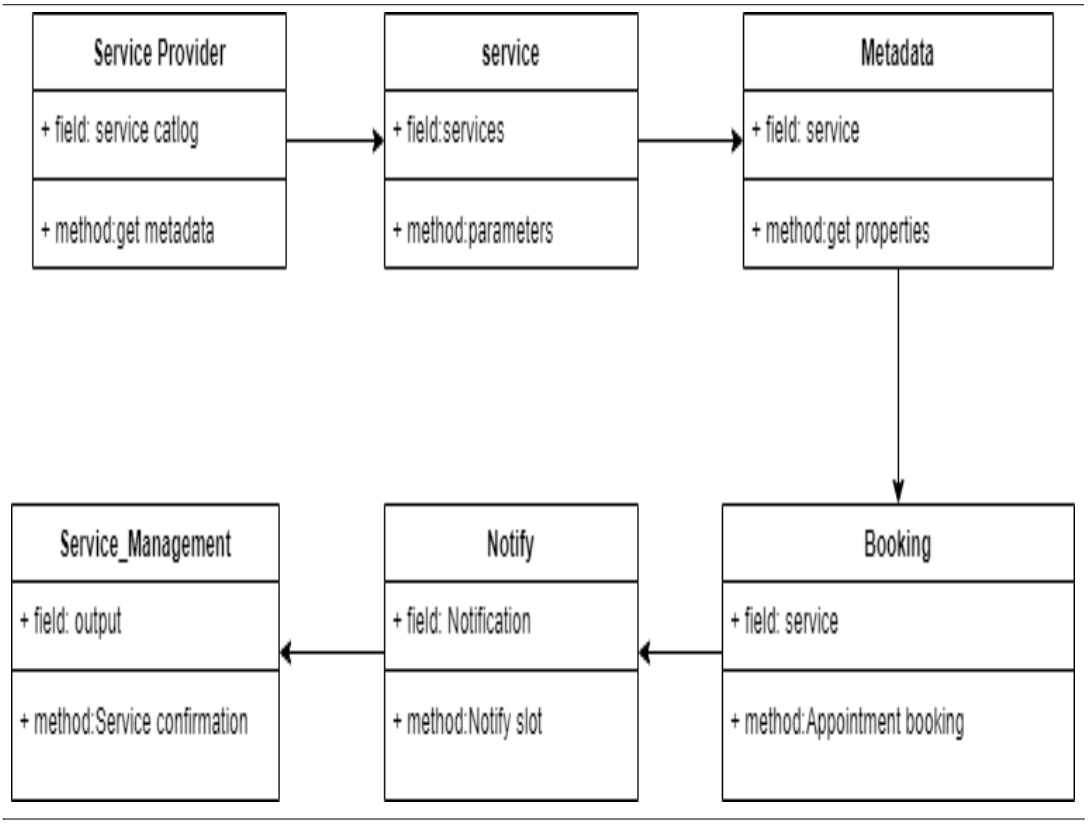


Figure 7.2: Class Diagram

CHAPTER 8

PROJECT IMPLEMENTATION

8.1 INTRODUCTION

In this chapter we are going to have an overview about how much time does it took to complete each task like- Preliminary Survey Introduction and Problem Statement, Literature Survey, Project Statement, Software Requirement and Specification, System Design, Partial Report Submission, Architecture Design, Implementation, Deployment, Testing, Paper Publish, Report Submission. This chapter also gives focus on stakeholder list which gives information about project type, customer of the proposed system, user and project member who developed the system.

8.2 TOOLS AND TECHNOLOGIES USED

Libraries :-

Android is a mobile operating system based on a modified version of the Linux kernel and other open source software, designed primarily for touchscreen mobile devices such as smartphones and tablets. Android is developed by a consortium of developers known as the Open Handset Alliance and commercially sponsored by Google. It was unveiled in November 2007, with the first commercial Android device launched in September 2008.

It is free and open source software; its source code is known as Android Open Source Project (AOSP), which is primarily licensed under the Apache License. However most Android devices ship with additional proprietary software preinstalled, most notably Google Mobile Services (GMS) which includes core apps such as Google Chrome, the digital distribution platform Google Play and associated Google Play Services development platform. About 70 percent of Android smartphones run Google's ecosystem; competing Android ecosystems and forks include Fire OS (developed by Amazon) or LineageOS. However the "Android" name and logo are trademarks of Google which impose standards to restrict "uncertified" devices outside their ecosystem to use Android branding.

The source code has been used to develop variants of Android on a range of other electronics, such as game consoles, digital cameras, portable media play- ers, PCs and others, each with a specialized user interface. Some well known derivatives include Android TV for televisions and Wear OS for wearables, both developed by Google. Software packages on Android, which use the APK format, are generally distributed through proprietary application stores like Google Play Store, Samsung Galaxy Store, and Huawei AppGallery, or open source platforms like Aptoide or F-Droid.

Android has been the best-selling OS worldwide on smartphones since 2011 and on tablets since 2013. As of May 2017, it has over two billion monthly active users, the largest installed base of any operating system, and as of August 2020, the Google Play Store features over 3 million apps.[15] The current stable version is Android 11, released on September 8, 2020

Android Studio: Android Studio is the official[7] integrated development environment (IDE) for Google's Android operating system, built on JetBrains' IntelliJ IDEA software and designed specifically for Android development.[8] It is available for download on Windows, macOS and Linux based operating systems or as a subscription-based service in 2020.[9][10] It is a replacement for the Eclipse Android Development Tools (E-ADT) as the primary IDE for native Android application development.

Android Studio was announced on May 16, 2013 at the Google I/O conference. It was in early access preview stage starting from version 0.1 in May 2013, then entered beta stage starting from version 0.8 which was released in June 2014.[11] The first stable build was released in December 2014, starting from version 1.0

XAMPP

XAMPP is one of the widely used cross-platform web servers, which helps developers to create and test their programs on a local webserver. It was developed by the Apache Friends, and its native source code can be revised or modified by the audience. It consists of Apache HTTP Server, MariaDB, and interpreter for the different programming languages like PHP and Perl. It is available in 11 languages and supported by different platforms such as the IA-32 package of Windows x64 package of macOS and Linux.

What is XAMPP?

XAMPP is an abbreviation where X stands for Cross-Platform, A stands for Apache, M stands for MYSQL, and the Ps stand for PHP and Perl, respectively. It is an open-source package of web solutions that includes Apache distribution for many servers and command-line executables along with modules such as Apache server, MariaDB, PHP, and Perl.

XAMPP helps a local host or server to test its website and clients via computers and laptops before releasing it to the main server. It is a platform that furnishes a suitable environment to test and verify the working of projects based on Apache, Perl, MySQL database, and PHP through the system of the host itself. Among these technologies, Perl is a programming language used for web development, PHP is a backend scripting language, and MariaDB is the most vividly used database developed by MySQL. The detailed description of these components is given below

8.3 VERIFICATION AND VALIDATION FOR ACCEPTANCE

Verification is the process of evaluating whether the software product has been designed and implemented correctly according to its specifications and requirements. It focuses on confirming that the work products (e.g., code, design, documentation) accurately represent the intended functionality and that

the software aligns with the initial design and specifications.The first step in acceptance testing is to verify that the software system meets the predefined acceptance criteria, which are typically documented in the requirements and acceptance test plans. This involves checking if the software's features and behaviors align with what was agreed upon during project planning.The software is examined to ensure that it performs the functions and operations as specified, and that it correctly implements the desired features.

CHAPTER 9

SOFTWARE TESTING

9.1 TYPE OF TESTING USED

Unit Testing:

It is the testing of individual software units of the application .it is done after the complexion of an individual unit before integration. Unit testing involves the design of test cases that validate that the internal program logic is functioning properly, and that program inputs produce valid outputs. All decision branches and internal code flow should be validated. This is a structural testing, that relies on knowledge of its construction and is invasive.Unit tests perform basic tests at component level and test a specific business process,application, and/or system configuration. Unit tests ensure that each unique path of abusiness process performs accurately to the documented specifications and contains clearly defined inputs and expected results.

Integration Testing:

Integration tests are designed to test integrated software components to determine if they actually run as one program. Testing is event driven and is more concerned with the basic outcome of screens or fields. Integration tests demonstrate that although the components were individually satisfaction, as shown by successfully unit testing, the combination of components is correct and consistent. Integration testing is specifically aimed at exposing the problems that arise from the combination of components.

9.2 TEST CASES AND TEST RESULTS

Test Case ID	Test Case	Test Case I/P	Actual Result	Expected Result	Test case criteria(P/F)
001	Enter The Wrong username or password click on submit button	Username or password	Error comes	Error Should come	P
002	Enter the correct username and password click on submit button	Username and password	Accept	Accept	P

Figure 9.1: Testcase 1

Test Case ID	Test Case	Test Case I/P	Actual Result	Expected Result	Test case criteria(P/F)
001	Enter the number in username, middle name, last name field	Number	Error Comes	Error Should Comes	P
001	Enter the character in username, middle name, last name field	Character	Accept	Accept	p
002	Enter the invalid email id format in email id field	Kkgmail,com	Error comes	Error Should Comes	P
002	Enter the valid email id format in email id field	kk@gmail.com	Accept	Accept	P
003	Enter the invalid digit no in phone no field	99999	Error comes	Error Should Comes	P
003	Enter the 10 digit no in phone no field	9999999999	Accept	Accept	P

Figure 9.2: Testcase 2

CHAPTER 10

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