Independent University **Bangladesh (IUB)**

IUB Academic Repository

Internship Reports Summer 2022

2022-09-19

Android Application System For A Bank

Saha, Aporajita

Independent University, Bangladesh

https://ar.iub.edu.bd/handle/11348/778

Downloaded from IUB Academic Repository

An Undergraduate Internship/Project On Android Application System For A Bank

By

Aporajita Saha

Student ID: **1730602**

Summer, 2022

Supervisor:

Mohammad Motiur Rahaman

Lecturer

Department of Computer Science & Engineering

Independent University, Bangladesh

September 19, 2022

Dissertation submitted in partial fulfillment for the degree of Bachelor of Science in Computer Science

Department of Computer Science & Engineering

Independent University, Bangladesh

Scanned with CamScanner

Attestation

This is to certify that I, Aporajita Saha (ID:1730602), have completed the report on the android app system for a bank, and submitted it in partial fulfillment of the requirement for the Degree of Computer Science and Engineering from Independent University, Bangladesh (IUB). It was completed under the supervision of Mohammad Motiur Rahman. I also attest that all of my work is genuine and is based on what I have learned and implemented during my internship. All information sources used in this project and report have been also properly acknowledged. I also assert that neither this project nor any part of it has been submitted elsewhere for any degree of recognition.

Aporajita Saha

Signature

19. 09. 2022

Date

Aporajita Saha

Name

Scanned with CamScanner

Acknowledgement

The internship I did in Midland bank Ltd. was an amazing opportunity for me to learn and grow professionally. As a result, I consider myself really fortunate to have been given the opportunity to be a part of it. I'm also glad for the opportunity to meet so many amazing people and professionals who guided me through my internship and helped me complete this report. At the very beginning, I'd like to thank Almighty for all of His blessings, which enabled me to deliver all the hard work and patience to successfully complete this report. Then I would like to convey my gratefulness to Mohammad Motiur Rahaman, Lecturer, Department of Computer Science Engineering, Independent University, Bangladesh, for his valuable guidance and support, compassion, time, insightful comments, and thoughtful advice on various aspects of my internship and the preparation of this report. I've chosen this moment to gratefully acknowledge his contribution.I'd like to take this opportunity to express my gratitude and special thanks to my supervisor and head of the agent banking sector Mr. Ariful Islam, who, despite being extremely busy with his duties, took time out to hear, guide, and keep me on the right track, allowing me to carry out my project at their esteemed organization and extending during the training. Finally, I would like to express my deepest gratitude to my family members for supporting me through this crucial period of my internship and always staying by my side. In terms of my professional development, this internship experience I gathered is a huge step forward. The best way for me to attain career goals is to make the most effective use of the skills and knowledge I've earned, and I'll continue to enhance them.

Aporajita Saha
September 17, 2022
Dhaka,Bangladesh

Scanned with CamScanner

Letter of Transmittal

September 17, 2022
Mohammad Motiur Rahman
Lecturer Department of Computer Science and Engineering,
Independent University, Bangladesh
Subject: Letter of Submission of Internship Report, summer 2022.
Dear Sir,
I am writing this letter to kindly inform you that I,Aporajita Saha, have completed my Internship program and its report.The Internship started from 29th June 2022 and ended on 29th August 2022. I completed my internship at Midland Bank Ltd. The following report is based on my experience and the work I did at the agent banking sector of Midland Bank Ltd and a project assigned by my supervisor Mohammad Motiur Rahman. I have worked for 3 months in this company and did my best work there with high passion, dedication and enthusiasm. I'd like to express my heartfelt gratitude for all of your advice and assistance. I hope and pray that this report meets all of your requirements and exceeds your expectations. If you would be so kind as to get this report and share your valuable opinion, I would be extremely grateful to you.
Sincerely,
Aporajita Saha
ID: 1730602

Scanned with CamScanner

Evaluation Committee

Mohammad Mohsin Rahman

Signature

Mohammad Mohsin Rahman

Name

.....

Supervisor

.....

Signature

Sabrina Alam

Name

SABRINA ALAM

Internal Examiner

.....

Signature

.....

Name Mahadi Hassan Tusher

.....

External Examiner

.....

Signature

.....

Name

.....

Convener

Dr. Mahady Hasan
Head, Department of CSE
School of Engineering & Computer Science
Independent University, Bangladesh (IUB)

Scanned with CamScanner

Abstract

I have worked as an intern at Midland Bank Ltd. in the agent banking sector. During my internship I was asked to create an android application for a bank.. So, in this report, I have thoroughly explained the structure and configurations of the mobile banking application. In order to explain my work, I discussed the project's goals, its scope, as well as the details of the project management plan in building the app and deploying it. After that I've described the methodology I used to complete the website, from planning to requirement gathering, building, testing, and deployment. Before starting a project, it is necessary to analyze the outcome, draw graphical explanations of the website, consider the results, and finally obtain the analysis from the website. So I have discussed the detailed work description, system design, analysis, product features, input, and output in the body of the project. Then I have discussed the result and analysis based on those test results. Aside from explaining the project, I elaborated on my internship experience at Midland Bank, the problems I have faced during this internship, and the solutions to those problems.

Keywords— CSE, Internship, Midland Bank Limited

Scanned with CamScanner

Contents

Attestation i

Acknowledgement ii

Letter of Transmittal iii

Evaluation Committee iv

Abstract v

1 Introduction 1

1.1 Overview/Background of the Work 1

1.2 Objectives 1

1.3 Scopes 2

2 Literature Review 3

2.1 Relationship with Undergraduate Studies 3

2.2 Related works 4

3 Project Management & Financing 6

3.1 Work Breakdown Structure 6

3.2 Process/Activity wise Time Distribution 7

3.3 Gantt Chart 8

3.4 Process/Activity wise Resource Allocation 8

4 Methodology 10

5 Body of the Project 12

5.1 Work Description 12

5.2 Requirement Analysis 13

5.3 System Analysis 15

5.3.1 Six Element Analysis 15

5.3.2 Feasibility Analysis 15

5.3.3 Problem Solution Analysis 16

5.3.4 Effect and Constraints Analysis 17

Scanned with CamScanner

CONTENTS

5.4 System Design 18
5.5 Implementation And Testing 23

6 Results & Analysis **28**

7 Project as Engineering Problem Analysis **29**
7.1 Sustainability of the Project/Work 29
7.2 Social and Environmental Effects and Analysis 29
7.3 Addressing Ethics and Ethical Issues 30

8 Lesson Learned **31**
8.1 Problems Faced During this Period 31
8.2 Solution of those Problems: 31

9 Future Work & Conclusion **33**
9.1 Future Works 33
9.2 Conclusion 33
9.3 Future Scopes 33
9.4 Limitation of the work 34

Bibliography **35**

Scanned with CamScanner

List of Figures

2.1 Java 4
2.2 SQL 4

3.1 Work Breakdown Structure Diagram 6
3.2 Process/Activity Wise Time Distribution 7
3.3 Gantt Chart 8

4.1 Agile Methodology 10

5.1 Rich Picture 14
5.2 Six Element Analysis 15
5.3 Use Case Diagram 18
5.4 Activity Diagram For Transaction 19
5.5 Activity Diagram For Mobile Recharge 20
5.6 Sequence Diagram 21
5.7 Entity Relationship Diagram 22
5.8 Login Page 23
5.9 Login 24
5.10 Side Bar 25
5.11 Main Page 26
5.12 Account Page 27

Scanned with CamScanner

Chapter 1

Introduction

1.1 Overview/Background of the Work

As a student of the undergrad program, the program requires that we tend to complete an associate degree post amount with an estimable company wherever I will be able to be trained much with operating setting practices and find acquainted with the business. I worked as an intern at Midland Bank Ltd wherever I actually have completed three months of my post. In our project,on Mobile banking app, I have tried to show how the Data / Information in a bank is managed. This is just an overview of a mobile banking system.. This has been achieved by dividing the project into various modules. Customer is provided with different services like transfer funds,pay bills,transactions,mobile recharge etc . If the customer wants they can easily do their transactions,pay their bills,check their money through this app. . Customers can login their app by their account number and password. By adding many more modules this type of project can have scope in various sector. After going thought the existing system, problem was identified and the scope of development was finalized.

1.2 Objectives

The objective of the project is to make an Android application system for a bank. It is a service provided by a bank or other financial institution that allows its customers to conduct financial transactions remotely using a mobile device such as a smartphone or tablet. Unlike the related internet banking it uses software, usually called an Android app Other objectives are:

- Accessing the bank 24/7.
- Optimizing people's money.
- Paying IOUS.
- Strengthening security.
- Providing added controls.

Scanned with CamScanner

- Offering a clarity of where customers data goes.
- Giving customer tailored options.

1.3 Scopes

Back in the day, even the most basic operations with your banking account required a visit to the bank branch during office hours. Now, customers can have it all in the palm of their hand. The functionality of the traditional bank's app has become a deciding factor for users, and rightfully. Some characteristics of this system include:

- Account balance (balance enquiry), transaction history, e-statement of account, loan statements, card statements, and electronic passbooks are all available to customers.
- Customers can make bank to bank transfers, transfers of funds to themselves, payments to third parties (such as rent or bills), giving standing instructions for periodic payments, and payments via NEFT/IMPS/RETG/UPI/MMID. Customers can transfer funds to anyone by adding them as beneficiaries or just by using the Unified Payments Interface, or UPI.
- Term deposit monitoring, opening a fixed or recurring deposit, and mutual fund investments
- Loan statements are accessible to them.
- access to card statements is also possible.
- Equity statements / mutual funds.

Scanned with CamScanner

Chapter 2

Literature Review

2.1 Relationship with Undergraduate Studies

The undergraduate CSE program of our university is designed in such a way so that we, the students can learn the theory and implement what we have understood from the courses. Most of our core courses have both theory and labs. In the lab classes, we are given some projects relevant to the theoretical topics. As a student of CSE major, these course projects have made me able to implement the basics of coding skills that I learned from the courses and gradually improve them. My project for the internship is to develop an android banking app. Developing this system includes designing and back-end coding and database integration and managing the project all of which I have learned from the core courses of my major. Some courses which are directly related to my project are, Database Management (CSE303), System Analysis and Design (CSE307), Web Application and Internet (CSE309), Software Engineering (CSE451), and Project Management (CSE457).

Data Structures(203): This course introduced us to the fundamental concepts of various data structures and their uses.
Object-Oriented Programming (CSE 213): I studied Java in that course, which was helpful for this project because Java has a large number of libraries. It also taught how to construct modular programs, which made codes less repetitive and more reusable. Making use of these libraries is simple. Numerous common Java libraries are included in the Android SDK. These offer a variety of functionalities, including data structure, math, graphics, networking, and many other things. These Java libraries enable us to perform all other tasks.This way java

Scanned with CamScanner

helps develop Android applications in a fast and inefficient manner.



Figure 2.1: Java

I've learned how to perform six-element analysis, create Rich images, ER diagrams, BPMN diagrams, perform normalization, and execute SQL operations in the Database Management (CSE303) course. Additionally, I completed a project at the conclusion of the course that was linked to the material I had learned. I utilized SQL to interface with my database. It serves as the relational database management system standard language. To change data on a database or to obtain data from a database, SQL statements are employed.



Figure 2.2: SQL

I have learned how to create data flow diagrams, UML diagrams, functional and nonfunctional requirement analyses, and project prototyping in the System Analysis and Design (CSE307) course. The Web Application and Internet (CSE309) course, in which I learnt HTML, CSS, Bootstrap, Javascript, JSON, and PHP, was extremely helpful to me in completing this project. Additionally, there were a number of exercises where we had to put the knowledge we had learned into practice and create something useful after learning each of the frameworks and languages, which really helped me to advance my skills.

2.2 Related works

Android is now one of the most popular mobile operating systems in the world. Every day, more developers are trying Android development using Android Studio[1]
I've been given the task of developing a bank-related app that will offer all the online benefits of the bank and let users to carry out different types of banking activities. Customers can download this app on their smartphone or tablet to access their bank account with just a few

Scanned with CamScanner

clicks.This app enables them to execute banking transactions at any time and from any location. There are several mobile banking services provided by some reputable banks in Bangladesh. For this reason, I have researched various and well-known bank application systems in order to work on some of the best features. They can help you keep track of your spending, pay bills, and ensure that any deposits you were expecting went through.
For this application i have used SQL.SQL as a powerful language that can be used to query a wide range of database systems, from traditional relational databases to modern Big Data[2]

Android is running on the Linux kernel and its applications are written by Java programming language, so Android applications are running on a Java virtual machine[3]

Thanks to the rapid development, a new major release of Android takes place ... Android applications are written in Java, Android uses its own virtual machine instead of a standard java[4]

All the bank has some basic features like

- Bill pay
- Fund transfer
- Card services
- Transactions
- Mobile Topup
- QR code withdrawal

I wanted to have a special feature in my bank app which is "Gift box" which will give customers.It's a digital gift feature.This digital gift feature is for some specific companies for their online shopping.

Scanned with CamScanner

Chapter 3

Project Management & Financing

3.1 Work Breakdown Structure

A work breakdown structure (WBS) is a deconstruction of a project that is visible, hierarchical, and focused on deliverables. It is a useful diagram for managing projects because it helps with working backward from a project's end product to identify all of the actions required to complete the project successfully. The organizational chart of a work breakdown structure outlines all of a project's processes, making it a crucial project management tool for planning and scheduling. The final deliverable sits atop the diagram, while the levels below it split the project scope by indicating the phases, deliverables, and tasks required to fulfill it. There are two types of WBS, one is Delivereble based and the other is Phase-based. For this project, phase-based WBS is used.

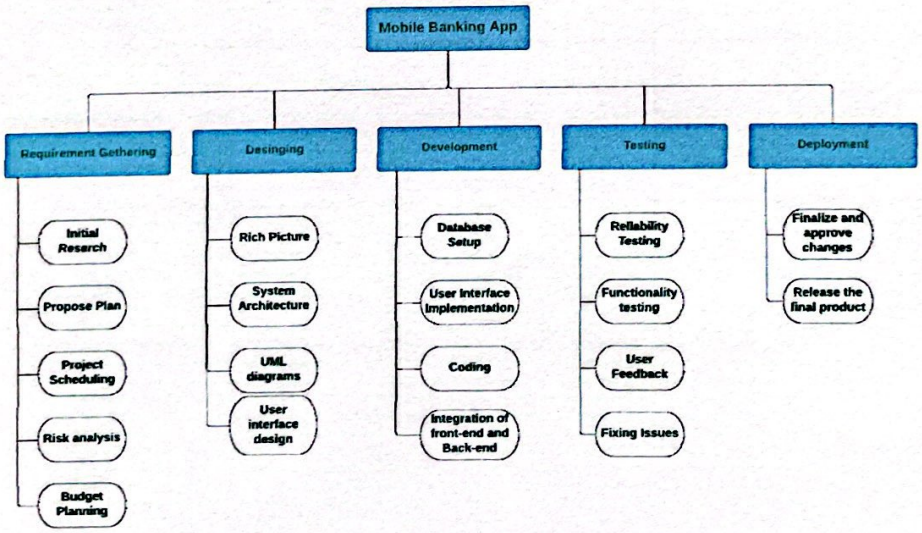


Figure 3.1: Work Breakdown Structure Diagram

In the above WBS, there are five elements in Level 1. Each of these Elements represents

Scanned with CamScanner

a typical project phase. The Level 2 Elements are the phase-specific deliverables. Here the main phases of the project are Requirement gathering, Designing, Development, Testing, and Deployment. Under them, there are specific unique tasks that are to be completed in order to complete the current phase and go to the next. Cost estimating, resource allocation, and risk assessment are all critical project management procedures that benefit from a well-designed WBS. A WBS also aids in the avoidance of frequent project challenges such as missed deadlines, scope creep, and cost overrun, to name a few. When constructed as comprehensively as possible, the WBS serves as a blueprint to help you achieve what appears to be a challenging task. When the project is split down with a WBS, however, it becomes much more feasible.

3.2 Process/Activity wise Time Distribution

It is very important to distribute the total time required to complete the project based on activities to be done. It is an important part of managing a project that requires abilities such as planning, goal-setting, and prioritization in order to get better results. The critical path is the longest series of actions that must be done to successfully complete a project from start to finish in project management. Critical activities are tasks that are on the critical path because if they are delayed, the entire project will be delayed. Here in the table below the critical path method is applied to determine the time distribution of this project.

Task	Days	Work Percentage
Requirement Analysis	15	15
Design	14	20
Implementation	30	40
Testing	15	15
Deployment	10	10
Total	84	100

Figure 3.2: Process/Activity Wise Time Distribution

Scanned with CamScanner

3.3 Gantt Chart

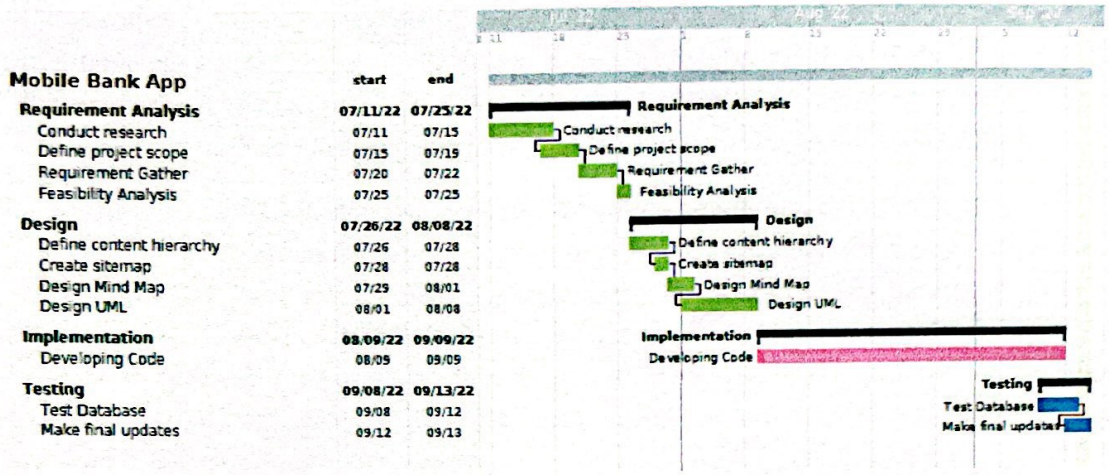


Figure 3.3: Gantt Chart

3.4 Process/Activity wise Resource Allocation

For this project there were several stages and phases that it was divided into. So, according to the need of each process or activity a specific number of employees were allocated along with financing allocation. For this project, we need total 84 days for building the whole system. Following are the details of every step of the project:

- Requirement Analysis: The first stage or task is project management. This is where the main idea of the project and what it is made for, everything in details is explained. For this project, it took 15 working days to manage all the attributes so that the project could get start build as soon as possible. The tasks of every person for the project management are divided. During the first 3/4 of days, the senior developers and CEO were discussing about how the project should be created i.e. what language(s) will be used from top to bottom. Then the project is divided into sub tasks so that time distribution can be planned. Thus setting goals and other deadlines making the project easier for the employees to arrange and complete their tasks. This following part consumed 15

- Design: The designing phase is where designed the features, users and functionality of the system to a few mainstream diagram to show us the bigger picture of the whole scenario. This part considered 20.08

- Implementation: In this stage, all the planning and designing is done. Now the entire application is implemented into framework and test hundreds of times step by step to verify each and every changes that are made to the application.In this phase the whole Application developed and tested as the changes are made. This implementation is a long process and it consumed 40Also it took 31 days to complete this task.

Scanned with CamScanner

- Testing: At the end of the implementation phase unit testing for the application started. There is a dedicated system of testing for all the projects. Usually, they contain 1-2 team members. Although many testing was made by the developer as per the implementation; however, a finial testing of the project must be done by the head of the project. This testing will be done on all conditions that are necessary for the testing. This process is going for 15 days which is approximately 105 working hours and considered 15.82

- Deployment: The deployment is where the project will be put down for practical use by the client. There are different types of deployment depending on the type of project. For this project, since it is a mobile application, the deployment will be an app that can be accessed internationally from anywhere in the world. In order to do this, the following project is need to be uploaded on a server that has public IP. For this project, database is provided.If all above are done, the application should be able to start giving service from that moment.

Scanned with CamScanner

Chapter 4

Methodology

A methodology is a set of approaches, practices, processes, techniques, procedures, and norms that are used to solve a problem. They're well-defined methods that show us exactly what steps to take next, why each step is important, and how a project stage should be completed.For this project, I have used the Agile development methodology.There are various reasons that made me choose to work with agile. In this chapter, I will describe each phase of the Agile development model and describe the importance of deployment using this model. An agile methodology is a form of project management technique that is primarily used in software development. Agile approaches divide work down into small chunks with minimal planning and avoid long-term planning entirely. Iterations are brief periods of time that run anywhere from one to four weeks. Each iteration entails a team going through the entire app development cycle, which includes planning, requirements analysis, design, coding, unit testing, and acceptance testing once a working product has been demonstrated to stakeholders.

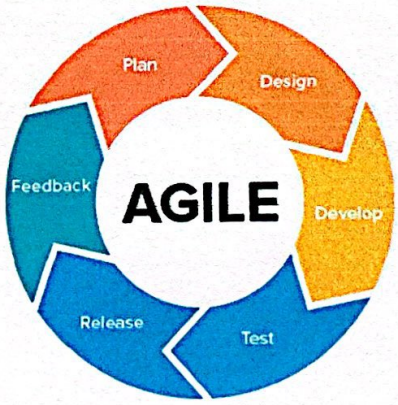


Figure 4.1: Agile Methodology

How I have utilized each step of Agile development methodology are stated below:

- PLANNING: In this part,I have done brief research on the topic so that I can have enough reference material to work on with. For this step, I have gathered relevant research

Scanned with CamScanner

papers, analyzed feature requirements of the company, validated them, and documented all material for future work.

- DESIGN: In the "Design" phase, the detailed application architecture is created. For this step, I took help from the gathered materials from the previous step. That helped me to come up with the design of the app. Then for the prototyping of app, xml is used to illustrate the app design layout with the help of android studio.
- DEVELOPMENT:Development cycle took the longest time to complete because it is the backbone of the entire process and contains a number of important considerations. The results of the previous stage's analysis and design are put into action in this stage. The system is then developed with the user's needs in mind, and the user interface is meant to meet their needs for easy navigation.
- TEST: After the development of the whole website, then comes the "Testing" phase. In this phase, the Reliability test and Functionality test have been done. Also, taking some users feedback from the demo version helped in improving the features and fix the bugs.
- RELEASE: In the "Implementation" phase, the bugs and errors identified from the testing phase were solved. And after solving all the issues the final product will be deployed for users.
- FEEDBACK: The "Feedback/Review" phase in the agile methodology has helped to identify the lackings of the system from a client's perspective after the user feedback.

From the above discussion of utilization each step of Agile methodology, we can see that Agile approaches reduces overall risk and helps the project to respond swiftly to changes, can quickly and easily adapt to any given changes, can achieve transparency and total alignment in the development and testing phases, delivers overall higher quality products and creates customer satisfaction. And because of these reasons, I have chosen the Agile development methodology for my project.

Scanned with CamScanner

Chapter 5

Body of the Project

5.1 Work Description

A consumer can carry out a range of banking operations using this mobile banking application. The mobile banking application requires a smartphone and a strong internet connection. Customers will be able to conduct financial transactions at any time and from any location thanks to this system, which was created for current bank customers. To access the system, users must provide their email address and password. The following categories can be used to group the services that users of this mobile banking app will receive:

1. Account information access:

Customers who request for account statement can view their account balances and statements, review transactional and account history, keep track of their term deposits, review and view loan or card statements, access investment statements (equity or mutual funds), and for some institutions, manage insurance policies.

2.Transactions:

Customers can transfer funds between self-operated accounts, make payments to third-party bank account holders, and undertake utility bill payments, premium payments, and loan repayment using the mobile-based application. Moreover, many banking apps also integrate online shopping for the ease of customers laced with offers, cash backs, and rewards upon using these services.

3.Investments:

Clients can manage their portfolios or view them in real-time thanks to investment management services (term-deposits, etc.)

4.Support services:

Customers can use support services to track the progress of their requests for credit or loans, follow up on card applications, and find ATMs.

Scanned with CamScanner

5.Content and news:
Content services provide news related to finance and the latest offers by the bank or institution. Electricity bill payment, checking balance information, fellow bank transfers, transfers between banks that have been using ATMs, and fellow bank transfers are all features of the mobile banking system. I developed the system using the Java programming language and the Android Studio tools, accessing a server SQL database.

5.2 Requirement Analysis

Functional Requirements: These are the specifications that the system must meet in order to satisfy the end user's basic needs. As a requirement of the contract, all of these functionalities must be built into the system. These are shown or described as the input to be provided to the system, the operation carried out, and the intended outcome. In contrast to non-functional needs, they are essentially the user-stated criteria that are visible in the finished product.The system should allow the customer to do transactions.

- The system should allow the customer to check their balance.
- The system should allow the customer to review their account history.
- The system should allow the customer to transfer funds.
- The system should allow the customer to pay bills.
- The system should allow the customer to mobile recharge.
- The system should allow the customer to do OR payment.

Non-functional requirements: In essence, they are the requirements for quality that the system must meet in accordance with the project contract. Depending on the project, different factors may be prioritized or applied to varying degrees.The system must be reliable and be secure .

- The system must be user friendly.
- Customers can view only their own previous history .
- The speed of the system must have to be fast.
- The system must perform without failure in 95 percent of use cases.

Scanned with CamScanner

Rich Picture

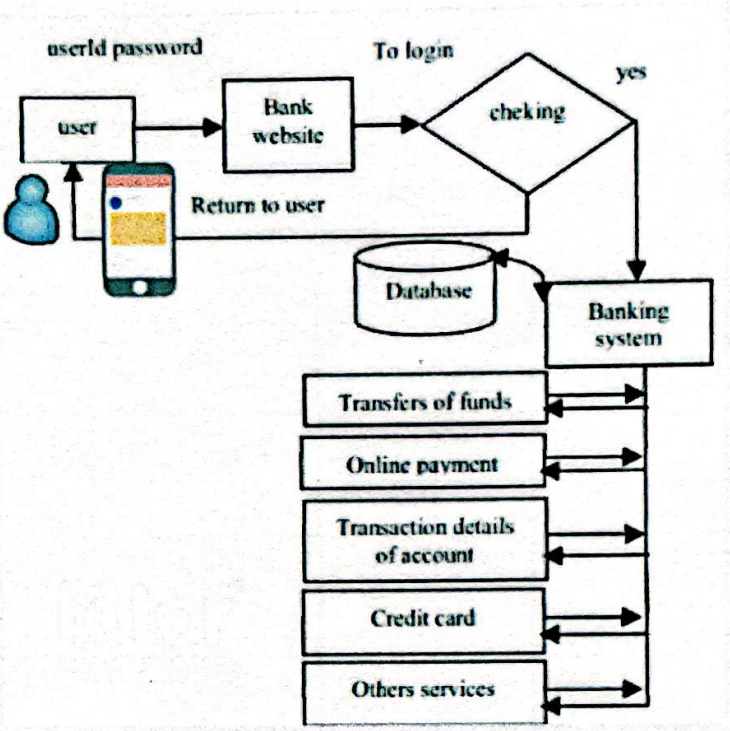


Figure 5.1: Rich Picture

Scanned with CamScanner

5.3 System Analysis

5.3.1 Six Element Analysis

5.3.1 Six Element Analysis

Process	Human	Non Computing Hardware	Computing Hardware	Software	Database	Communication & Network
Login	Customer	Android OS	Android Phone	Android Studio	SQlite	Wifi or Mobile data for the internet connectivity
Transaction	Customer	Android OS	Android Phone	Android Studio	SQlite	Wifi or Mobile data for the internet connectivity
History Check	Customer	Android OS	Android Phone	Android Studio	SQlite	Wifi or Mobile data for the internet connectivity
Bill pay	Customer	Android OS	Android Phone	Android Studio	SQlite	Wifi or Mobile data for the internet connectivity
Balance transfer	Customer	Android OS	Android Phone	Android Studio	SQlite	Wifi or Mobile data for the internet connectivity
Balance check	Customer	Android OS	Android Phone	Android Studio	SQlite	Wifi or Mobile data for the internet connectivity
Mobile Recharge	Customer	Android OS	Android Phone	Android Studio	SQlite	Wifi or Mobile data for the internet connectivity

Figure 5.2: Six Element Analysis

5.3.2 Feasibility Analysis

To assess the project's viability as soon as possible, a feasibility study is both necessary and wise. It entails a preliminary investigation of the project and determines whether the organization will benefit from the designed system. If an in-conceived system is identified early in the definition phase, months or years of work, thousands or millions of dollars, and untold professional shame can be avoided. The goal of a feasibility study is to assess whether or not the proposed system is practical. Three factors are used to determine the viability.

Technical feasibility: In this, one has to test whether the system can be developed using exist-

Scanned with CamScanner

ing technology or not.We have used Java programming language and the Android Studio tools, accessing a server SQL database, and and then only we have started designing our project.

Operational Feasibility: The proposed system offers greater level of user-friendliness. The user needs to have a web interface with reliable connection which through he/she will get access to the application. Mobile banking makes it possible to transfer money, check account balances, get account statements, and other things.

Economic Feasibility: This application will make money when users use it and download it from shops. Therefore, it is financially viable.

5.3.3 Problem Solution Analysis

Problems:

- The weight of Android Studio is not minimal. Low configuration machines cannot use it. Its primary
- flaw is that it needs a certain kind of computer to function.
- If you have a low-end computer, you won't be able to utilize it. The emulator is extremely slow. The
- emulator provided by Android Studio is slow in comparison to other third-party Android emulators. Its
- minimal system requirements are an i3 processor and 4 gigabytes of RAM.
- too lengthy to create and operate.
- Another issue with the Android Studio is the protracted installation process. It has a protracted
- installation process that takes at least 3 minutes to finish.

Solutions:

- I had to set up my laptop to use the android studio.
- I had to keep my tools up-to-date.
- Avoided compiling unnecessary resources.
- Used static build config values with debug build.
- Used static dependency versions.
- Created library modules

Scanned with CamScanner

5.3.4 Effect and Constraints Analysis

Effect : Users won't need to go to a credit union location to complete the aforementioned routine tasks because this application will enable them to check account balances, locate ATMs, transfer funds, and even deposit checks. It will benefit banks on the go because you don't even need a desktop computer.Customer can get the bank services while riding the train, at the airport, or in a taxi.

It's advantageous for budgeting since customers can check your balance before making a purchase and they can make sure the track to accomplish their financial objectives. they can check deposit.So banking will be no longer a burden for them. Customers can apply for loan via the mobile app, eliminating the need to visit the bank. All the clients of the bank mobile banking service.

Constraints : This app may still have bugs or user experience problems since it is the primary implementation of the concept of a support system. In order to help and encourage more people to start using online services during the epidemic rather than travelling around to risky gatherings, the company will be working hard to develop additional upgrades and add more features to the app. Future benefits from increasing customer happiness will also be significant.

Scanned with CamScanner

5.4 System Design

UML Diagrams

Use Case Diagram

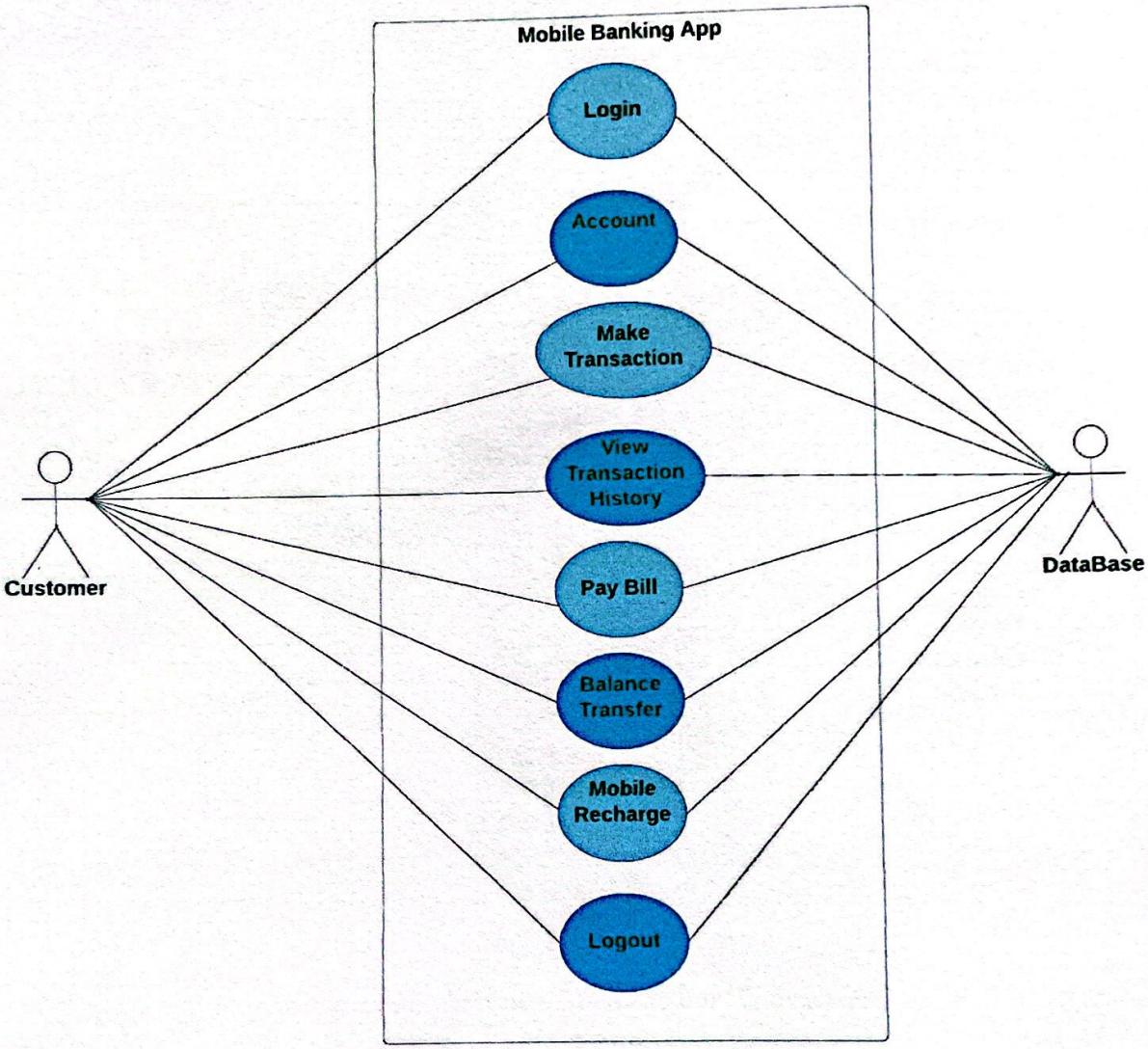


Figure 5.3: Use Case Diagram

Scanned with CamScanner

Activity Diagram

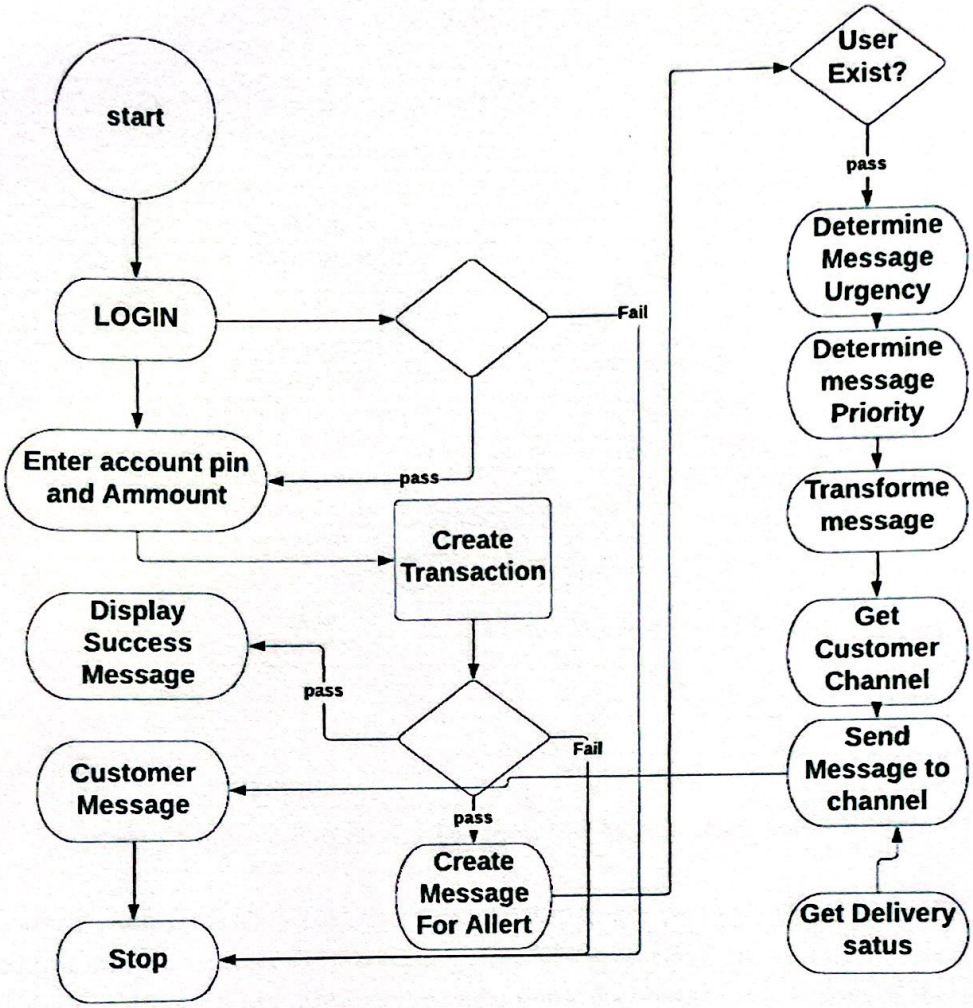


Figure 5.4: Activity Diagram For Transaction

Scanned with CamScanner

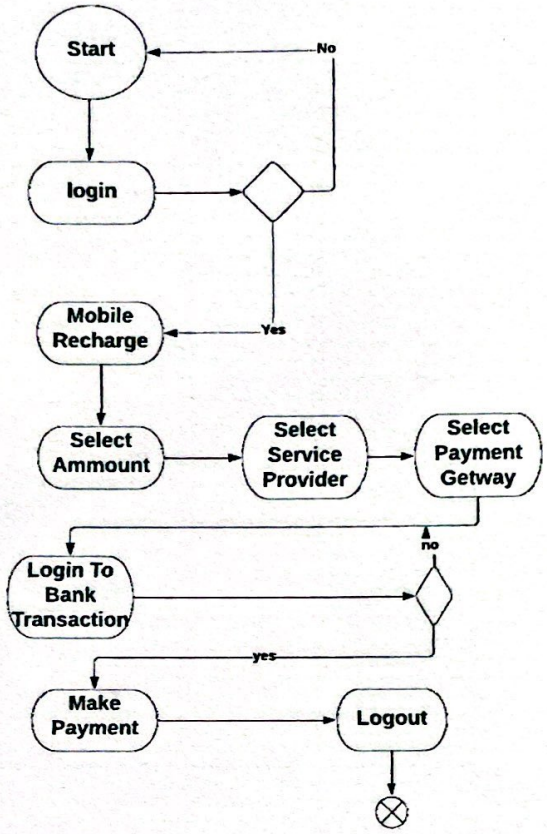


Figure 5.5: Activity Diagram For Mobile Recharge

These activity diagrams show the steps a client takes to use the app. They log in after being verified and proceed through the procedure if they need to conduct transactions, recharge their mobile devices, or access any other service. Afterward, they may simply log out of the system

Scanned with CamScanner

Sequence Diagram

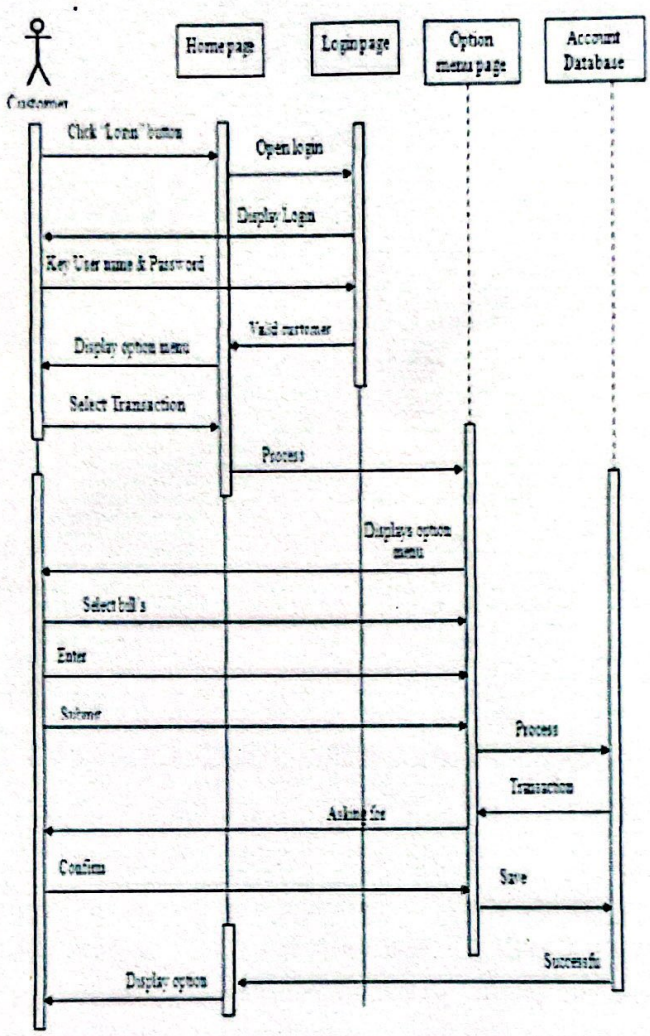


Figure 5.6: Sequence Diagram

Scanned with CamScanner

Entity Relationship Diagram

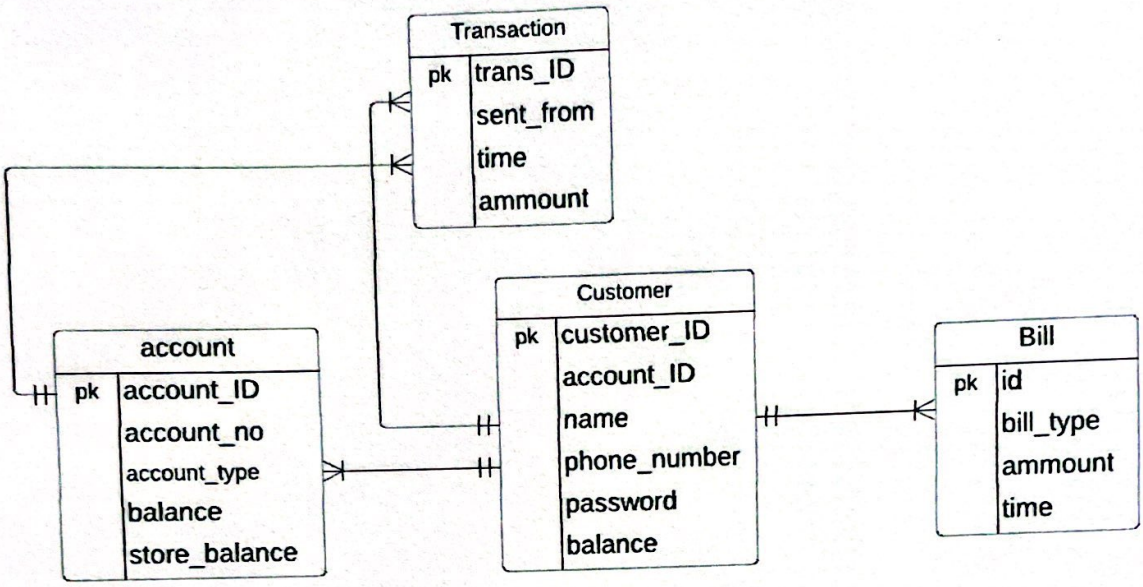


Figure 5.7: Entity Relationship Diagram

Architecture

The link between and processes is represented by the early involvement of architecture design in the system design process. The main objectives of architectural documentation are to record the architects' judgments in documentation and to identify key system components and their connections. The documentation must be thorough and understandable to achieve this purpose. Make the architecture clear. To achieve this goal, think about what each system stakeholder needs to know and the best ways to get that information to them. This objective can be served by the thorough architecture specification document. These are the main parts of architecture:

1. Client: There will be two clients for the application. One will be a app-based user-friendly client called bank customers. The other will be for administration purposes.
2. Application:Android app contains multiple app components, including activities, fragments, services, content providers, and broadcast receivers. This app component in app manifest and android studio then uses this file to decide how to integrate the app into the device's overall user experience.
3. Database: Database Servers will store customers and bank data.

Scanned with CamScanner

5.5 Implementation And Testing

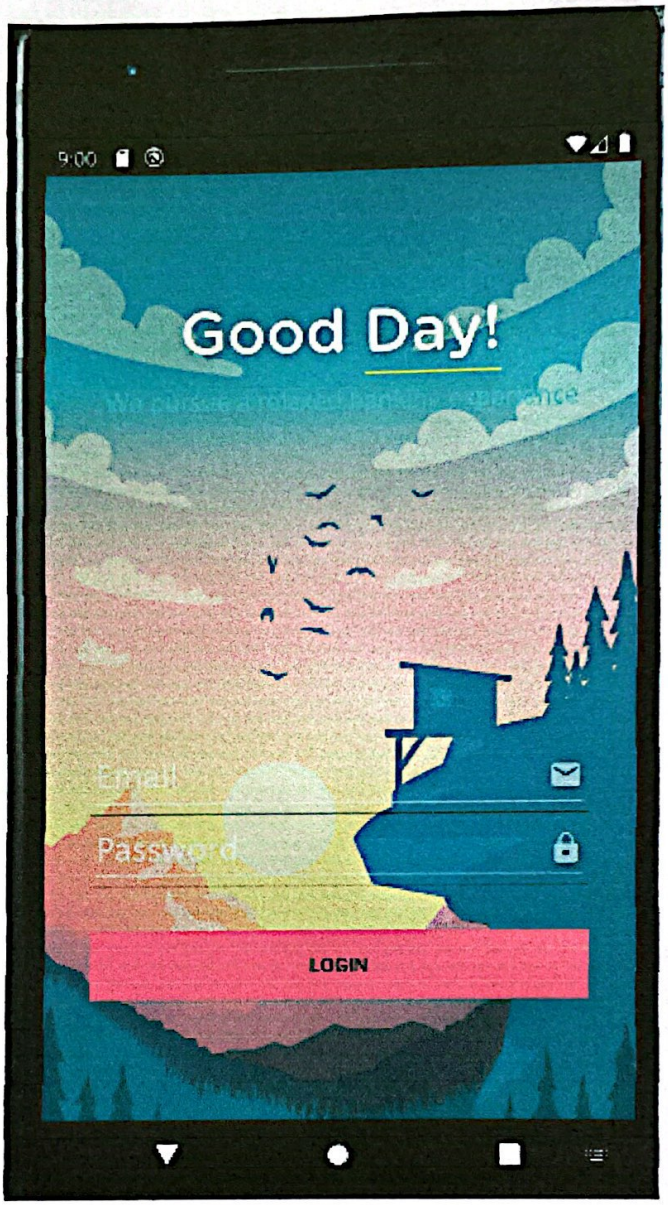


Figure 5.8: Login Page

Scanned with CamScanner



Figure 5.9: Login

Scanned with CamScanner

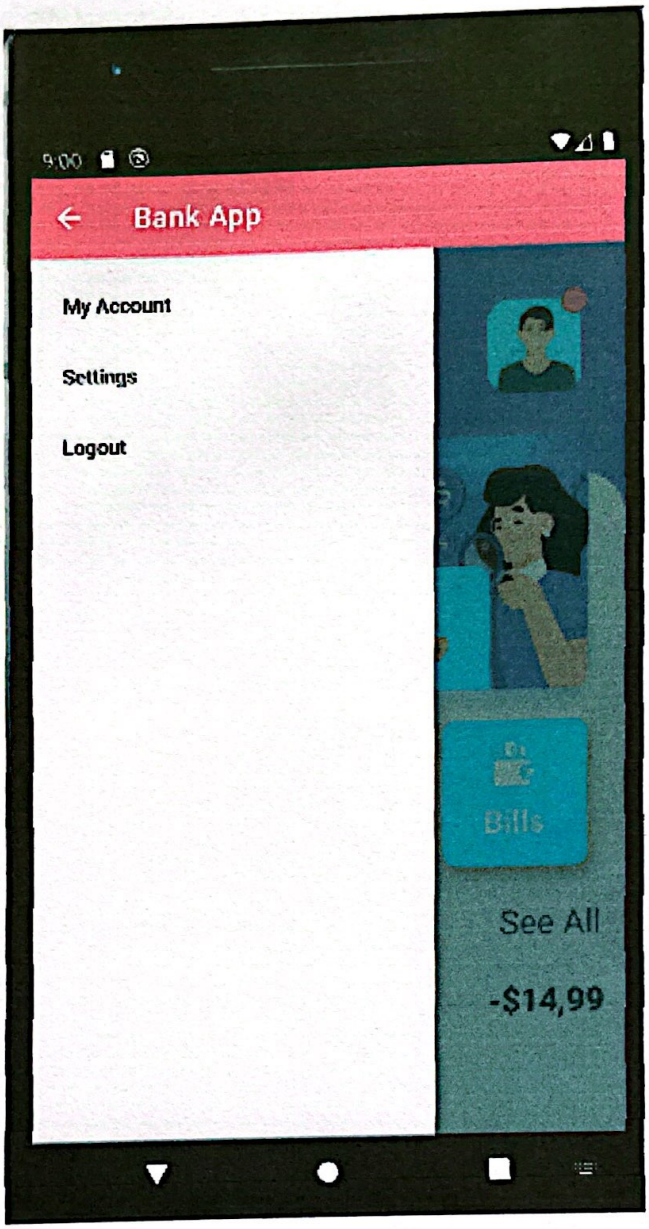


Figure 5.10: Side Bar

Scanned with CamScanner

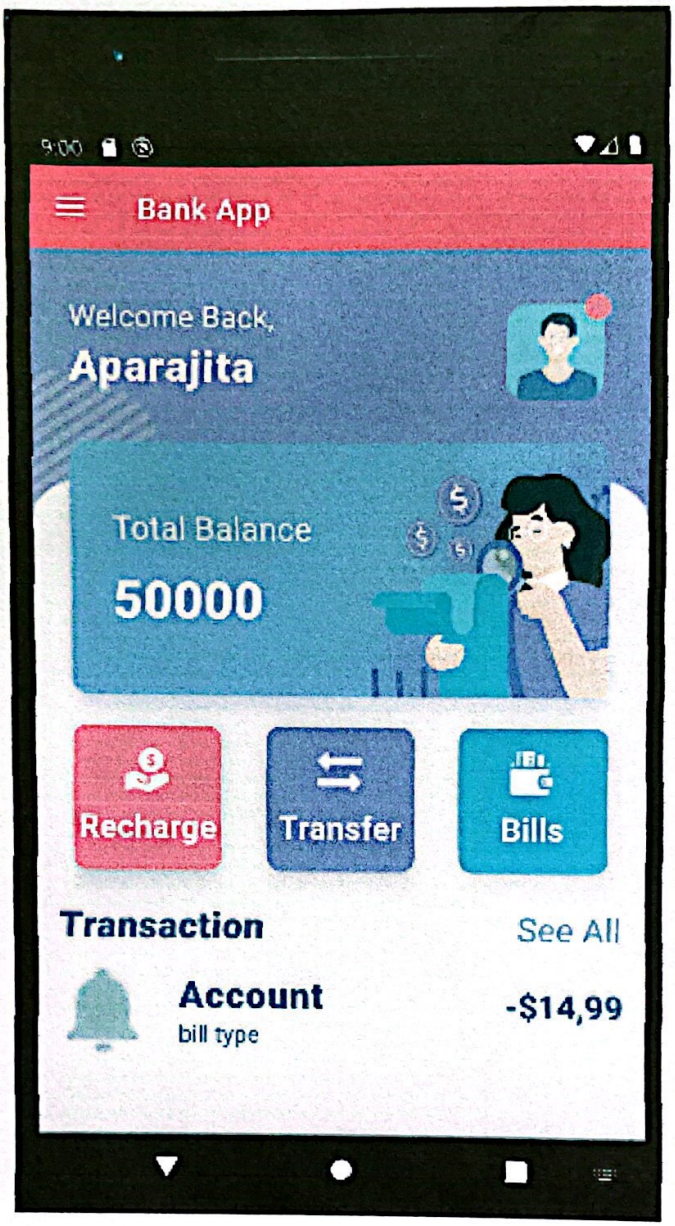


Figure 5.11: Main Page

Scanned with CamScanner

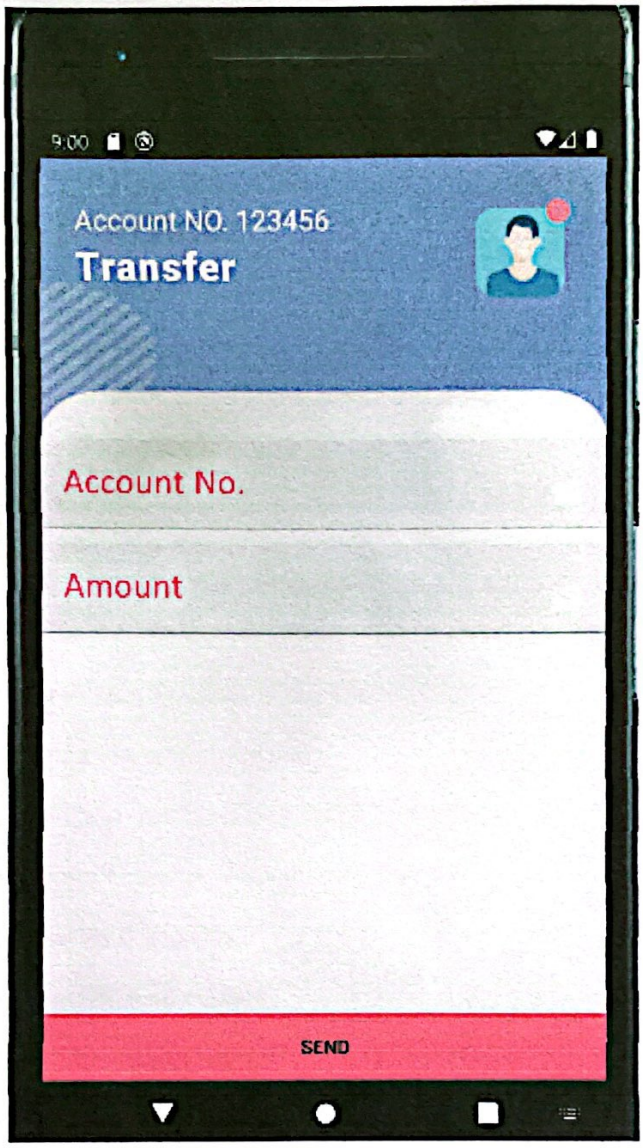


Figure 5.12: Account Page

Scanned with CamScanner

Chapter 6

Results & Analysis

The overall project work started acquiring the requirement gathering. As it was a demanding system for most of the companies around the country, we focused to build it as a generic product and customize as per client companies furthermore.This app has a very straightforward, user-friendly layout. What we have so far achieved is:

- First customer can login or logout in the app.
- Customers can view the app's interface.
- Customers can view account and card details and history.
- Customers can transfer money through bank transfer.
- Customers can do MFS transfers.
- Customers can do QR fund transfer.
- Customers can do card payment.
- Customers can block cards.
- Customers can pay bills.

After the development of the system, several bugs were discovered during the program's testing. This was a small inconvenience that was fixed immediately. Test cases were documented when these issues were resolved.It is always very important to test a system after the development phase before finally deploying it for general use. Software testing checks whether new software is safe, accurate, and of high quality. The process of ensuring that the developed system meets all the requirements is known as approval. Software testing's main purpose is to detect faults in the application. All test cases were justified using testing approaches. The testing was done on local peoples. Before the final deployment, the system will be tested again, and if necessary required changes will be made.

Scanned with CamScanner

Chapter 7

Project as Engineering Problem Analysis

7.1 Sustainability of the Project/Work

Sustainability is the capacity of a product to be enhanced and maintained. In the modern world, every application that is released needs to be maintained and updated frequently for its user base. The environment, society, and the economy are the three pillars of sustainability. The projects are anticipated to bring in money for the business. We anticipate that sustainability will be standard once the project is finished. This Android application will provide mobile banking, which will improve consumers' banking experiences. People won't have to go through the physical hassle of banking as a result.

- Financial Sustainability: This pertains to how the application's expenditures will be maintained once it has been released, as well as if it will earn sufficient income to be profitable. Server costs, database storage costs, third-party API costs, and so on are all part of an application's running costs. App will be free for the customers as the user base increases, new premium services will be introduced in future.

- Organizational Sustainability: It has to do with how the company will continue to operate after the application is released. After an application is released, it is frequently maintained by the organization's current team, an extended team, or a brand new team. Additionally, businesses may change their project by adding newer features, pivot to other projects, and expand teams, form new teams, and so on. The application has future goals, it will be maintained and upgraded after its initial release, as well as premium services. Finally, the initiative can be described as organizationally sustainable

7.2 Social and Environmental Effects and Analysis

We can anticipate having a stronger societal impact on our application and more frequent usage of our service as we continue to grow and introduce more items.There is absolutely no

Scanned with CamScanner

environmental harm or harm from this application.

7.3 Addressing Ethics and Ethical Issues

In the current computer era, impersonating someone has become quite easy. Without your knowledge, someone could attempt to emulate you and use your credentials to do something illegal or conduct a crime. It became critical to protect user data; otherwise, someone might easily hack the system and steal personal information. The app does not allow access to the database by any third-party program. No other information is stored except what the customer provides. Customers provided information will be safe from any third party program.The database system will be accessible only to Bank. Without a username and password, the database is secure.

Scanned with CamScanner

Chapter 8

Lesson Learned

During this time, I gained a lot of insightful knowledge about a wide range of issues. Some issues were technical, while others had to do with corporate strategy. I was able to resolve those issues with the aid of my supervisor, teachers, course lessons, and the internet.

8.1 Problems Faced During this Period

Problem analysis is the process of understanding and defining the problem to be solved. Problem solving identifies solutions that conform to the needs and constrains of the problem. Much of what is done in designing and building information systems is to solve problems, even though the objective of the system may be seen as improving existing systems or taking advantage of market opportunities Working on this Project during my internship program challenged me with numerous hurdles. Some of these are listed below:

- Adjust with office environment: It was difficult for me to work five days a week from 10:00 a.m. to 6:00 p.m. During my internship times, I always strived to offer my all. Getting acclimated to the team was difficult because this was my first time working in an environment where everyone contributed as a collaborative effort. Bug resolution was a problem since certain bugs were difficult to locate; even after identifying bugs, it took a long time to fix them.
- Adapting to New Technologies: Because this was my first experience working on a mobile application, I had to learn and adapt to the company's new technologies. Although obtaining the skill set was attainable, using it in real-life scenarios proved difficult.
- Keeping up to speed: Learning new technologies and putting them to use was a slow process for me at first because it was the first time I had used them in an office setting. As a result, meeting weekly targets became increasingly challenging, slowing the overall development of the application.

8.2 Solution of those Problems:

- Adjust with office environment: I got new knowledge, skills, and met a lot of new people throughout my internship. I learned about professional practice and the skills that are essential.

Scanned with CamScanner

The internship also allowed me to discover my talents and limitations. Customer Requirement Analysis, User Experience Design, Code Igniter, and Data Structures were among the topics I learned about. Now I understand how to successfully complete a project and what the needs are.

• Adapting to New Technologies: It was challenging for me to adjust to new technology at first. However, with the help of my supervisor and the backing of the web developer team, I became accustomed to the entire process after a few days.

Scanned with CamScanner

Chapter 9

Future Work & Conclusion

9.1 Future Works

We have further plans to add new updates and features to our website. We hope to start working on those as soon as we launch our website. Here are few ones we have plans on: In future we want to track the transfers. We also want to make an updated mobile application for our current system. We want to add more features.Add more security.We want to make our application more visually good looking interface.In future we want a better speed quality.

9.2 Conclusion

Since there are various subfields in computer science and engineering (CSE), it was challenging for me to identify my true passions. However, as I progressed through the years of academic study, my interest in the field of app development expanded. In order to gain practical experience in this subject while working with a qualified team and developing my communication and interpersonal skills, I made the decision to complete an internship in this industry. I've always desired to work in the corporate sector. So, with this internship, I made my first step.I can say that this internship was a good experience for me now that it has come to an end. My seniors have taught me a lot of new information during my internship. The team at Midland Bank is made up of many enthusiastic and supportive people who helped me adjust to the office setting. I have learned about new technologies and their applications. Working on a project with a team pushed me to hone and improve my coding abilities. I gained more self-assurance as a result of this, and I was also able to pinpoint my strengths and limitations, which would help me thrive in the corporate world in the future. Finally, I want to express my gratitude to everyone who has supported me throughout this critical time.

9.3 Future Scopes

In future I hope I can work in IT for a Bank.I have interest in app development.I want to learn new things and improve my skills and want to apply them.I Really want to gain valuable

Scanned with CamScanner

work experience.This internship really prepared me for a future career.

9.4 Limitation of the work

Due to time shortage for an internship program, there is still a lot of work that is to be done as we had planned earlier.

Scanned with CamScanner

Bibliography

[1] J. DiMarzio, *Beginning Android Programming with Android Studio.* John Wiley & Sons, 2016.

[2] Y. N. Silva, I. Almeida, and M. Queiroz, "Sql: From traditional databases to big data," in *Proceedings of the 47th ACM Technical Symposium on Computing Science Education*, pp. 413–418, 2016.

[3] J. Liu and J. Yu, "Research on development of android applications," in *2011 4th International Conference on Intelligent Networks and Intelligent Systems*, pp. 69–72, IEEE, 2011.

[4] P. Gilski and J. Stefanski, "Android os: A review," *Tem Journal*, vol. 4, no. 1, p. 116, 2015.

Scanned with CamScanner

An Undergraduate Internship/Project on yourTopic

By

Your Name

Student ID: **yourID**

Summer, 2022

Consent Form

The student modified the internship final report as per the recommendations made by his/her academic supervisor and/or panel members during final viva, and the department can use this version for archiving.

Mohammad Motior Rahman (19th Sept, 2022)

(Signature of the Supervisor)

Mohammad Motior Rahman

Name of the Supervisor

Department of Computer Science & Engineering

Independent University, Bangladesh

Scanned with CamScanner