

Android Based Travel Guiding Application: A Systemic Analysis

Sadman Haque Sakib¹, Joy Gupta², Shuvo Mistry³, MD Bodruzzaman⁴

¹Student Computer Science & Engineering, Lovely Professional University

²Student Computer Science & Engineering, Lovely Professional University

³Student Computer Science & Engineering, Lovely Professional University

⁴Student Computer Science & Engineering, Lovely Professional University

Abstract – Android applications have evolved in many ways, throughout this decade or so science it was invalid by Google in November 2007. From that point on studies have gone on in this area of technology. Schoolers around the world study and practice android studio to keep developing android applications and with each iteration, we are learning more of its uses in various fields. The purpose of this study is to develop a traveling application that will provide the best guiding experience to the user as per their requirements. In this study, we have analyzed every need of the customer and developed our app according to that. This study goes through different phases. The full application has been coded by java and all the designs have been coded with XML. For the coding part, we used the android studio as there is no other platform better than this one. The data of every user who will be using the app will be stored in a real-time database on to the firebase. This research will help in understanding the key aspects that are more important when developing new applications in traveling.

Key Words: Android application, Systemic approach, Database testing, Backend integration, Firebase, Data Flow Diagram, Traveling.

1. INTRODUCTION

This project intends to be a mobile application, it will help people to have the best travel experience within India. It will also let them know what is happening around all the hot spots throughout the country. It is designed with a vision in mind that the application will be easy to use, user interaction will be fluent. Travel Mania is about searching for top tourist destinations to visit within India. Anyone who wants to travel can create an account in this application by using their Gmail account and look around all the best places in each city. They can easily browse through each city and find hotel details food details and directions for each famous locations and landmarks. Travel Mania App will help you to explore any place in the best possible way.

1.1 ANDROID STUDIO

The Google IDEA development software built on JetBrains' IntelliJ software Android Studio is an officially integrated development environment (IDE) for Android functionality. It can be downloaded from operating systems

based on Windows, macOS, and Linux. The Eclipse Android Development Tools (ADT) is a replacement for the primary IDE for developing native Android apps.

Android Studio was announced on May 16, 2013, at the Google I/O conference. It was in the early access preview stage starting from version 0.1 in May 2013, then entered the beta stage starting from version 0.8 which was released in June 2014. The first stable build was released in December 2014, starting from version 1.0. The current stable version is 4.1, which was released on 26th October 2020.

1.2 FIREBASE

Firebase is a mobile and web application development platform developed by Firebase, Inc. in 2011, then acquired by Google in 2014. As of October 2018, the Firebase platform has 18 products that are used by 1.5 million apps.

Firebase Inc. raised seed funding in May 2012. The company further raised Series A funding in June 2013. In October 2014, Firebase was acquired by Google. In October 2015, Google acquired Divshot to merge it with the Firebase team. Since the acquisition, Firebase has grown inside Google and expanded its services to become a unified platform for mobile developers. Firebase now integrates with various other Google services to offer broader products and scale for developers. In January 2017, Google acquired Fabric and Crashlytics from Twitter to join those services to the Firebase team. Firebase launched Cloud Firestore, a Document Database, in October 2017.

2. PROJECT PLAN

The planning of the system to be developed is the first & foremost thing to do & it is given the highest priority. Whenever we need to develop a software product, we follow a series of lifecycle activities, but first of all, we do the planning to emphasize how to apply a systematic approach to develop a product.

The project plan drives project control and its execution simultaneously. It checks for the plans which must be formulated to carry out the project plan. The project plan for this application commits the following steps:

- Project Idea
- Layout and Designing
- Functionality
- Database Creation
- Integration Setup

- Backend Integration
- Module Collaboration

The app was developed in around the period of 15 weeks. In the first 3 weeks, we developed the basic app with the layout design was developed. In the next 4 weeks, we developed the basic app to sign-up by linking it with firebase. And in the next 5 weeks, we developed the user handling part along with a few more additions like Navigation Drawer features, Global Chat. And in the remaining weeks, we developed all the left tasks and worked on every detail.

3. DESIGN

The design process is the most innovative and demanding stage of the life cycle of the device. The word architecture represents a final structure and its development process. It refers to a technical standard to be used in the application of the candidate scheme. The design is the first phase of every product or device being developed. The production process is innovative. A good design is essential for an efficient system. The term "construct" refers to the method by which different techniques and concepts are applied to describe in detail a process or structure to allow its physics to be carried out. It can be described as a process for using different techniques. It can be described as the method of using a variety of techniques and principles to describe a device, a mechanism, or a system in enough detail to allow physical realization. Computer architecture is the technological foundation of the software engineering process, and it is used independently of the development model. The architectural detail used to install a system or product is developed by the system developer. This program has undergone the best possible design process, fine-tuning all reliability, precision, and accuracy levels, as with any systemic approach. The design process marks the transition from a user-oriented document to a document for programmers or developers. The transformation from a user-oriented document to a document for programmers or database staff occurs during the design process. The task of defining the configuration, parts, modules, interfaces, and data for a device to meet specific specifications is known as system design. As a result, systems architecture is the practice of defining and implementing systems to meet the user's specific specifications.

3.1 SYSTEM DESIGN

System design defines an abstract view of the entire project. It marks for all the architectural modules and designs that the project will show and be worked upon. The flow chart which we will be using to describe our system will have certain components like:

- Terminator: An oval flowchart shape shows the start and stops points in a process. When a Start symbol is used, terminators show an activation signal that starts the process flow.

- Process: a rectangular flowchart for a regular flow phase.
- Decision: Indicates a question or branch in the process flow denoted by arrows. Decision flowchart shape is used when there are 2 options: (Yes/No, if/else etc.)

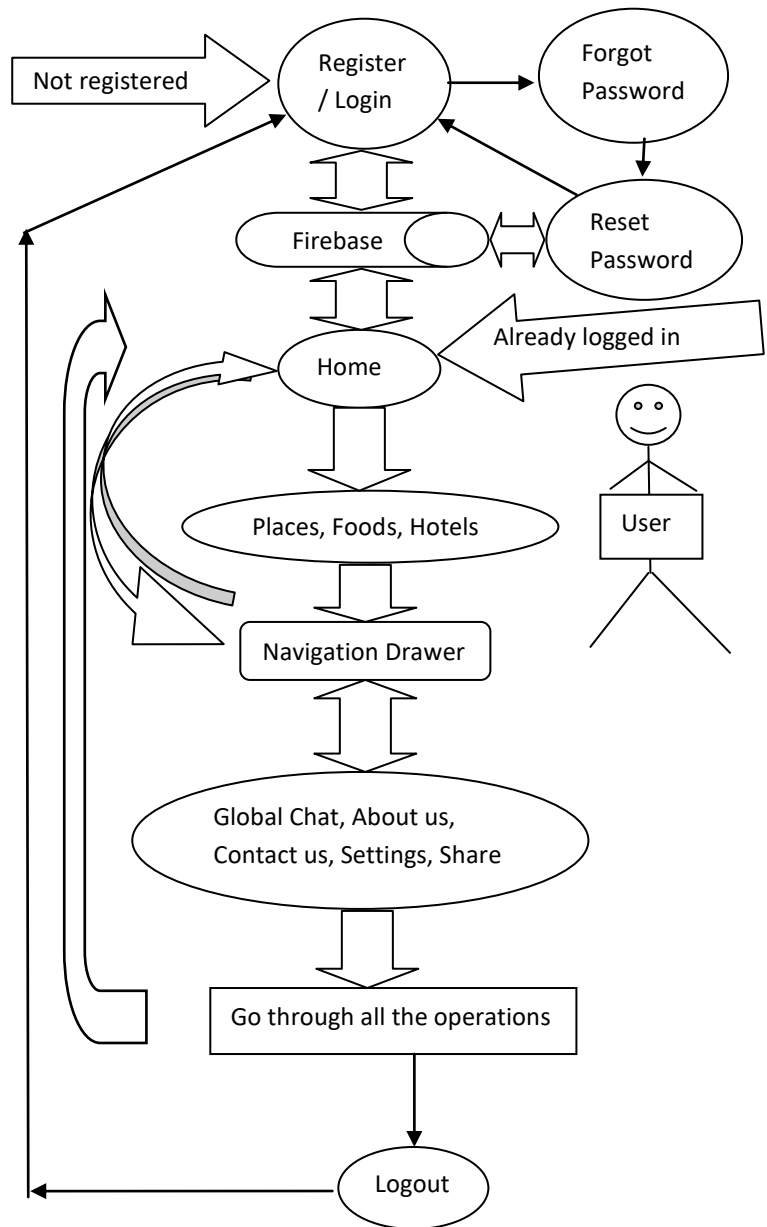
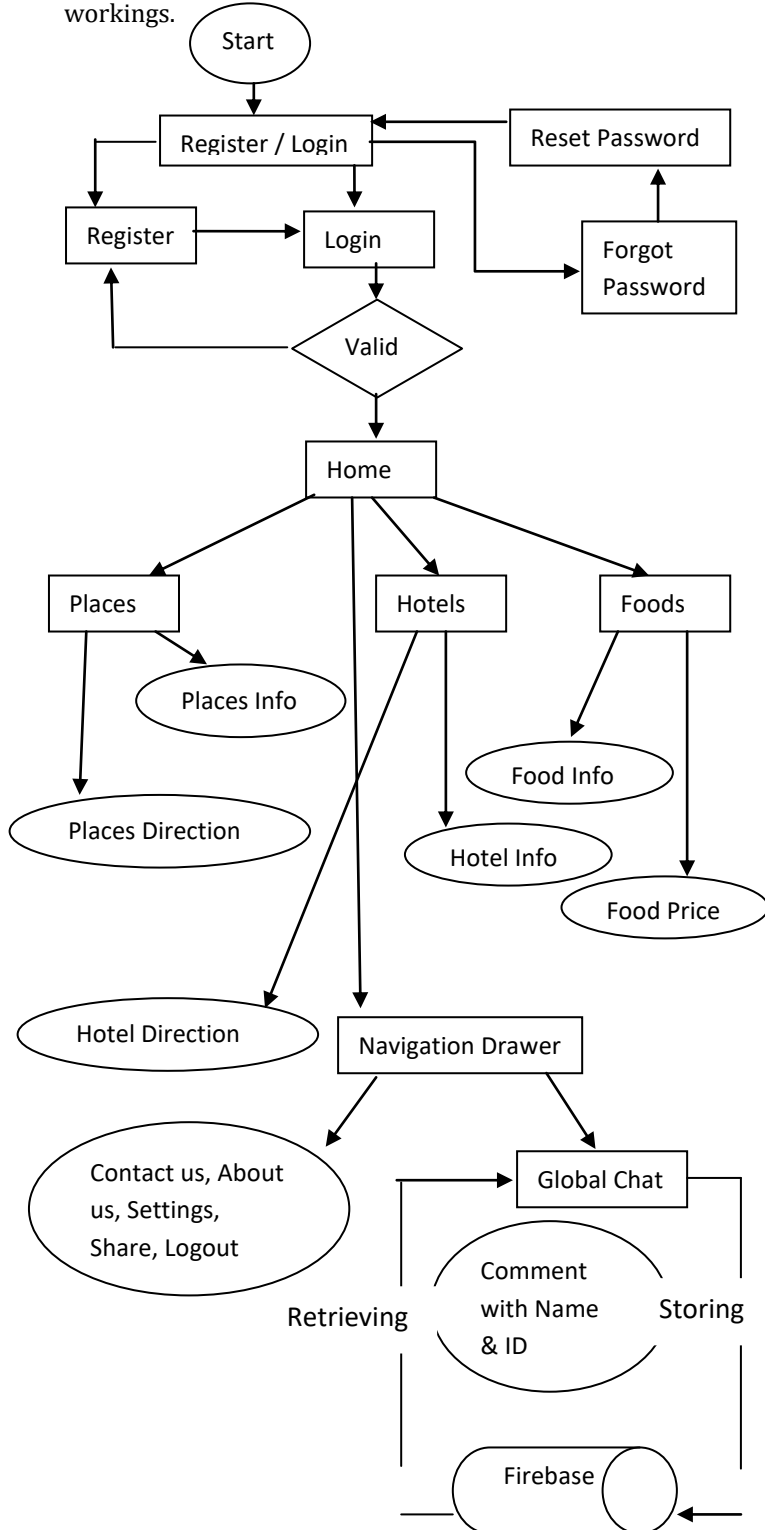


Fig -1: System Design

3.2 DETAILED DESIGN

The requirements specified by the system design in a brief are met properly in the detailed design. This design acts as a blueprint for all the theoretical and conceptual designs specified for the project. Data flow diagrams (DFD) are drawn out to make the project plan transparent in conjunction with translucent. By this, we get a lucid picture as to what our project will look like. Here, the user can log in to the

application with minimum software and hardware requirements. Once the credentials of the user are authenticated and authorized, the user can explore the application to the best of his abilities. This DFD tries its level best to give an overview of the entire system and its workings.



specified for the project. Data flow diagrams (DFD) can act as detailed designs for the project application at various

levels. Level 0 and level 1 DFDs are drawn out to make the project plan transparent in conjunction with translucent.

4. TESTING

After all the design elements were full-filled, we started testing our application by using it on a server, and in response to high traffic, its reliability and consistency are tested. By testing an application over and over again to we figure out our processes, applications, and troubleshoot. We tested our app through Unit testing, Integration testing, System Testing, Black Box Testing, White Box testing, Automatic Testing, Manual Testing. Every one of these steps showed us our mistakes in code and designing as well.

We tested our database to verify the accuracy of the data which is being collected from the user. All the data is being stored in firebase for further analysis. Interface technique was used in communication between server and application, as well as communication between the application and the database server. Synchronization is the most critical feature of any program. So, we had to test Compatibility and Performance. The complete app has been tested on emulators and a mobile device with various inputs and it is working appropriately.

3. CONCLUSIONS

After all research and study, we are able to understand every part of this project with great depth. The knowledge we gained in this 4-year bachelor's degree was put on a great challenge for which we worked very hard. Our knowledge kept enriching as we progressed whit our project. The findings that we got to highlight that there is a need for rigorous and systematic research on this area by aligning the common factors that will allow the evaluation of the context of traveling.

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