MIDDLE EAST TECHNICAL UNIVERSITY
NORTHERN CYPRUS CAMPUS

Computer Engineering Program

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TERM PROJECT PROPOSAL

Team Members : Hamzeh Abu Ali, Ahmed Jaber

ID Numbers : 2419471, 2470490

Project Name : Sharik

Project Topic : A Flutter based mobile application for taxi ordering and navigation built on an IBM Cloudant server.

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Introduction

1.1 Project Brief

Our application aims to connect people around our village by providing an online taxi service platform. This application will allow users to order a taxi through a navigation system that shows available taxi drivers around the users. Users can register as taxi drivers or as normal customer users. Taxi drivers can be drivers with taxi cars, or students who own cars and are willing to provide a taxi service. The application will also provide the users the functionality of sharing a ride with other users. They can open a "share a ride" form, and other interested users can see that form and participate in the ride. Taxi drivers have the option of taking those requests or not. After ordering a ride, users will have the option of calling the taxi driver or contacting them WhatsApp.

We aim to help our fellow students and village residents have a better transportation experience by connecting them to available taxi drivers and students that are willing to provide a service. As transportation is a critical issue in students lives, we hope that this application can ease our lives through providing a platform to connect us all.

1.2 Cloud Delivery Models

Since the application will be a navigation based system, we will use a SAAS cloud delivery model.

1.3 Client Application Tools

Flutter framework will be used to write a mobile application that will be deployed on IOS and Android. Android Studio will be used as a development tool, and Dart as a programming language tool.

1.4 Cloud Service Provider

IBM Cloud Service provider will be used due to the ease of Flutter based applications deployment and its free membership use.

1.5 Project Work Distribution

We are planning to have an even work distribution for both the client and server applications. However, to facilitate a formal work plan, team member Hamzeh will be a lead on the Cloud Server application, and team member Ahmed will be a lead on the Client Mobile Application.

Chapter 2

Software Used

2.1 Flutter

Flutter is a UI framework for creating native mobile apps. It allows developers to build a mobile app using a single codebase while helping quickly build iOS and Android apps. The Flutter framework is a UI toolkit that helps developers create high-performance, high-fidelity applications for iOS, Android, Linux, Mac, Windows, etc. At its core, it lets developers build an application UI using widgets that have different states and react to specific events. Flutter framework, powered by Dart (programming language), enables

maintaining a single codebase for deployment across the platforms mentioned above. This translates to a smooth, responsive application UI across different screen types, aspect ratios, and orientations [1].

2.2 Android Studio

Android Studio is the official integrated development environment (IDE) for Android application development. It is based on the IntelliJ IDEA, a Java integrated development environment for software, and incorporates its code editing and developer tools. To sup-

port application development within the Android operating system, Android Studio uses a Gradle-based build system, emulator, code templates, and Github integration. Every project in Android Studio has one or more modalities with source code and resource files. These modalities include Android app modules, Library modules, and Google App Engine modules. Android Studio uses an Instant Push feature to push code and resource changes

to a running application. A code editor assists the developer with writing code and offering code completion, refraction, and analysis. Applications built in Android Studio are then compiled into the APK format for submission to the Google Play Store [2].

2.3 IBM Cloudant

A fully managed, distributed database optimized for heavy workloads and fast-growing web and mobile apps, IBM Cloudant is available as an IBM Cloud® service with a 99.99% SLA [3].

Chapter 3

Application Diagrams

3.1 Activity Diagram

Below is an Activity Diagram that demonstrates the workflow, procedural logic, and business process of the application.

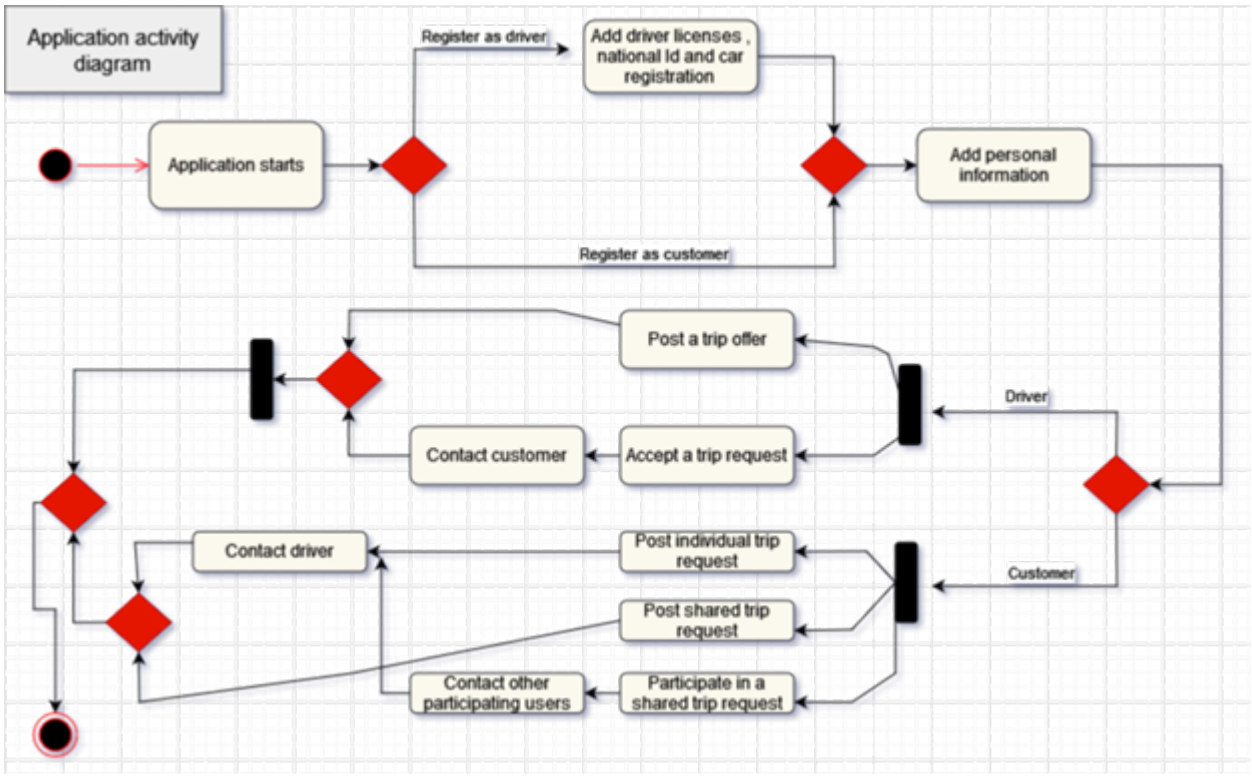

Figure 3.1: Activity Diagram

3.2 Sequence Diagrams

Below are some Sequence Diagram that shows three of the main operations done in the application, Registering, Ordering a Taxi, and Sharing a Ride.

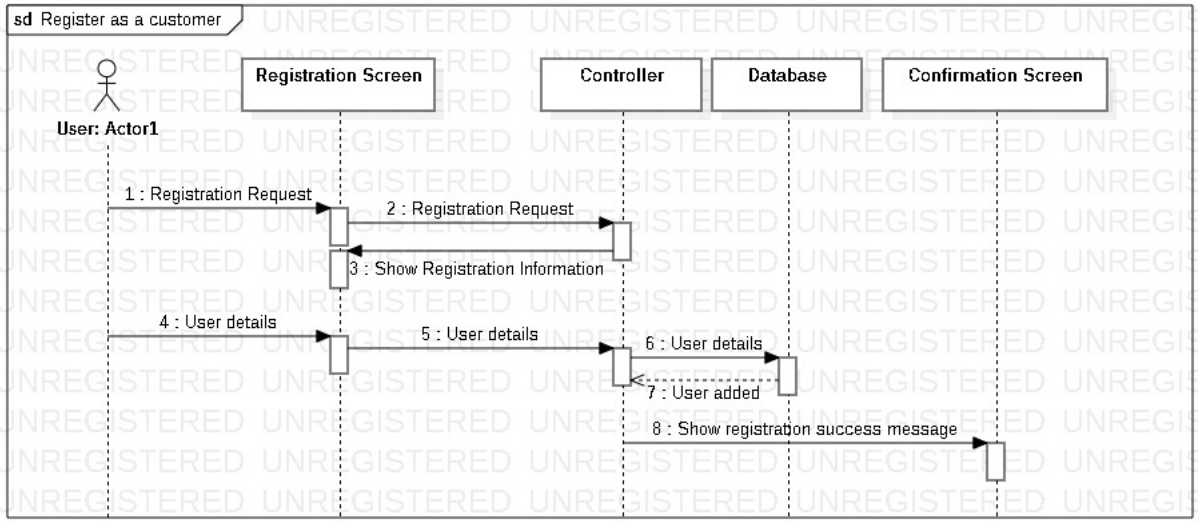

Figure 3.2: Registration Sequence Diagram

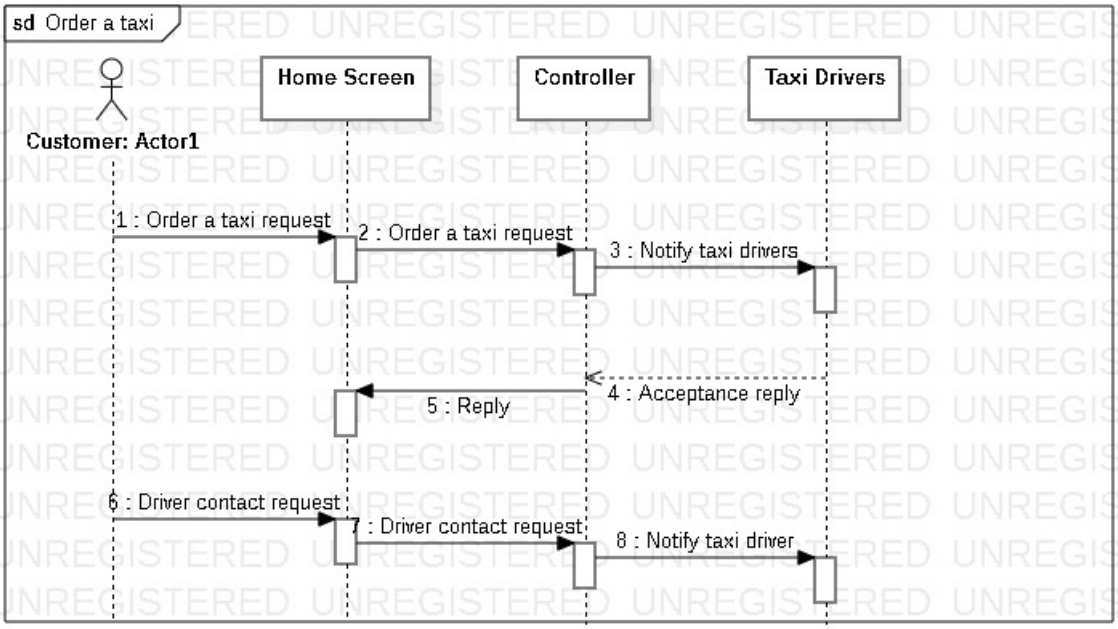

Figure 3.3: Order a Taxi Sequence Diagram

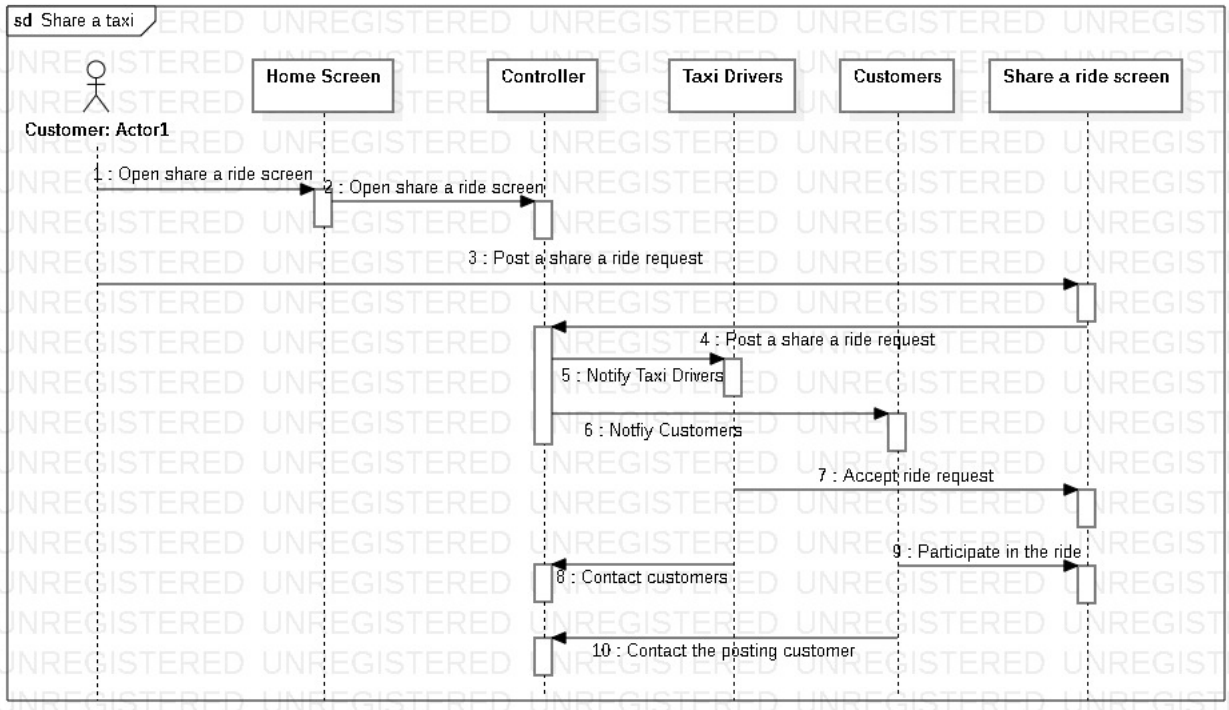

Figure 3.4: Share a Taxi Sequence Diagram

Chapter 4

References

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2. https://www.techtarget.com/searchmobilecomputing/definition/Android-Studio
3. https://www.ibm.com/cloud/cloudant