DVA313 - Project Plan

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Contents

1 Introduction

This document will cover the planning of the BodaBoda project. The application for the company named Okapi Finance will be developed. The application will provide a taxi service for motorcycle drivers in East Africa.

1.1 Client

Okapi Finance is offering financial services mainly in Africa with a mission to bank the unbanked. Okapi's services increases accessibility for financial services. They believe that everyone should be able to access financial services regardless of where they live and their status. Transparency, security, and compliance with financial regulations are key for their operations and they believe in building the Okapi network through partnership with financial institutions and other existing structures. Their goal is to be the pan-African fintech solution.

1.2 Product

The product produced is an application called BodaBoda, an application for motorcycle taxis in East Africa. The drivers could state that they are free and customers could use the app to find the closest free driver who is willing to drive them to their destination. The app would tell the driver where to go to find the customer and it would track the driven distance and calculate a price for the customer. The app could also help the driver reach the final destination. The customer could pay in his app and the driver should be able to track his received payments and see how much he has earned during the day/month/year.

2 Group Organization

This group consist of 7 people, responsibilities and names of the people in the group can be seen below.

2.1 Project manager

Aleksandar Aćimović is assigned as the project manager for this project.

2.2 Project group

The team consists of seven people, namely:

- Aleksandar Aćimović - Project manager, Developer
- Linus Sens Ingels - Client communication, Developer
- Jonathan Major - Trello responsible, Developer
- Zacharias Leo - Worktime tracker, Developer
- Sireesha Kumari Kulari - Developer
- Stanislas Pedebearn - Template creator, Presentation assistant, Developer
- Chingiz Esenbaev - Presentation responsible, Developer

2.3 Steering group

The people evaluating the project:

- Jan Carlson
- Robbert Jongeling

3 Work organization

The group will have weekly meetings with both the steering group and the client, in these meetings the group's weekly progress and how the work has been organized shall be discussed. The group will also have meetings when necessary. Communication with the client and steering group will primarily be done in form of e-mails, but will also be done in person during the meetings. Communication between the group members is done through Slack between meetings, Trello is used to always track the progress for the different activities allocated in the project. Time reporting will be measured via a document where all the members type in the times they have worked on different activities in the project. The times will then be calculated to measure the total time.

3.1 Tools

The primary tools used in the project will be:

- Slack - communication
- Git (github) - project version and repository
- Trello - task management
- Overleaf - documentation
- Visual paradigm - UML

3.2 Work distribution

3.3 Meetings

- Steering group - The group will briefly discuss the progress in the project. In these meetings primary focus will be on the topic how the work is organized between the meetings. Also, it will be discussed what was done in the previous week and what is planned to be done in the ongoing week. The meetings shall be there to deal and to remove any uncertainties.
- Client - Requirements, implementation and design will primarily be discussed. If the group is having design/implementation problems, these shall be talked about and a solution to them shall be discussed. The group will also check continuously during these weekly meetings if the client is satisfied with the work we have done.
- Group - If something is unclear or is of high priority the group will try to schedule a live meeting, so the solutions of the problems can be discussed and implemented as fast as possible.

3.4 High quality

Communication between the group members and weekly communication with the client are the most important ways of ensuring high quality. In this way the group can ensure that the deliverables are exactly what the client has requested and that the final product will be what was expected by the client. By creating detailed design diagrams and documents the group can follow the process, this will also make it easier for absent members to get back on track faster which will minimize loss of time.

4 Schedule

The upcoming section will include all of the identified deadlines & deliverables for this project, the activities will be identified based on all the deliverables.

4.1 Deadlines & Deliverables

Project plan	22 November
Design description V1	6 December
Product V1	6 December
Project report	17 January
Design description V2	17 January
Product V2	17 January

4.2 Activities

The initial activities for this project will be to finish the requirements and project plan until 22 November. To see upcoming activities see 4.1.

5 Development

The system will provide a simple solution to a client who wants to take a taxi to a given location. The system will signal a driver to the clients location after both the driver and client has accepted the price of the trip. Once the driver signals that the trip has started the system will calculate the current price for the trip based on how far both the client and driver has traveled on the given route. The goal of the system is to provide a simple and quick taxi service. The system will provide security for both the client and the driver, the client is the only one that can change the location of trips and the system will assure that the driver always gets payed the right amount, regardless if the trip is canceled halfway or completed based on the calculations stated above. Also, having in mind that the context for which the application is being developed, application will be developed to be as lightweight as possible supporting older devices and location services are going to be optimized for better battery consumption.
The system will be implemented as a client-server architecture. On the back-end a RESTful application server shall be implemented using .NET CORE. For the purposes of authentication and authorization JSON Web Token (JWT) shall be implemented and for more security sensitive data shall be encrypted using RSA. The chosen database is MySQL. These two shall be dockerized and hosted on a cloud service platform. On the front-end a Android native mobile application will be created.

5.1 Existing systems

On the front-end mobile application Google Maps API as an existing system shall be used for visualization of locations as well as calculating the best route and it's distance for a trip.

5.2 Users

The system will have three type of users, Guest, Customer and Driver. Admin functionality will be outside of the application.

- Guest - The minor user type of the system. The guest is going to be able to download a mobile app and register to the system using it.
- Customer - The customer will be able to request a trip by typing in the starting location and ending location. When a driver has been found the application will display the driver and the

price for the trip. Once both parts has accepted the the trip the driver will be guided to the customers location. The customer can at any time cancel the trip, and will pay the calculated price based on how far both the client and driver has traveled on the given route.

- Driver - If a customer would want to become a driver, he/she can switch to driver mode in the configuration page. After the customer has been accepted as a driver new functionality will be displayed in the app. The driver can see pending trips, choose millage price + fee on top, accept a trip, start a trip and see transaction history with statistics.

5.3 Constraints & Assumptions

5.3.1 Constraints

The biggest constraint will be that many of the customers are using older versions of Android. Which means that the application has to be optimized for use on older the version devices. Since the application will be used for long duration's by the drivers, battery life and consumption must be in taken in the consideration while developing and optimizing the application.

5.3.2 Assumptions

One assumption is that the GPS on all phones work the same way, or at least provide the basic information needed in the same way and format.
Another assumption is that even if there are connectivity issues there will eventually be enough of a connection to send the packets without too much latency.
It is also assumed that the taxi drivers are willing to become technical enough that we can give them more options within the app, unlike the customers who are very limited.

5.4 Initial backlog

The initial backlog items consists of:

- Requirements - The overall requirements of the project
- Project Plan
- Diagrams - In the beginning stage this will consist of diagrams that will help the group and stakeholders to understand the functionality of the system. In a latter stage another Activity called diagrams that consists of all the Use case, Activity, Class and sequence diagrams for the system shall be produced.

6 Risk Management

Creating a Risk Management Plan is a critical step in any project, as it helps to reduce the likelihood of risk from occurring. The initial Risk Assessment (following page) attempts to identify, characterize, prioritize and document a mitigation approach relative to those risks which can be identified prior to the start of the project. The Risk Assessment will be continuously monitored and updated throughout the life of the project.

Risk 1: Data loss
Example: Some files deleted by mistake. Server got crashed.
Level: High
Mitigation Strategy: Regular backups is necessary

Risk 2: Missing the internal scheduled deliverables
Example: If someone gets stuck in one thing, then there might be chance that he will continuously look at the same issue, wasting the time that he has for something else.
Level: Medium
Mitigation Strategy: Flagging the issue in time.

Risk 3: Improper estimation of resources
Example: In some cases we can choose problematic areas wrong and group assigned won't be able to resolve the issues.
Level: High
Mitigation Strategy: Based on the size, competencies of the team and available time, the scope of the project should be estimated appropriately.

Risk 4: Lack of communication within team
Example: Team Members are working in a distributed environment with different course schedules
Level: Medium
Mitigation Strategy: Every possible misunderstanding needs to be addressed as soon as possible and this will be a task for project and team leader to keep track on.

Risk 5: Unavailability of a member
Example: If someone is not available for week or a while, the entire deliverable should not dependent on that resource. That means if he is not there we cannot be in a situation that his part of work simple cannot be done.
Level: High
Mitigation Strategy: A good documentation of an individual work is required. Also, regular meetings are helpful, to know what an individual is doing. This will help even in the worst scenario in which we lose a person because of illness. A proper hand-over, take-over has to be done in such situation, and because of this, every absence that will prevent member to participate in the project work needs to be addressed minimum 1 week in advance.

Risk 6: Wrong estimation of customers wishes
Example: The end product should be customer satisfied product.
Level: Medium
Mitigation Strategy: Proper estimation of what user is looking for needs to be done. We have already made many contacts and we intend to keep our customer up to date and provide him possibility of making small changes to the requirements if that will also be approved from our project leader.

Risk 7: Lack of knowledge
Example: Few members are not aware of how to do a part that of the project in technology that we have chosen
Level: Medium
Mitigation Strategy: Brainstorming at the beginning and going with the technologies that we are mainly familiar with were our goals in the last couple of weeks, and we will try to make some, or find some, tutorials regarding important technologies for the members that have less knowledge about them.