Boda Boda -
Motorcycle taxis in East Africa

AGENDA

During this presentation :

- Introduction
- Final Project Status and Challenges
- Desired Feature
- Significant Changes from the Client
- Results & Demo
- Effort Distribution
- Lessons Learned

INTRODUCTION : Client

- **Client : OKAPI finance**
  - Bank the unbanked by providing :
    - Financial inclusion
    - Increasing access to financial services
    - Minimizing transaction charges
  - Global money transfer company
    - Offering affordable cash transfer services

INTRODUCTION : Product

BodaBoda : Mobile phone application in East Africa

Goal : *Matching motorcycle taxi drivers and customers*

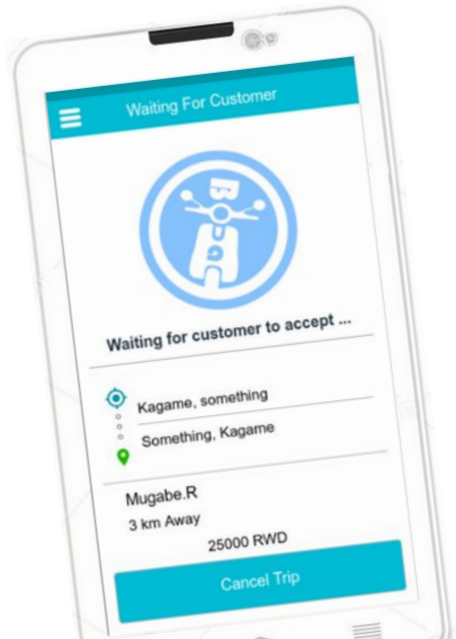
- **Customer :**
  - Customers could find the closest available driver
  - Find cheapest price
  - Know who is willing to drive them to their destination
- **Driver :**
  - Browse pending trip requests
  - Accept a request
- **App :**
  - Track the driven distance
  - Calculate a price
  - Handle the payment

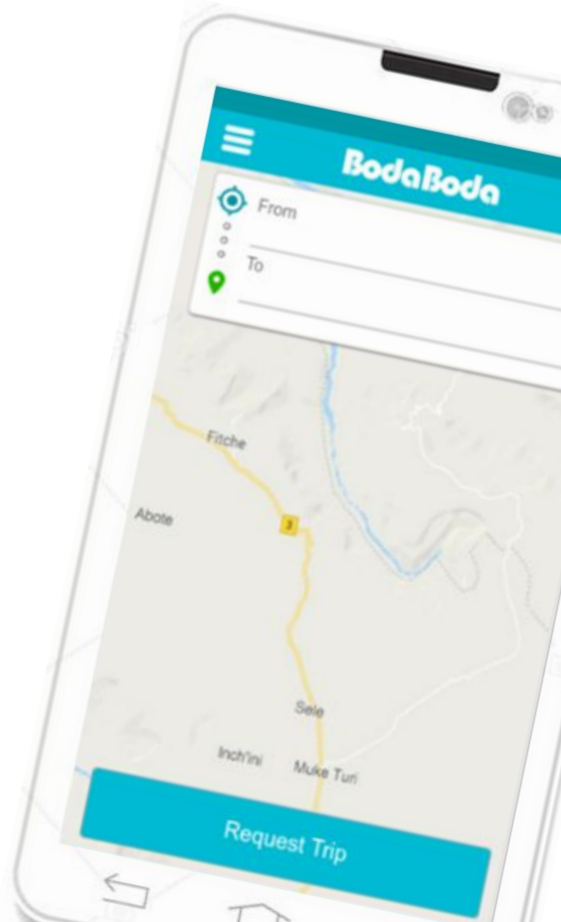
Final Product Status Outline

- UI/UX Design and challenges
- Back-end Server features and challenges
- Hosting the Back-end Server
- Front-end features and challenges
- Application Testing

UI/UX Design and challenges

- Simple and user friendly design
- Compliance to Material.io
- Unique design (Concurrent applications)





Back-end features and challenges

- Implemented features
  - CRUD Operations for User Accounts
  - CRUD Operations for Locations
  - CRUD Operations for Trips
  - Authorization and Authentication using JWT
  - Mailing Notifications through Gmail SMTP

- Challenges
  - Entity Framework Core: Microsoft vs. Pomelo
  - Inconsistent behaviour in different environments: Windows vs. Linux

Hosting the Back-end Server

- Hosted on Digital Ocean droplet
  - Linux VM

- Dockerizing
  - MySql Database
  - Dotnet Back-end Server
  - Ngix Reverse Proxy
  - Docker-compose

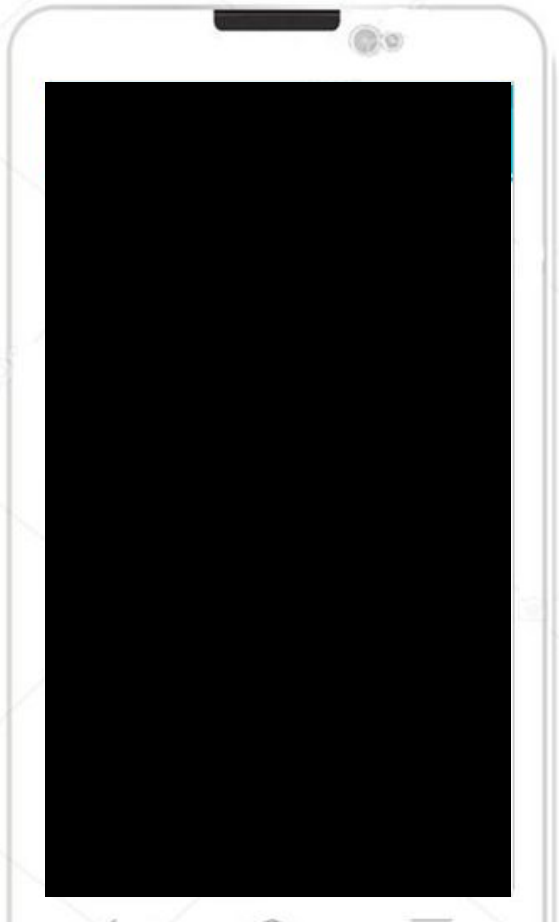
- Challenges (link)
  - Build files from the old versions of the back-end usually are not overwritten. Images need to be removed and build files cleaned before deploying the new version of the Server.

Front-end features

- All the mockups are translated to layouts
- Available features
  - Basic features (Login/Logout, Registration)
  - Core features
    - Request the trip as a Customer
    - See requested trips as a Driver
  - Other features
    - Basic Geo Location
    - Map Animations
    - Navigation help for the Driver
    - Auto suggestions for nearby Locations

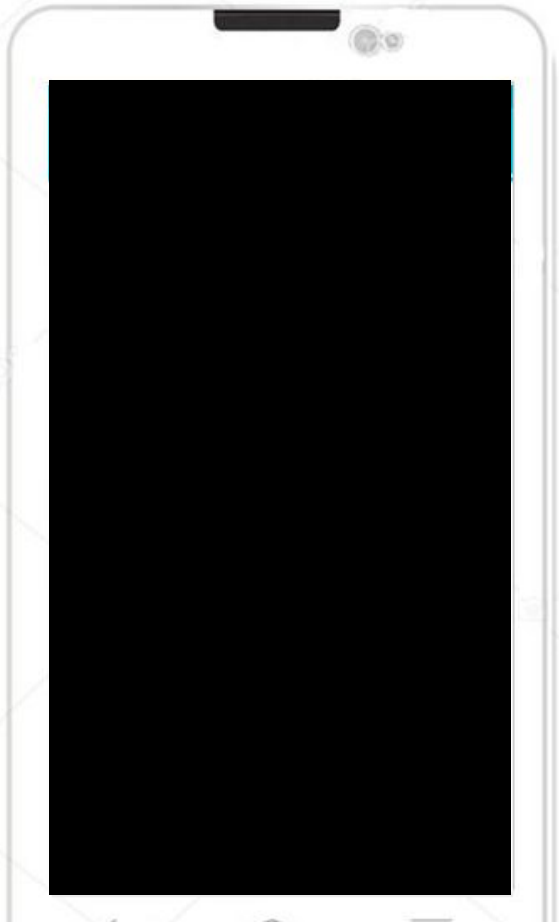
Front-end features and challenges

- Challenges
  - A lot of tools and external APIs used
  - Translating mockups to layouts
- Recorded DEMO



Application Testing

- UI Automated Tests with Espresso
- Implemented Tests
  - Login Activity Validation
  - Registration Activity Validation
  - Login to Customer Page Navigation
- DEMO

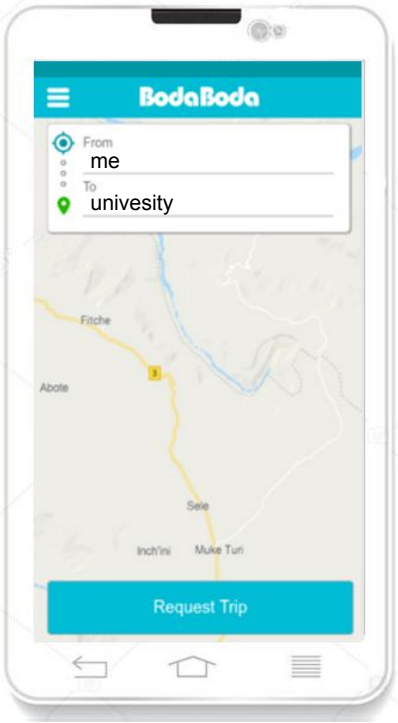


Desired Features

- UI/UX Design - Satisfying
- Back-end
  - Encrypt the sensitive data (payment transfer, connection …)
- Hosting
  - Create bash scripts to add more automation to deployment
- Front-end
  - Connect the remaining Core Features
- Testing
  - RESTful API Validation

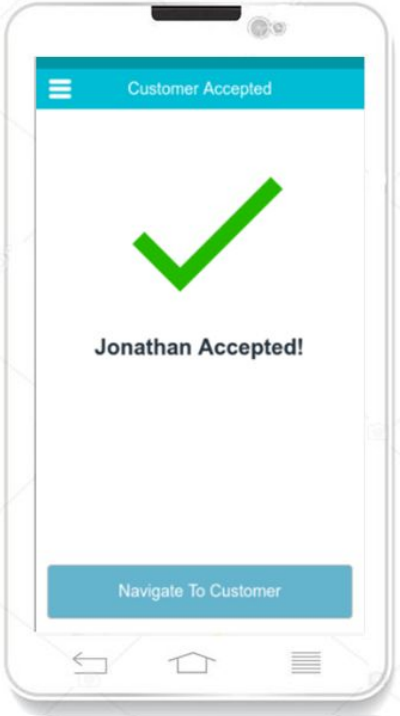
Core Functionality Flow

- **BOOK A TRIP** :



CLIENT

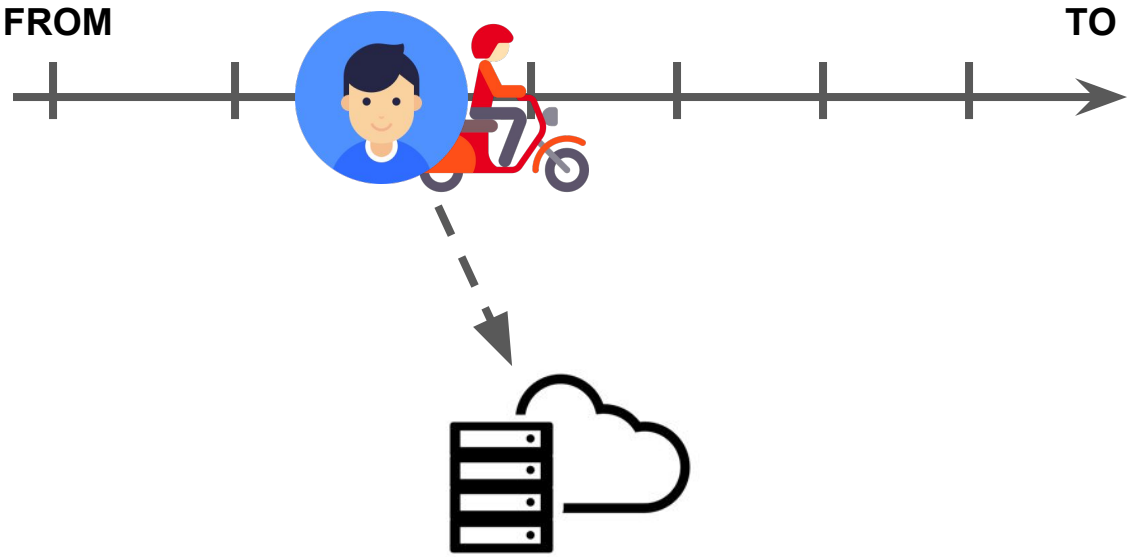
SERVER



DRIVER

Core Functionality Flow

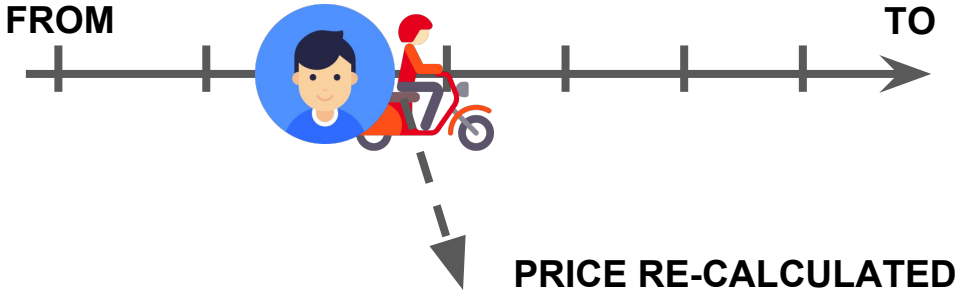
- **DURING THE TRIP** :
  - App send the customer position
  - When the trip ends, both locations (driver and customer) are checked.
  - If the distance is more than 1km the trip is considered invalid.



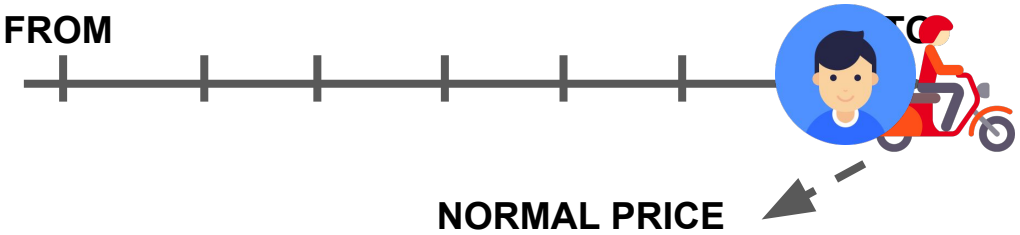
Core Functionality Flow

- **PAYMENT** :

- If the driver wants to stop earlier
- If the client wants to stop earlier



- If they arrived



Changes from the Client

- No major changes
- New requirements were added to the already existing ones

Example:

Client wanted a way for the application to send location data about the trips to be analyzed later on.

Location data should be sent through the customer and not the driver, to save battery time for the driver.

Effort Distribution

Activity	Effort (Hours)
Planning & Design	158 hours
Implementation	430 hours
Testing	125 hours

Lessons Learned

Experiences

- It takes more effort to organize a group as the group rarely organizes itself
- Underestimated the time it would take to complete some features

Improvements

- Re-prioritize the requirements for a better end product within time limits

QUESTIONS ?