LiftDrop

Mobile App for Deliveries

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Introduction

The gig economy has revolutionized food delivery services, with platforms such as Uber Eats, Glovo, and Bolt Food providing fast and convenient order fulfillment. However, while these services are designed with the customer experience in mind, couriers often struggle with issues such as **inefficient route optimization**, **limited order demand visibility**, and **difficulties in maximizing earnings**.

To address these challenges, we propose a delivery-focused mobile application that prioritizes the needs of couriers. The platform will offer key information, such as **heat maps** that highlight high-demand areas, **real-time order availability**, and **earnings tracking**, helping couriers make informed decisions and optimize their workflow.

The mobile application will be developed using **Kotlin** with **Jetpack Compose** for the user interface, while the backend will be implemented in **Kotlin** using **JDBI** for database interactions. Since the focus is on the courier experience rather than a full marketplace solution, **delivery orders will be mocked** using Postman calls to simulate real-world conditions.

Ultimately, our goal is to create a tool that enhances the working experience of independent delivery couriers by **improving access to order data**, **optimizing efficiency**, and **providing a scalable foundation** for future development.

1 Objectives

The main objectives of this project are:

- **Provide real-time demand insights** through heat maps and order availability tracking.
- **Optimize courier workflow** with an intuitive Jetpack Compose interface.
- **Enable earnings tracking** to help couriers monitor income and performance.
- **Develop a scalable backend** using Kotlin and JDBI for efficient data management.
- **Simulate real-world delivery scenarios** using Postman calls for testing and validation.

By achieving these objectives, the project aims to enhance the efficiency and decision-making capabilities of couriers.

2 Justification

The development of this project is justified by several key factors:

- **Growing Demand for Efficient Delivery Services** – With the rise of on-demand delivery platforms, optimizing courier workflows and real-time demand tracking can significantly improve operational efficiency.
- **Improving Courier Experience** – A well-designed Jetpack Compose interface will provide couriers with a seamless and user-friendly experience, reducing friction in their daily tasks.
- **Data-Driven Decision Making** – Heat maps and order tracking allow for better resource allocation, reducing idle time and improving service efficiency.
- **Financial Transparency for Couriers** – Earnings tracking helps couriers manage their income effectively, promoting trust and engagement with the platform.
- **Scalability and Reliability** – Using Kotlin and JDBI ensures a robust backend capable of handling increasing workloads, making the system future-proof.
- **Enhanced Testing and Validation** – Simulating real-world scenarios with Postman enables thorough testing before deployment, ensuring a reliable and error-free system.

This project aligns with industry needs and provides a comprehensive solution for courier management, improving both user experience and operational efficiency.

3 Architecture

The system architecture will consist of the following components:

- **Application for android**: Implemented in Kotlin, using Jetpack Compose;
- **Web API**: Implemented in Kotlin, using the framework spring;
- **PostgreSQL Database**: used to store connections between entities along with additional data;*

This architecture provides a robust and scalable foundation for the system, ensuring seamless interaction between the Android application, web API, and database. By leveraging Kotlin, Jetpack Compose, and the Spring framework, the system maintains a modern, efficient, and maintainable design, facilitating smooth data management and user experience.

4 Objectives

The primary goal of this project is to develop a well-structured, scalable, and efficient backend API and application. The system will be designed with a strong emphasis on reliability, maintainability, and performance optimization.

To ensure robustness, comprehensive automated testing (including unit, integration, and end-to-end tests) will be implemented to validate functionality and improve confidence in the code base.

A secondary objective is to develop a data-driven heat map that visualizes key insights, such as areas with the highest-order activity. This will help in business decision making and operational efficiency. The heat map will be powered by real-time data aggregation and presented in an intuitive and interactive format.

Referências