### **CSCI-GA 2433 Project Proposal**

**Project Title**: Food Delivery Platform

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### **1. Project Idea/Focus**

The project aims to build a **Food Delivery Platform** connecting restaurants with customers for convenient, on-demand food delivery. Users can browse restaurants, place orders, track delivery, and rate their experience.

### **2. Why This Project Idea Was Selected**

Food delivery platforms are highly relevant in today's fast-paced world, especially in urban areas, where convenience and flexibility are increasingly valued. This project addresses the need for accessible and diverse food options, offering convenience for customers and an expanded reach for restaurants. Additionally, as students, we are particularly familiar with and often rely on food delivery services, making this a domain we understand well and are excited to innovate in.

### **3. Project Design and Implementation**

The project will be designed with a modular, scalable architecture to handle large volumes of users, restaurants, and delivery personnel efficiently. The key stages of the project design and implementation include:

* **User Interface Design:** The platform will have an intuitive and responsive interface, designed using frameworks for the web app, and for mobile apps, ensuring a smooth user experience on both desktop and mobile devices.
* **Database Management:** We will create the database and tables based on the ERD in a relational database management system (RDBMS) like MySQL or Oracle. The relational schema and constraints will be defined to ensure secure storage, fast retrieval, and efficient handling of large datasets. The database will be used to handle user information, restaurant menus, orders, and reviews.
* **Real-Time Order Tracking:** Leveraging GPS technology and services like Google Maps API, the platform will provide real-time tracking for users to see their order status and delivery personnel locations. This feature will require low-latency communication and will be implemented using WebSockets or similar technologies.
* **Secure Payment Integration:** Payment options will include integration with popular payment gateways like Stripe or PayPal, ensuring secure and convenient transactions for users. Additional security protocols, such as SSL/TLS encryption, will be applied to safeguard sensitive data.
* **Testing and Quality Assurance:** We will implement continuous integration/continuous deployment (CI/CD) to ensure regular updates and testing. Automated and manual testing will be conducted to assess functionality, usability, and security.

### **4. Solution Target Audience**

The primary audience for this platform includes:

* **Individual Customers**: Those seeking convenient food delivery options to fit their fast-paced lifestyles. The platform will cater to their need for diverse and easily accessible dining choices, enhancing their overall experience with real-time tracking and secure payment options.
* **Restaurants**: Establishments looking to expand their customer base and increase order volumes. By partnering with the platform, restaurants can reach a wider audience, improve visibility, and streamline their delivery operations.
* **Delivery Personnel**: Individuals who will use the platform to receive, manage, and complete delivery assignments. The platform will offer tools to optimize their routes, manage orders efficiently, and ensure effective communication between customers and restaurants. This will create more job opportunities and provide a flexible working environment for delivery personnel.

### **5. Use Cases (When)**

* **Lunch or Dinner Ordering**: Individuals looking for quick, reliable meal options during lunch breaks or for dinner can use the platform to browse, select, and order.
* **Corporate Orders**: Companies can use the platform to place bulk orders for events or meetings, ensuring food delivery for large groups.
* **Access to Diverse Cuisines**: Users seeking a variety of cuisines—such as Chinese, Korean, and Japanese—can use the platform to explore and enjoy distant restaurants that might otherwise be inconvenient to visit in person.

### **6. Use Cases (Where)**

The platform will be initially launched in densely populated urban areas where demand for food delivery services is high and internet infrastructure is robust. Key target locations include:

* **University Campuses:** Targeting campuses with a high student population, where students often seek convenient, quick meal options. This will drive early adoption, as students are frequent users of food delivery services.
* **Business Districts:** In office-dense areas, particularly around central business districts, where professionals may order lunch or group meals. This setting will cater to a fast-paced audience looking for efficient, high-quality service during work hours.
* **Residential Areas:** In high-density neighborhoods, especially where families and individuals rely on food delivery as a primary dining option, the platform will provide a wide selection of restaurant choices to cater to various tastes and dietary needs.
* **Event Venues:** Areas near stadiums, conference centers, or concert venues where large gatherings create a surge in demand for food services. This deployment will serve customers and event organizers looking for convenient, high-volume food delivery options.

### **7. Predictive Model to Provide Business Insights**

* **Delivery Time Prediction:** Delivery person ratings, order type, and vehicle type significantly influence delivery times. By finding the key factors for delivery time prediction, we can assign time-sensitive orders to highly-rated personnel or set realistic customer expectations based on predictions.
* **Customer Satisfaction Analysis**: Checking the correlation between Customer satisfaction and other factors, so that we can align our business strategies better with the customers’ needs.