GOEASY CASE STUDY

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Overview

Our platform provides unique ride-hailing with advanced, secure features:

Age Verification: National ID checks ensure passengers are over 18, with auto-family notifications and live location sharing for minors.

In-Ride Services: This feature allows users to order food or coffee during the ride and pick it up along the way.

Driver & Rider Roles: Role-based, separated sign-up flows. This indicates that drivers and riders are going to be treated to different experiences.

It offers security, convenience, and also personalization to enhance ride-hailing.

Problem Statement

The existing ride-sharing applications fall short in providing features to meet key needs: safety, convenience, and personalization. This project shall be aimed at developing an Enhanced ride sharing, enhancing user experience in:

GoEasy

your ride will be easy to go.

Verifying Passenger Age: Perform verification of age through national ID checks and send safety notifications to minors.

Location Sharing in Real-time: allowing passengers to share their location with family for added safety.
In-ride ordering options, where the passenger can order food or coffee during the ride.

Personalised experience: The sign-up for drivers and riders are through different means.

Goal

It would, therefore, be in the context of the core notion of providing a safe and user-friendly ride-hailing platform to passengers through security, convenience, and personalization. It shall incorporate age verification from national IDs, real-time notifications of family members, or even ordering food or coffee while in a ride as added user experiences for riders and drivers. Eventually, this will give a dependable alternative that is novel in the transport market that can answer the evolving demands of users within the law and safety.

safety

Your safety is our priority. From verified drivers to real-time tracking and emergency support, we ensure that every trip is secure and stress-free. Ride with confidence, always.

speed

Time matters, and so do we. With our smart routing and real-time availability, you'll get from point A to point B faster, cutting down on delays and maximizing your day.

respect

We build trust through mutual respect. Every interaction between drivers and riders is grounded in professionalism and courtesy, creating a welcoming and inclusive community for all.

Comfort

Experience the ride you deserve —our vehicles are designed to provide maximum comfort, ensuring every journey feels relaxing and enjoyable. Sit back, unwind, and let us take you where you need to go in style.

Objectives

Performance goals are a good way to monitor and measure progress.

Reporting performance can include details such as indicators identified, data collected and SDG-related activities accomplished. Clear and concrete performance goals make it easier to generate relevant, consistent and comparable data over time, in formats that your audience can understand and appreciate.

Ensure Passenger Safety	Enhance User Convenience with In-Ride Services	Provide Customized Experiences for Drivers and Riders	Build a Real-Time, Responsive Platform
• Objective: Provide a safe and secure environment, particularly for younger passengers. • Approach: Implement age verification by extracting date of birth from the national ID during registration. If a passenger is under 18, the system automatically notifies family contacts and shares the passenger's live location throughout the ride. • Outcome: This ensures family peace of mind and keeps younger passengers safe and accountable.	• Objective: Improve passenger satisfaction by adding the ability to order food or coffee during the ride. • Approach: Integrate an in-app ordering feature, allowing passengers to select nearby food or coffee options. Drivers receive these orders and can pick them up en route, keeping the passenger's experience seamless. • Outcome: This adds value to the ride experience, making travel more enjoyable and convenient.	• Objective: Create tailored user experiences for each type of user on the platform. • Approach: Build distinct sign-up and onboarding processes for drivers and riders. Drivers receive tools for managing rides and viewing orders, while riders have options for ride scheduling, ordering food, and connecting with family members for safety. • Outcome: By differentiating user interfaces and features based on roles, the platform feels more intuitive and valuable for each user.	• Objective: Maintain a dynamic, real-time environment for location updates, notifications, and order tracking. • Approach: Use real-time data technology (like WebSockets or Firebase) to share live locations, send family notifications, and enable smooth order management. • Outcome: Real-time updates enhance safety, reliability, and engagement by keeping passengers, families, and drivers informed at all times.

01 Functional

02 Non-Functional

03 Hardware

Functional

User Authentication and Role Management

- Users can register and log in as either a driver or a rider.
- Store user roles and provide role-specific access and features.

Passenger Age Verification

- Extract and verify age from the national ID during registration.
- Notify family members for passengers under 18 and share live location.

Family Notification & Live Location Sharing

- Notify family contacts when a ride starts for an underage passenger.
- Provide real-time location sharing with family members.

In-Ride Food and Coffee Ordering

- Allow passengers to order food or coffee during the ride.

Ride Booking and Management

- Riders can book a ride with pickup/drop-off locations and see fare estimates.
- Drivers can view ride requests, accept rides, and track trip details in real-time.

Payment Integration

- Riders can add and manage payment methods for ride fares and orders.
- Secure payment processing with fare calculation.

Real-Time Notifications

- Notifications for family alerts, ride confirmations, driver arrival, and order updates.

Driver and Vehicle Management

- Drivers can upload vehicle documents, verify licenses, and track ratings.

Non - Functional

Performance

- The application should respond quickly, with minimal latency, especially for real-time updates like location sharing.
- Ensure scalability to handle multiple users and rides concurrently.

Security

- Encrypt sensitive user data, including national ID, location data, and payment.

details

- Use SSL for data transfer and secure authentication and authorization mechanisms (e.g., JWT).

Usability

- Intuitive interface for riders, drivers, and admin users.
- Accessible UI/UX to support users of different backgrounds and levels of tech experience.

Scalability

- The platform should be designed to scale horizontally to handle an increasing number of users and orders.

Maintainability

- Modular codebase with clear documentation to allow easy updates and debugging.
- Use of version control (Git) to streamline deployment.

Hardware

End-User Devices

- Drivers & Riders: Mobile devices with Android or iOS support, GPS functionality, and internet connectivity.
- Admin/Support Staff: Laptops or desktops for accessing the admin dashboard and support tools.

Server Requirements

- Application Server: For handling API requests, user authentication, and business logic.
  - Recommended: Quad-core processor, 8GB RAM, 100GB SSD storage.
  - Cloud providers (e.g., AWS EC2 or Google Cloud) can provide scalable server instances.

- Database Server: Dedicated database server if scaling requirements increase.
  - Recommended: Quad-core processor, 16GB RAM, 200GB SSD storage (with auto-scaling options for large datasets).

- Real-Time Communication Server: For WebSockets or Firebase service, if managing real-time location sharing and notifications.

Risks

1. Data Privacy and Security Risks

- Risk: Handling sensitive user data like national IDs, family contact information, and payment details could lead to data breaches or privacy violations.
- Mitigation: Implement strict data encryption, follow secure coding practices, and ensure compliance with data privacy regulations like GDPR.

2. Age Verification Reliability

- Risk: Relying solely on national ID data could lead to inaccuracies if the ID is invalid or manipulated.
- Mitigation: Use secondary verification methods, such as document scanning or integration with official ID verification services, to cross-check ID authenticity.

3. Real-Time Location Accuracy

- Risk: Inaccurate or delayed location updates could disrupt family notifications or impact driver navigation, affecting user trust and safety.
- Mitigation: Use high-accuracy location services (e.g., Mapbox with optimized refresh rates) and test extensively under varied conditions to ensure reliable tracking.

4. Service Availability and Scalability

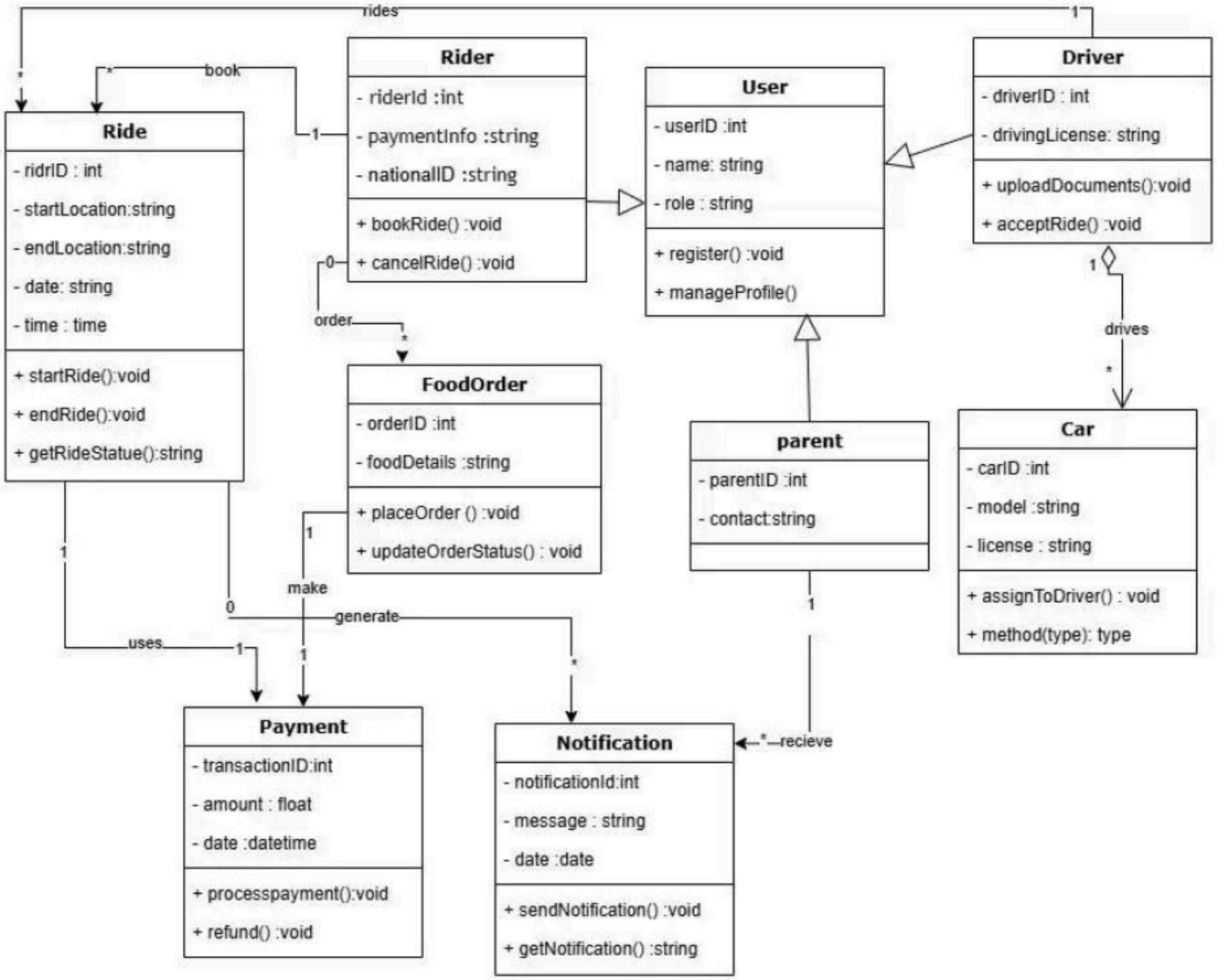
- Risk: High demand or a growing user base could strain server capacity, leading to slow response times or downtime.
- Mitigation: Utilize cloud hosting with auto-scaling options, load balancers, and efficient database queries to handle peak loads smoothly.

5. Compliance with Legal Regulations

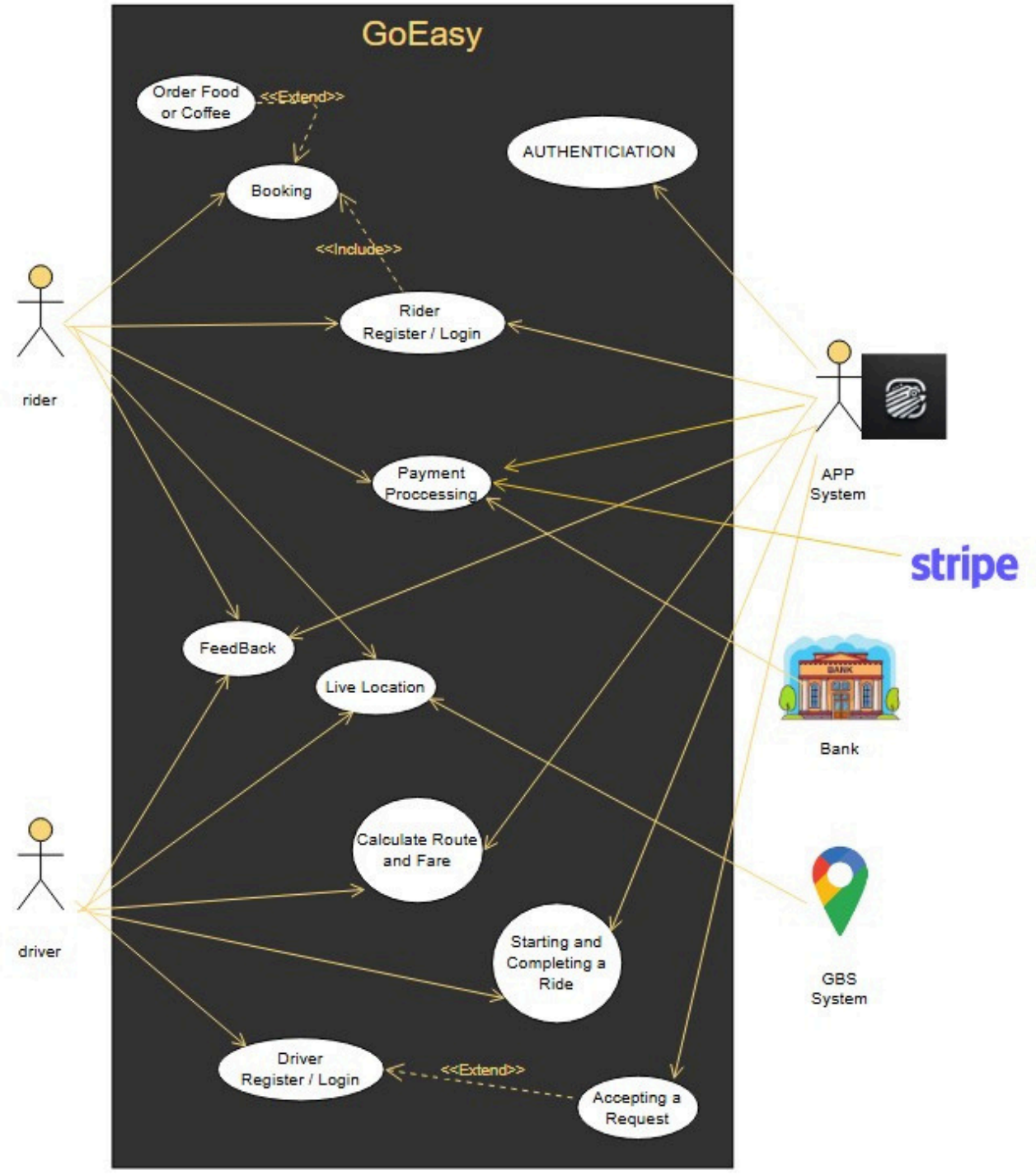
- Risk: Regulations for ride-sharing, age verification, and data privacy vary by region, so non-compliance could lead to legal complications.
- Mitigation: Research and align with local laws for each operational area, especially regarding ID verification, underage travel, and payment processing.

diagrams

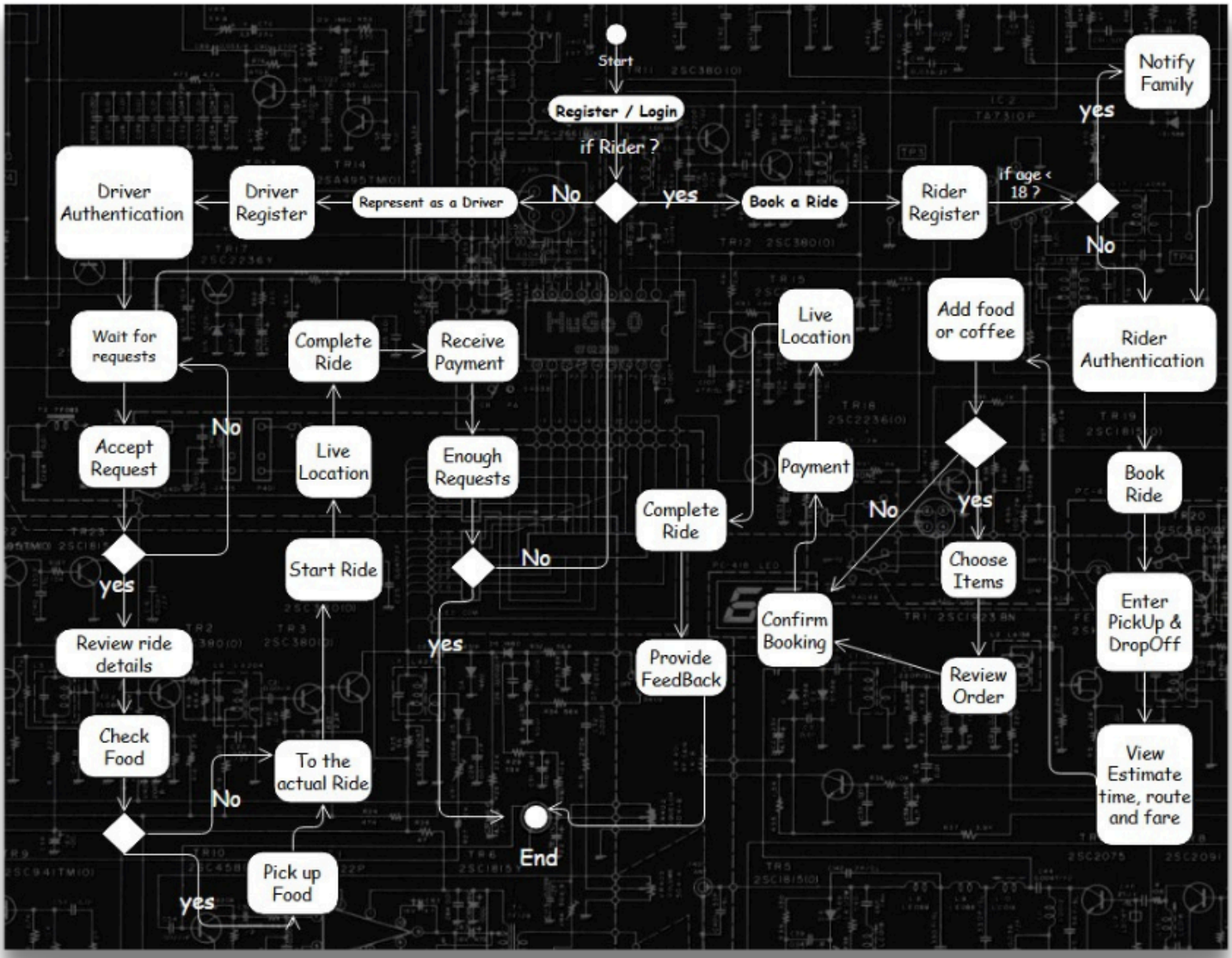
CLASS DIAGRAM



USECASE DIAGRAM

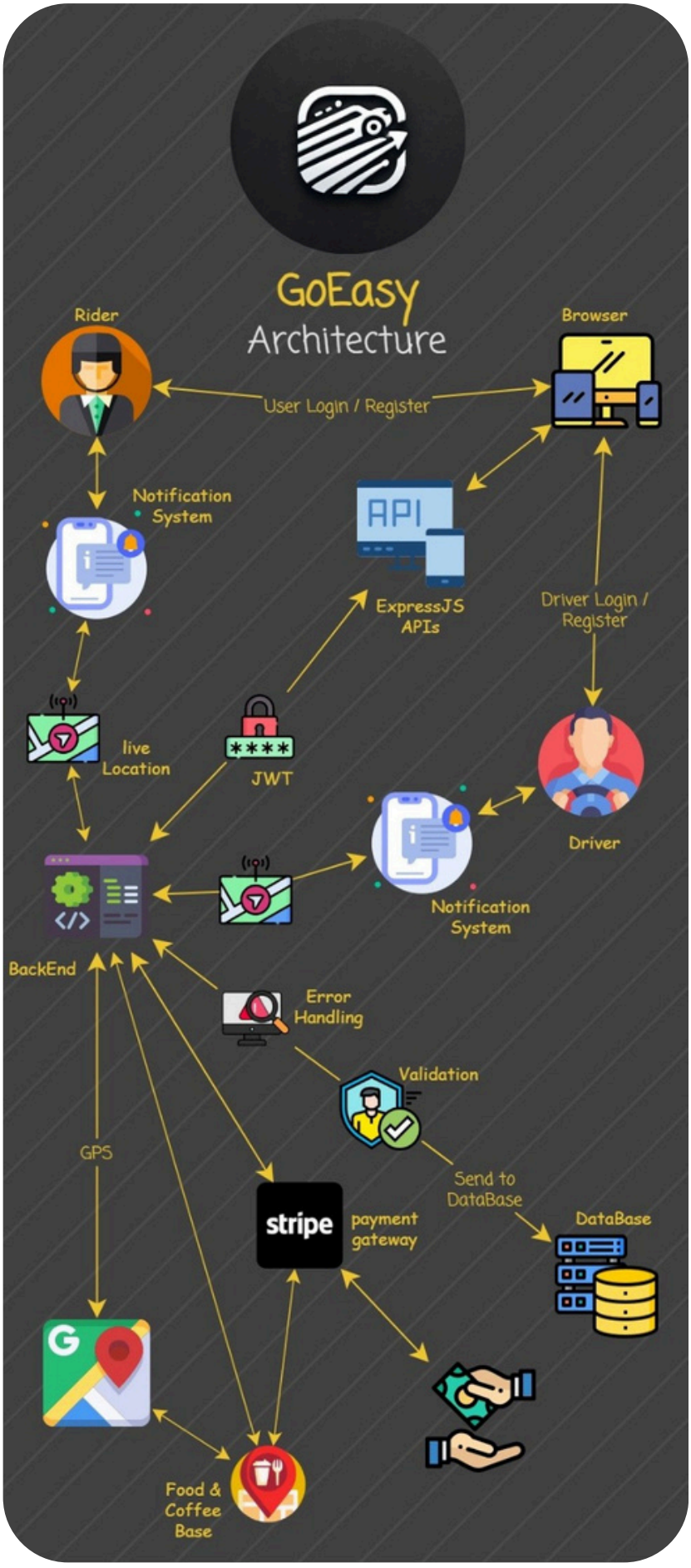


ACTIVITY DIAGRAM

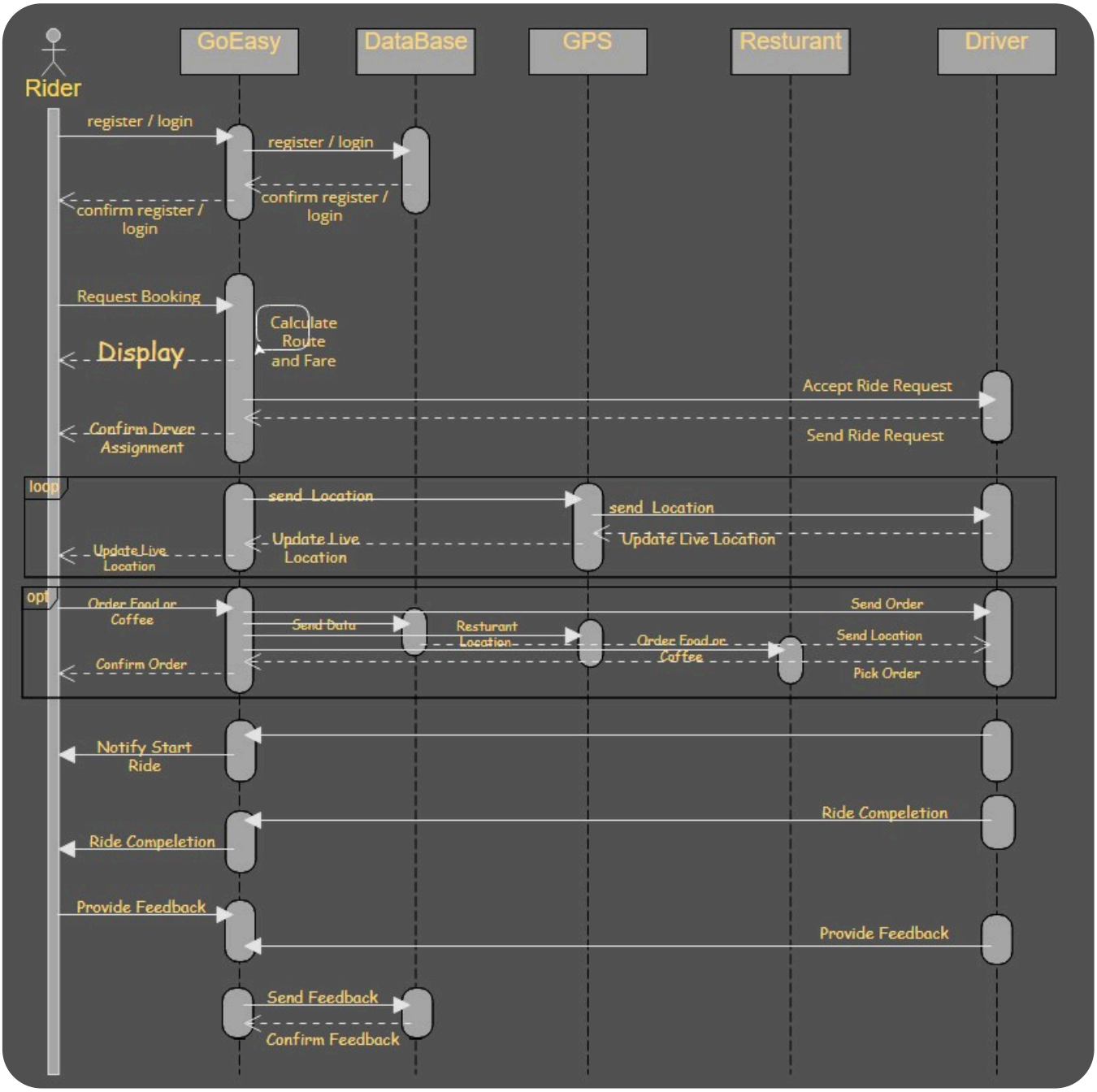


diagrams

ARCHITECTURE DIAGRAM



SEQUENCE DIAGRAM



Scope

Project Purpose

To create a secure, user-friendly ride-hailing platform that prioritizes passenger safety, enhances convenience, and offers personalized features. Key functionalities include age verification, family alerts, in-ride order options, and unique experiences for both drivers and riders.

Project Constraints

- Data Privacy Compliance: Encrypt sensitive data, such as ID and family contacts, to meet data protection standards.
- Timeline and Budget: Complete within six months, adhering to the allocated budget.
- Compatibility and Scalability: Ensure integration with existing systems and scalability for future growth.

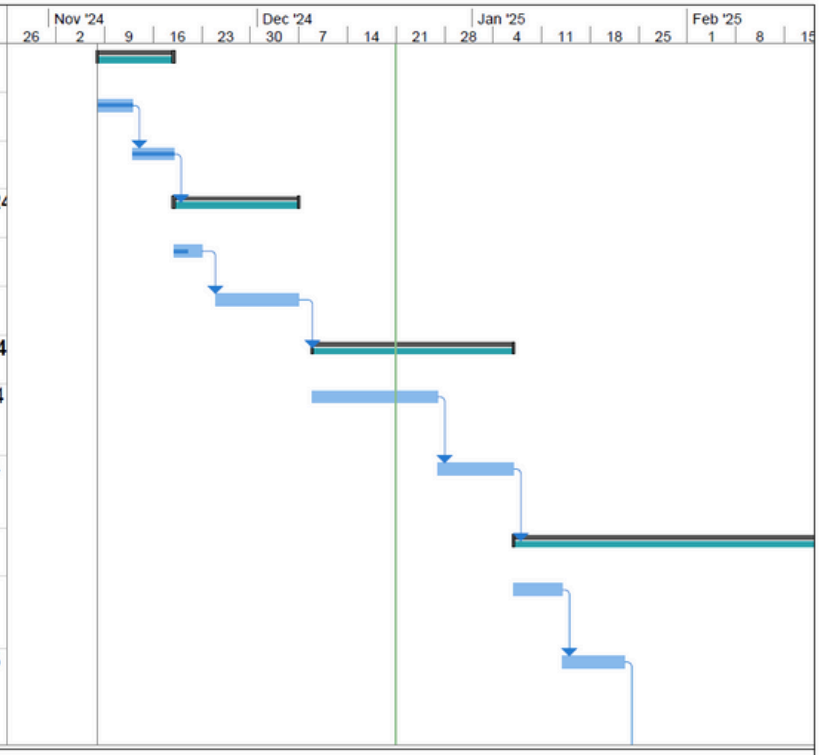
Scope Control Process

- Change Management: Proposals for new features go through a review to determine necessity.
- Focus on Core Features: Prioritize critical features like real-time tracking, payment security, and family notifications.
- Avoiding Scope Creep: By evaluating each potential addition, the project avoids unexpected growth, ensuring timelines and budgets stay intact.

Assumptions

- ID Access: National ID access is available for age verification.
- Server Infrastructure: Adequate servers for supporting real-time notifications and updates are accessible.

ID	Task Mode	Task Name	Duration	Start
1		**project initiation**	**7 days**	**Fri 11/8/24**
2		Define project goals and	3 days	Fri 11/8/24
3		Identify team members and	4 days	Wed 11/13/24
4		**Planning**	**15 days**	**Tue 11/19/24**
5		Develop project plan and timeline	4 days	Tue 11/19/24
6		Identify requirements and	10 days	Mon 11/25/24
7		**Design**	**21 days**	**Mon 12/9/24**
8		Designing user interface for drivers &riders	14 days	Mon 12/9/24
9		Plan for integration of age verification and	7 days	Fri 12/27/24
10		**Development**	**33 days**	**Tue 1/7/25**
11		Implement user authentication and role management	1 wk	Tue 1/7/25
12		Develop age verification and family notification features	7 days	Tue 1/14/25



Project: iss gantt chart
Date: Sat 12/21/24

Task
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Milestone
Summary
Project Summary
Inactive Task
Inactive Milestone
Inactive Summary
Manual Task
Duration-only
Manual Summary Rollup
Manual Summary
Start-only
Finish-only
External Tasks
External Milestone
Deadline
Progress
Manual Progress

ID	Task Mode	Task Name	Duration	Start
13		Build in-ride food and coffee ordering system	14 days	Thu 1/23/25
14		Set up real-time data technology for location	7 days	Wed 2/12/25
15		**Testing**	**14 days**	**Fri 2/21/25**
16		Conduct functional testing for all	5 days	Fri 2/21/25
17		Perform security and performance	4 days	Fri 2/28/25
18		Test real-time location accuracy	5 days	Thu 3/6/25
19		**Deployment**	**7 days**	**Thu 3/13/25**
20		Deploy application on cloud servers	4 days	Thu 3/13/25
21		Ensure scalability and service availability	3 days	Wed 3/19/25
22		Monitoring and Maintenance	115 days?	Mon 3/24/25

Project: iss gantt chart
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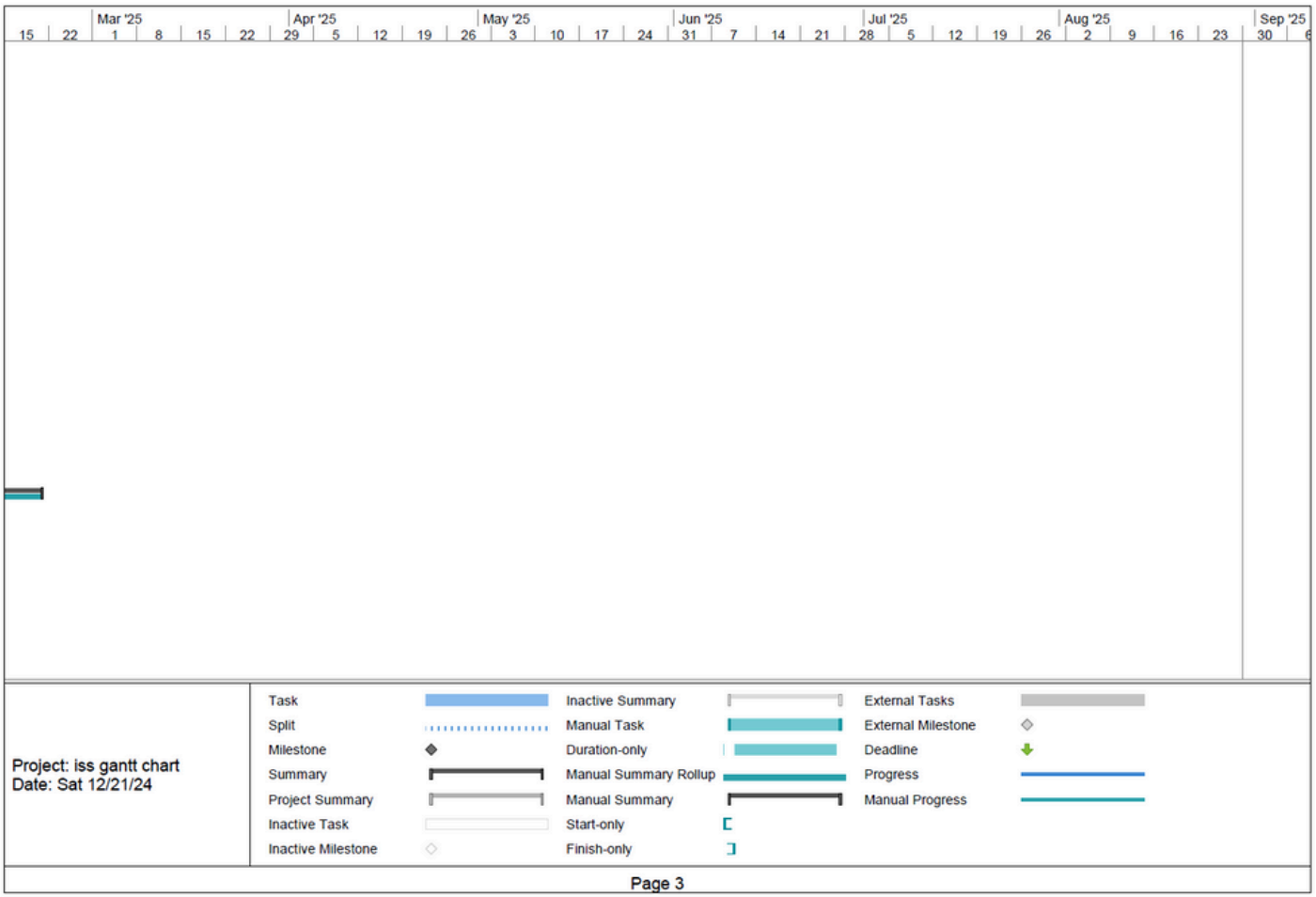
Mar '25
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May '25
Jun '25
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Aug '25
Sep '25
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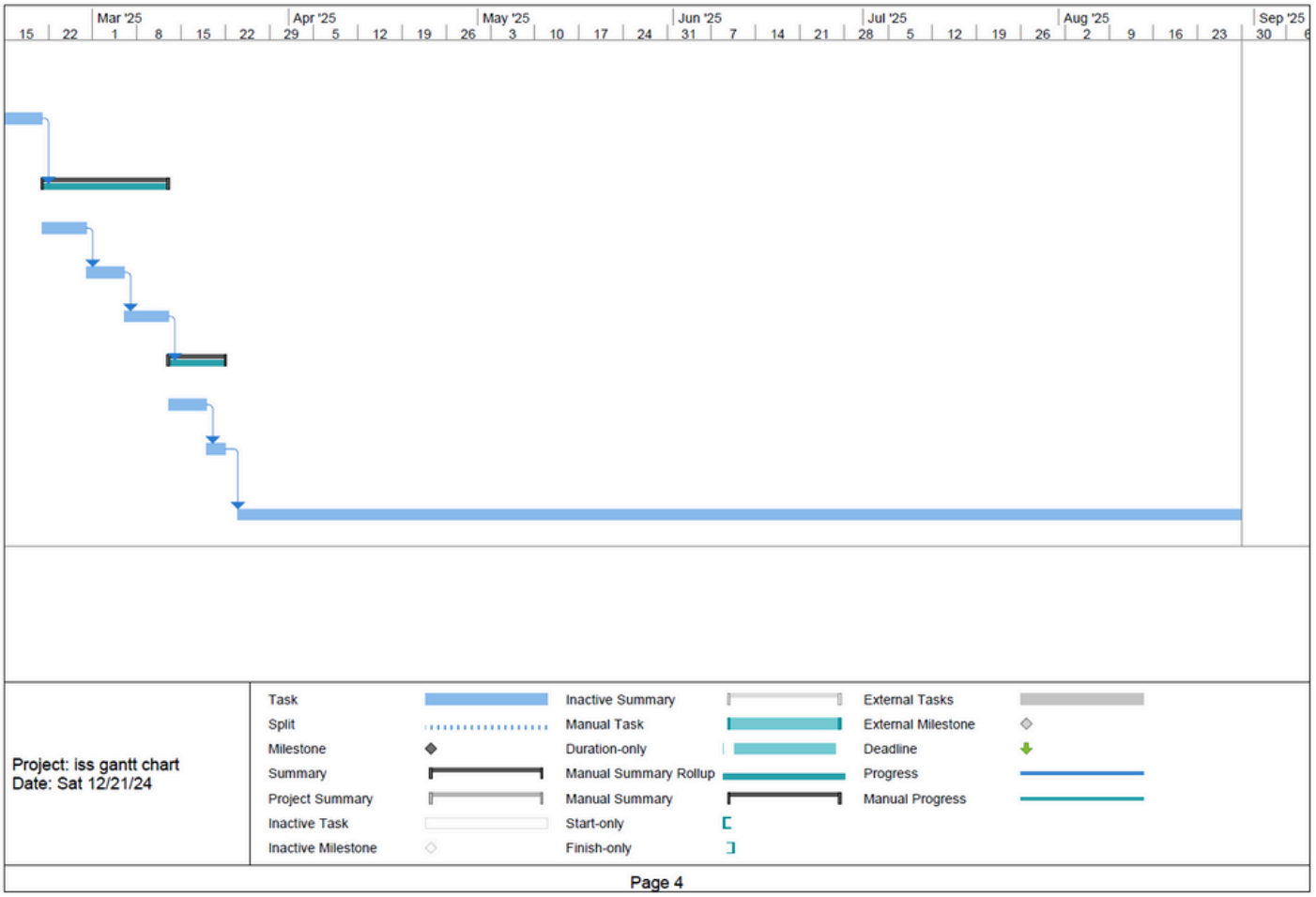
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THANK YOU!


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