

29 MARCH 2024

ROSHAN NAIDU

DA 2 (RESEARCH)

RE ROUTING SYSTEM

UML DESIGNS

1. **SRS (Software Requirement Specification) & WBS Submitted in DA 1**

1	Name of the Project	Enhanced Vehicular Rerouting on Location Discernment
2	Objective/Vision	<ul style="list-style-type: none"> • Create an interactive and responsive website/ application that is integrated with navigation applications to enable users to choose a safer and better pathway for travel. • Provide a user-friendly interface for individuals to make the application easier to be used.
3	Users of the system	<ul style="list-style-type: none"> • Anyone trying to choose the path for travel using navigators.
4	Functional Requirements	<ul style="list-style-type: none"> • Users should be able to choose a suitable path based on their demands. • The website should provide customised path options also notifying the user of potential dangers if chooses to ignore the pathway recommended by the app. • The website should generate reports and statistics of the user's location, travel history, tracking the progress of the user's travel and distance. • Users should be able to seamlessly modify their pathway with multiple locations if needed.
5	Non-functional requirements	<ul style="list-style-type: none"> • The app must be available 24×7, ensuring users can access the website/application at any point of time. • Data security measures must be in place to protect user's personal information. • The app should be designed for scalability to accommodate a growing user and dealer database.

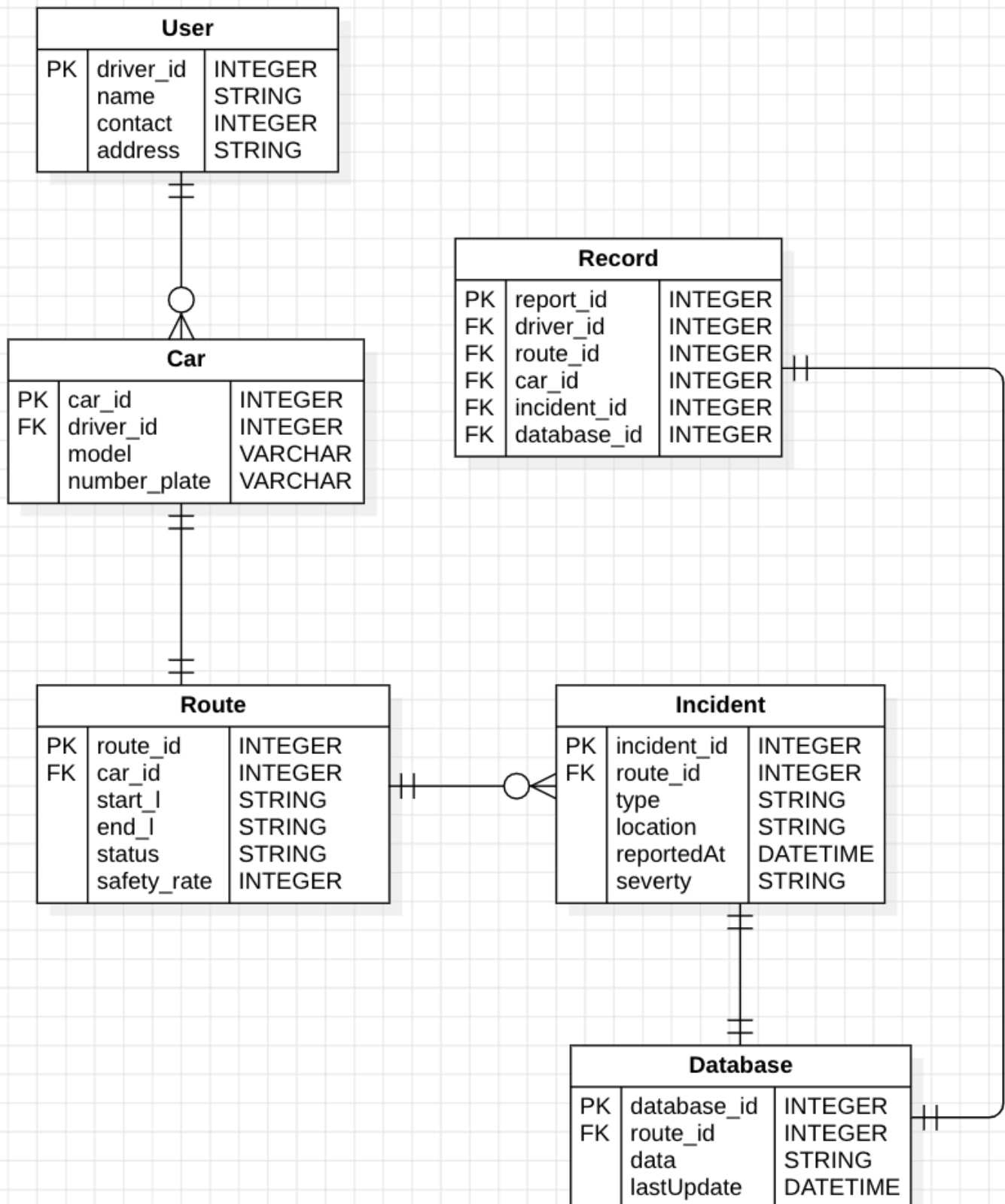
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6	Optional Features	<ul style="list-style-type: none"> • In-app notifications for pathway updates when the application is not being used.
7	User Interfaces Priorities	<ul style="list-style-type: none"> • Ensure the website is compatible with all operating environments. • Conduct thorough testing on various devices and screen sizes to guarantee a seamless user experience.
8	Reports	<ul style="list-style-type: none"> • The website should generate daily users activity and revenue generated through ad-sense if enabled or the hours used to guarantee a successful endeavour to the government for funds.
9	Other Important Issues	<ul style="list-style-type: none"> • Users should receive responses to their inquiries or feedback within an hour. • Regular updates to pathway modifications or the new roadways created which are more feasible.
10	Team Size	<ul style="list-style-type: none"> • An exact estimate of number of people involved cannot be predicted since the project would involve different sectors of government, law enforcement and their employees. • Still the core members could potentially contain 70-90 members including developers, UI/UX designers, heads of the government and law enforcement ministries, financial experts, ethical hackers and testers, pathway and database experts, civil engineers and satellite experts.

1	Name of the Project	Enhanced Vehicular Rerouting on Location Discernment
11	Technologies to be Used	<ul style="list-style-type: none"> • MERN stack implementation (Mongo Db, Express Js, React Js, Node Js, HTML, CSS, Javascript) for a full stack web development ensuring perfect front end as well as a strong back end with perfect encryption. • Integration technologies for app integration with the navigation devices/apps. Potentially with Algorithms of a strong OOPs language (C++, JAVA) • SUMO (Simulation of Urban MObility) • MATLAB
12	Tools to be Used	<ul style="list-style-type: none"> • Visual Studio Code, Github, Bard AI, GPT-4, sci-hub (for accessing research works).
13	Constraints	<ul style="list-style-type: none"> • The application may recommend a longer and less efficient route to the user but far safer and secure than the same.
14	Final Deliverable Must Include	<ul style="list-style-type: none"> • An efficiently working application that would deliver the safest route possible for the user to manoeuvre through. • Point of contact of the company and government and vice - versa for government for any related relevant issues. • Source code of the project. • Backup of the user data and app databases.

2.

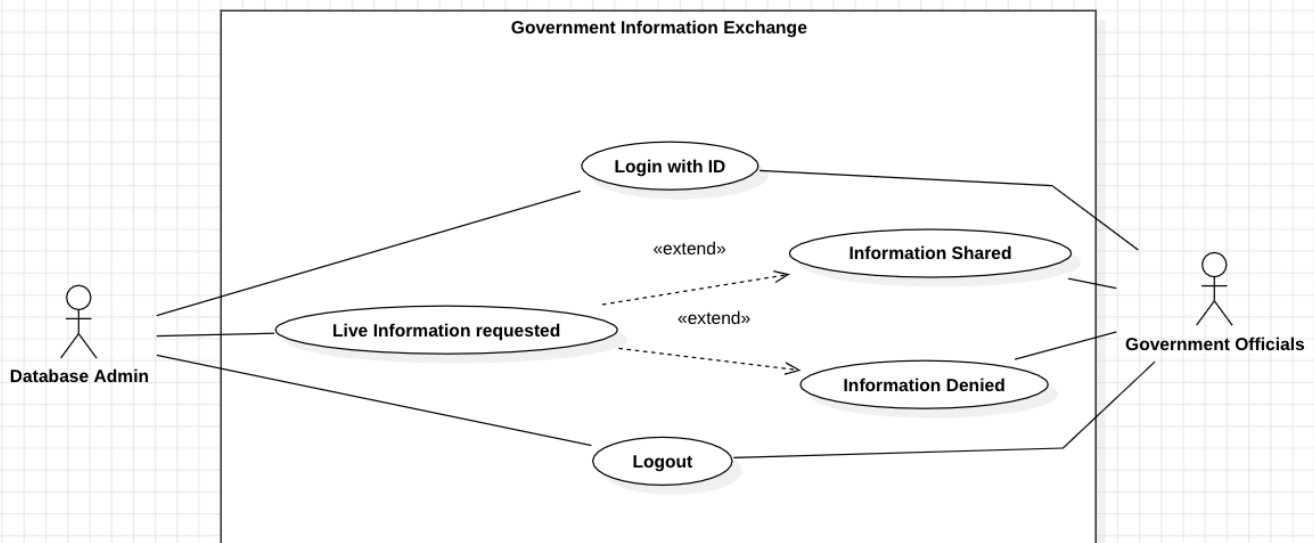
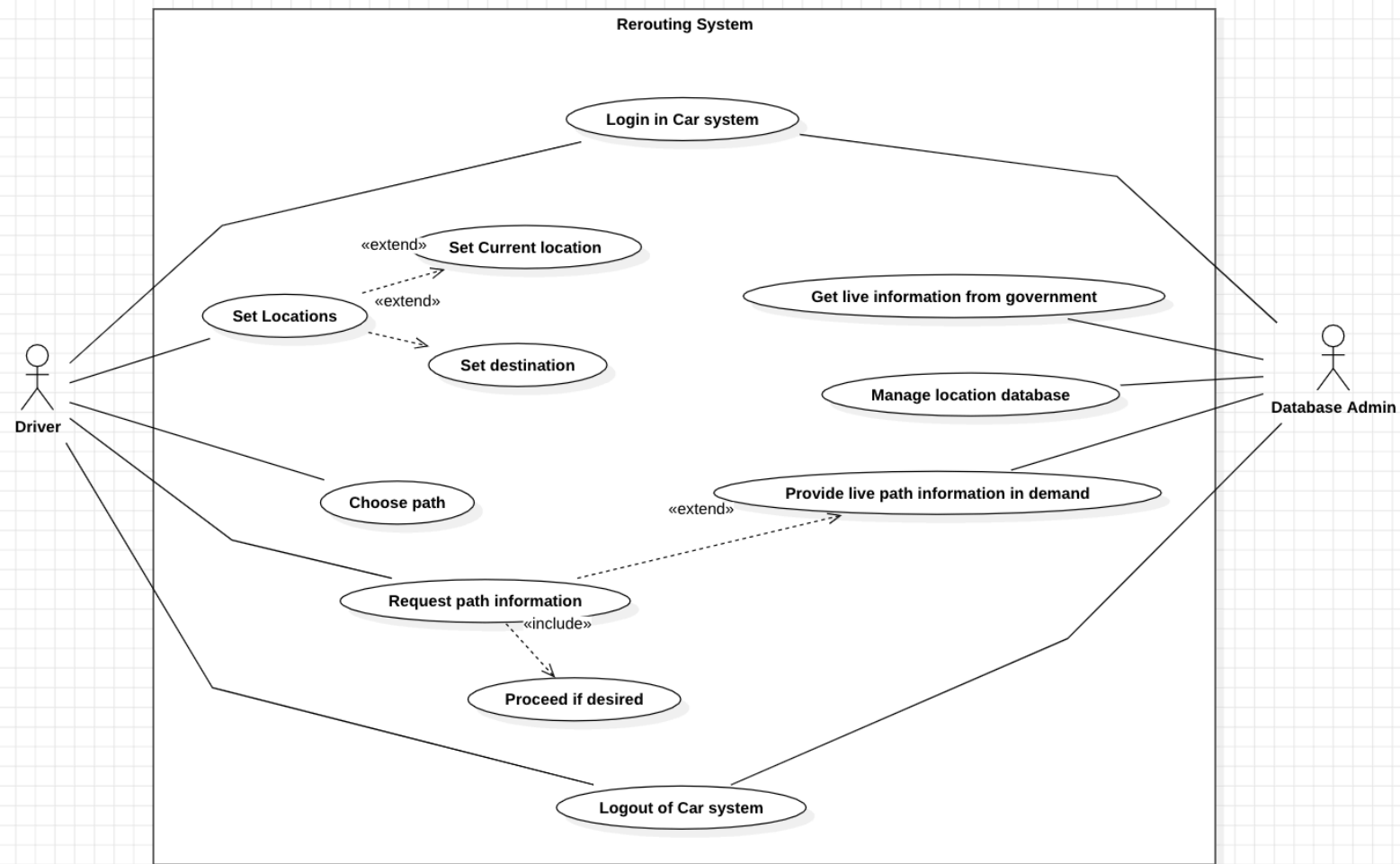
ER Diagram

Rerouting Systems



3.

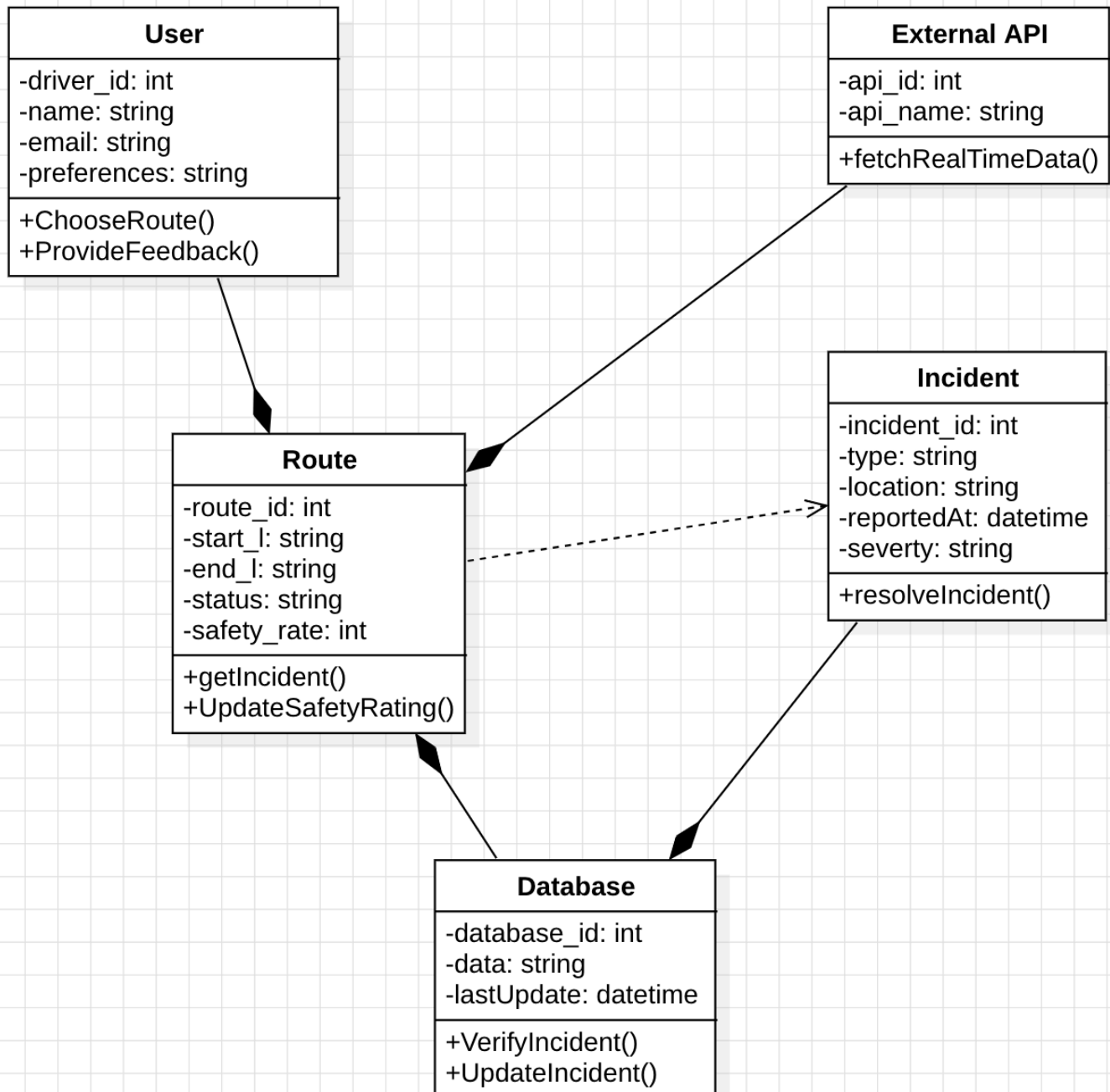
Use Case / Sub Use Case Diagram



4.

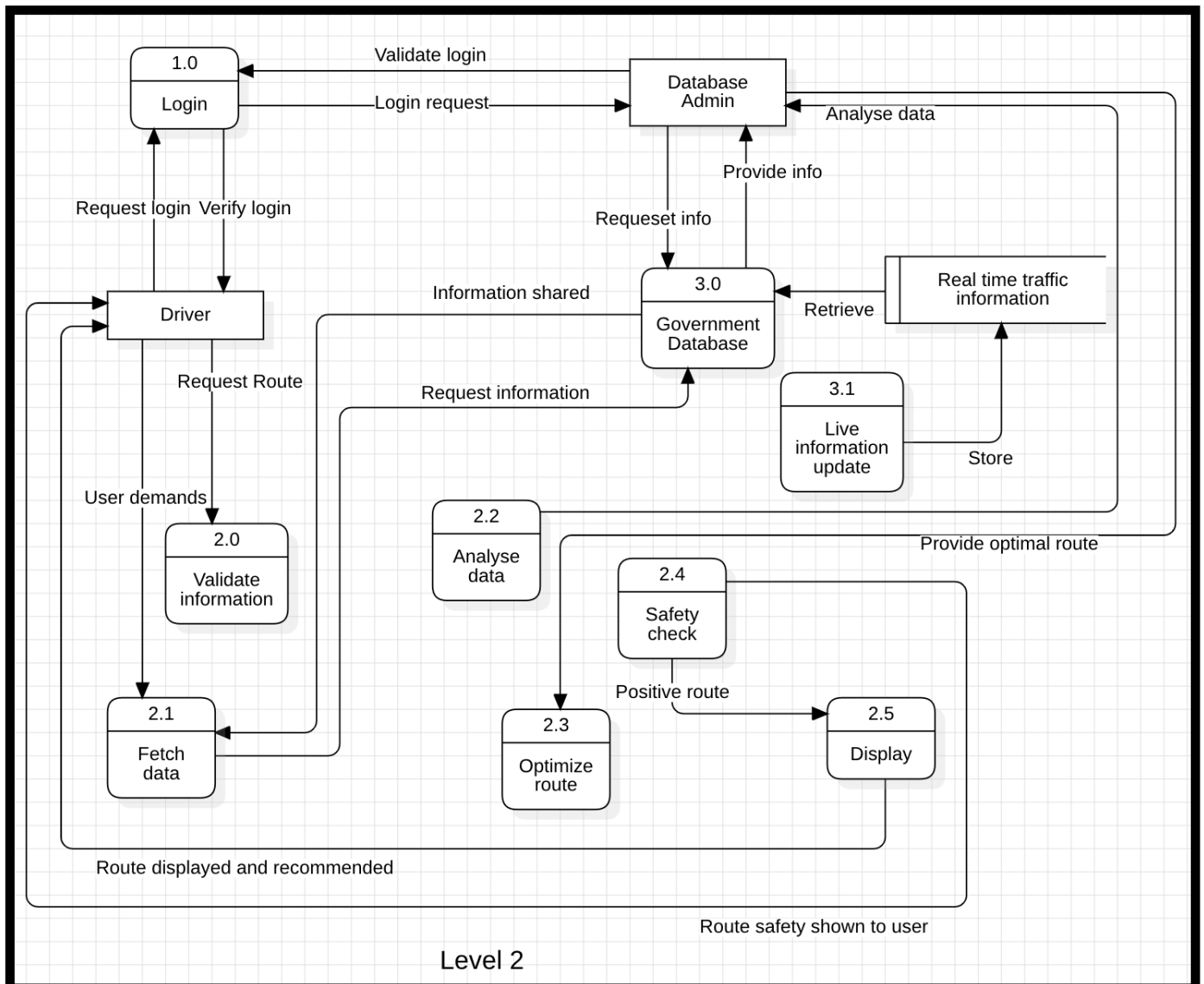
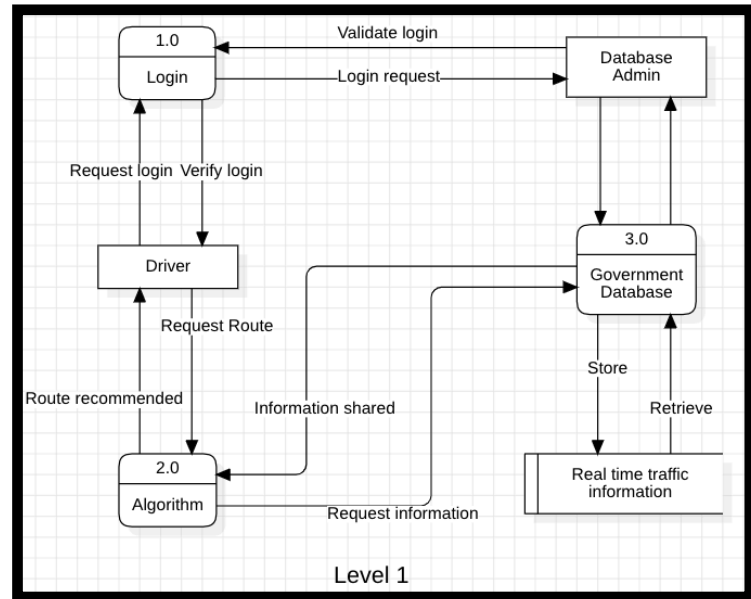
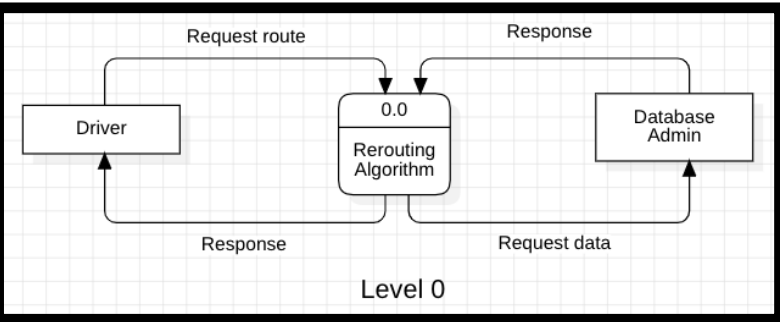
Class Diagram

Rerouting Systems



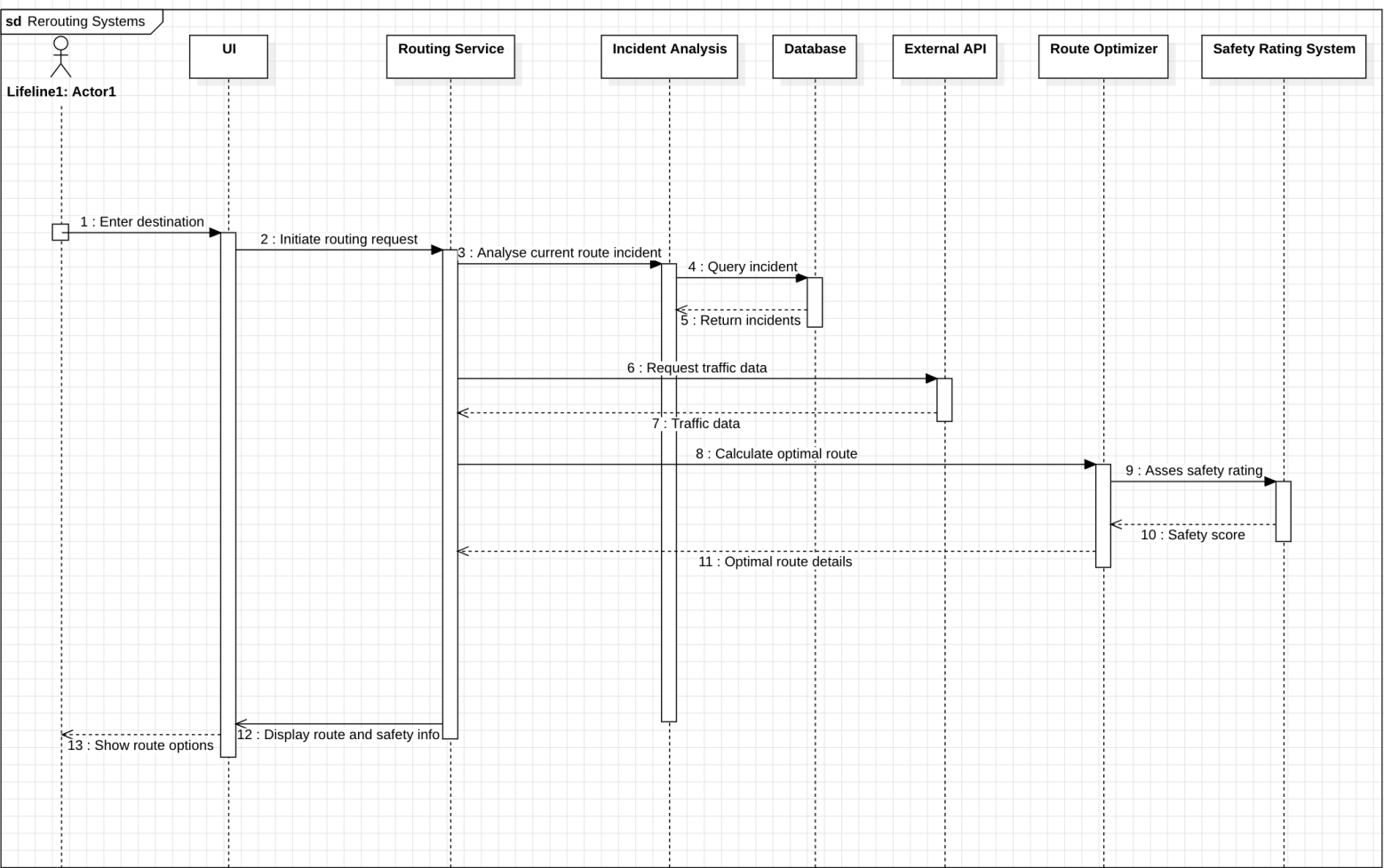
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Data Flow Diagram



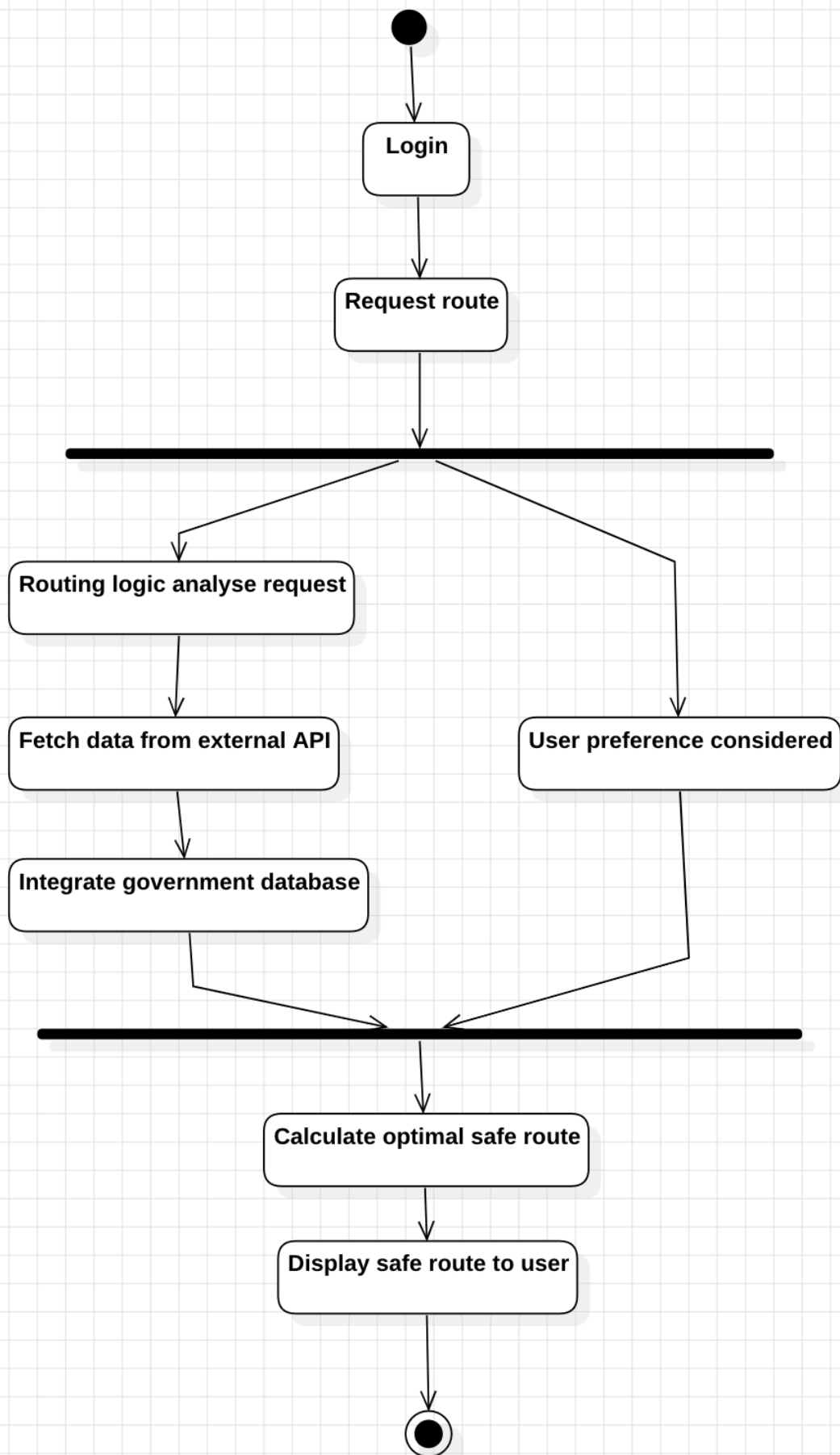
6.

Sequence Diagram



7.

Activity Diagram



8.

State Transition Diagram

