Accademic Year 2016/2017

POWER ENJOY

DD Presentation
Politecnico di Milano
Software Engineering 2

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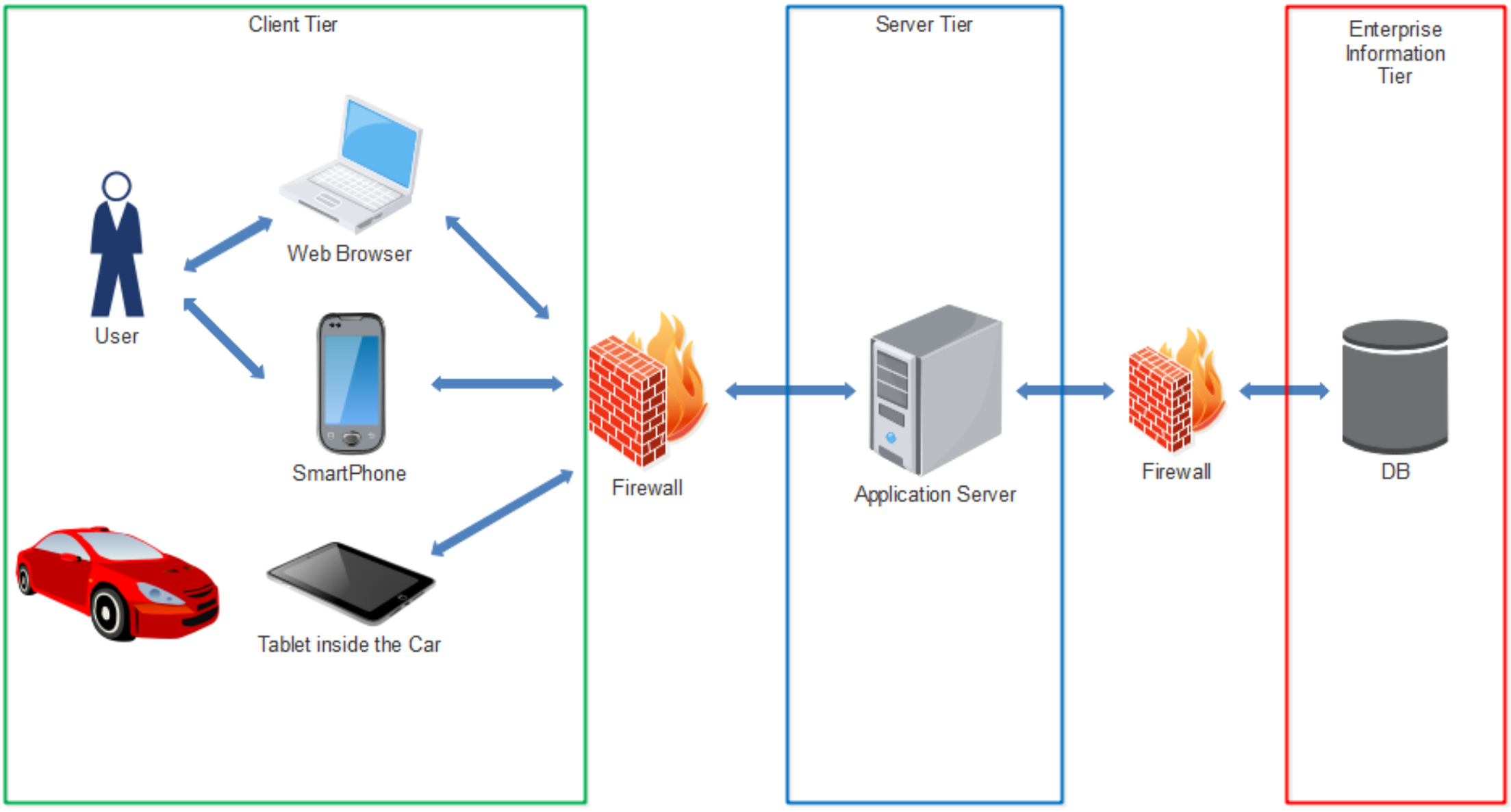
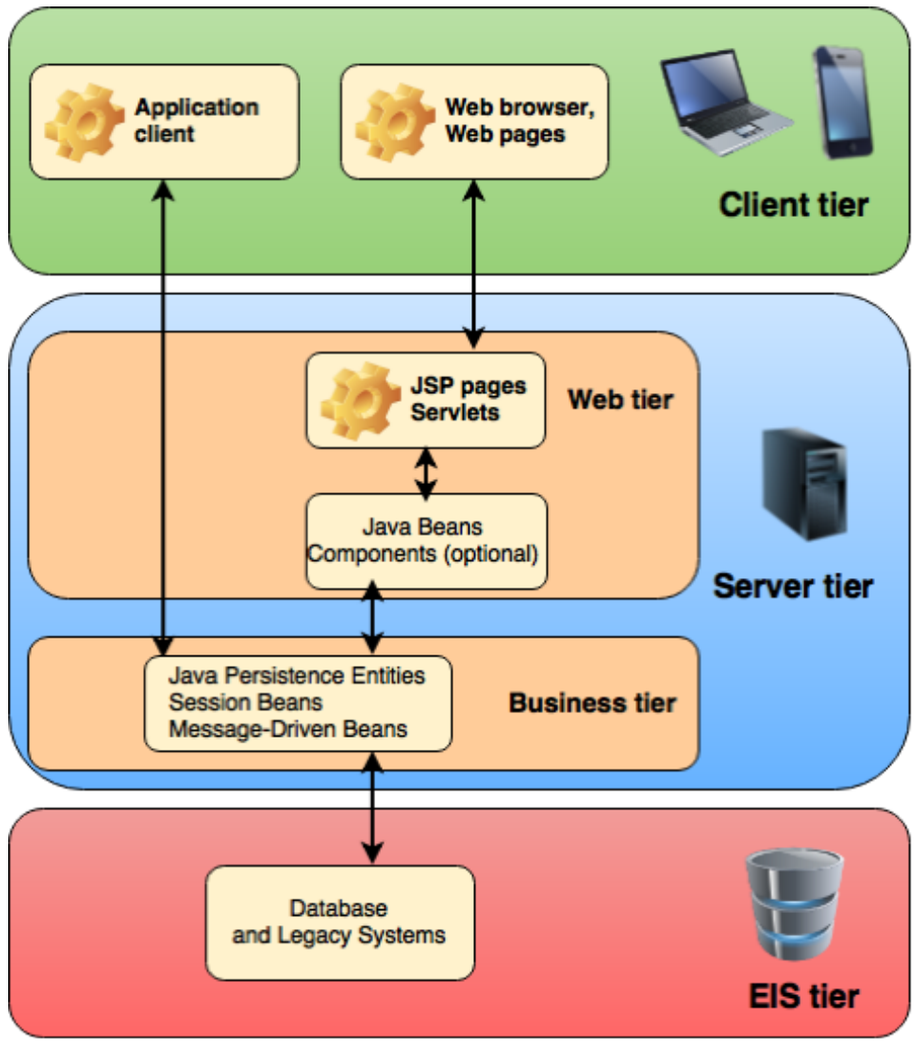
HIGH LEVEL INFRASTRUCTURE

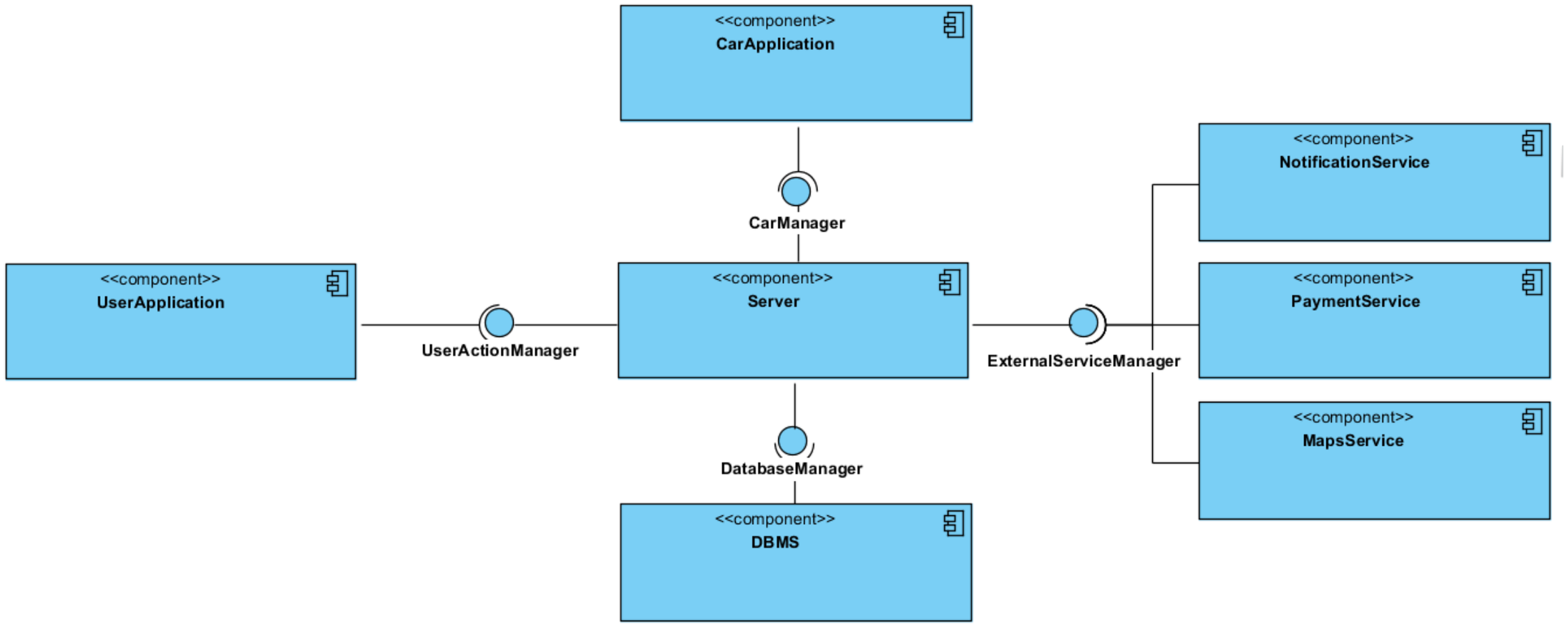


J2EE INFRASTRUCTURE

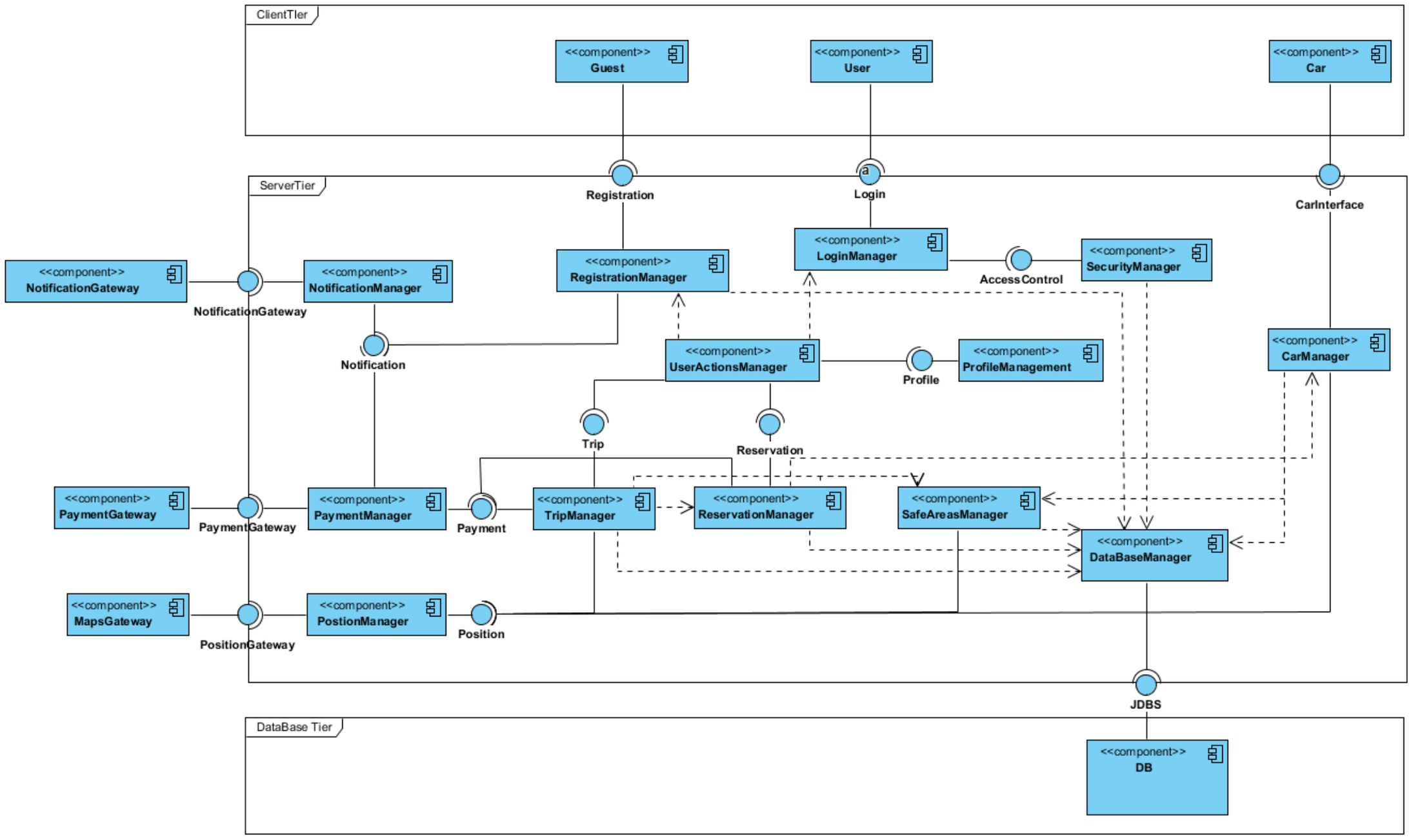
- **Client-tier**: run on the client machine, both on the web browser and mobile application and also on the machine's tablet
- **Server-tier**:
  - **Web-tier:** Servlets and JSP that are used to manage the interaction with the web application
  - **Business-tier**: these components manage the internal logic of the system
- **Enterprise Information System (EIS)-tie**: handle enterprise infrastructure systems, database systems and legacy systems



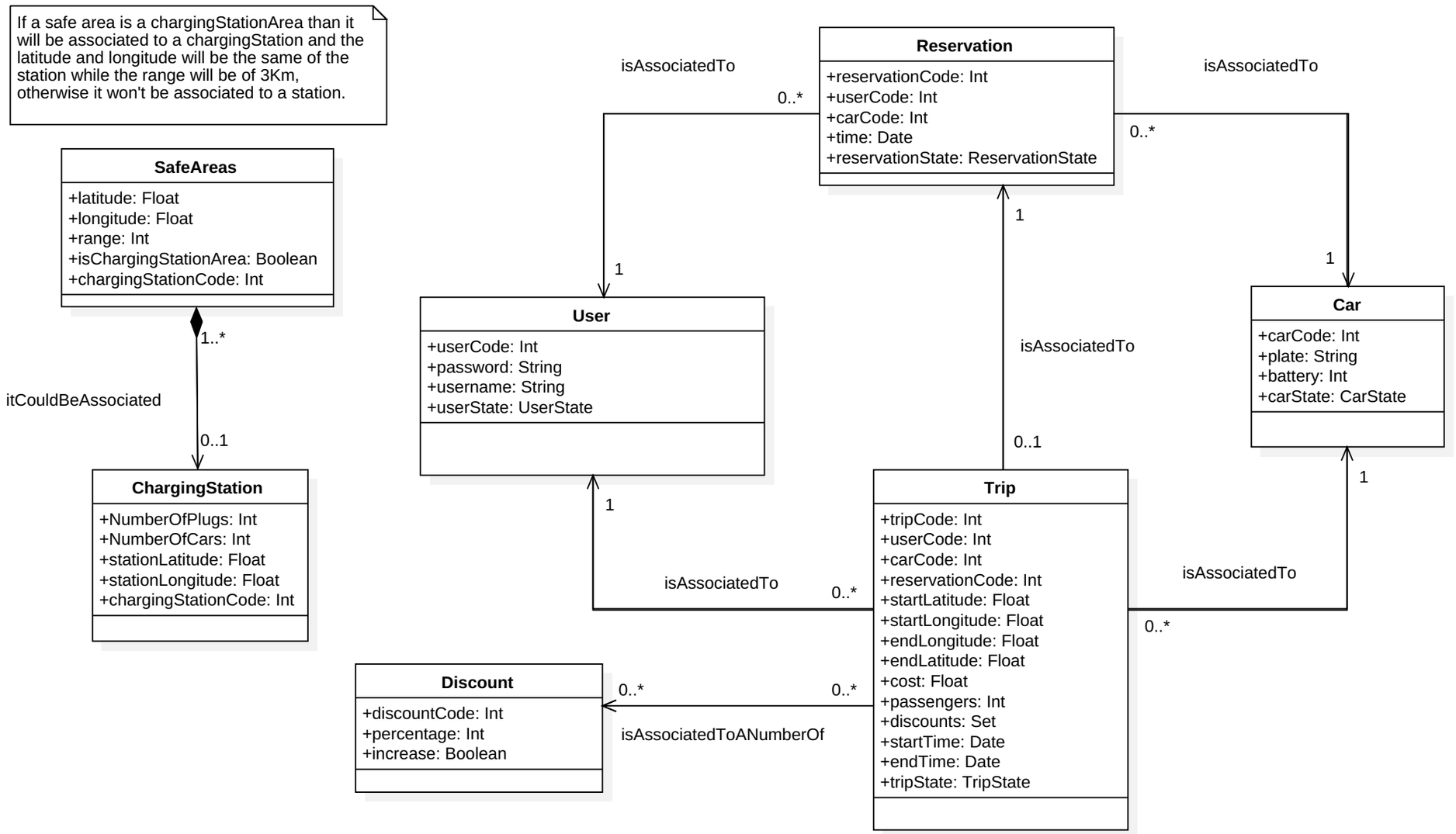
MAIN COMPONENT DIAGRAM



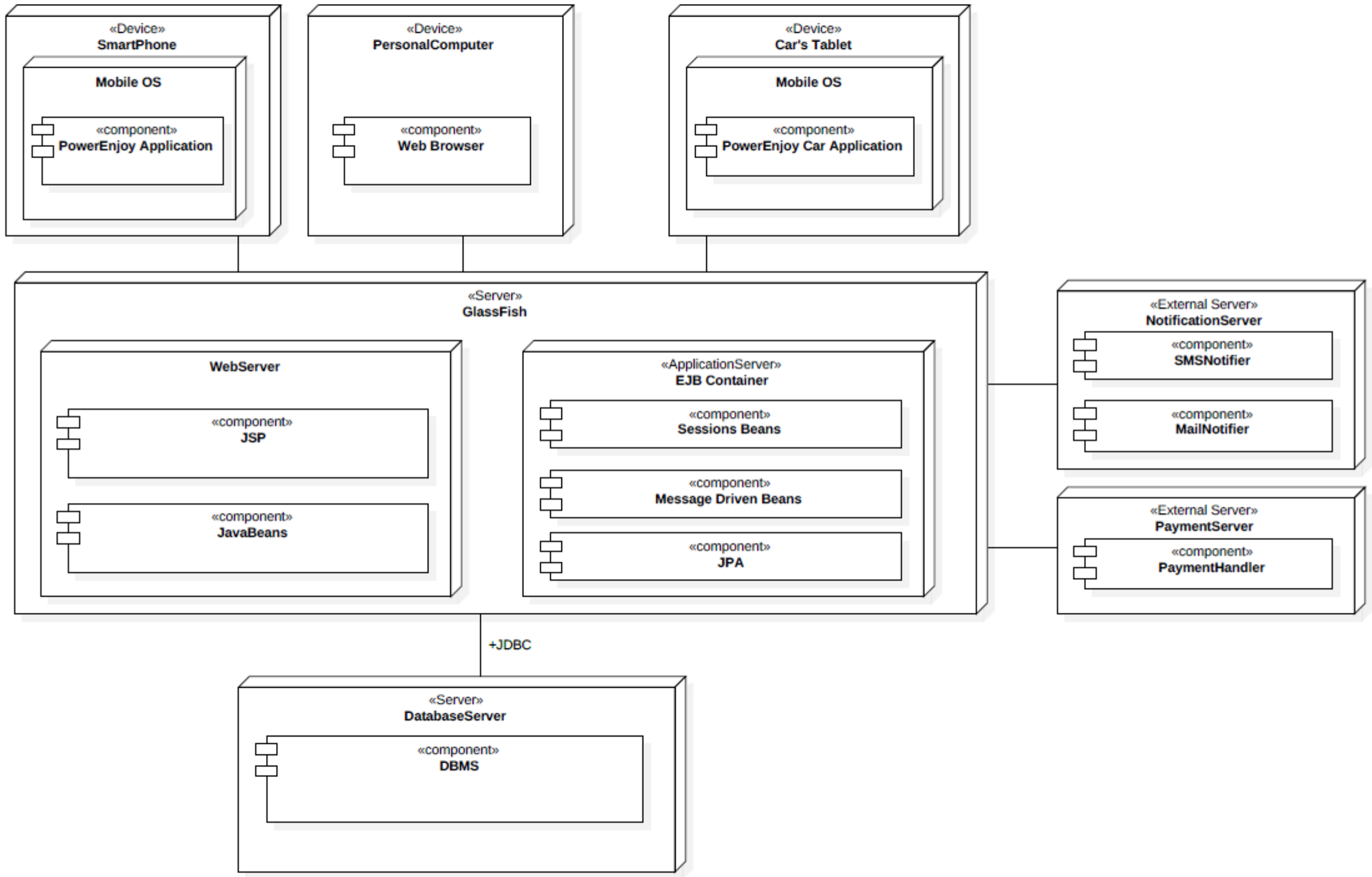
COMPONENT DIAGRAM



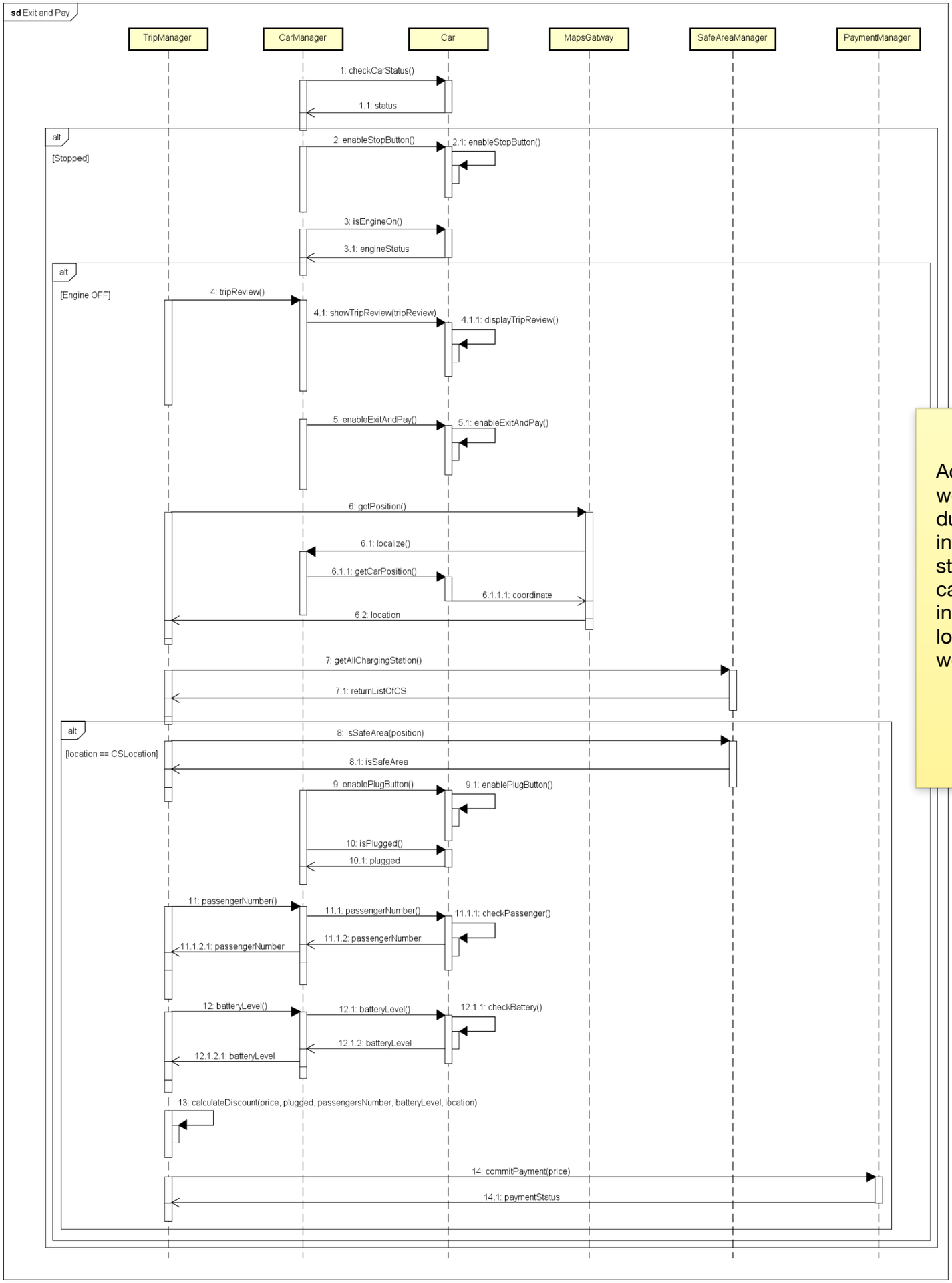
DATA STRUCTURE



DEPLOYMENT VIEW

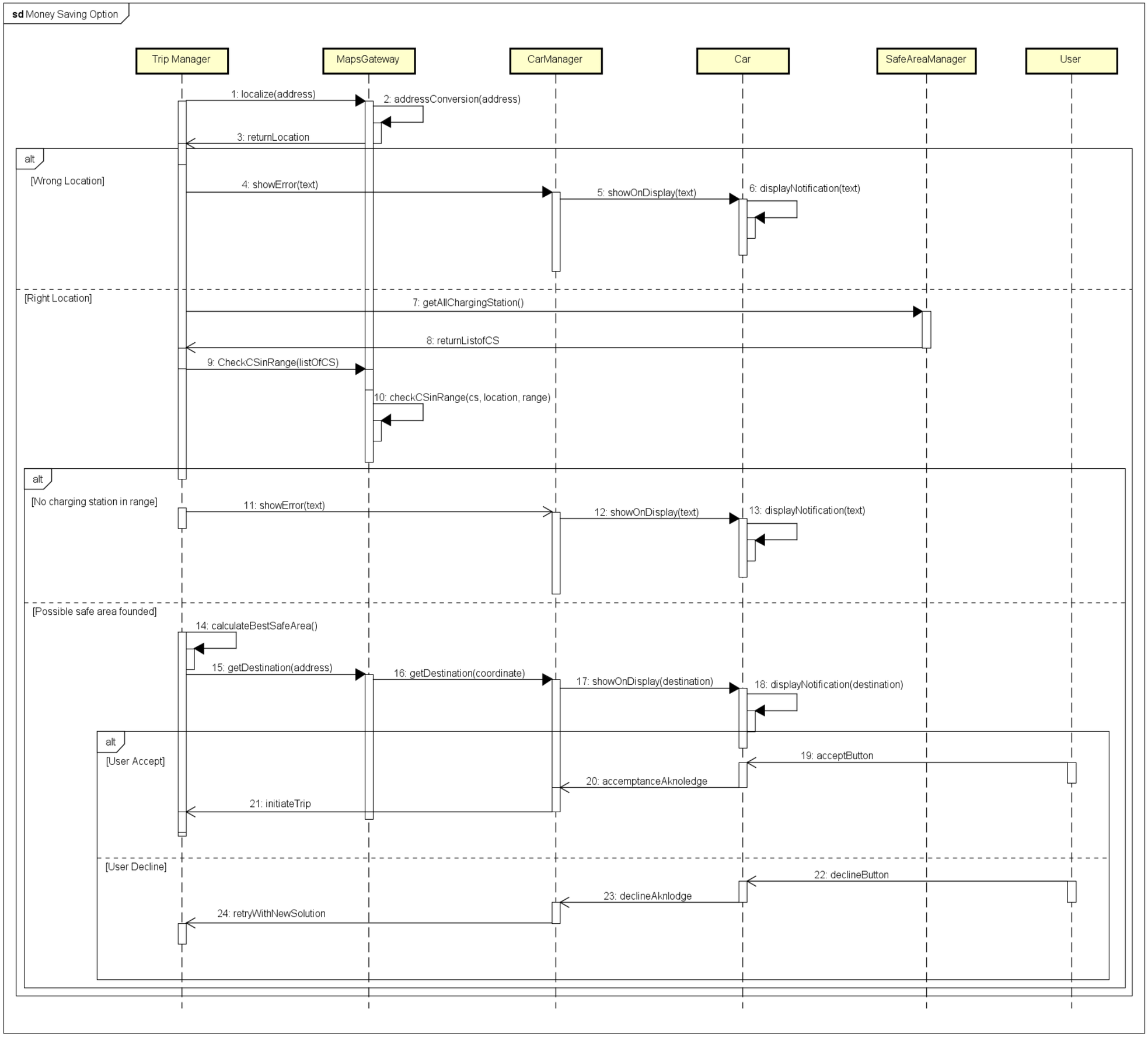


SEQUENCE DIAGRAM



According to the Component Diagram, we have described the flow of events during the exit and pay action. So initially, carmanager have to check the status of the car, and if it is stopped, it can enable “stop button” on the dispaly inside the car (in fact we have provide a loopback action on Car). If engine is off we can start to end the rent.

SEQUENCE DIAGRAM



ALGORITHM DESIGN – EXIT AND PAY

This second algorithm has the aim to explain the conclusion of the rent.

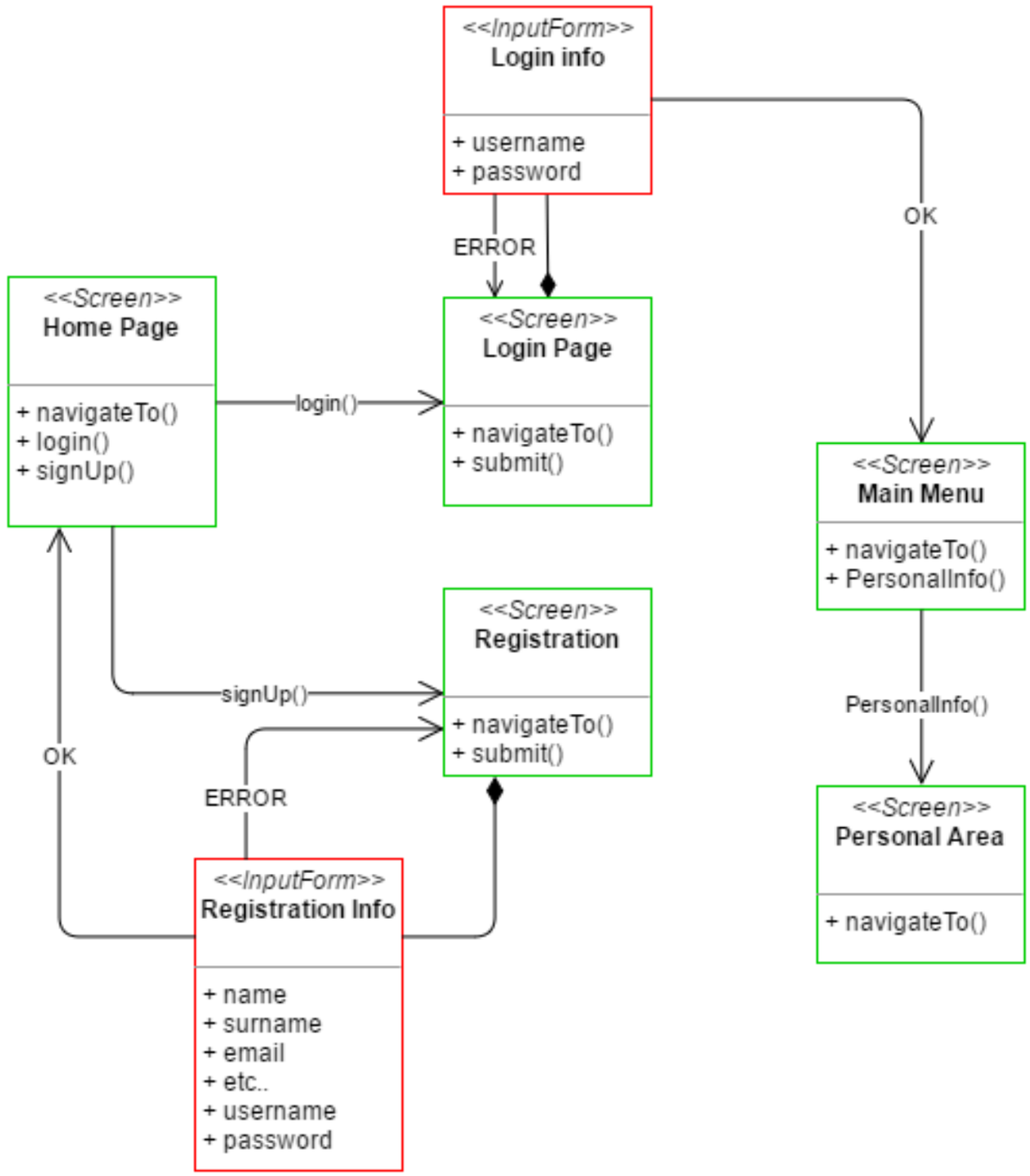
- ✓ There are a lot of possible **alternatives** at the end of the rent
- ✓ We should check more details in order to guarantee coherence between the **trip** and the **payment**
- ✓ The algorithm have to check the **status** of the car (if it stopped or not)
- ✓ The algorithm have to check if the user asks to **stop** its trip
- ✓ As soon as the engine is **stopped**, the system stops **charging** the user
- ✓ Car's tablet shows the **review** and the details of the trip
- ✓ The user can now touch the "**Exit and Pay**" button on the display
- ✓ The algorithm saves **current location** of the car thanks to an interaction between CarManager and MapsGateway
- ✓ The system **downloads** all the charging station (justified as update)
- ✓ **CarManager** enables the possibility to plug the car as well as enables "plug" button only if the users stops near a charging station
- ✓ **TripManager** calculates right discount of the trip
- ✓ **PaymentManager** tries to commit the payment, and the system must check if it successful

ALGORITHM DESIGN – MONEY SAVING OPTION

This first algorithm manages the “Money Saving” option:

- ✓ We created a **specific class** for the **location**, to provide coherent and consistent information about car’s and charging station’s position.
- ✓ This function receives an **address**, the one that user has typed on the car’s display, and a range, also typed on display.
- ✓ **CarManager** permits to interact with the display and consequentially with the user in the car.
- ✓ We created a specific class for the charging station, which are provided by **SafeAreaManager** during the computation.
- ✓ **MapsGateway** is a third part service and can calculate if a specific charging station is or not in range, from the location desired by the user.
- ✓ Before the user can see the result on display, the system **checks** which charging station **has less car** and advices its position to the user.

USER INTERFACE DESIGN



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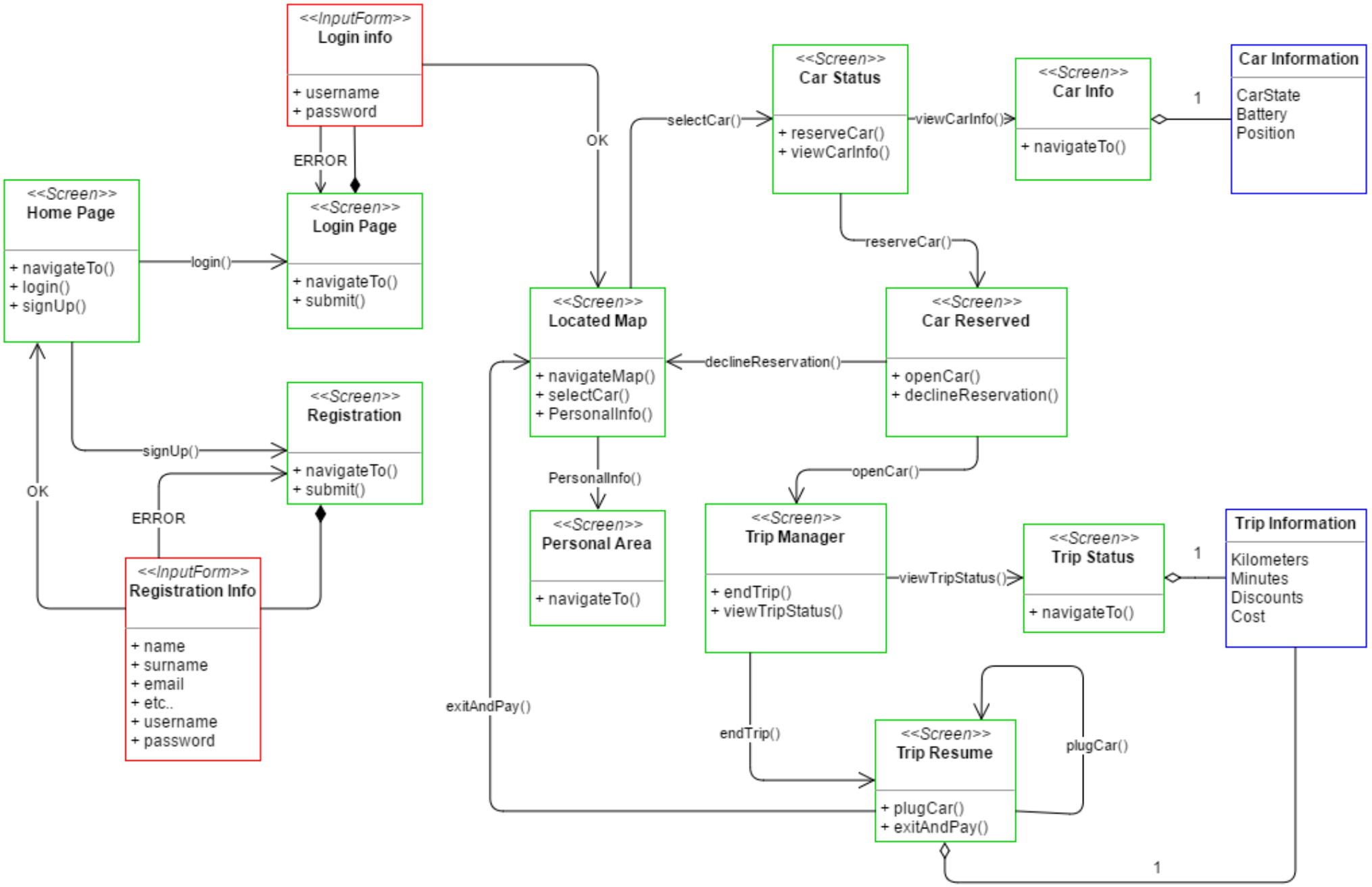

THANKS FOR YOUR ATTENTION