CNET343SL

Distributed Systems

Project Proposal

Traffic Fine Handling System

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1. System Description

Enforcing “Traffic Laws” & preventing violation of traffic regulations and prosecution of offenders are two of the main functions of Sri Lankan traffic police. In that process, the fining for violations of traffic regulations involves a lot of paperwork. The police officer fills forms and collects the driving license. Then the driver has to go to the post office, make the payment and deliver the receipt to the police station in order to regain the driving license. This is a long, expensive and a time consuming process.

An automated system for this scenario does not exist yet in Sri Lanka. In order to address to this issue Online Traffic Fine Payment System is proposed.

This is a distributed system with three user types.

- Police Officer
- Driver (Offender)
- Admin (Staff at the police station that handles the document work)

The user interaction with the system happens via a mobile app and a web application. The police officer uses the mobile app on his smartphone to generate a fine. The driver or the offender can either use the smart phone app or the web application to view the fines under his driving license and pay the fine online.

The application tracks the fining deadline and if the fine is not paid within the 14 days, the staff at the office and the police officer who generated the fine are notified.

2. Scope of the system

The system is consisted of a web application and a mobile app. The system has a web server that hosts the web application. There are two database servers. One server handles the retrievals of data and the other server handles the updating and insertion of data. The mobile application and the web application use these servers to store, update, delete and retrieve data. The servers are synced properly. The database in each server are identical to each other.

3. Architecture diagram

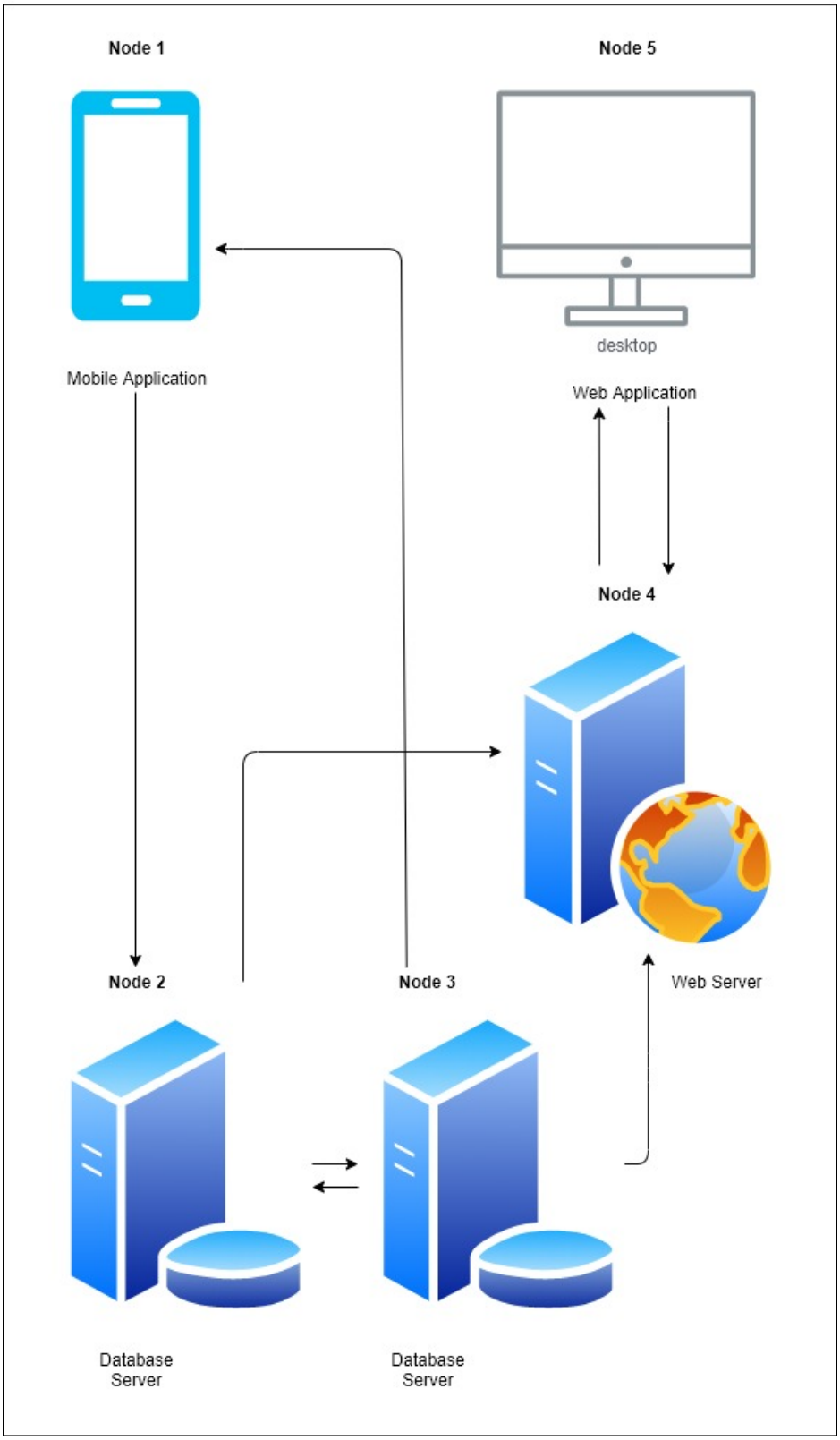

Figure 1: Architecture Diagram

4. Use Case Diagram

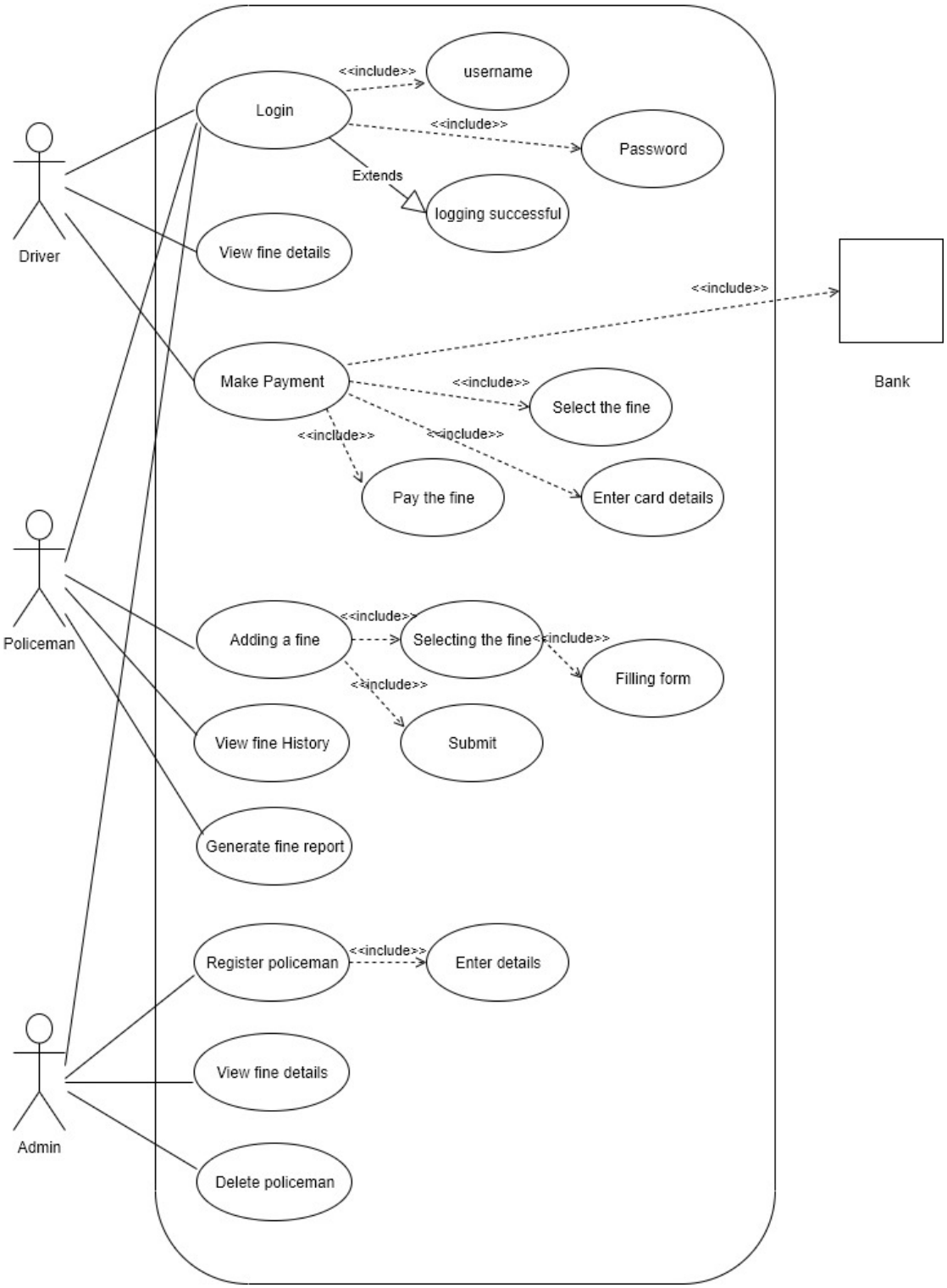

Figure 2: Use Case Diagram

5. Class Diagram

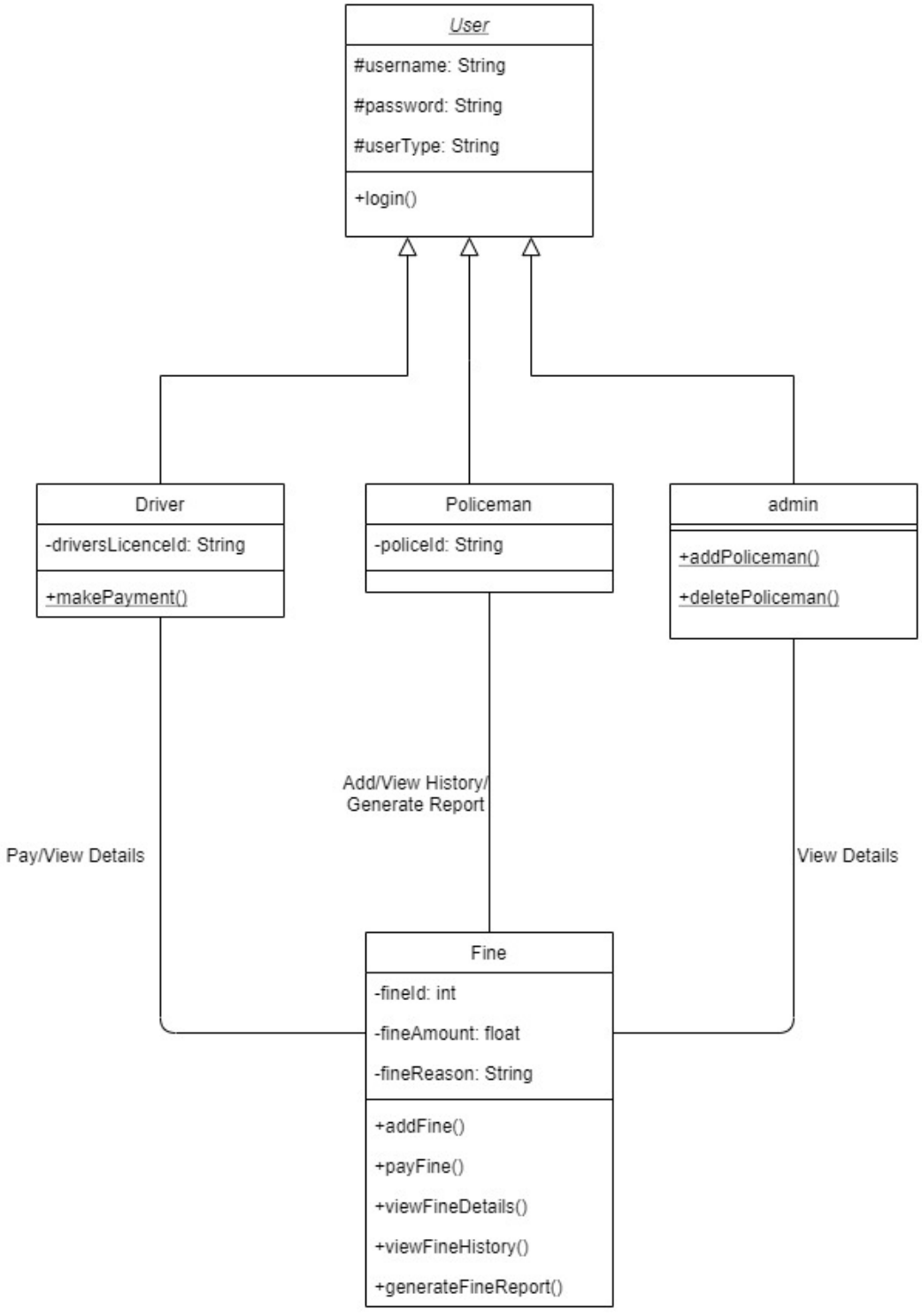

Figure 3: Class Diagram

6. The technologies to be used

Initial plan is to use java script technologies to develop the web application such as Angular and Spring boot. But Java EE and regular HTML+ CSS + JavaScript + PHP is also under consideration.

MySQL or Postgresql will be used as the database system.

All the servers are Linux servers.

The mobile app is developed using Flutter.

7. Middleware

REST
JSON

8. Project Plan

Sprint	Deadline	Deliverable/Outcomes
1. Project initialization	26/01/2020 to 02/02/2020	• Project Proposal
2. Problem definition	02/02/2020 to 05/02/2020	• Studying the current processes • Gathering user requirements • Identification of stakeholders
3. Requirement Analysis	02/02/2020 to 07/02/2020	• Identification of scope and system boundary • Identifying the needed requirements and the wanted requirements
4. Feasibility Study	07/02/2020 to 11/02/2020	• Identification of applicable technologies • Studying of the feasibility of the scope of the project with regards to the time frame

5. Design	11/02/2020 to 13/02/2020	• Use case diagram
		• Class diagram
		• Database designs
		  ◦ EER
		  ◦ Relational mapping
		  ◦ Normalization

6. Development	11/02/2020 to 13/03/2020	• Front end design • Back end development • SQL database development • Database connecting to the system
7. Testing		•
8. Final release		
9. Full system integration		•
10. Closing project		

9. Team Details

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