Assignment -01

Name :- G. Deevena

Reg No :- 192311391

Course code :- CSA0593

Course Name :- Database Management System

ASSIGNMENT-01

G. Deverena
192311391

Customer order Management for a Food Delivery service

Create a database to handle customer orders, our Parking Management system for urban infrastructure

Design a database to manage parking spaces, vehicle entries, payments, and violations for an urban parking facility.

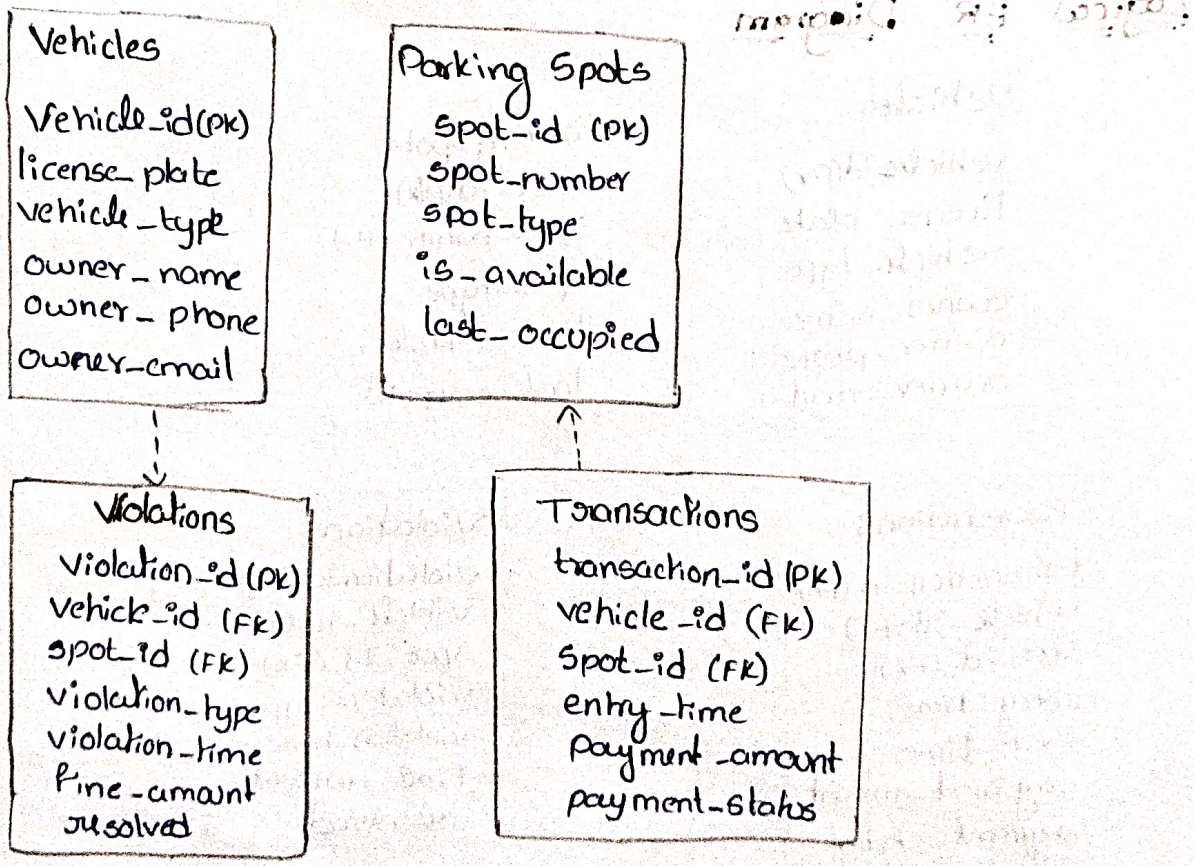
Requirements:-

Create tables for vehicles, parking spots, transactions, and violation records. Write stored procedures to manage parking spot reservations, payment processing, and violation tracking.

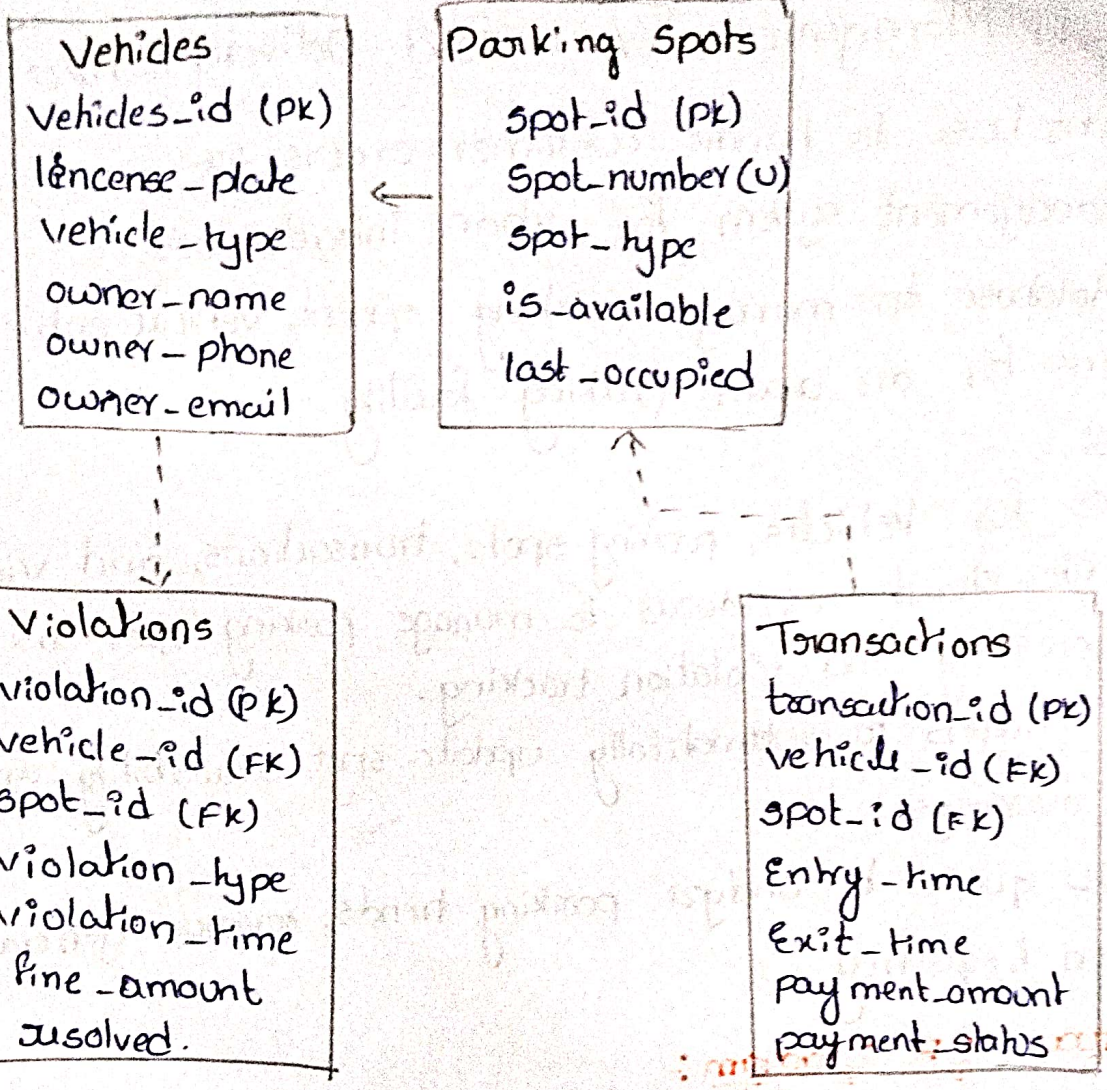
Implement triggers to automatically update spot availability and generate alerts for overstays.

Writ SQL queries to analyze parking trends, revenue generation, and violation frequency.

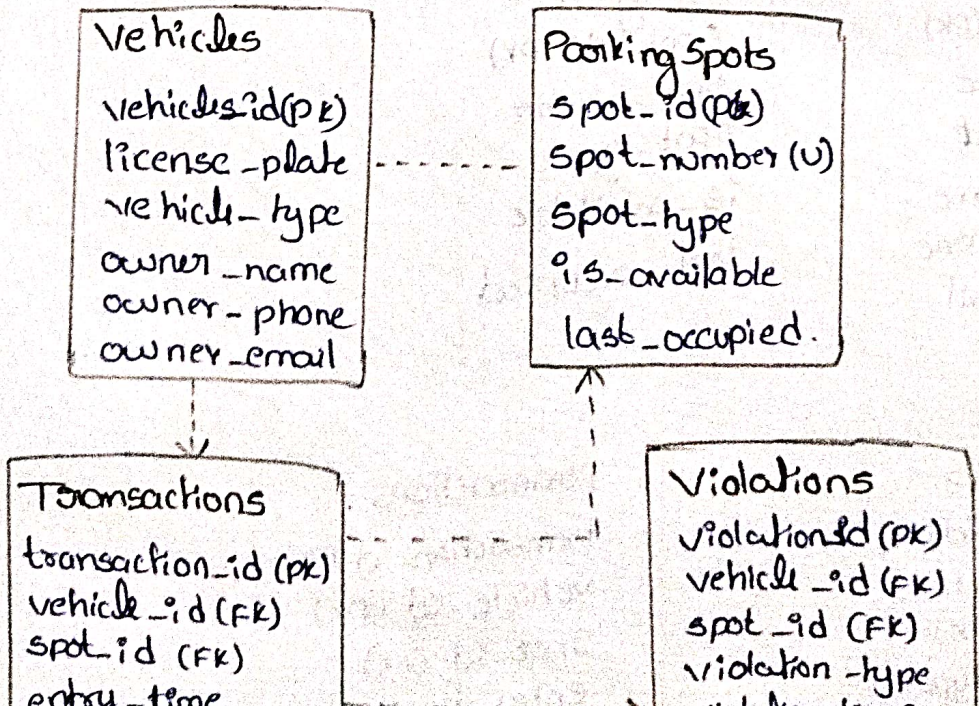
Conceptual ER Diagram:-



Physical ER Diagram



Logical ER Diagram



Vehicles Table

```
CREAT TABLE Vehicles (
    vehicle_id INT AUTO_INCREMENT PRIMARY KEY,
    license_plate VARCHAR(20) UNIQUE NOT NULL,
    vehicle_type ENUM ('car', 'Motorcycle', 'Truck', Van') NOT NULL,
    owner_name VARCHAR (100) NOT NULL,
    owner_phone VARCHAR (15) NOT NULL,
    owner_email VARCHAR (100) NOT NULL
);
```

Parking Spots Table

```
CREATE TABLE Parking_Spots (
    spot_id INT AUTO_INCREMENT PRIMARY KEY,
    spot_number VARCHAR(10) UNIQUE NOT NULL,
    spot_type ENUM ('Regular', 'Handicapped', 'electric', 'compact') NOT NULL,
    is_available BOOLEAN DEFAULT TRUE,
    last_occupied TIMESTAMP NULL
);
```

Transactions Table

```
CREATE TABLE Transactions (
    transaction_id INT AUTO_INCREMENT PRIMARY KEY,
    vehicle_id INT NOT NULL,
    spot_id INT NOT NULL,
    entry_time TIMESTAMP DEFAULT CURRENT_TIMESTAMP,
    exit_time TIMESTAMP NULL,
    payment_amount DECIMAL (10, 2) NULL,
    payment_status ENUM ('pending', 'completed', 'failed') DEFAULT 'pending',
    FOREIGN KEY (vehicle_id) REFERENCES vehicles (vehicle_id),
    FOREIGN KEY (spot_id) REFERENCES Parking_Spots(spot_id).
);
```

Violations Table

```
CREATE TABLE Violations (
    Violation_id INT AUTO_INCREMENT PRIMARY KEY,
    Vehicle_id INT NOT NULL,
    Spot_id INT NOT NULL,
    Violation_type ENUM ('Overstay', 'Illegal Spot', 'Expired Ticket') NOT
                                                                    NULL,
    Violation_time TIMESTAMP DEFAULT CURRENT_TIMESTAMP,
    Fine_amount DECIMAL (10,2) NOT NULL,
    Resolved BOOLEAN DEFAULT FALSE,
    FOREIGN KEY (Vehicle_id) REFERENCES Vehicles (Vehicle_id),
    FOREIGN KEY (Spot_id) REFERENCES Parking_Spots (Spot_id)
);
```

Conclusion:-

The design of a Parking Management system for urban infrastructure requires a comprehensive and well-structured database to efficiently handle various aspects of parking facility management, such as parking spaces, vehicle entries, payments, violations.