Project Report

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Description
The Vehicle Parking App is a web application that users to receive and release Parking spots for cars in real time. Admin can create and manage parking spots while users used the spot for parking and later they pay as long as they stay.

Technologies used
1. Backend: Flask(Python)
2. Frontend: HTML, Bootstrap
3. Database: SQLite
4. ORM: SQLAlchemy
5. Charts: Matplotlib

DB Schema Design
1. User
   id: user id, Integer, primary key
   username: string(100), must be unique, cannot be null
   Password :string(100), cannot be null
   is_admin: Boolean, default is false
   reservations: one-to-many relationships with Reservations

2. ParkingLot
   id :lot id, Integer, primary key
   name :lot name, string(200)
   address:string(200)
   pin:string(6)
   price:Float(cost per reservation)
   total_spot:Integer(total number of spots in lot)
   spots: one-to-many relationship with ParkingSpot

3. ParkingSpot
   Id:spot id,integer,primary key
   Lot_id:foreign key, refers to Parkinglot.id
   status:availability(default:'A')
   Reservations:one-to-many relationship with Reservation

4. Reservation
   Id:reservation id, integer, primary key
   Spot_id:foreign key, refers to parkingspot id
   User_id:foreign key, refers to user id
   car_name: car name, string(100)
   Car_number:vehicle number, string(100)
   Start_time: reservation start time
   end_time: reservation

Architecture and Features

"app.py" contains all the flask routes and logic for users and admin actions. It also contains how to create the database for this application.

Templates contains jinja and html for logic it got all the html for login, registers, dashboards, reservations, summary etc.

Static folder for charts to see number of users in parking spot and their revenue.

For features
Admin :
1. Admin create parking lots with Name,Adress,pincode etc
2. View all users
3. View all reservations from all users
4. Delete parking lots
5. View reservation summary:
   1. Total reservations per lot
   2. Total revenue per lot
etc.

Users:
1. Reserve a parking spot in available lot
2. Release spot with a confirmation and payment.
3. View history of past reservations.

Video

https://drive.google.com/file/d/1cK4PgRmzxOyRRajmcN1xI5C5m2KTkGNB/view?usp=sharing