

Author:

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About me: I am a dual degree pursuer. Doing my BTech in Andhra Loyola Institute of Engineering and technology

Description:

I need to develop a multi-user (Admin/User) web app for vehicle parking using Flask, Jinja2, HTML, and SQLite. Where the user can book a spot for parking at a particular location.

I took help from LLM's when I encountered an error which I am unable to solve.

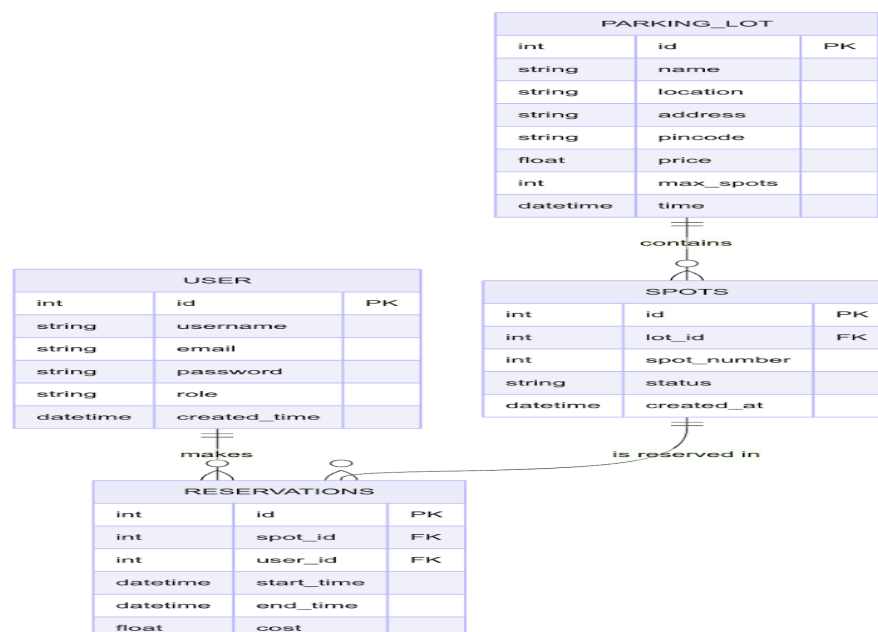
Note: To run the application install flask, flask_sqlalchemy and run the app.py file using the "python" command on the terminal.

Command: python app.py

Technologies:

- ★ Frontend Technologies: Jinja2 templating, HTML, CSS (Tailwind)
- ★ Backend: Flask, Flask_SQLAlchemy
 - Flask_SQLAlchemy is a flask extension used for interacting with the SQLite database. Because it provides us with an ORM
- ★ Database: SQLite

DataBase Schema Design:



Architecture:

My project has a very well organized, standard Flask project Layout. It has a controllers directory containing **controller.py** file **handling** application logic(**Routes**). It has a models directory with **models.py** for **database definitions** and a static folder for static assets like style.css. All **HTML templates**, such as user_dashboard.html, admin_dashboard.html, and login.html..etc are neatly housed **within the templates folder**, with **app.py** serving as the main entry point for your Flask application.

Features:

- **Login:** Role-based access (user/admin) using session logic.
- **Register:** To register, users must provide a unique username and email address.
- **Admin Features:**
 - ◆ **Add/Edit/Delete Parking Lots:** Admins manage parking lots with attributes like name, price, location, and max spots.
 - ◆ **View Lots and Spots:** Admin can monitor all spots (available & occupied).
 - ◆ **Spot Auto-Creation:** Spots auto-generated based on `max_spots`.
- **User Features:**
 - ◆ View all parking lots.
 - ◆ See active and past (last 5) reservations.
 - ◆ **Booking System:**
 - **Single Active Booking:** One active booking per user enforced.
 - **Auto Spot Allocation:** First available spot is reserved and marked occupied.
 - ◆ **Checkout System:**
 - **Billing by Hour:** Charges calculated based on time × lot's hourly price (min 1 hour).

Video:

<https://drive.google.com/file/d/1dJ7ZGOzUghuJpaxPmkHDOoxOrPxRyxaV/view?usp=sharing>