

Author

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About Me - I am a standalone student with May 2025 being the second last term of diploma.

Description

An app with single admin, and multiple users has to be made in which admin is the superuser who controls the parking lots, spots and the users itself. The users can book a spot, vacate the spot, pay for the parking and look at the statistics along with monthly reports, G-Chat notifications and the access of their own csv datasheet.

AI/LLM Used - Used in major styling of the app CSS, Chart JS, Debugging errors

According to 'AI percentage check' table, 25% Usage.

Setting up Vue CLI, Backend jobs are inspired from the May 2025 Project sessions.

Technologies used

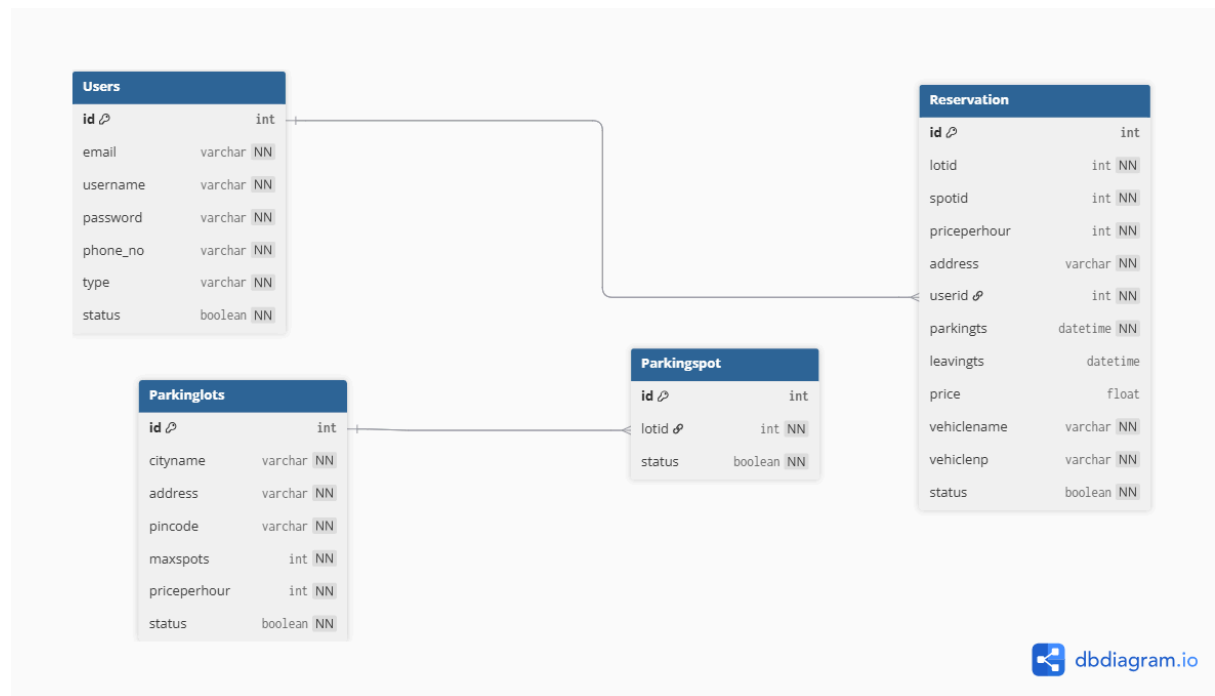
Backend -

- Flask, SQLAlchemy for setting up basic backend.
- flask_jwt_extended for generating, checking token.
- werkzeug.security for hashing passwords before storing.
- Datetime library for recording parking and leaving time.
- Celery for running background tasks like generating CSV reports, sending G-Chat notifications.
- Redis + Celery for caching frequently accessed and data heavy routes.
- Jinja 2 for templating Email
- Celery Beat for scheduling email reports.
- MailHog for serving emails.

Frontend

- Vue CLI for frontend
- Vue Router to create multiple views
- Bootstrap for readymade CSS templates
- Axios to make api calls to backend with different methods.
- Chart JS for plotting meaningful data.

DB Schema Design



API Design

1. /api/register - POST, for registering new users.
2. /api/login - GET, for authentication of a user.
3. /api/dashboard - GET, for providing admin and user with their respective dashboards.
4. /api/addlot - POST, for adding a new parking lot.
5. /api/editlot/<int:lotid> - PUT, for editing existing lot details.
6. /api/deletelot/<int:lotid> - DELETE, for deleting an existing lot.
7. /api/bookspot - POST,PUT, for booking a spot, and changing spot status to occupied.
8. /api/vacatespot - PUT, for vacating any booked spot
9. /api/users - GET, for the admin to view all user details
10. /api/edituser - PUT, for the admin to unauthorize and authorize any user.
11. /api/search - GET, for the users to search a parking lot by address/pincode.
12. /api/bill - GET, for the users to look at any reservation summary and final price.
13. /api/viewspot - GET, for admin to view spot details.
14. /api/csv_result - GET, for generating csv file containing reservation data of a user.
15. /api/send_mail - GET, for triggering monthly report celery task
16. /api/summary - GET, for providing admin and user with their own summary charts.

Architecture and Features

vehicle_parking_app_23f2000790.zip

```
|-----vehicle_parking_app
|       |-----backend
|       |       |-----application
|       |       |       |-----models .py
|       |       |       |-----routes.py
|       |       |       |-----config .py
|       |       |       |----- .....
|       |       |-----instance
|       |       |-----vpv2.sqlite3
|       |       |-----static
|       |       |-----app.py, celery_config.py, requirements.txt
|       |-----frontend
|       |       |-----src
|       |       |       |-----components
|       |       |       |       |-----Dashboard.vue
|       |       |       |       |-----Users.vue
|       |       |       |       |-----Summary.vue + 6 more...
|       |       |-----App.vue
|       |       |-----main.js
|       |       |-----mystyle.css
|       |       |-----routes.js
|       |       |-----index.html
|       |       |-----package.json, package_lock.json
|       |-----Vehicle_Parking_App_Report_23f2000790.pdf
```


The project is organised under 2 parallel folder, one for backend and other for frontend.

These is an application folder inside backend, which contains all .py files including routes.py.

In frontend, the vue components are present inside components folder, which is inside src folder

The routes .js, app.vue, main .js are all present parallel to src

Video

 MAD2 proj demo video.mp4

THANKYOU