

CS Special Topics Semester 2 Project



Our first project was a game, for this one, we wanted something practical

Our goal



Having experience of building full-stack solution as a team



Ability to find methodology that fits our use case

The Premise...

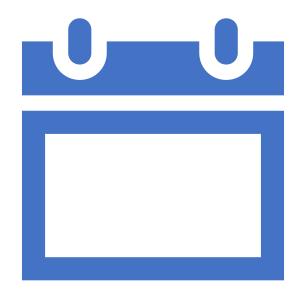
We want to make a website that manages calendars and events. There are other calendar websites, but they lack a lot of helpful functions that we think we could incorporate into our own website. We plan to make ours more user friendly and functional as well.



Actual functionality

Plan-It will be able to:

- Create an Account with profile page to Manage a Calendar
- Create, Edit, Delete, Events



Take a look at out site

Our GitHub

https://github.com/Plan-At/

Landing Page

https://752628.xyz/

Calendar Page (require authentication via the frontpage)

https://calendar.752628.xyz/

API Documentation

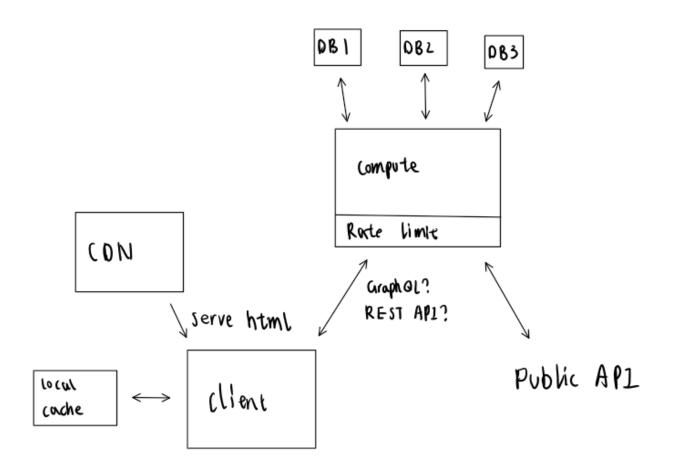
https://api.752628.xyz/

Alternative client (Outdated)

https://client.752628.xyz/

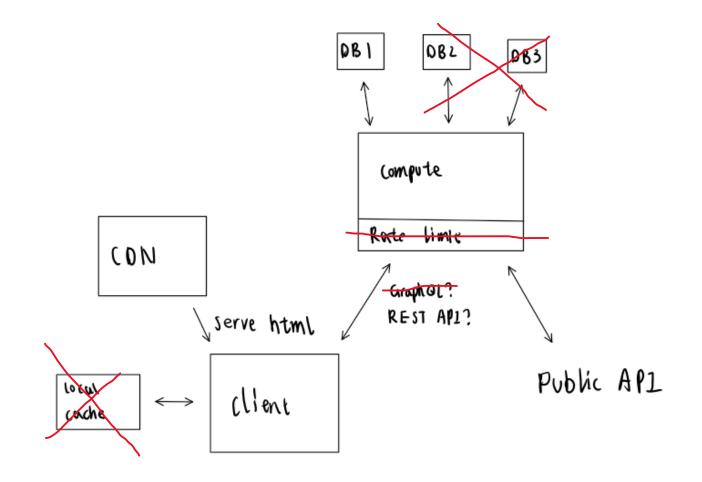
Planned Structure

- Protocol setup for clientserver relations
 - Partial Cloud Native?
 - API first?
- Ensures security and safety of data (authentication)
- Clean and allows other theoretical services to use our system



Actual Structure

- REST API for client-server communication
 - Design to compatible with multiple variant of clients
- Ensures security and safety of data (authentication)



Tech stack we're using

Frontend

- Web based
 - Resizable to different screen
- Vanilla JavaScript only
 - jQuery for loading navbar and footer
 - No npm, no webpack, so SSR, etc.
- We created our own "" to insert elements as an object

Backend

- FastAPI
 - Batteries Included
- Document Database: MongoDB

Network Structure





- Hide the actual IP address
- Layer 3 & 4 DDoS protection
- Challenge for suspicious visitor
- Caching static asset



AWS Network Firewall

- Restrict access to certain IP address
- Close unnecessary ports



NGINX

- Reverse Proxy
- HTTPS/SSL/TLS decrypt
- Modify Headers
- Rate Limiting



FastAPI

- Logging Middleware
- Payload Validation with Pydantic

Financial Cost

Thanks for the generous free tiers offered by these companies, we've able to bring the product/demo to live

- Webpage Hosting:
- API Hosting: AWS' 12 months EC2 trial
- Database: MongoDB Atlas' 512MB always free
- Proxy:
- Domain: An all-digit .XYZ domain costs \$0.99 for registration and renewal