

Hero Wars by Teem_sqrt4469

P01: ArRESTed Development

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Project Description: Our website is a local two-player Pokemon showdown game, where we use anime characters and superheroes instead of Pokemons using the Jikan API and the Superheroes API. For the in-game stats, we will get data from those API's and convert those info into in-game stats. Those stats will be assigned to random Pokemon moves and be given to the superheroes and anime characters.

Game Balancing:

$$\text{Damage} = \text{atk} \times (1 - (\frac{1}{10} \log_{10} \text{def} + 0.002 \text{def}))$$

$$\text{Move Damage} = 10 \times \text{damage}^{\frac{\log_{10}(10-pp)}{2.5}}$$

Superhero:

- hp = durability
- atk = power
- speed = speed
- def = strength

Anime Character:

- hp = $\frac{1}{2} \times \sqrt{(\# \text{ of favorites})}$
- atk = $\text{rand}[5, 10] \times (\# \text{ of animes they're in})$
- speed = $\text{rand}[5, 10] \times (\# \text{ of mangas they're in})$
- def = $\text{rand}[5, 10] \times (\# \text{ of voice actors have played them})$

Game Currency: Rizu Coins (rizz in japanese)

Program Components:

A. Flask App (Python)

- `__init__.py` creates flask app, make routes, and run app
 - `/register` adds entered username & password into users table, checks that username has to be unique, stores username in session then redirects to `/home`
 - `/login` checks if the entered username & password is stored in users table, if so, stores username in sessions and redirects to `/home`
 - `/home` extracts the user's info (name, win/loss ratio, match history)
 - `/menu`

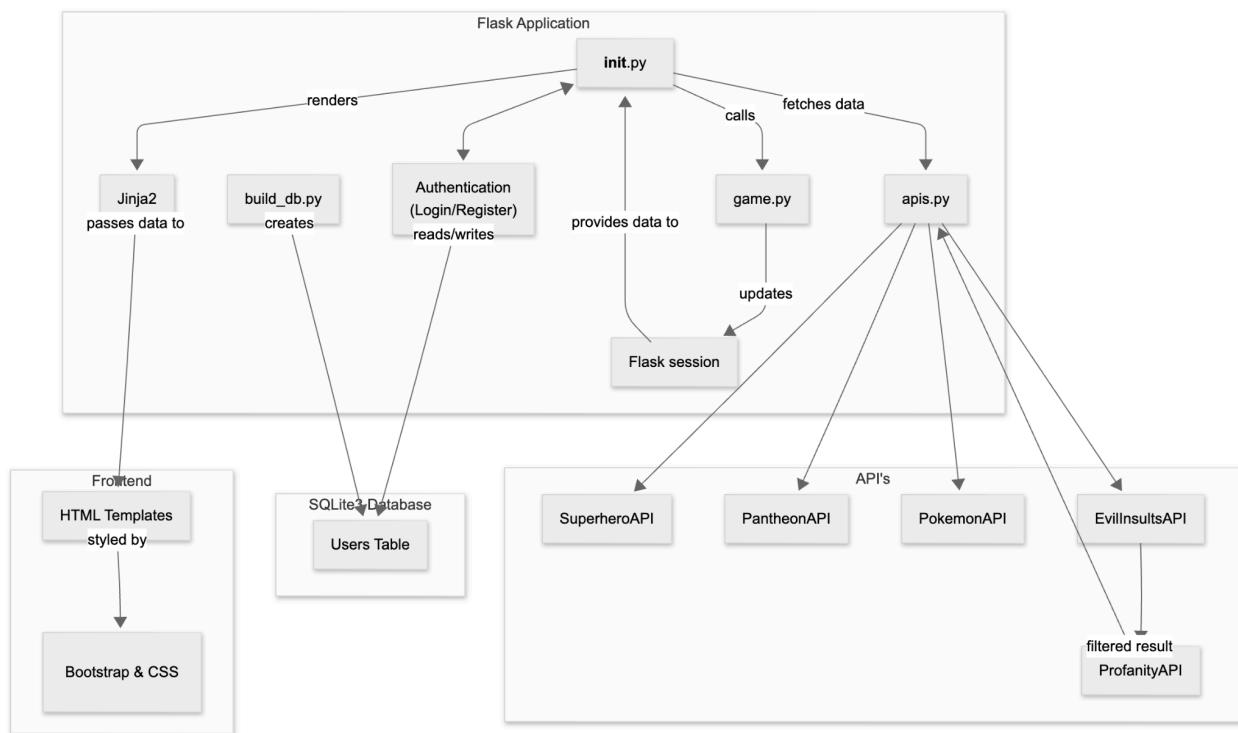
- Calls functions that make API calls to fetch characters (superheroes and anime characters)
 - Randomly selects a list of characters to battle (maybe an option to reselect)
 - **/game**
 - Stores match data in flask session
 - Allow players to interact with battle (attacks, etc.)
 - Can use evilinsults API to taunt the other player
 - Handles turn based logic
 - **/gameover**
 - Displays winner
 - Stores win/loss and rizu coins gained in user table
 - **build_db.py** creates the user table
 - **apis.py** handles all API calls & fetch and convert data, convert certain stats to in-game stats
 - **game.py & battle.py** includes functions like forming a random team, attack function to calculate damage, and checks for alive characters to switch to when one dies
- B. Templates (HTML templates for each page w/ Jinja2)
- **login.html & register.html** (form input boxes, handles authentication)
 - **home.html** (homepage showing profile info: name, profile picture, #wins/losses, amount of rizu coins you have)
 - **menu.html** (pregame phase that randomly generates a team for both players, one superhero and one anime characters; cards display characters on the team with a button to reroll for a different character; a start button)
 - **game.html** (the battle arena: both players with their respective active character will be displayed separated by a battle log; there will be buttons beside each character for their moves, to switch character, and to trash talk)
 - **gameover.html** (page that shows that the game is over and displays the winner of the showdown)
- C. Database (SQLite3)
- User table (stores user data when they register and updates it when they change profile picture or finish a game)
- D. API's
- SuperheroAPI - <https://akabab.github.io/superhero-api/api/> (no quotas)
 - JikanAPI - <https://jikan.moe/?ref=public-apis> (Daily Unlimited, Per Minute 60 requests, Per Second 3 requests)
 - PokeAPI - <https://emiliebarnard.github.io/pokemon-in-python/#moves> (no quotas)
 - EvilInsultsAPI - https://evilinsult.com/generate_insult.php?lang=en&type=json (no quotas)

- PurgoMalum API - <https://www.purgomalum.com/> to filter EvilInsultsAPI (no quotas)

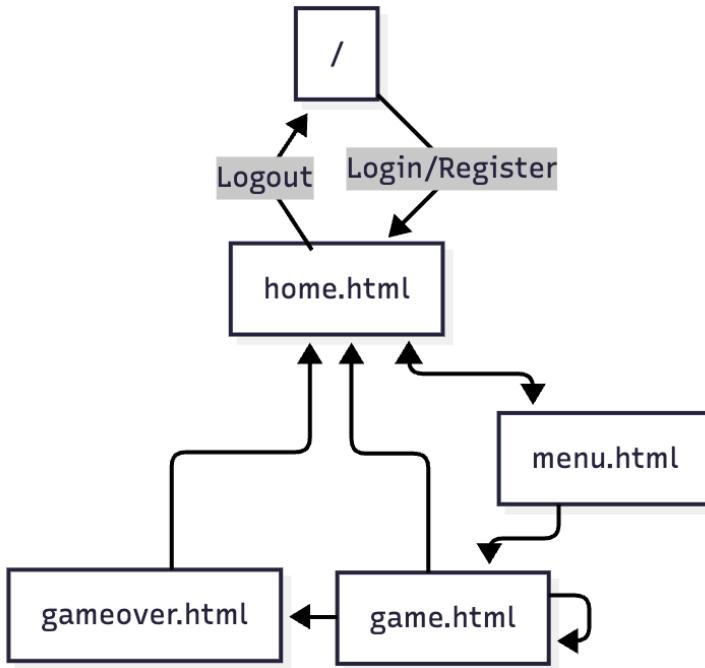
Front-end Framework (Bootstrap):

- Good documentation since the documentation for Foundation isn't great; Tailwind is confusing with all the utility classes in the HTML
- Bootstrap grid system is easy to work with which we can use to display the abilities of our characters; can also be used to divide the battle page to left and right for the two players
- Card container to display randomly selected characters

Component Map:



Site Map:



Database Organization:

USERS

TEXT	name	PK	Username is unique
TEXT	password		Used for authentication
INTEGER	wins		# of wins
INTEGER	losses		# of losses
INTEGER	rizu_coin		Amount of rizu coins
TEXT	profile_pic		Customizable profile picture

Tasks:

- Yuhang Pan
 - apis.py (call API and fetch data + convert stats into in-game stats)
 - build_db.py (sets up database)
- Matthew Ciu
 - game.py (game logic with turn-based gameplay, store game state in session)
- Michelle Chen
 - Bootstrap styling on HTML Templates + templates themselves
- Thomas Mackey
 - game.py (game logic with turn-based gameplay, store game state in session)