TNPG: It's Friday!, Roster: Erica Li, Verit Li, Daniel He, Samson Wu
SoftDev
P01
2022-12-01
Time spent: 2 hr
Target Ship Date: 2022 December 23 (Right before break)

Anime Dating Love Calculator

Program Components:
HTML:

- Jinja syntax to collaborate with Flask
- Templates to be served to the Flask app
- Skeleton for our Foundation framework

Flask:

- Our web server and delivery framework
- Utilizes database functions
- Calls from APIs
- Username and password check functions
- Manages information from forms (user input)

SQLite3:

- Table of users, their username, and their passwords
- Table of timestamp, input quotes, and matched characters (History essentially)

Framework (Foundation):

- Will be used to style our website
- Makes our website more interactive and neat
- Provides grid system, pagination, navigation bar.

APIs**:**

- Love Calculator (https://github.com/stuy-softdev/notes-and-code/blob/main/api_kb/411_on_LoveCalculator.md)
- MyAnimeList (https://github.com/stuy-softdev/notes-and-code/blob/main/api_kb/411_on_MyAnimeList.md)
- Anime-Chan (https://github.com/stuy-softdev/notes-and-code/blob/main/api_kb/411_on_animechan.md)
- Kitsu (https://github.com/stuy-softdev/notes-and-code/blob/main/api_kb/411_on_Kitsu.md)

- Hugging Face (https://github.com/stuy-softdev/notes-and-code/blob/main/api_kb/411_on_huggingface.md)
  (Specifically: https://huggingface.co/j-hartmann/emotion-english-distilroberta-base?text=You%27re+right%2C+all+efforts+are+pointless...+If+you+don%27t+believe+in+yourself.
  Or maybe: https://huggingface.co/joeddav/distilbert-base-uncased-go-emotions-student)

Site Map Explanation:

1. LOGIN PAGE
    a. Register Button
        i. HTML Form to register to use the site
        ii. Sends user to the Register Page
        iii. After user register, user is sent to the HOME PAGE
    b. HTML form to login to the site
        i. Once logged in, user will be directed to the HOME PAGE

2. REGISTER PAGEb
    a. HTML Form to input a username & password
    b. Saved to database
    c. HTML template with CSS styling for the REGISTER page

3. HOME PAGE
    a. List of popular anime character dating profiles
        i. Search for characters by name or show title
        ii. Facilitated by Kitsu API

4. CHARACTER PROFILE PAGE
    a. Basic information: description, name, image
    b. Quotes, provided by anime-chan API
        i. Quote analysis, facilitated by Hugging Face API
        ii. Quote analysis visualized via chart
    c. Match button leading to match page with first profile pre-selected

5. MATCHING PAGE
    a. Profiles to be matched displayed
    b. Search for and select characters by name or show title

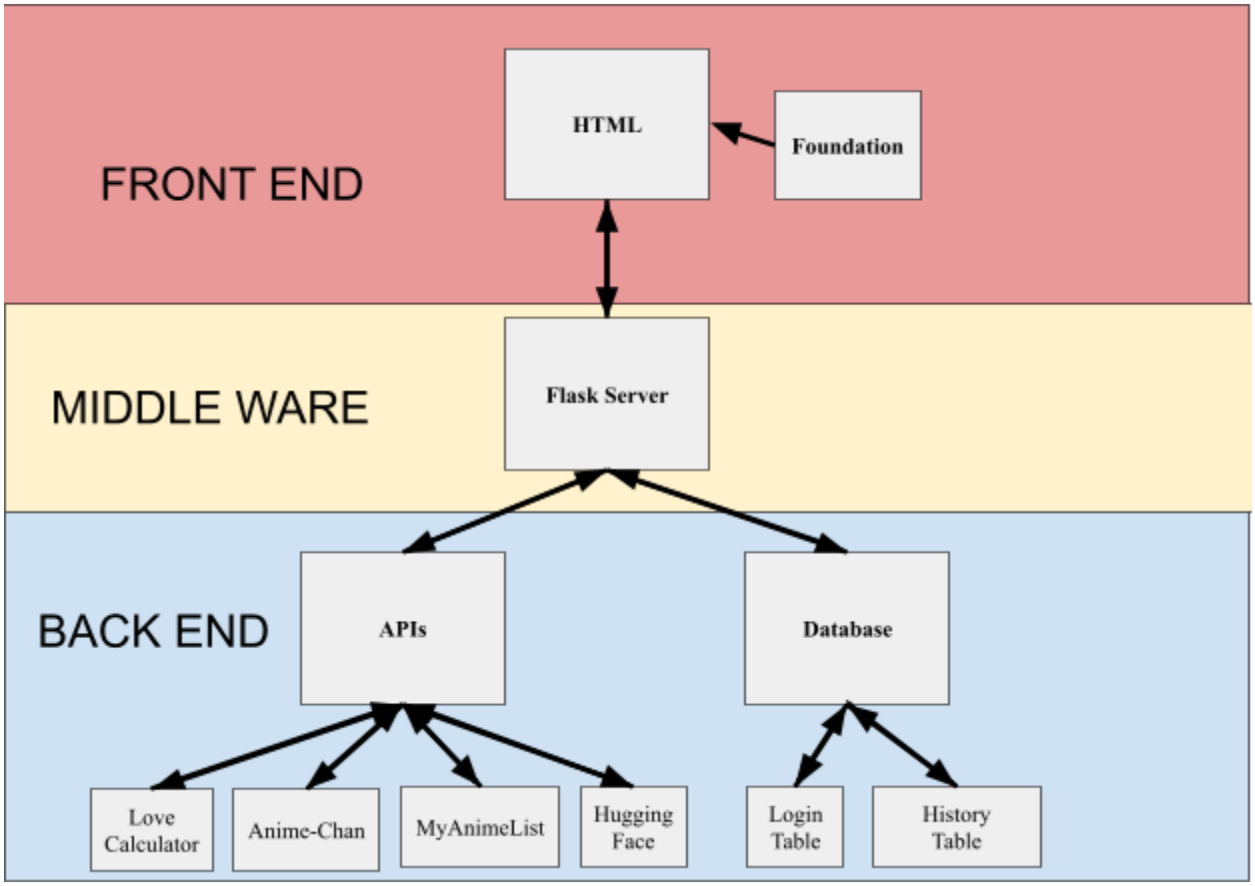
6. COMPATIBILITY PAGE
    a. Summarized character profile of both characters

b. Compatibility percentage provided by Love Calculator API
c. Custom algorithm weighing both compatibility percentage and quote analysis

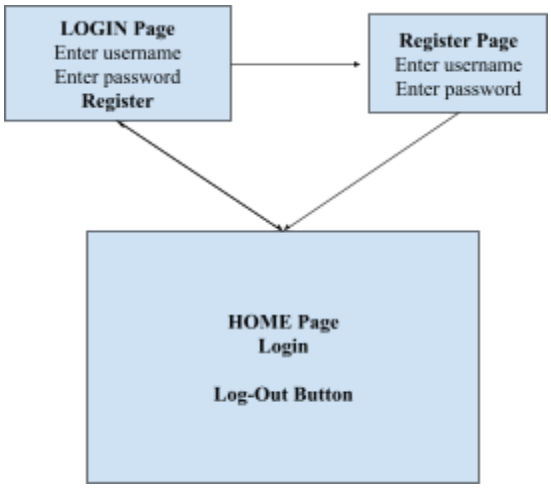
Custom Compatibility Algorithm:

- Provided data:
  - Percentage compatibility derived from names or numbers (Love Calculator)
  - Percentages of various sentiments derived from a set of quotes (Hugging Face, anime-chan)
- Assumptions/ observations:
  - Trait similarity is significant in 86% of relationships (2016 KU study), so the similarity of quote analyses should have a weight of 0.86 and the love calculator output percentage should have a weight of 0.14
  - Output of quote analyses usually have a small group of major, deterministic sentiments. Major sentiments can be defined as sentiments with a percentage greater than the mean
- Calculations
  1. Find the mean of each sentiment given a list of quote analyses respective to a character.
  2. Isolate major sentiments from Hugging face Dataset for characters A and B
  3. Compare each major sentiment from character A to the same sentiment found in character B and find similarity of the two percentages through:
     $1 - \frac{|A-B|}{max(A,B)}$ (repeat for all major sentiments)
  4. Repeat previous step for character B
  5. Find the mean of all the similarity percentages calculated in steps 2,3
  6. Weigh the sentiment similarity and love calculator compatibility, add, then curve the result as needed

Component Map:



Site Map:



Task Distribution:

Samson:

- Foundation
- HTML
- Flask Helper

Erica:

- Database code

- Flask

Daniel:

- Foundation
- HTML
- Flask Helper

Verit:

- Flask