

TNPG: It's Friday!, Roster: Erica Li, Verit Li, Daniel He, Samson Wu
SoftDev

P01

2022-12-01

Time spent: 2 hrs

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
- Chosen over Bootstrap since the tags are more understandable
- Makes our website more interactive and neat
- Provides grid system, pagination, navigation bar, cards.

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+ri+ght%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 PAGE
 - 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. Selection of two characters to calculate compatibility, profiles to be matched are displayed
 - b. Search for and select characters by name or show title
6. COMPATIBILITY PAGE

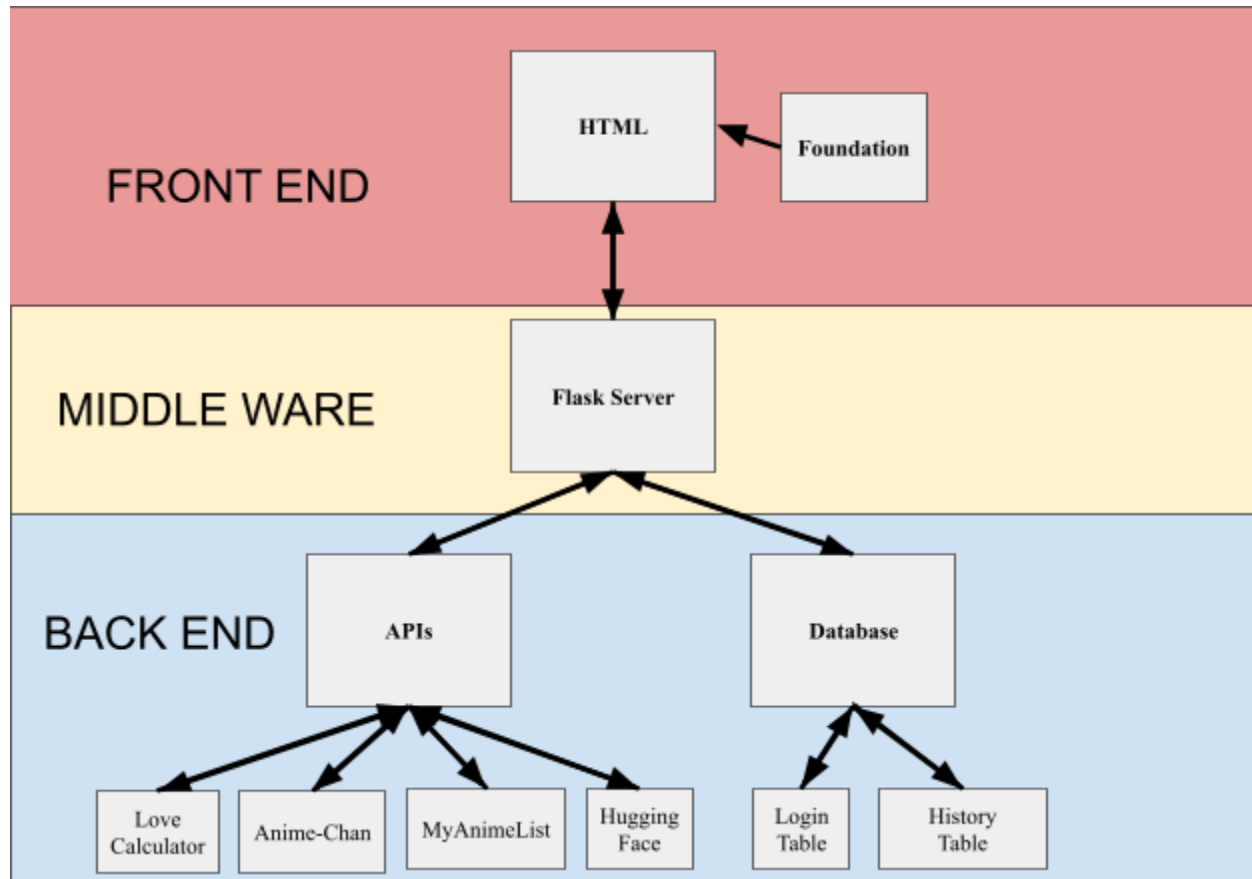
- a. Summarized character profile of both characters
- b. Compatibility percentage provided by Love Calculator API
- c. Custom algorithm weighing both compatibility percentage and quote analysis

Custom Compatibility Algorithm:

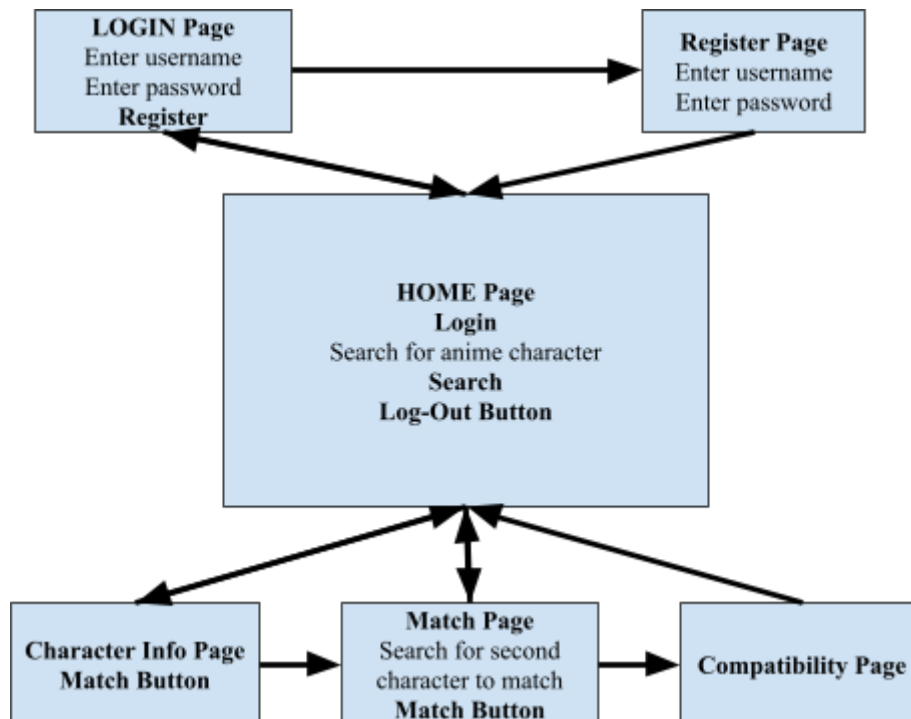
- Provided data:
 - Percentage compatibility derived from names or numbers (Love Calculator)
 - Percentages of various sentiments derived from a set of quotes (Hugging Face, anime-chan)
- Assumptions/ observations:
 - Trait similarity is significant in 86% of relationships (2016 KU study), so the similarity 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:

$$1 - \frac{|A-B|}{\max(A,B)} \quad (\text{repeat for all major sentiments})$$
 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