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CSCI-201

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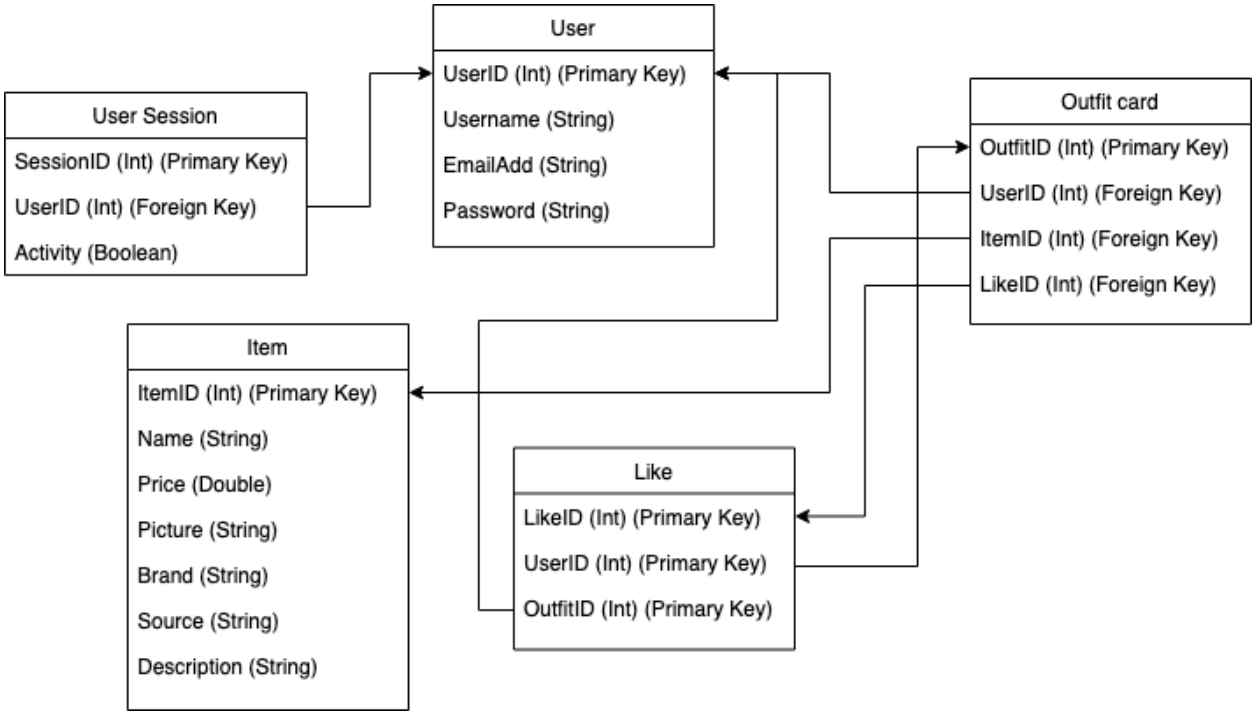
CSCI-201 Final Project Design Documentation

Multi-Threaded:

- In our project, we will need multi-threading to speed up the processing of data in our website and more efficiently use resources of hardware. In our project, we have a feature where users can like the shared outfits in other users' carts. In this case, the shared outfits are a shared resource by all users. We need to use lock to ensure that only one user (one thread) can like a shared outfit at a time, ensuring there is no error in the likes count. Moreover, we also need multi-threading to perform web-scraping to retrieve up-to-date information about outfits while ensuring users can access the site while web-scraping is happening.

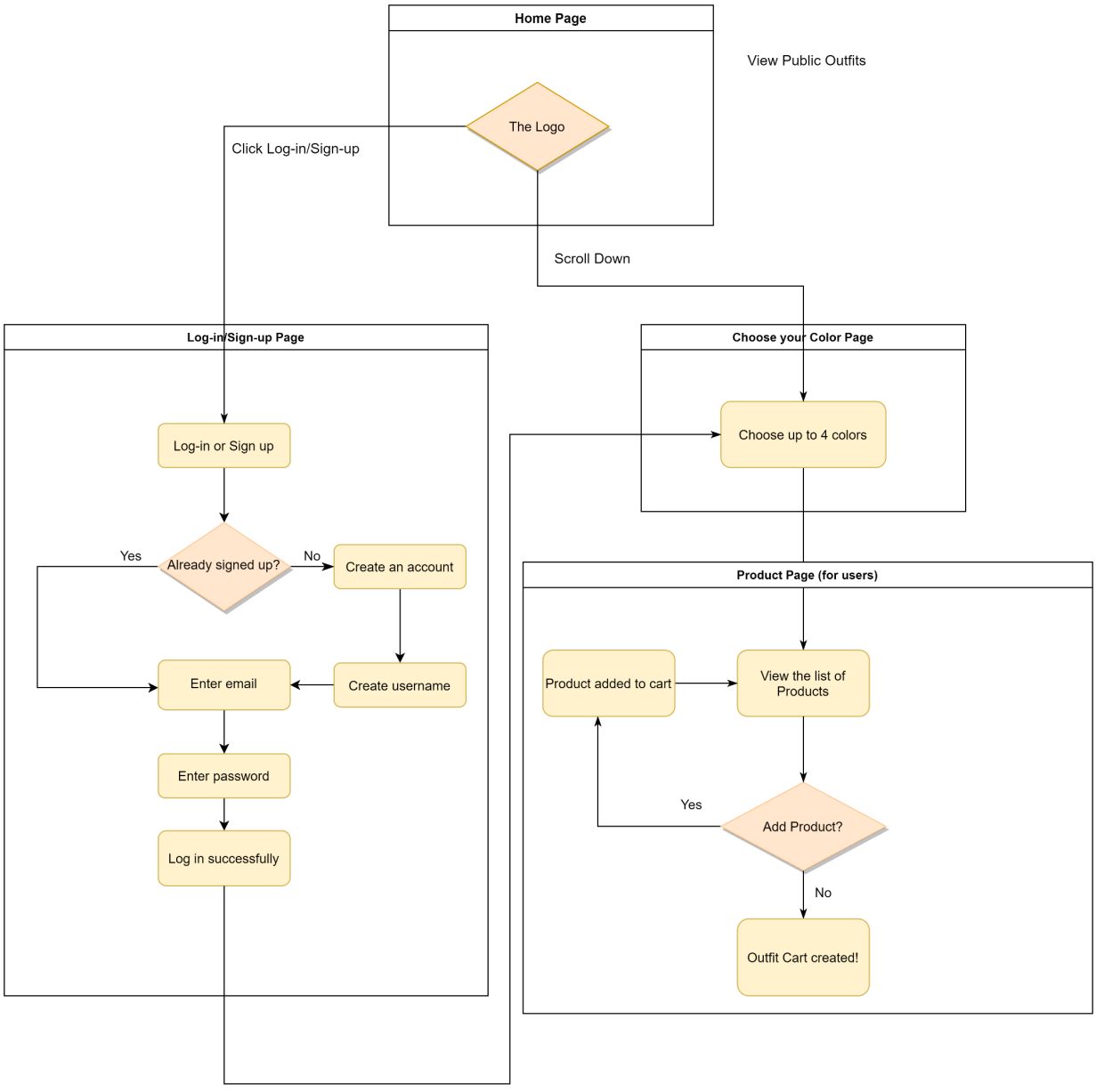
MySQL Workbench:

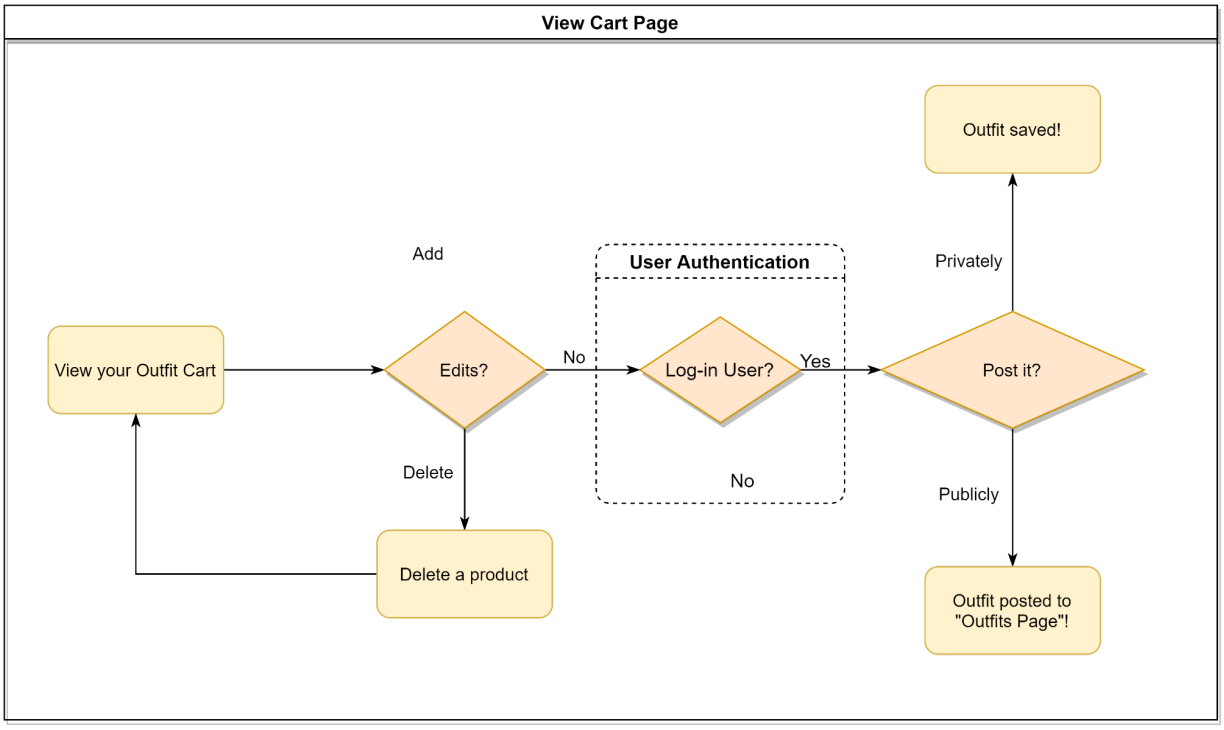


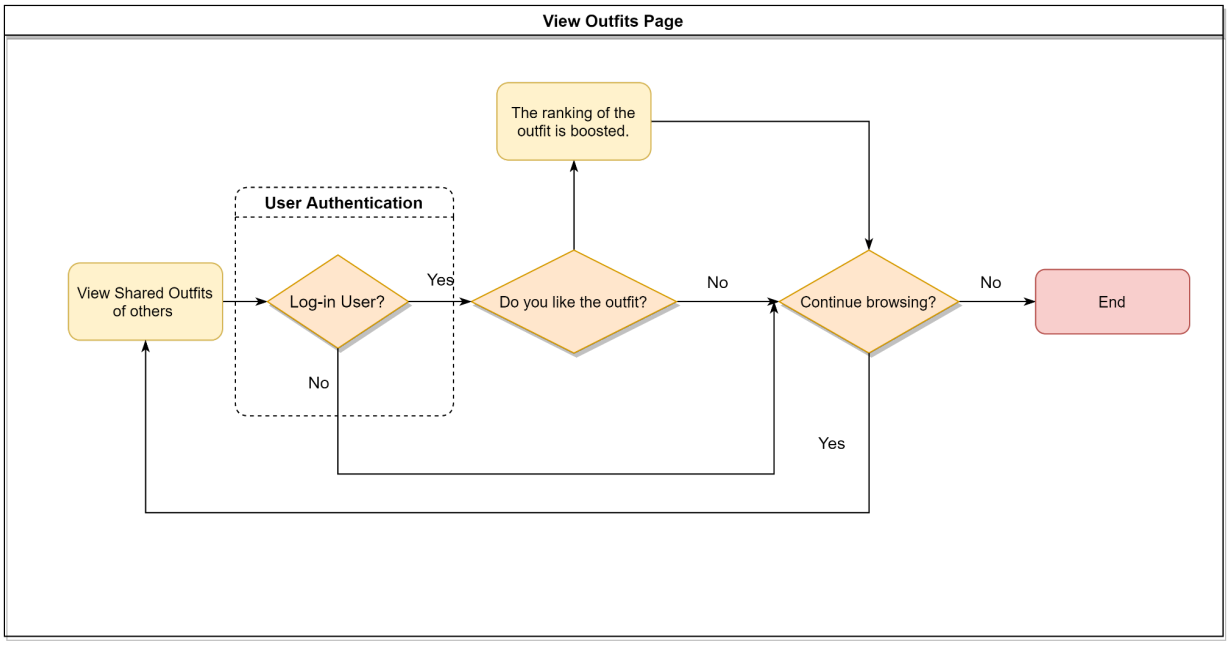
- The above diagram shows the schema of the tables stored in the database. The User information is stored when the user first signed up. This will also automatically create SessionID for the User to keep track if the user is online or offline, and verify if the User has logined when the user is trying to use some authenticated user-only features. The Items are stored and refreshed on a daily routine to provide easier and quicker access

for the Users. An Outfit Card is saved for authenticated users only and it will create a specific Like value for that specific Outfit Card so that we can keep track of the Users that have liked the Outfit Card to allow one user only liking or disliking the same Outfit Card once. The Outfit Card will also specifically belong to a User, which is shown in the Outfit Card table ablove.

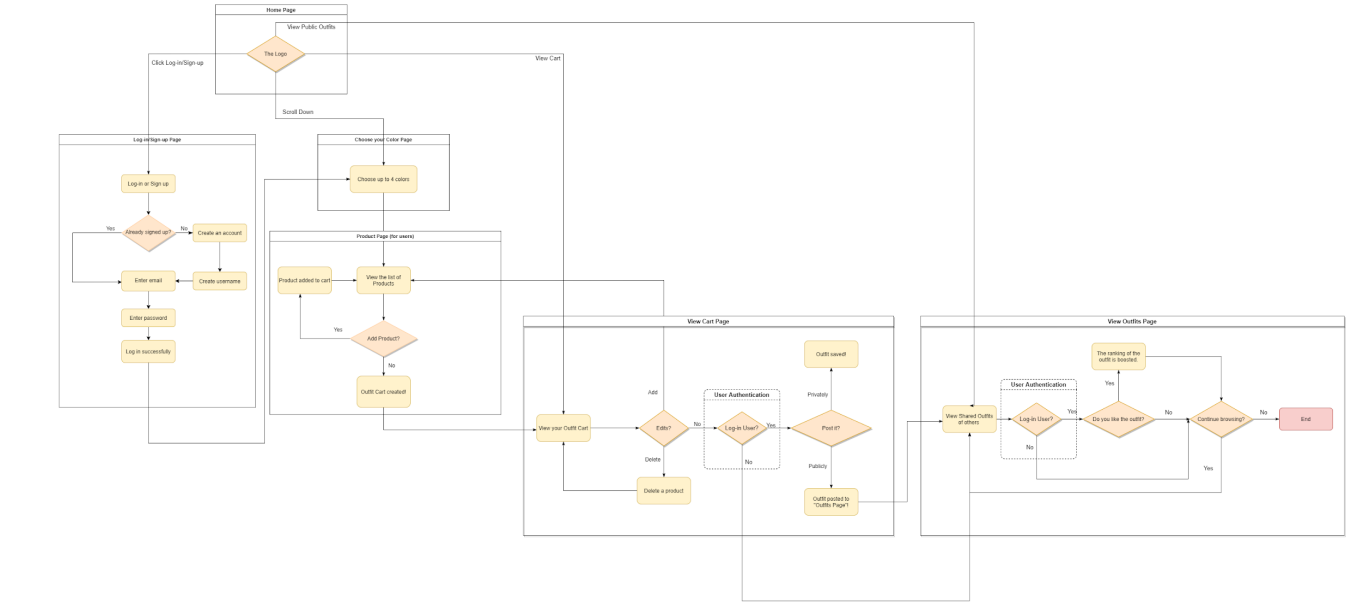
User Flow Diagram:




View Cart Page
Outfit saved!
Add
User Authentication
Privately
View your Outfit Cart
Edits?
No
Log-in User?
Yes
Post it?
Delete
No
Publicly
Delete a product
Outfit posted to "Outfits Page"!


View Outfits Page
The ranking of the outfit is boosted.
User Authentication
View Shared Outfits of others
Log-in User?
Yes
Do you like the outfit?
No
Continue browsing?
No
End
No
Yes

User Flow Diagram.



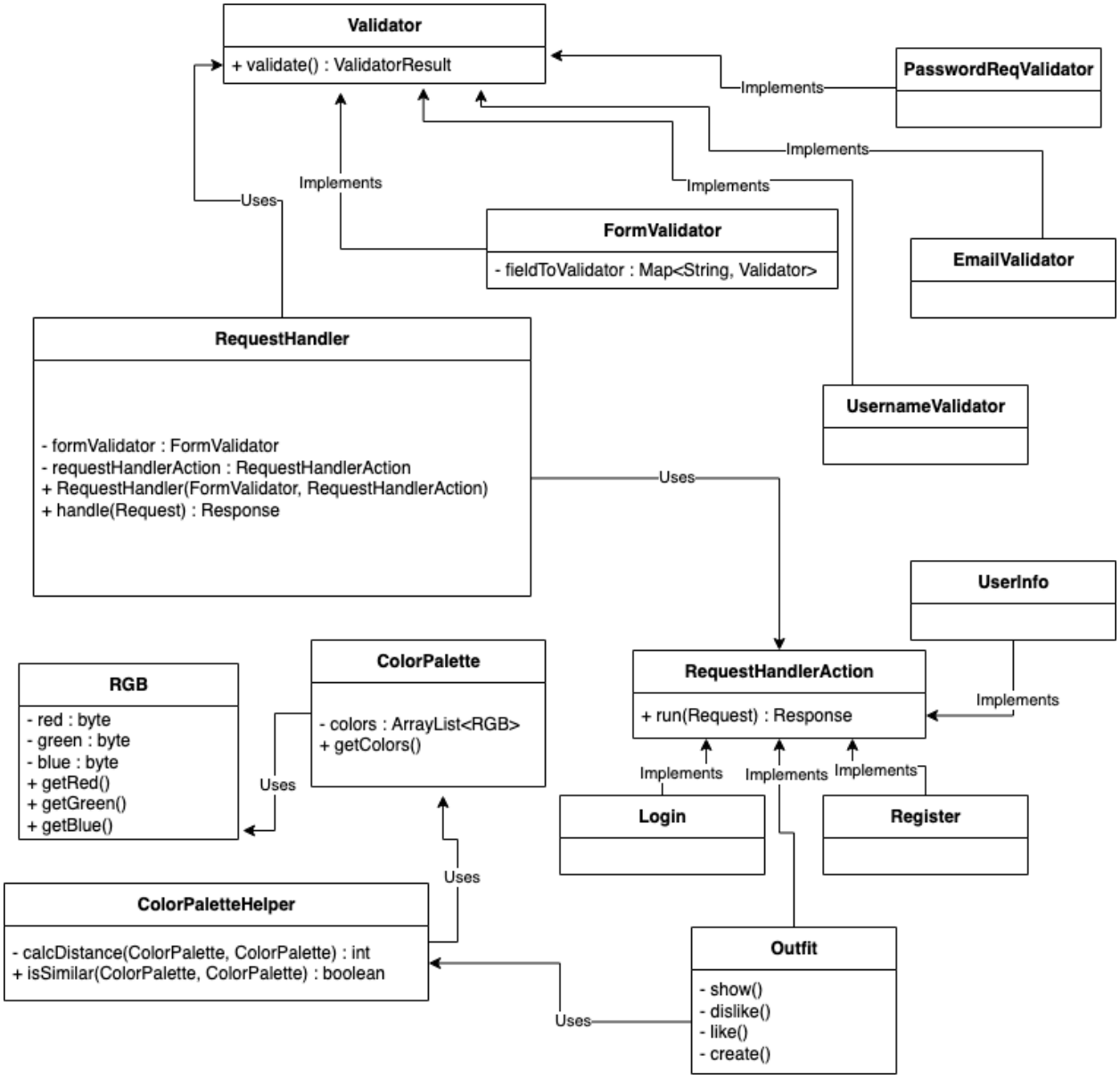
Color palette comparison algorithm:

- After receiving the user's color palette input, we need to compare that with the set of color palettes of items stored in our database to generate the search result. Here is a brief explanation of the color palette comparing algorithm we will use:
    1. Assume color palette 1 contains *a* colors, and color palette 2 contains *b* colors.
    2. For each color in one palette, the color differences between this color and each of the colors in the second palette are calculated. The minimum of these color differences is recorded.
    3. Step 1 is repeated for all *a* color in the first palette, for each finding, their closest corresponding colors in the second palette, resulting in $a \cdot b$ color differences.
    4. The $a \cdot b$ minimum color-difference values are averaged and the mean value symbolized as *m1*.
    5. Step 1-3 are repeated, but this time for each of the colors in the second palette. The mean value of these is symbolized as *m2*.
    6. Finally the values of *m1* and *m2* are averaged to produce the final result, δ.
- The items will be displayed in ascending order of δ.

GUI/Website

- https://www.figma.com/file/v96TNZhfKhGda8i8WCWO38/COLORS!?node-id=0%3A1

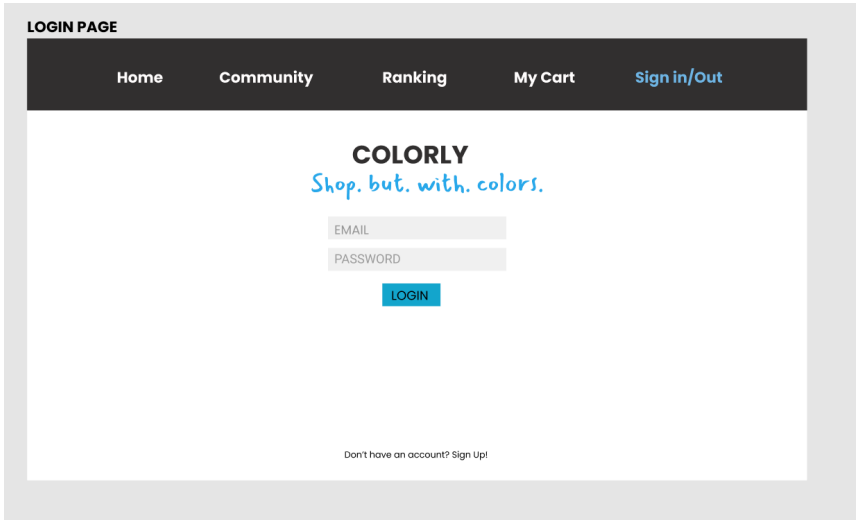
UML Class Diagram

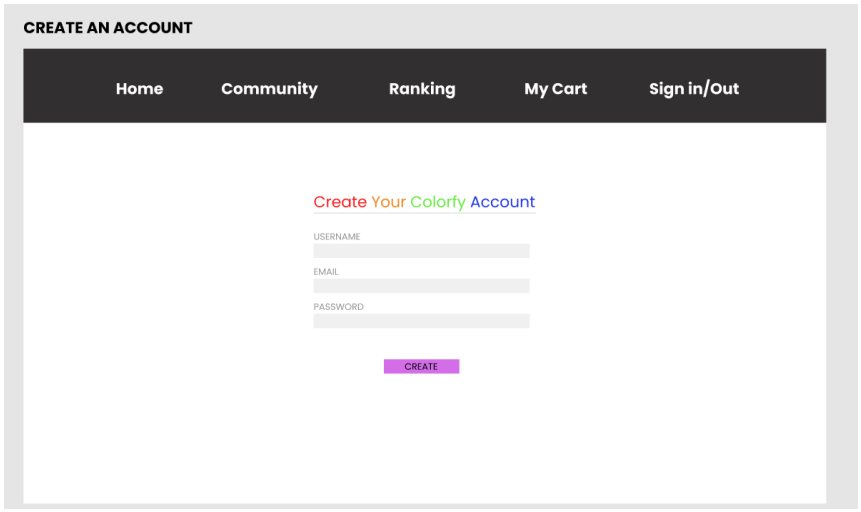


Scraping

- We will use HTML metadata to extract the name, price, image, and description; further, the color palette will be generated from the image. The metadata we can parse has to be in any of the following formats: json-ld, microdata, or the Open Graph Protocol. To that end, we will use extruct, a Python package “for extracting embedded metadata from HTML markup.”
- Our list of URLs will come from the Wayback Machine’s API, which exposes pages that have been crawled through. An implementation of this exists in Python: https://github.com/KarimPwnz/waybacked.

UI Design:


LOGIN PAGE
Home
Community
Ranking
My Cart
Sign in/Out
COLORLY
Shop. but. with. colors.
EMAIL
PASSWORD
LOGIN
Don't have an account? Sign Up!


CREATE AN ACCOUNT
Home
Community
Ranking
My Cart
Sign in/Out
Create Your Colorfy Account
USERNAME
EMAIL
PASSWORD
CREATE

VIEW OUTFITS

Home | Community | Ranking | My Cart | Sign in/Out

kingkarim's cart

justjess's cart

hu.is.william's cart

zoerocks's cart

interestingandrew's cart

darndaniel's cart

RANKING

Home | Community | Ranking | My Cart | Sign in/Out

Outfit Leaderboard

Rank	Name	Outfit	Points
1	kingkarim	xyz	1000
2	interestingandrew	xyz	950
3	zoerocks	xyz	690
4	hu.is.william	xyz	420
5	darndaniel	xyz	400
6	justjess	xyz	350

Product page/Color Picker: