

Project Title: Swipr

Project Summary:

Swipr is an innovative clothing recommendation app that utilizes advanced AI technology for skin tone and tint analysis to offer personalized style suggestions. Swipr integrates the principles of color theory into the everyday shopping experience to empower users to make their wardrobes better fitted to highlight their natural beauty. The app begins by having users upload a picture of their face and uses AI to extract their skin tone from the image. Then, it uses our custom algorithm to curate a tailored selection of clothing options from a comprehensive database that spans multiple clothing brands. Users then engage in a swiping process to show which items they like, refining their recommendations. In the future, Swipr's recommendation algorithm will learn from user feedback, continuously optimizing the suggestions. With the added features of custom lists and account customization, Swipr transforms the way individuals approach fashion, making high fashion accessible to everyone through the convenience of their smartphones.

Description:

Everybody wants to dress better. Using Swipr, we want to streamline this process and offer a more personalized shopping experience while introducing users to the extra dimension of matching clothes to their skin tones and undertones using color theory. The concept of matching clothes with skin tones is widely used in high fashion and modeling, but we want to make this available to everyday users through the technology they always have on them: their phones. It also makes shopping for clothes easier because it narrows down the options that the user has to certain color schemes, preventing “overchoice.” We will solve this using an app that presents users with clothing recommendations based on colors that will match their skin tones and highlight their natural beauty. The user then swipes through these recommendations and selects what they like while discarding what they don’t. This streamlines their shopping process, and they can easily link to the purchase of the item from their liked set of clothes.

Users first upload a picture of their face, and the app extracts their skin tone to curate a selection of clothing options from a comprehensive database. This curated set is specifically chosen to complement and enhance the user's natural features based on color theory.

The app then presents users with images of different clothing items, along with details such as price and brand, from the personalized selection, one by one. Users navigate through these recommendations, expressing their preferences by swiping right to like, left to dislike, or up to love. Liked items are saved to a personal collection while disliking removes them from future recommendations and places them in a separate disliked items set for reference.

For items that users truly love, they have the option to mark them as favorites, which not only adds them to a dedicated folder but also provides a direct link to the purchase page on the brand's official website. Additionally, users can create custom lists to categorize clothing based on specific traits, adding a personalized touch.

To enhance user experience, individuals create accounts on the app, contributing to a secure user database where relevant data is stored. Users also have the flexibility to customize their preferences, specifying the types of clothing recommendations they want to see, such as tops, bottoms, or outerwear.

Creative Components:

The two main creative components of this project are the use of AI and color theory to provide clothing recommendations and the gamification of the shopping process using a swiping UX.

1. A standard app might choose a recommendation based on given user inputs such as height and weight that have to be entered into the app. However, Swipr eliminates the unnecessary hassle of entering information by obtaining the info using AI to gather information from a simple picture you take. The user will create an account and upload a picture of their face along with their preferred price range and seasonal style. From this picture, we will implement an algorithm based on the skin tone and tint of the users using color theory to determine what colors will look best on the user and filter the clothing database.
2. After all the recommendations are gathered, Swipr will implement a unique swiping feature where each recommendation is shown sequentially, and the user swipes right, left, or up to like, dislike, or love the product. This makes the shopping experience more interactive and game-like so users prefer it over a mundane, traditional shopping service.

Usefulness:

Some of our app's functionality includes:

1. **Color-based Style Recommendations:** Swipr promises personalized clothing suggestions based on AI analysis of the user's skin tone and tint.
2. **Self-Curated Lists:** Users can keep track of the items they like and don't when they swipe on them, making it easier to look back and see the list of their previous decisions on items.
3. **Direct Purchase Links:** Choosing to 'Love' an item not only saves it to favorites but also provides a direct link to the official brand's website, streamlining the purchase process for users.

Several factors make Swipr clothing recommendation app useful:

1. **Color Theory in Fashion:** While color theory is a well-established concept in high fashion and modeling, Swipr brings this extra dimension to everyday buyers, which our team could not find online or on similar apps.
2. **Efficient Shopping Experience:** Swipr allows users to save liked items for future reference, creating a convenient wishlist. We might even build on this and add features where friends can share items they like with each other.
3. **Diversity in Fashion:** Swipr innovatively solves a long-standing problem our team of 4 brown individuals has faced in the past. Traditional personal shopping websites we found online usually overlook one key feature that makes us unique - Diversity. Swipr's AI analysis ensures an inclusive shopping experience for everyone by recommending clothes for all skin tones.

Realness:

The data sources will primarily consist of clothing items from 4-5 different clothing companies. The dataset will include images, URLs, clothing types (tops, bottoms, outerwear), and color information. To populate the datasets, we will develop a Python script to scrape relevant information from the websites of the selected clothing companies. This ensures that the data is current and reflective of the available products in the market and gives us control over what is collected. The data will be stored in an xls document, where each row in the document corresponds to a specific clothing item, with columns capturing information such as image URLs, product type, and color. The URL will be the primary key. The size of the dataset will depend on the variety of products available from the selected companies, ensuring a comprehensive and diverse collection. The dataset will be of sufficient size to provide a broad range of clothing options for users. We will gather up to 100 items of each color and type combination for the clothing.

To support the advanced AI technology for skin tone and tint analysis and the algorithm to match the skin tones to clothing colors, a separate color dataset will be created. This dataset will encompass a wide range of skin tones and clothing color variations. The data will be gathered from various sources, including publicly available skin tone datasets and basic color databases. The dataset will include the hex value of the colors as the primary key, the warmth/coolness of the color, and other features that are important to color theory. This information will aid in the personalized style suggestions and will be integrated with the clothing items dataset, allowing the app to curate selections that complement the user's natural features.

We will also have a user database where all relevant user information is securely stored. This includes user accounts, preferences, and the history of swiped items. The database will use the user's selected username as a primary key. The user account will be linked to their liked, disliked, and favorite datasets, allowing for a personalized and efficient shopping experience. Users will be able to update their categories through the UI functionality of the app; say for

instance, a user wishes to place a liked item into their favorites and they can do so with the press of a button. In the back end, we will have one table that encompasses the three categories (likes, dislikes, favorites) and any update that will occur will be reflected by changing the attribute of each item. We will allow up to 1000 users in our database for now.

These databases will be connected through a network of foreign keys. The user database will have the urls of the clothes in their liked, disliked, and loved sets, which will be used as the foreign key to connect to the clothing set. Next, the clothing set will be connected to the color database through the color that has been assigned to it by the matching algorithm.

App Functionality:

The user can interact with the app in the following ways:

1. Welcome Screen will be shown for first-time users
2. Create an account in the app.
3. Upload a picture of your face and select your gender
4. You will be prompted to select the types of clothing you are interested in for each of the three categories: top, bottoms, and outerwear
5. After this, you will see products with the type of clothing (ex. hoodie), brand, and price and you will be able to swipe left (dislike), swipe right (like) or love (favorites). The swiping action will place the current products into their respective categories and upon loving a product, the user will be taken to the direct link of the product as well as the product being placed in the favorites list.
6. On this swiping screen, you can select the clothing categories you wish to see in the moment you are swiping
7. When you click on your profile, you can change the types of clothing you want to see within the categories and also the price range. You can also see your curated dislikes, likes, and favorites lists.
8. On the profile screen, you also have the option to log out if needed.
9. When you click on the curated lists, you can move it to other lists with the press of a button. If you wish to buy the product, you can click on the buy icon and it will take you to the URL of the product.

UI:

See end of Document

Work Distribution:

Vikram

Ritvik

Raahul

Pranav

Tasks:

1. Python script to parse data from clothing websites.
2. Clean data and organize into datasets by color and type (tops, bottoms, outerwear).
3. AI model to get skin tone and tint from the image.
4. Algorithm to find preferred clothing colors for the user.
5. Sorting data appropriately for liked, disliked, and loved clothes.
6. Implement UI functionality.
7. Include CRUD functionality:
 - a. Create: Users can create a custom list.
 - b. Remove: Remove items from certain lists when a user decides to.
 - c. Update: Change the list that an item is in.
 - d. Delete: Delete an item from the dataset when it is no longer offered by the clothing company or some similar case.

Though this is our initial plan for splitting up the work, we will all be working together on most aspects of the project and make changes as necessary.

Additional Functionality:

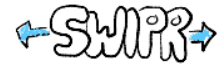
With the opportunity for further development, we want to integrate an advanced AI-driven functionality that uses uploaded images of the user's body to precisely match users with specific sizes across various brands. This is useful because different companies have different sizing, and using the AI sizing recommendation would remove this uncertainty in the user's shopping experience. Additionally, we are thinking about introducing a community feature to the app in the future where users can share and recommend clothes to friends. These friend recommendations would be more trusted by the user and motivate more purchases. Lastly, the algorithm of the clothes being shown can be continuously refined by an AI model in the future, similar to social media recommendation algorithms.



Welcome to Swipr!

Find the perfect
color and clothing with
just a swipe!

NEXT



SIGN-IN

Don't have an account?
Click [here](#) to register.

←SWIP?→

USERNAME

rsmanda2

PASSWORD

● ● ● ● ● ● ●

←SWIP?→

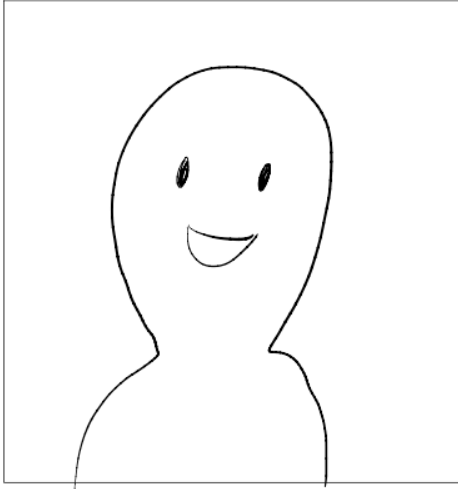
Take a picture
of your face!

Allow Swipr to access camera?

Allow

Deny

←SWIP→



CONTINUE

RETAKE

←SWIP→

What is
your gender?

MALE

FEMALE

OTHER

←SWIP→



Which of the following clothes are you interested in? you can always change this later in settings.

TOPS

BOTTOMS

OUTERWEAR

←SWIP→



TOPS

Polo Henley shirt

Dress Shirt Short-sleeve

Flannel Button-Down

Casual Denim V-neck



