ClimaCloset - Weather Based Outfit Suggestion App

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Stage 1 - Team 085

Summary: Our team is planning to develop ClimaCloset, an application that provides personalized outfit recommendations to its users based on real weather data. Users will be able to create an account where they can input a variety of clothing items within their wardrobe. From there, users will be able to receive daily outfit suggestions tailored to past and current weather data based on their location.

By utilizing datasets based on weather data, along with user provided clothing options, the app will help to simplify the outfit planning process by suggesting the best attire for different weather conditions. This project combines many elements including weather datasets, user login and personalization, and a smart recommendation algorithm to improve and simplify the user experience.

Description: ClimaCloset will be a new application which works to simplify a users outfit selection process based on real-life weather conditions. The app will first allow users to sign up or log in. If they do not have a recognized account, the user will be able to create an account. In addition to a name, email, and password, the user will be able to add many different items of clothing that they own. If they do not add everything at the beginning, the user will be able to add more once logged in. We would theoretically extract the location and use the current time. The user will then be provided with an outfit recommendation with clothes they own in their wardrobe based on real weather datasets. Our group has not decided yet how we will calculate the weather forecast and potentially will utilize previous weather conditions. There are also a variety of potential additional features we may try to implement to add difficulty and improve the experience if we have the time. One idea includes allowing users to add the quality of outfit they are looking for to provide outfits for different occasions whether it may be "business casual" or "going out clothes".

Our app solves the problem of finding the perfect outfit for the day based on weather conditions. Many people that rely on generic weather apps may check the conditions but still struggle to translate that information into a practical outfit choice. Our application solves this problem by offering a personalized, real-time outfit suggestion based on the user's actual wardrobe. This helps to simplify the user's day, by taking one decision off their hands, while providing unique and fun outfit choices.

Creative Components: There are multiple potential creative components that we plan to implement to improve the functionality of our app if given the time. One idea includes real time weather API data which would help the user create the outfit based on the current weather in their location at that time. Another idea includes a more interactive closet section. In addition to adding and removing clothing items, we could help to organize them and allow users to tag them based on different aspects including their favorite items, the style the clothing goes with, or even tagging the items as currently unusable if they are in the wash. Overall, there are many different additions that we could add to our application to help increase the difficulty and improve user experience if we have the time.

Usefulness: As mentioned above, our app will allow users to input clothing items from their wardrobe. From there, the app will suggest a functional and fashionable outfit based on weather from the user's location at that time. While many weather apps exist, they do not translate weather conditions to actionable outfit suggestions. Similarly, there are fashion or closet apps to help users with their outfit but lack the ability to build an outfit based on the real conditions outside.

Therefore, our app is a new concept which works to combine these aspects. Our app will bridge the gap to provide personalized outfit recommendations based on weather conditions to the user's clothing options. This removes one decision from the user's day and helps to simplify the process of getting ready.

Realness: The realness of ClimaCloset lies in its ability to give users accurate and location-specific outfit recommendations based on current weather data. By using weather data specifically sourced from reliable APIs like OpenWeatherMap or WeatherStack. This data, combined with articles of clothing that the user inputs into their wardrobe on the app, will allow the app to generate outfit suggestions. This will make sure that the suggestions are not only practical suggestions but also tailored to the user's style and preferences. The location-based aspect of the data is also crucial for making sure that the application gives valid suggestions based on the weather in the user's geographical location. By using geolocation APIs, the app will be enabled to detect the user's location and provide localized data

To integrate the app with datasets like these, ClimaCloset will utilize weather APIs like the ones listed below to gain access to weather data, forecasts, and historical weather information:

Weather Data:

- OpenWeatherMap API – Provides current weather data, forecasts, and historical weather conditions.
- WeatherStack API – Offers real-time weather data for any location, including temperature, wind speed, and more.
- Climacell API – Gives hyper-localized weather data and forecasts based on a user's specific location.

Location-Based Data:

- Google Maps Geolocation API – Allows for geolocation-based weather data by determining the user's current location based on GPS coordinates.

Wardrobe Data:

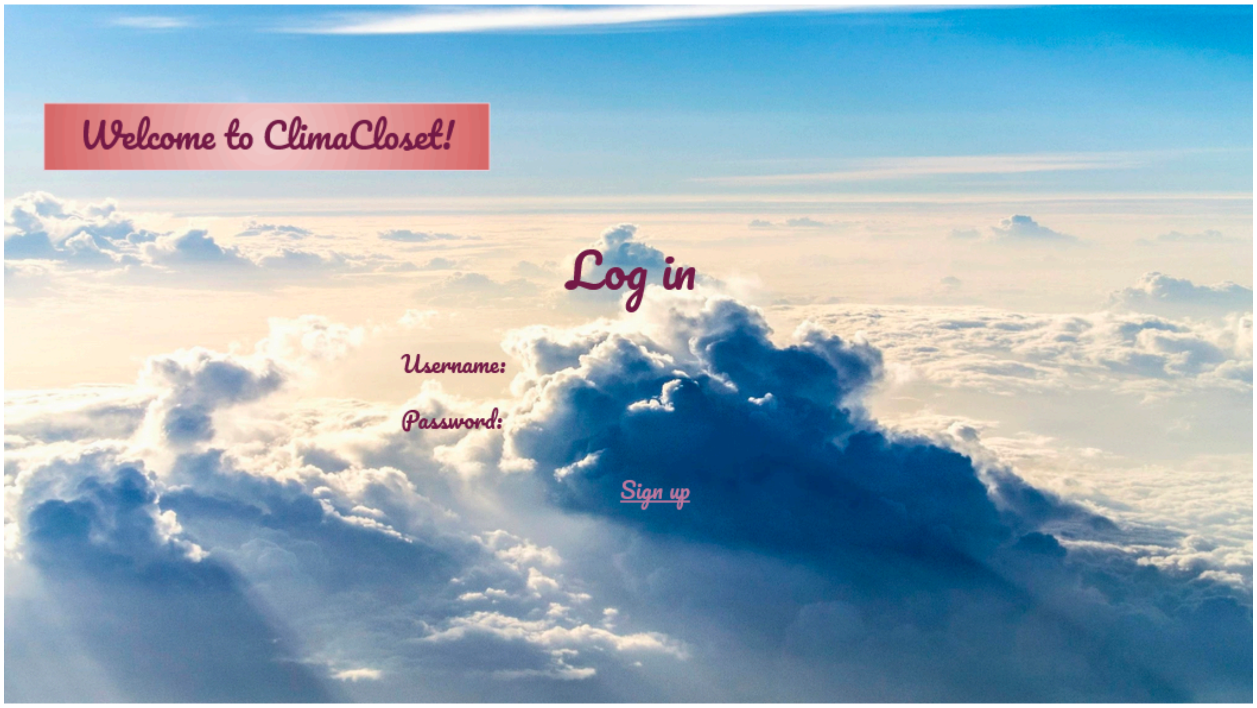
- While there are no specific wardrobe data APIs, this data can be user-generated. Users will input clothing items with tags, such as "business casual" or "going out clothes." This data can be stored in a user database to make outfit suggestions.
- There is also an option to use a dataset as a basis on top of which we could potentially add more data. Modcloth Fashion Dataset or Polyvore outfits

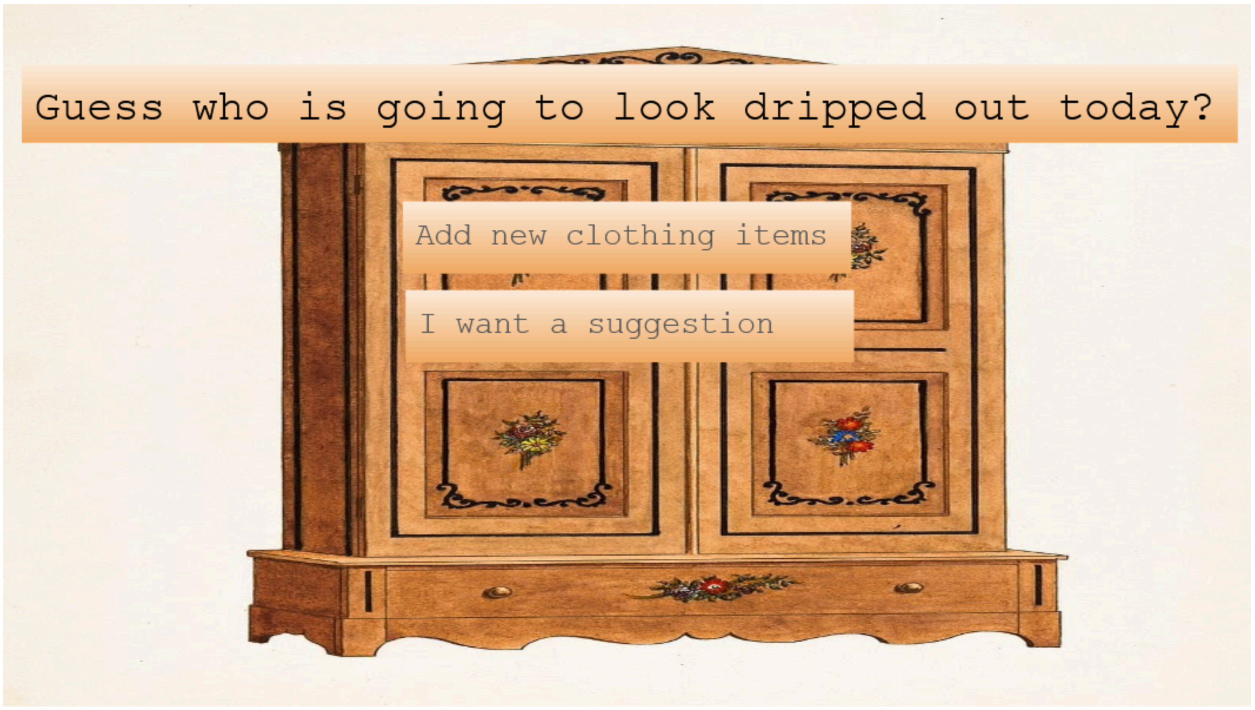
For the wardrobe data, users will manually input their clothing items, but the app could also use recommendation systems for if the user enters incomplete data or unknown data. The application can give responses through certain queries that deal with incomplete or unknown data in order to provide the most accurate results possible.

Functionality: ClimaCloset's functionality focuses around providing personalized outfit suggestions based on the user's wardrobe and real-time weather data. The user experience would start with account creation. The user's ID and login information would be stored upon creation. Once logged in the user can add clothes to their wardrobe and tag them with what item it is and what the intended use for the article is(casual, rainy weather, sunny). Tags can also be added for clean, dirty, and wash. There are many attributes that can be added alike in the wardrobe tab.

Once clothes are added to the wardrobe, the user can input or allow access to their location and receive an outfit suggestion. The app would fetch real-time weather data through one of the APIs previously listed. This will allow the app to assess conditions and provide a suggestion. For example, if the weather is cold and rainy, the app would suggest warm dry pants, a raincoat, and boots. The user can accept the recommendation or adjust it manually by selecting items from their wardrobe that fit the weather. The ClimaCloset also will allow updates, deletion, and insertions to the wardrobe at various times. The user can also specify types of outfits to influence the app's suggestions. The functionality also will include CRUD operations for managing articles of clothing, retrieving data, and displaying recommendations. The early version of the app would focus on making sure there is a basic and straightforward UI. Enough where there is a simple layout that allows the user to update, create, and retrieve items from their wardrobe. These CRUD operations will be shown in the front end and back end ensuring that users can interact with their wardrobe data in real-time.

Low-fidelity UI Mockup:





Project Work Distribution:

1. Backend Development (APIs, Database, Authentication)

- Implement authentication (sign-up, login, password encryption). **Reda**
- Design and set up the database for storing users, clothing items, tags, and preferences. **Collectively**
- Integrate weather APIs (OpenWeatherMap, WeatherStack, or Climacell) to fetch real-time weather data. **Livia**
- Develop logic for outfit recommendations based on wardrobe and weather conditions. **Ben**
- Implement CRUD operations for managing wardrobe items. **Collectively**

2. Frontend Development (UI/UX, Mockups, Interactivity)

- Design and develop the user interface using React Native or another suitable framework. **Reda**
- Create a responsive and intuitive layout for user registration, wardrobe management, and outfit suggestions. **Jack**
- Implement interactive elements (e.g., tagging clothes, selecting outfit preferences). **Livia**

3. Data Integration & Algorithm Development (Recommendation Logic)

- Develop the recommendation engine that suggests outfits based on weather and user wardrobe. **Livia**
- Implement logic for handling missing wardrobe items and making alternative suggestions. **Ben**
- Optimize outfit recommendations using past weather data trends. **Jack**
- Research and potentially implement additional datasets (e.g., Modcloth, Polyvore) for AI-driven suggestions. **Reda**

4. Location & Weather Integration (APIs, Geolocation, Data Fetching)

- Implement geolocation API to fetch the user’s current location. **Jack**
- Ensure smooth integration of weather data APIs into the backend. **Jack**
- Provide error handling and fallback mechanisms in case of API failures. **Ben**

5. Testing, Deployment & Documentation (Final Touches, Debugging)

- Backend testing (API responses, data integrity). **Reda & Jack**
- UI/UX testing (mobile responsiveness, user interactions). **Livia & Ben**
- Create user documentation for app usage. **Jack**