Team 012
Data Dynamo
CS 411

MediGuide: Personalized Treatment Recommender

Summary: Our project will serve as a personalized Treatment recommender where the user will input their personalized information such as their ID, age, sex, conditions, and country and our application will provide the user with personalized info regarding treatments such as recommending certain products or certain actions to take in order to reduce their symptoms and alleviate the pain caused by their conditions.

Description

Based on the user's input of their ID, age, sex, country, conditions, and symptoms, we want to be able to provide users with the best possible treatments as well as any external resources that could include prices of certain products, locations of the corresponding treatments, as well as other resources that provide more information on the conditions, symptoms and the treatments itself.

Overall, we want to point our patients in the right direction by providing them with recommendations for the best possible treatments as well as resources so that the patients can fully educate themselves on the conditions and symptoms they are experiencing in order to understand the next steps for them to endure so that they can treat their conditions and symptoms in the best possible way.

Usefulness

Our chosen application is useful because it allows users to get personalized recommendations for potential treatments for their ailments based on other user's inputs. This helps users since it allows them to be better informed on what they're dealing with before consulting a medical professional.

The only similar website/application out there is an app called flaredown. We are getting our data from flaredown actually since the user input into that app is open source. However, we are putting in a lot of different features to differentiate our project from flaredown, such as users being able to track their own medical history, and providing external resources such as links and drug price information. We decided to add on these features so that users are better informed on their condition.

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Realness

The data contains information about chronic illnesses based on user-inputted information that specifies the condition the user has, the treatment they use, and the symptoms they are experiencing. It also notes user-info like age, sex, and country.

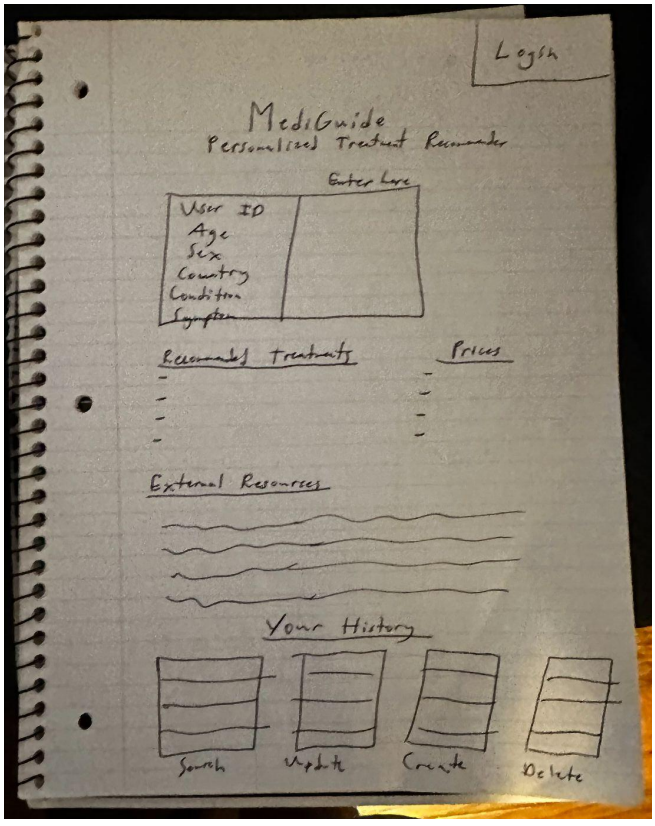
We will get this data from the Chronic illness: symptoms, treatments and triggers dataset on Kaggle. The database contains data from May 2015 to December 2019. It has 7.98 million entries.

Functionality

Our web application gives treatment recommendations to users based on their information. Users will input their condition, age, sex, country, and symptoms. The application will then output treatments personalized to the user's symptoms.

Users will also be able to add their own conditions, symptoms, and treatments to the database as well as how severe they are. They may also update their existing entries, delete their inaccurate entries, and search for specific entries matching their symptoms. We will also create a table specifically for the user with their ID so that they can view their medical history.

A low fidelity UI mockup:



Project work distribution:

In terms of Database management and data cleaning, we aspire to meet virtually to work collectively as a group to ensure our Database is formatted correctly as data cleaning needs to be performed since we are prompting the user to insert specific fields in order to provide them with related treatments as well as other useful information in order to treat their condition or symptoms. We also want to add a more personalized feel to our application by allowing the user to input data on how effective the proposed treatments were so that a history of effective treatments can be tracked and stored. Regarding the backend of the project, we also aspire to meet virtually to work collectively as a group. As of right now, we plan to build our application on Java and HTML. Overall, for each task or part of the project that we want to complete, we will have at least two of us working together on that specific task so that the work does not feel unequally divided and we are all collectively gaining knowledge and learning together as we build our project.

Creative Components:

We are planning to incorporate an API into the application that connects to drug info so that we can give the user information and prices for drugs that are recommended for their condition/symptoms. This API would be connected to the framework and would give additional information to further help our users.

In addition, we could build a machine learning model that analyzes the dataset to give more personalized information regarding treatments. We could build this using Pytorch and incorporate it into the back-end.

We could also allow users to put in data based on how effective or ineffective they found their treatment to be based on some numerical scale so that future users can choose their treatment option properly and with more background information.

We can add a user-history with a user-specific table based on their own id. This way users can view their history. Triggers would be useful here as when a user adds data to their own table this can trigger an event and we can add this entry to the general database (or vice-versa).