1. Project Title

Supreme Medicator

2. Project Team

Team: Juan Guevara(jdg8833), Vladimir Sharkovski(vs2599), Filip Milisov(fm2288), Jovan Kascelan(jk7480)
All roles will be divided evenly.

3. Project Description

Supreme Medicator is a website that suggests medications to users by enabling them to input their symptoms. It is a straightforward application that displays the set of drugs that could be used to mitigate the symptoms provided by the user. More importantly, it provides a summary of the properties of the suggested drugs and classifies them into over-the-counter and prescription medicines. Finally, it provides insights on the different brand prices so that the users can access more affordable options.

4. Business Goals

- To provide users with immediate access to insights about medicines based on the symptoms, reducing the number of doctor appointments and keeping users well-informed.
- Save users time and money by providing instant information about the price of the medicines, which is not as easy to acquire by a simple web search.

5. Main Features (Engineering Objectives)

1. A user-friendly web interface (front-end) allowing the user to:
   - Enter their health symptoms (by selecting options from a list of symptoms)
   - Display summarized drug information about over-the-counter and prescription medicine
   - Show drug price information
2. A back-end system to:
   - Communicate with OpenAI's GPT service in order to get medicine associated with the user's given symptoms, as well as get basic information about the medicine
   - Store drug prices in a database
   - Communicate with the front-end to display such information

6. Scope

The project is composed of the website and back-end system. The website will only communicate with the back-end system. The back-end system will communicate with OpenAI's GPT service to achieve the functionalities described in the "Main Features" section. Moreover, the back-end system will use external APIs or datasets in order to obtain drug price information and store in its database; for the purpose of this project, existing datasets like the ones in the appendix will be used.

7. Stakeholders

- Patients (intended users)
- Doctors
- WHO
- Pharmaceutical companies
- Pharmacies & Drug Stores
- OpenAI
- WebMD
- Developers (team members): Juan, Vladimir, Filip, Jovan
- Professor and TA of the course
- Family and friends of users

8. Constraints

- **Price to use the OpenAI GPT API**. We currently have limited access to a certain number of usages, which should be enough for the class project. However, for a full-scale project, we would have to consider OpenAI fees and develop a budgeting plan to make a profit and ensure the business runs properly.
- **Finding data** about drug prices and ensuring it is correct and up-to-date.
- Ensuring we have enough time to implement all features; otherwise, we will only implement the most essential features of the system.
- Ensuring that the system features both a GUI and a layer composed of object-oriented classes, per the course constraints.

9. Risks

- OpenAI might change their models to perform worse, which would directly affect the quality of our product. They may also increase their pricing model to an unsustainable degree. If any of these happen, we could switch to another large language model, either using an existing service or running our own model on our servers.

- We might not be able to find sources of data to use for the drug prices, or it might have incorrect or missing information. One solution is to scrape the internet ourselves in order to create the data, or to have a person or multiple people manually enter drug prices for all drugs into our database.

10. Appendix

- Datasets that will be considered in constructing the database of medicine prices:

  https://data.chhs.ca.gov/dataset/prescription-drugs-introduced-to-market

  https://data.chhs.ca.gov/dataset/prescription-drugs-introduced-to-market/resource/6393cda0-6101-424e-b738-07aee9e6f94f?view_id=88c286a0-b113-4018-b5ee-09cdba7fb41e

  https://lekovi.zdravstvo.gov.mk/drugsregister/overview#