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CS5001

Individual capstone assessment

This project is about creating an environment that allows for the free flow of the most up-to-date medical information; this is an interesting problem as it is difficult to assess who is correct when you are not an expert in the domain. It is also about matching people to specialty doctors in their area. This patient-doctor matching has many angles: should we give automatic recommendations? Should we hide doctors who are currently not taking any new patients? Does remote care matter for some fields in medicine? As someone interested in data science, it would be interesting to see how we can simplify the doctor selection process for the user.

My college curriculum will guide the development of this project. The first course that will be integral to the app’s quality is Database Design (CS4092). Without a properly designed database, we will run into issues with memory and other data problems. Another course that will be helpful is Software Engineering (EECE3093C); this class guides the way that we structure our general approach to tracking work. The last class that would be extremely valuable is Discrete Structures (CS2071) or even Design and Analysis of Algorithms (CS4071). These classes efficiently use memory and time to complete tasks using robust data structures.

My work experience over my undergraduate career will allow me to work on this project effectively. In my first internship, I worked as a Database architect intern at Diebold Nixdorf. This job consisted of ingesting data and storing it reasonably. This is a highly desirable skill for any networking app. I also did two rotations at 84.51 as a software engineer working on package development, it is not the same as app development, but the backend work should transfer nicely. I will leave the front-end/UI aspects to another team member. Lastly, the final two rotations I did were also at 84.51 as a data scientist, where I worked on projects closely related to medical information. I am HIPPA certified, so I can guide ethical discussions on all aspects of data sharing through this app.

My primary motivation for working on this project is that going to the doctor and getting tested is scary. Often people will be concerned about something odd they noticed with their body and turn to the internet. Famously, people gravitate towards WebMD and Reddit, neither reliable nor vetted medical information sources. The other aspect that is hard naturally is finding a new doctor; It is a full-time job to look for a new doctor in a new town. These are the primary reasons why I believe that this project is important and deserves to be worked on.

Since this project is intimately tied to medical information, we must consider all security issues related to patient information. We will need to be conscious of any security risks and be careful what is freely available to what kind of users. I would consider this project completed if we can add users of two types with different access to data; patients and Doctors. Only doctors can answer and upvote answers. Doctors need proof of their license to practice to register. I also would like users to have a profile; Doctors’ profiles are public by default, and patients must share theirs for doctors to see it. I will evaluate my contribution by gauging how often I review others’ work and how much of my work gets published.