CS 411 Stage 4 – Team 64 – MedMatch

Please list out changes in the directions of your project if the final project is different from your original proposal (based on your stage 1 proposal submission).

We've definitely had some slight changes to our project compared to what we had planned out in stage 1. We've kept all of our core functionality though. We made a web app where users can make an account, input symptoms, and get drugs that treat their symptoms as well as reviews associated with the drugs. The thing we changed the most and actually omitted from our final version was our web app being able to link you to the closest pharmacy to get the over the counter medication that our app recommends. We chose to take this path because as we started working more and more with our datasets, we realized that the majority of the medications in our datasets actually needed a prescription, so would be sending users to pharmacies when we would actually need to be sending them to doctors first, which wasn't the purpose of our app.

Discuss what you think your application achieved or failed to achieve regarding its usefulness.

In terms of usefulness, I think we've achieved most of our main goals. You insert your symptoms, you get the drugs that treat those symptoms, and you can see and leave reviews. This is great if you're near a pharmacy and the recommended drug is OTC, our web app gives you exactly what you want and it's done its purpose. Not so great if the drug isn't OTC, then we lose some usefulness since we can't give out prescriptions or contact doctors. Overall, we made our web app as useful as we could've without being able to give our users prescriptions for medications.

Discuss if you changed the schema or source of the data for your application

For MedMatch, we have the schema that we proposed in stage 2, apart from adding a review log table. The purpose of the table is just so we can track when a review was created. In stage 2, we mistakenly treated some relationships as entities in that schema, but overall, the design of our database is still the same. This is also the case for our source of data. We've maintained our use of this source for data between drugs and symptoms, and an FDA database(found here) as a source for drug information.

Discuss what you change to your ER diagram and/or your table implementations. What are some differences between the original design and the final design? Why? What do you think is a more suitable design?

We didn't change much for our ER diagrams or table implementations. Our table implementations followed our diagrams exactly. They're all the same as we initially proposed in stage 2 apart from the extra review log table that we added. Since our web app isn't the most complex, our initial design proved to be suitable enough for the purpose that we wanted to fulfill.

Discuss what functionalities you added or removed. Why?

We removed our pharmacy locating functionality since it wouldn't end up being as useful as we initially thought. This was mentioned in an answer above, but most of our medications aren't OTC, so even if we told our users where the nearest pharmacy was, it didn't end up being very relevant.

Explain how you think your advanced database programs complement your application.

Our advanced database programs complement our application by speeding up data retrieval and making it easier to manage data. For example, we have a stored procedure that is used to insert a review into our review table as well as increment the number of reviews the user has. This could be done with queries from our backend, but a stored procedure keeps all the logic within our database and makes sure that all the operations happen together without worry of any overlap.

Each team member should describe one technical challenge that the team encountered. This should be sufficiently detailed such that another future team could use this as helpful advice if they were to start a similar project or where to maintain your project.

Max - A challenge I faced was integrating the mySQL database with our server, I've never had to integrate a backend like that even though I've made rudimentary websites before.
Jackie - Making the server initially was really confusing. GCP has so many buttons on every page, reading up on it beforehand would've been a better idea than jumping into it
Patrick - Making the joint table between diseases and symptoms was tricky, mapping them was more confusing than I thought

Joey - Integrating triggers with the medical reviews was a rough, wasn't sure how to connect a trigger to our server

Are there other things that changed comparing the final application with the original proposal?

We didn't include the severity of each symptom as a user input. We excluded this because it wasn't relevant, the severity of a user's symptom won't impact which drugs we recommend, since regardless of severity it's usually the same ones.

Describe future work that you think, other than the interface, that the application can improve on

Something we could improve is how we retrieve and display drug names to the user. Currently, we are returning the official name of the drug, not brand names, so the results can be pretty confusing if you aren't familiar with the official names. This would probably require another table or relationship that relates official drug names to well-known brands that have well-known names for these drugs. I also think we could definitely improve the aesthetic of the website, it's pretty bare bones visually and could definitely use a bit of a step up.

Describe the final division of labor and how well you managed teamwork.

Max -
- Back end: Implementation of the medication database to work seamlessly with the server and web app

Jackie -
- Back end: Handling of server deployment & performance optimization

Patrick -
- Front end: Homepage design, the symptom search and user input
- Back end: Implementation of the symptom/disease joint table

Joey -
- Front end: Design of the display to show the results consisting of specific diseases after symptom input
- Back end: Medication review creation and update