AI-HCI : Overview and Feedback Plan

Team members: Saichandu Juluri, Pranav Kompally

Overview of the High-Fidelity Prototype:

Our application aims at helping medical practitioners query the patient records database with simple questions and then generate subsequent reports.

For the high-fidelity prototype submission, we are providing a glimpse of what the application will look and feel like. And additionally, we also provide access to the LLM in the chat tab. However, it is important to note that we haven't integrated the Engineering LLM for prototype yet since it is under testing with the Database.

We're currently troubleshooting errors and incorrect query-answer results which we aim to fix by the final demo and presentation. However, to give an idea as to how the chat option will work, we have provided a dummy chatbot that just replies.

The Application allows the user to do the following:

1. Chat with the Database and get answers
2. Generate subsequent report w.r.t a patient using chat only
3. Navigate to chat history and explore previous queries
4. Explore the database visually
5. Help section for FAQ

Athena, our application, is a Proof-of-concept for what it would be like to integrate an LLM into a Patient Database Management application. And therefore, we tried to replicate a few minimal features into the submission.

Feedback Plan:

From a user experience perspective, we aim to get feedback as follows:

1. Navigation and Exploration:
   Does the application have simple yet self-explanatory user interface. We will allow medical practitioners such as Doctors, clinicians and nurses etc to rate the easiness of the using the application on the scale of 1-10 with ten being the easiest and 1 being the hardest difficulty.

   Representatives of the above-mentioned profession are used to these kinds of tools on a daily basis. And their habits show up as reflexes when using Athena. We would request these representatives to provide suggestions and improvements on the explorable trait of the application.

2. Expectations vs Reality:

Often, doctors and users from similar professions express their desire to leverage LLMs for these search and information retrieval to reduce the number of steps and database tables they have to navigate across. And so, to ensure we properly cater to their expectations, we will ask the users to type in the kinda of questions they would want to ask the LLM to assist them w.r.t retrieval of information from the database.

We then record their questions and expected format of responses to formulate our approach towards providing data they require. We repeat this as many times as possbile to understand the pain points and the outliers that might exists when the model provides a response.

Adding on, we would also request the practitioners to suggest in what format/template do they want the structured data from the Database to be presented in unstructured format i.e. generate reports essentially a click. This would give us clearer view in regards how the reports are expected to be generated like. This would help us answer questions like but not limited to:

- What fields should the report contain?
- Should there be any confidential information that is to be redacted?
- Would the user want to add his/her comments to the report that is being generated?
- What metadata is the user expecting

3. Data Pooling:

To complement the above methods proposed, we'll distribute an online survey to a broader group of potential users irrespective of their background to gain deeper understanding. Our belief is that any comment that can potentially create positive impact is good feedback and constructive in nature. This survey will include both closed-ended questions using Likert scales to quantify user satisfaction across various dimensions (e.g., ease of use, information quality, time-saving potential) and open-ended questions to capture suggestions for improvement.

Doctors, Clinicians and Medical practitioners along with regular hospital management systems users will receive this survey. The aim to record data is holistic in nature and also captures the non-technical aspects that are factored by the environment and people the tool is employed in. And that changes how it is used to.

These surveys will record data to answer questions as follows but not limited to:

- What was your first impression after using Athena?
- What other features and improvements would you suggest?
- What features did you expect to work differently and what were those?
- Would you recommend this tool to a colleague? Why/Why not?
- After what addons would you recommend this to a colleague?
- What kind of ethical concerns do you have?
- What kind of impact do you see Athena doing at your organization or lab?