Team 043 JEAM Stage 4 Project Report

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1) **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).**
   Our original proposal was to create a resource where students could be matched with RSOs on campus based on common interests. Our final project still had this intention, but we may not have implemented all of the functionalities we intended. We are displaying a bit less data than we originally proposed in our front end, and we have not fully implemented our creative component of an interactive map. We also plan on using real student data, but had to use mock data in order to create the application in a shorter time period. Overall, it still serves the same original purpose, though by using student interests and club interests, and matching them.
2) **Discuss what you think your application achieved or failed to achieve regarding its usefulness.**
   The main purpose of our application is to match students to RSOs through the alignment of interests—in this purpose, we succeeded. Our application is able to find RSOs with relevant interests and match them to students, which can save students a lot of time since they won't have to sift through the hundreds of RSOs listed on OneIllinois. In the future, the usefulness of our application could be improved by (1) adding more interest attributes to each RSO and student to improve the scope of recommended RSO matches, (2) letting users update RSO interests for improved accuracy, and (3) improving the frontend to be more robust and accessible.
3) **Discuss if you changed the schema or source of the data for your application.**
   We originally planned to use information gathered from the University Division of Management Information to generate our student tuples in our student relation; however, due to time constraints, we ended up generating students without this restriction. We used the same data source for RSO information as originally planned, that being web scraping of OneIllinois. Our student and RSO interest entities were also auto generated in order to finish within the time constraint. The department entity was also auto-generated, but prompted with resources about the University of Illinois departments.
4) **Discuss what you changed 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 kept our ER diagram the same in terms of how we organized our relations and entities. We believe it correctly represents what we are trying to do and allows us to properly perform our desired tasks. We don't believe there is a more suitable design than our current ER diagram to properly accomplish the goal of our project.

5) **Discuss what functionalities you added or removed. Why?**
   Due to time constraints and difficulty integrating with the front-end, we removed some of the more advanced features and any tracking we planned in our original proposal. Our design now just has the simpler features that allow users to make new profiles, delete their profiles, and match with RSOs based on interests.
6) **Explain how you think your advanced database programs complement your application.**
   Our advanced database programs complement our application because they help provide users with more data and prevent users from inputting incorrect data. Our advanced programs included a transaction that provided club statistics using group by and aggregation, along with a second transaction that finds a friend for the user using set operations. Our stored procedure worked by matching students with RSOs based on interests. If there is not enough of a match, then no RSOs will show up. For the trigger, it prevents duplicate members using a Before Insert trigger. Lastly, our constraints consisted of defining the appropriate primary keys and foreign keys.
7) **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.**
   Emily -> A technical challenge that our team dealt with was having trouble updating and testing code collaboratively, as it was hard for us to use multiple devices to work on the project. We slightly resolved this by having one main person typing and updating the code, but it would have been nice to work on the project all at the same time with live updates to our work.
   Jennifer-> One technical challenge that my team and I encountered was how to properly save and manage our credits on the Google Cloud Platform. Since we were not really sure how credits worked on the GCP platform, one of our teammates ran out of credits by mistake by keeping an instance running.
   Andrew-> One technical challenge that our team encountered was connecting our GCP instance to our backend. Initially, we were having trouble connecting, but we resolved it by realizing we were using the wrong user to connect and switched it to the correct user.
   Melissa-> A technical challenge that we encountered was loading in our data into our application and displaying it on the frontend of our project. We were

unfamiliar with how to load csv and MySql data into typescript arrays in the backend and display this data on our website page. We resolved this issue by researching how other projects load in data and connect it to their frontend.

8) **Are there other things that changed comparing the final application with the original proposal?**
   A problem we encountered and ended up changing from our original proposal is how we would connect the components in stage 2. We had to redo our ER diagram to have the proper number of entities and understand what was truly an entity and what was a relationship. As mentioned earlier, due to time constraints, there were features we didn't get to fully implement from our original proposal, but the general function is the same.
9) **Describe future work that you think, other than the interface, that the application can improve on.**
   One aspect that the application could improve on is that after giving users recommendations on the RSO's it could give a location and map to their usual meeting times and locations. It could also have more advanced security features, including minimal password requirements. We are also interested in implementing the webpage in a way that would recognize that a student was trying to sign in versus an RSO administrator. The website would then navigate the user to a different page based on which group they belonged to, and each respective page would have different functions.
10) **Describe the final division of labor and how well you managed teamwork.**
    As stated earlier, since we mainly relied on one of our teammates' devices to work on the project, we would host Zoom meetings and in-person class time to work on the code together by giving input and feedback. Other things, such as the reports and checkpoints, we would all split up the work.