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Professor Annexstein

CS 5002

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Final Capstone Self-Assessment

Part A: Individual Contribution

When it came to the development of MyPi, I was primarily in charge of the front-end. As I identified in my initial assessment in the fall, I have had several different experiences building and working on mobile apps, from co-op and from projects in previous courses. From this, despite not having particular expertise in UI/UX design, I felt that the flow and interface of our final product was intuitive and relatively polished for our demonstration. This was definitely the best mobile app I have developed from start-to-finished, and I am planning on working even further after graduation to improve the app more, and potentially submit it to the App Store.

Additionally, the two of us group members worked together on the pizza generation algorithm, which lies at the heart of our project. I identified in my initial assessment that certain algorithms studied in other classes might be able to be modified to match users to pizzas, but after some research and discussions with our advising professor, we landed on the idea of modeling our problem as a graph. We studied the graph data structure in several classes, including Data Structures, Algorithms, and Automata, but we never got into many of the more advanced applications of graphs. Dr Vellambi pointed us towards vertex covers of bipartite graphs, and after digging into papers and other resources, we were able to use minimum bipartite

vertex covers as a foundation for our algorithm. This research, which included figuring out the right way to model our problem, was definitely the largest challenge of the project, from my point of view. However, this also proved to be the best learning experience, both in the material we researched and as an exercise in modeling problems intuitively.

Part B: Group Accomplishments

In terms of our overall accomplishments, we were able to build a full-stack mobile application that allows an organizer to create an order, and users to join that order, input their pizza topping preferences, and have an ideal pizza order be generated that satisfies everyone. We set up a back-end API to serve and handle user information using a database, and a front-end with React Native that is cross-platform (iOS and Android). Overall, we were able to reach our end goal of completing this product and having all of the core functionality implemented by the CEAS Expo. The main reasons for our success were trusting one another and sticking to the things we know best.

Baru and I have been working on projects together for years, and because of this, we have a good understanding of each other's strengths and weaknesses. It was an obvious choice to have me work on the mobile app and have him work on the back-end API and database. In order to reach our final algorithm, we both researched existing similar algorithms and met with our advising professor to discuss our options, since he is particularly knowledgeable about algorithms, and he modeled our problem in a new way for us. After this, the development of the algorithm was done almost exclusively in-person together, so that we could whiteboard ideas in order to have a complete understanding of what we were trying to do and how it worked. Essentially, our strategy was to divide and conquer based on our expertise, consult our professor when it would most benefit us, and to work very closely together on the core, difficult part of our

project (the algorithm) so that we could focus and understand its inner-workings. In all, the core aspect of teamwork that made us so successful was trust, since there was never any doubt that each of us would complete the tasks delegated to us to the best of our abilities.