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CS5001 Senior Design

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Individual Capstone Assessment

For my senior design project, my group and I are working on "Bracketed", a website where users can create and play in their own "pick'em" games for multiple sport leagues. Users will be able to create custom, modular game groups that can have a combination of specific games from many different leagues. This group will be able to be made public or private, allowing other users to join and pick what they think will be the winner of each game. The score will be tallied up, shown on leaderboards, and whoever picks the most games correct at the end of the group will be the winner. The scope of this project is large, and covers many different areas of development, such as front end, back end, databases and cloud computing. However, I have had many academic experiences that will help me prepare for this project. I will also be able to further my education by researching and learning more in areas that I am unfamiliar with. This project will be a culmination of my education, combining many skills with an area of interest to create a polished project that will help prepare me for my career in many ways.

Many of my experiences in my classes have given me skills and experience in areas that will help guide my development of this project. My time in EECE-3093 Software Engineering taught me many things about how professional software is created and managed, such as different Agile methods, the SDLC, and CI/CD pipelines. The knowledge of these technical skills, as well as softer skills of teamwork and communication taught in this class will be very helpful for the overall development process of this project. Classes such as CS-4065 Computer

Networks and Networked Computing as well as CS-5165 Introduction to Cloud Computing will help when it comes to designing and hosting our own Web API for the backend of the website. The website will be a data focused application, focusing on teams, scores, points, groups and users. CS-4092 Database Design and Development will be useful for creating our database to keep track of all of this information.

Some skills that I have not been able to learn throughout my curriculum I have been able to learn through my Co-op experiences; these skills will also be useful for completing our senior design project. My first Co-op Semester was as a Quality Assurance tester at London Computer Systems. This role taught me how to properly test new software features by writing thorough test plans, thinking of edge cases, and writing detailed reports of defects and how to recreate them. When working with my group members, these skills will be useful to help check changes made to the application, and to help others fix these changes if needed. I spent the four other Co-op semesters still at London Computer Systems, however I was in the role of Software Developer now. I worked on multiple web and mobile applications, using frameworks such as .NET and Angular, and working in C#, TypeScript and HTML. These semesters taught me a lot about front end and UI design, how front end interacts with a backend API, how to identify the root of a bug, and much more. These skills will be very useful when designing our project, as the front user end is a large and important part of the website.

I am very motivated to work on this project because I have had the original idea for a website like this for a while. I have always loved playing NFL and college football pick'em games with my friends. However, a lot of the apps these games are hosted on are also filled with other games and gambling advertisements, can be confusing and slow to use, and lack customization. I believe creating a clean, fast, customizable website where users can create and

host their own games with their friends in the public is a promising, fun premise. I am also excited for this project because it gives me the opportunity to put lots of my skills together. I will be able to use my skills of front end development, databases, networking, cloud computing and backend design all at once to create one complete project with lots of depth. Going through the full process of designing and creating a web application will strengthen my skills, help me put all the pieces together, and give me a project that I am proud to put on my resume for future employers.

The potential scope this project could have is very large, so it will be difficult to evaluate when we are done. The customization aspect of the application means that the size of the project can always keep growing, as there could always be another sports league or game to add to the system. Because of the resources and time we have available, I do not expect our finished project to have every single sports league and have a backend that can support multiple thousands of users. However, I do believe that there is a measurable result we can reach that will satisfy the user and show us that we have done a good job. By the end of this project, we will have a website that has a clean, quick front end design that is simple for users to follow. I want the application to have the ability for users to create an authenticated account, add friends, and create pick'em groups that can be public or private. Finally, we should have at least three professional leagues (NFL, NBA, Esport for example) that users can either play a regular pick'em for the league, or create a custom one that has specific games from multiple leagues that the user selects.