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CS5001 Senior Design

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Individual Capstone Assessment

Our senior design project focuses on developing a centralized website for sports and esports pick'em games, called Bracketed. Our goal is to create a platform that allows users to make predictions, track progress, and engage with multiple leagues in one location while competing with friends on leaderboards. From my academic perspective as a computer science student, this project represents a meaningful opportunity to combine my interests in software engineering, data management, full-scale design, and user experience design. This project will serve as an opportunity to demonstrate my diverse technical skills through the development of a cohesive and functional application while gaining more experience working with others on a team. Bracketed is an especially exciting prospect for me because it blends real-world utility with an engaging, interactive experience that requires careful frontend and backend planning while also integrating several topics I am interested in. Ultimately, this project will provide me with the chance to showcase the culmination of my education in a way that feels both professional and personally meaningful.

My college coursework has given me the foundation to tackle the challenges of this project from both a technical and collaborative standpoint. In Software Engineering (EECE 3093), I gained experience with Agile development practices, version control, and the process of breaking down large-scale projects into manageable tasks. Database Design and Development (CS 4092) provided me with the knowledge to design relational databases and write efficient

queries, which will be critical for managing user accounts, predictions, and results within Bracketed. Finally, one of the most relevant classes for this project is User Interface 1 (CS 5167), in which I designed and implemented four relatively large-scale websites. This course gave me hands-on practice with frontend design, usability principles, and ensuring consistency across interactive elements. These courses have collectively strengthened my ability to develop structured, user-friendly applications, and I intend on applying these lessons directly to the frontend and database design components of our project.

Beyond my academic coursework, my co-op experiences have also prepared me for this project. As a Computer Science Intern at Modern Technology Solutions, Inc. (MTSI), I contributed to an aircraft simulation project, focusing on feature design, implementation, and testing. This experience taught me the importance of writing maintainable code, collaborating within a professional team, and meeting structured deadlines. At Cincinnati Children's Hospital and Medical Center, I worked as a Psychiatry Student Co-op, where I developed MATLAB scripts to preprocess and analyze neurophysiological data for studies involving Fragile X syndrome. I also implemented algorithms to improve artifact removal in EEG signals and developed experimental paradigms that incorporate eye tracking, feedback mechanisms, and auditory distractors to generate clearer results. These experiences sharpened my technical abilities in algorithm testing, data processing, and experiment design while also strengthening non-technical skills like communication, documentation, and critical thinking. I expect to apply these skills to our senior design project, particularly when approaching data handling and ensuring our application is both accurate and reliable.

I am especially motivated to participate in Bracketed because it combines my academic interests with something I am passionate about outside of the classroom. Since I closely follow

both sports and esports, the opportunity to merge them into a single interactive platform is exciting. Beyond personal interest, this project gives me the chance to apply my technical background in a way that is not only functional but also engaging for users. Working closely with my teammates will also be rewarding, as I look forward to learning from their strengths while contributing my own. The challenge of designing a full-scale system that is both reliable and enjoyable to use pushes me to put forward my best effort, and I am eager to see how our combined ideas develop into a finished product. Finally, I view this project as an opportunity to grow as a software developer, especially in collaborating on a team while also being adaptable enough to assist others whenever challenges arise.

Our preliminary approach to this project will involve dividing the work into distinct phases, beginning with requirements gathering design, followed by iterative implementation and testing. We will start by building the backend systems that manage user accounts, predictions, and leaderboards, while also testing out different frontend designs to ensure a smooth user experience. Once the core functionality is complete, we plan to conduct regular testing and refinement cycles to polish the application. I expect our accomplishments to include a fully functional prototype that is both intuitive and technically sound. To evaluate my individual contributions, I will measure whether my assigned components meet the agreed-upon specifications, integrate smoothly with the work of my teammates, and hold up under testing. I will know I have done a good job if my work not only fulfills technical requirements but also helps move the team closer to delivering a polished, reliable product that we can all be proud of. This self-evaluation will ensure I stay accountable to both my team and the goals we set for Bracketed.