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Individual Capstone Assessment

Our Senior Design Project will be about bringing together all of the knowledge we have learned over the past 4 years to develop and design a video game. This project will test our knowledge of many of the concepts we have learned academically during our time at the University of Cincinnati, while also asking us to learn new skills and technologies on our own to fill in the gaps. We hope to create a video game that will be emulate a historical event and allow the user to re-experience this historical event in the virtual setting. We believe that this idea is both attainable in the provided time frame, while also being sufficiently challenging and asking us to learn new things along the way. My hope is that this experience with this project will serve as both a guide towards my future professional endeavors, as well as invaluable experience that I can put on my resume and show to future employers. The value of seeing a project through with a group and working together as a team to accomplish creating this video game is something that I think that will serve me very well down the line.

There have been quite a few courses during my career at the University of Cincinnati that I think will serve as an important foundation for what I will be working on with this project. Going all the way back to Introduction to Computer Science (CS1100) where I learned all of the foundational programming skills and, perhaps just as importantly, learned the C++ programming language. Since we will likely be using the Unity game engine and writing our game in C#, it will help to have that foundational knowledge of C++. Taking a course in Data Structures (CS2028C) will also be invaluable in designing this game, as data structures and algorithms are a must no matter what it is you are designing. Taking Programming Languages (CS3003) introduced me to many of the various programming paradigms (object-oriented, functional, logical, and procedural) and I think it's possible that we'll end up incorporating a few of these different ones into our final deliverable. As an extension of this, Artificial Intelligence: Principles and Applications (CS4033) opened my eyes to the power of logical programming and how it can be used to drive artificial intelligence. This is something that is integral to game development and will undoubtedly be incorporated into our final product.

On the co-op side of my experience I have had the opportunity to perform both data analysis and work with developing user interfaces, both of which could come into play with our project. The handling of data is an important skill in just about any computer program and will likely be utilized at some point in the design of our game. My experience doing research for Cincinnati Children's Hospital Medical Center (CCHMC) was more on the scientific data analysis side, but I believe some of the skills will carry over. I also had the opportunity during one of my co-op semesters to take a Unity game design course, where I learned the fundamentals of the game engine and this experience I believe will serve me well in developing the game. Finally, my experience as an application developer at CCHMC opened me up to experiencing the full stack of an application, and with this experience I was able to see how both the front-end and back-end come together to create a powerful product. Seeing an application of this scale, and being able to see how the pieces come together to create it, will I think be valuable as our application grows in size. I also had plenty of opportunity to work on user interface while working at this co-op, which is an important component of any well designed video game.

My motivation for a project like this is to get crucial hands-on experience with a project that I hope will emulate future projects I will work on. Namely, my desire is to go into game design after graduation and I believe this is a crucial first step to accomplishing a goal. As has been said over and over again, the best way to get better at programming and to impress an employer is to do projects. In

that sense, making games that I can showcase at a later date fulfills both of these goals. I hope that I will learn many fundamental skills along the ways that I will later be able to apply in the work world. I hope that I get some valuable soft skills out of this as well, such as communication, reporting on the status of a project, and working as a team to accomplish a goal. All of these different outcomes give me a lot of excitement about tackling a project like this.

Our approach is still a work in progress and right now we are focused on firmly defining our roles in the team, and our initial steps towards accomplishing a greater goal. In the next few weeks, we hope to have a firm road map that will help guide us through a project of this size. Our expected results is a deliverable that is fully functional and sets out what it accomplishes to do. The good thing about a game is that you are likely able to add features on piecemeal, depending on how far you have come and what timeframe you are working with. I hope that along the ways I will gain both valuable technical and soft skills that will serve me well down the line. This project is perfect for me because it tackles the exact technical skills I would like to focus on (Unity game engine, C#). My self-evaluation will be dependent upon how much I think is accomplishable and how much effort I put in. As the saying goes, you get out what you put in. I want a product that I'm satisfied with at the end of this class, and one that I can show off in the future and be proud of. I want my current skills to be challenged and expanded upon, and I think that this project is the perfect vehicle to drive that growth. I believe that this assignment can teach me a lot about where I'm at right now and where I would like to be 6-8 months from now.