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Project Proposal; Runescape Minigame

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To conclude my education at SUNY Potsdam, I have a project planned that goes above and beyond what I have learned in the classroom to complete my capstone requirement in the Spring 2020 semester. There is a game called *Runescape* from the company Jagex LTD. This game has been a part of my life since I was about 8 and has impacted me in many ways from learning a bit about British culture, seems Jagex is based in the United Kingdom, to developing lifelong friendships. Due to its impact on my life, I have wanted to develop a part of the game myself for a long time. I am very intrigued by how everything really works under the hood because I know how so much of it works from the user side. It would be interesting to see how the game really works, and what better way than to add my own content to the existing base while earning 3 credits toward my degree. My goal is to create my own minigame inside of *Runescape*. A project of this scale would use what I have learned in the classroom and require me to develop completely new skills. The game is done completely in Java, which is my strongest programming language. I’ve already learned a great deal about how clients and servers work together to make something work without allowing any local exploitation.

The game is an MMORPG and there are over 25 skills that you can level up in, ranging from your combat stats to fire making and fishing. Aside from skills, there are quests that you can complete for several different kinds of rewards. For a more fun aspect to the game, instead of the usual grind, there are minigames. An example of a minigame is Castle Wars. In this minigame it is strictly player versus player. There are two teams that each have their own castle with a flag at the top. There are many different approaches you can take to try to get to the enemy castle and take their flag to return to your base. There is both a strategic aspect to the minigame as well as just being the strongest. Another minigame is called Pest Control. In this minigame it is strictly player versus monster. 5 to 25 players can come together and go to this island with a Void Knight. The Void Knight is a stationary AI that you defend. There are four portals that spawn enemies, and the goal is to destroy all four portals before the monsters kill the Knight. For my project I am going to make my own minigame that is also player versus monster. It will be a survival type game where you enter an area with other players and kill waves of enemies that increase in difficulty. It is planned to have 7 to 10 waves of enemies where the last wave provides some challenge for even the strongest of players. The higher the wave, the more points that will be awarded for kills. These points will be used in a shop that I create myself. Players will be able to purchase many tiers of gear, so if you are lower level, you can get useful gear, and if you are a higher level, it isn’t a waste of time. There might need to be two shops because the inventory can only be so big. The area in which the game is played is also going to be made by me using an open area of the world that I can fence in and design however I like using existing assets. I currently plan on having it in the desert seems it is a vast open area that I can manipulate.

This project would take what I’ve learned in the classroom and go beyond by being a project of immense scale compared to my class assignments. *Runescape* is made from well over ten times as many classes as any project I have every worked on. Not only that, but the client code is decompiled, which means that all of the class names and variable names are completely useless and there are no comments, which means I will have to go through line by line to figure out how everything works. The server code is a little easier because it was written from scratch by some people, but there are still no comments, but variable names tend to make sense and class names are helpful. This project makes me work with other people’s code that I have never seen before, and I cannot ask the person that wrote it. Many occupations would have me jumping into already existing code bases as well, so this makes a nice practice. After the project is complete, there will be a folder containing the server material and a folder containing the client material. Both folders have a batch file to run what is necessary. Seems I am not making my own new software, there is not much new that will be produced other than some classes, and modification to existing classes.

With *Runescape* always having been an important part of my life, it would be a great experience to finish off my degree by completing my capstone with something I am passionate about. Working on the game uses many things I have learned in the classroom, but on a larger scale. It also requires new skills that you cannot really learn in a classroom but are required to be successful in this field. With the game being in Java, I will greatly build on my already strongest programming language. Having almost thirty hours into looking at the code, I have already learned a variety of new things and am eager to continue this development.

