CS1566 Final Project Report

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Project Title: OpenRPGL

Team Members: Nicholas Habib, Matthew H Kerbis, Jacob M Schreiner, Kyle L Tanczos

Introduction:

Our group project is a basic implementation of an Role Playing Video Game. Using a keyboard and mouse to interact with the openGL program, the user will control a character in a 3D world viewed from the top-down. The user-controlled character has abilities/skills that it is able to use which will interact with the in game world. Our group will be developing a game engine to handle user input, movement, and abilities used by characters, We will have computer controlled characters that will move around the world and use abilities targeted towards the player; however, even though the computer movement is random at times, its characters will have very static AI. Our group will also be developing a user interface which will allow user to see at a quick glance the status of their character and the in game world.

Our motivation behind this project was a shared interest in video games. Computer Graphics plays an integral role in game design, so our group decided it would be interesting to apply topics we learned in Intro to Computer Graphics to making a video game. Role playing games are a popular genre due to immersive, fantasy elements. With unique customizations, long quests, and well-crafted narratives, people have been known to sink hundreds of hours into these types of games. While the application we created is less than a full-fledged RPG, we attempted to incorporate as many elements as possible to show that it influenced our design.

Approach:

Upon first project proposal, our group had envisioned the implementation of alot of features for this project. Because everyone in the group has played an RPG before, we all had extracted ideas from our experiences of what our project should be. After the initial proposal, we discussed with Professor Hwa exactly what our group was trying to tackle with this project. This is when the group realized that the project needed to not consist of overly complicated features such as leveling/character improvement systems or item/inventory, but contain essential elements of game design that deal with human interaction.

Our design approach/work distribution was very free formed. Each person said an aspect or feature they wanted to work on and then did that task. Generally, each individual stayed within their own specialization for the project: Jacob handled creating the project structure, game engine, essential mechanics, and frameworks for other members so they could easily integrate their work into the game engine. Kyle handled adding a computer character to the game, creating movement/basic AI for the computer character, and interacting with the player. Nick worked on creating the User Interface for the game. John created scenery objects and enhanced the map.

This first task for this project was to create a base engine/framework so the team could work on essential features and make additions throughout the project timeline. Data structures were created to organize our pattern for implementation. Using game objects, we were able to establish an loop to update the system’s data model and re-render the scene. The key to the update loop is its efficiency, as it will not spend unnecessary processing if the objects aren’t nearby the player. The framework also handles the rate of updating the model and maintains a desired frame per second rate.