Michigan Technological University

College of Computing

Computer Science Department

CS3141 Team Software Project

Spring 2022

Team Software Project proposal

Section: R02

Team #: 10

Roll#	Student name	Position
5	Jack Colwell	Scrum master
15	Aaron Jacobsen	Developer
6	Isaac Cooper	Developer
8	Dustin Dimitry	Developer
7	Jordan Craven	Developer

Project name/title: Realistic Cave Generation Simulation

Instructor name: Serein AL-Ratrout

- Project introduction and description:

We plan on making a program that allows the user to create a procedurally generated cave system by inputting a desired length, depth, location, and other possible features and seeing the result. When the cave system is finished generating, the user will be able to view it in two cross-sections, one vertically and another horizontally. We thought of this idea after figuring that a simulation based on caves/mining would be especially fitting for where we live in the Upper Peninsula, where mining is prevalent throughout the area's history.

- Problem statement

Many people have an interest in geological features such as caves. However many of these features are in remote areas and are hard to access. Due to this, people have limited access to education on these topics and are not able to accurately visualize these features.

- Proposed solution:

We plan to create a program that will simulate cave generation based on given parameters. This simulation will act as a means for education. The program will be created with a 2D view that will show the user different layers of the generated cave. This user will then be able to explore a cave that replicates what would be found in the upper peninsula. Allowing the user to explore this accurate representation of a cave will provide both a form of entertainment, and education when learning about the upper peninsula.

- Tools:

1. Our software should be able to be run on an average laptop.
2. We plan on writing the program either in C++ utilizing OpenGL or with Unity.
3. We'll be using Jira to organize our requirements and goals and Discord for our communications (text, video, and audio)
4. We will host the code on Github.

- Constraints and challenges:

1. We have no experts in caves/mining so we would have to do plenty of research to make it accurate.
2. We have 2 non-CS majors on the team so development will go slower at the beginning.
3. "Managers" from the other class currently are not sure what their roles are yet, and that could affect our current plans.
4. One person must work remotely until Oct 1 so we will have to communicate across multiple platforms.
5. We have limited modeling experience within the group so development will also be slower due to that.

6. Time management may be difficult due to other classes, learning curves, illnesses, or other life commitments.

➢ The expertise of the Team Members

- Jack Colwell - Moderate experience with Java and Github
- Aaron Jacobsen - Moderate experience with C++ and GitHub. Experience with both Java and Python, problem solving skills. I have spent time working with a team on software projects. I look forward to working with this team to create a project that is interesting to me. I hope to learn a lot about both coding and working with a team.
- Isaac Cooper - Moderate experience with Java, currently learning C and SQL
- Dustin Dimitry - Moderate experience with C, Java, Python, and SQL
- Jordan Craven - My skills are: communication/organization, problem solving, website design, interviews, ideation, public speaking, task management, moderate experience with Python, Java, C, SQL SMS, and Github. I am interested in this project because I want to learn more about modeling and coding as I am not a CS Major.

➢ References