COSC345
Assignment 1
Report

Jasmine Hindson 8148181
Ben Highsted 5536340
Matthew Neil 7388248

We are going to build a new game based on the idea of a person falling down a hole. The objective of the game is to dodge all of the obstacles as you fall down the hole. As you progress further down the hole, the difficulty of the game will increase. The difficulty of the game is dependent on how narrow the the hole is, how many obstacles you come across, and the speed at which you are falling. The theme which we will be using for the game is the concept of falling underground. For example, when the player first starts falling they will see dirt as the wall and as they progress down the hole, the walls will change into rocks, stones, etc.

The group is made up of 3 members - Ben Highsted, Jasmine Hindson and Matthew Neil. Ben is in his third year of computer science, and has a background in Java, C, JavaScript, Python and HTML/PHP. Ben is a confident C programmer, and will most likely handle a lot of the graphical aspects of the game. One of Ben's weaknesses is debugging, and he can sometimes struggle to find what is causing errors in his code. He also finds that he often will speed ahead and start writing code with little planning, which can often cause problems down the line.

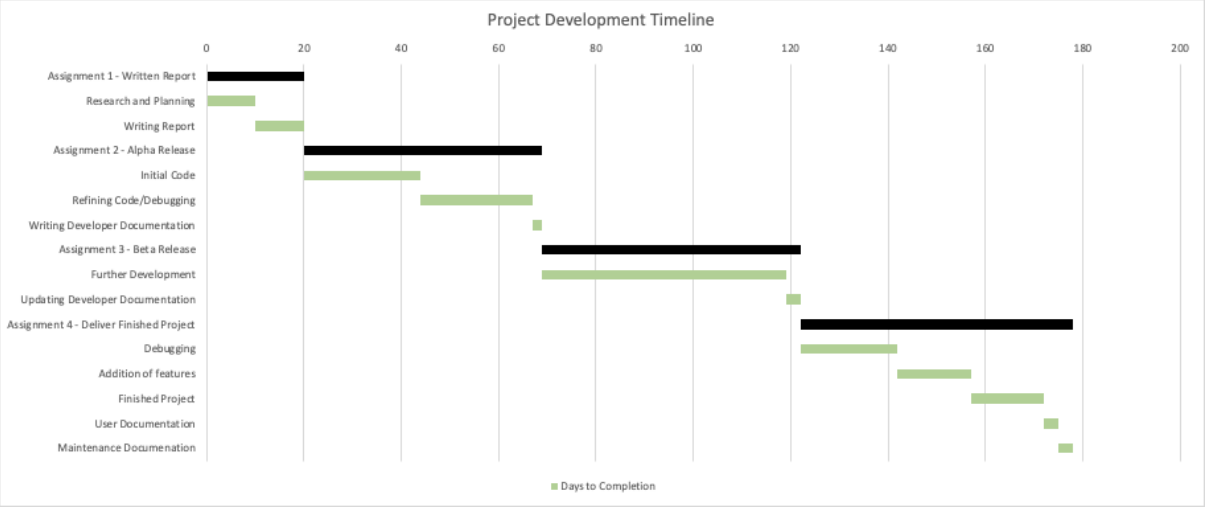
Matthew has a strength in programming with experience in Python, Java and C and building web applications with HTML, JavaScript, and PHP. A weakness of his is that he usually won't document/comment the code that has been written until later on when the code isn't fresh in his mind. He can also struggle to explain his code and problems, which will lead to issues since this is a group project and explaining his code will be required. Matthew will be one of the primary gameplay programmers while also assisting with the graphical programming when needed.

Jasmine has experience with making Android apps and using Android Studio. She has knowledge in C, Java, Python, JavaScript, PHP and HTML. Jasmine's strengths are communication, organisation and commitment. Her weakness is writing code in a simple way. She tends finds the hardest/longest way to write a method that usually can be shortened. Jasmine will need to work on this weakness since the assignment only allows 1000 lines of code and there is no room for long, complicated methods. Jasmine will be helping mostly with programming the game and will help with anything else when needed.

The program we will be using to create our game is Xcode. We chose Xcode because it is a good program for coding in C and has useful features that we think will help us throughout the implementation of this program. We are going to build this project with C, using the base code and some graphics packages for the game interface. We will be using GitHub as the source of truth for our code. Using GitHub allows us to all work on one version of the project which makes it easier to see what other group members are doing. We are also considering the use of a graphics library like SDL, SFML, etc. to help with the GUI, but we are uncertain whether we will definitely be using it at this point in time. We will use K&R as our standard layout.

We are aware of the timeframe we have to build this game which is around 25+ weeks, including both first and second semester. The starting weeks of development will be used for planning, research and investigating the feasibility of implementing the game. We want to do

further research into packages and third-party libraries for GUI. We have deadlines throughout the two semesters which indicate when certain things are due, so we will use this as a guideline into how much time we need to spend on the different phases. In the Gantt Chart below, you can see that the black lines indicate when each assignment is due. For the semester 2 deadlines, we have assumed that the projects will be due on a Friday of week 4 and 12, meaning we have given ourselves as many days as possible to work on the project. We have also taken into account the mid-semester break when most students take two weeks off in June-July. The chart is calculated by days, so the green lines indicate how many days we have for each task but we may or may not use up all of these days. None of us have had much experience with creating games, so we are unsure about how much time this game will take us to fully build. We have left aside 6 hours a week outside of class to work on this project, but this may vary throughout the project depending on the challenges we come across.



Similar to our project, there are games out there which follow the same format of avoiding obstacles and avoiding walls, but generally you are jumping up (e.g. doodle jump) and avoiding falling. The further you make it up, the higher your score. Games that are already online will differ from our project because we want the player to fall as far as possible, and the further you fall, the higher the score. There is also another game called ‘Helicopter Game’, where the objective is to control a helicopter through a tunnel of somesort. This is similar to our idea because in the game, the walls are see as an obstacle and there are also random obstacles in the path of the helicopter. Our idea differs from a game like the ‘Helicopter Game’ because we want the walls to narrow in as you progress through the game making the game harder. Also our game is played vertically whereas the ‘Helicopter Game’ is played horizontally. There are also game ideas on the internet where someone is falling, but the games aren’t developed to the point of having an objective. There is a game on steam called ‘Downwell’ which has a retro style with gameplay which includes a person falling down and dodging obstacles. This game is quite similar to the game we are planning to make, however it contains a lot of different mechanics that we do not currently plan to implement into our game. The biggest difference is that the character has a gun to shoot enemies and obstacles out of his way, and can land on certain objects as he falls. He also cannot die from touching the walls. Downwell also is level based while our game is going to be an ‘endless runner’.