PROJECT: HTML5 GAME

Feature	Points
Well written report	2
Application work on Firefox, Safari, Edge and Chrome	2
There is a clear plot in the game. It has a start and end.	4
There are different objects to collect	2
Gamer needs to use both keyboard and mouse to meaningfully control the player character	4
There are enemies that can hurt the player	3
User can get their name in the scoreboard	3
There is music and sound effects	3
Application is responsive	3

Own feature	Points
Animation for powerups and powerups randomly generating around the map	2
Randomly generating new enemies and having a simple AI for them.	2

Total points: 30

The project was to create HTML5 game using the Phaser framework. My plan was to create a tank shooting game, which evolved as end product to tank survival game. The goal of the game is to survive for as long as you can, and while doing that gather points from killing enemies. Enemies spawn around the map randomly (from a set of points around the map so the enemies do not spawn inside the walls). Enemies will start following the player character if they are within a set distance of the player, but they will shoot the player at any distance around the map. There are 3 powerups which spawn around the map: 1. Shoot through walls 2. Be invincible for a short period 3. Speed boost, and there is also hearts spawning around the map which gives you 1 life back.

You can use the left and right arrow keys to turn the tank, and up and down arrow keys to go forwards/backwards. To control the turret you use the mouse to turn it, and left click to shoot bullets.

Tools used:

JavaScript for coding the project and Phaser framework for the Arcade physics engine and all of the codes regarding the game itself. The coding was done using Visual Studio Code, and I used Live Server to run the game locally (because if you tried to just run the index.html file you got CORS errors while loading the assets). CSS was used for styling the UI of the website (buttons, headers, text input etc.).

All of the game assets (images and sounds) were downloaded from https://opengameart.org/ website. Links to the specific asset URLs can be found from the bottom of this document.

Reflection on the project as whole:

A decent amount of time went at the start of the project to get the Phaser framework working, and to get the first sprites loaded (I could not get the framework working well on CodeSandbox so I switched to Visual Studio Code). For some reason I did not know that the last weeks exercise would be about the Phaser, but thankfully the Phaser documentation is very thorough so getting further after the start was easy. Creating a group of enemies and having each of the enemies have their own group of bullets, and then creating the enemies on random spots was a tough but fun problem to solve. After realizing that you can easily create new variables for specific objects (for example defining player.health = 3 would create variable health for the player) handling the enemies their turrets got a lot easier

Overall I noticed keeping the project in control when there was constantly new things to add (and to keep the old objects compatible with the new objects) was not such a easy task. Having a more clear plan for the project, and setting up clear tasks to do for the project would help with this and is a thing to keep in mind with any further projects.

There are still some things I would've liked to change on the project (make the UI and the game itself look better, more maps and enemies), but a lot of the other courses took also time in addition to this course so I ran out of time. The code also could be structured a lot better, and it could have more comments (hopefully it did not have too many gumball solutions for the enemies). Also while the scaling works with the game on the current iteration, the sprites gets stretched down with lower window size, which while intentional could be changed in the future to look better.

Justification for the points:

I would like to get since points for my own features (animation for the powerups and both the enemies and powerups randomly generating around the map) since they were completely additional features and took quite bit of time to create. I believe also that they were essential part of getting the game to work and be fun (survival game with continously spawning objects). The basic AI of the enemies was a fun problem to solve (got help from Phaser documentation) but could still be improved (moving around walls instead of running straight to them). The points from the projects own features were pretty straightforward, and I believe that my project should fill the requirements for them. I deduced a point from the "Application is responsive and can be used on

both desktop and mobile environment" since while the application is possible to open in mobile environment (tested on the Chromes developers tools) you are not able to use the application wholly since the turret requires to have mouse to control and shoot with it.

Final thoughts:

Overall I enjoyed working with this project very much. It was interesting getting familiar with very basic game development (and the Phaser framework), and I believe it will help a lot with any possible future projects regarding games (or physics).

Asset links:

Tank sprite: https://opengameart.org/content/tank-sprite

Wood crates: https://opengameart.org/content/crate-tile

Hearths: https://opengameart.org/content/heart-health-bar

Ground textures: https://opengameart.org/content/simple-seamless-tiles-of-dirt-and-sand

Power up: https://opengameart.org/content/powerup-animated-orb

Gun sound: https://opengameart.org/content/collection-gun-sounds

Explosion sound: https://opengameart.org/content/explosion-0

Impact sound: https://opengameart.org/content/short-impact

Tree trunk: https://opengameart.org/content/trunks-for-platform-game

Background music: https://opengameart.org/content/nes-shooter-music-5-tracks-3-jingles