Process Log

Testing was done from multiple computers to test whether the repo was correctly set up

Beginning the project

Downloaded and installed Unity 2019.2.6

Imported Assets previously used for a project into Unity.

- Created a palette and tiles from a tileset included with these assets
- Imported images for the background from the same asset pack

Set up Character and placed it into the world

Created a simple tilemap to use as temporary ground

Collision

- Used Tilemap Collider 2D for the ground collision
- Used a Box Collider for the player's upper body and a Circle collider for the lower body
- Character was getting stuck on the edge of walls so created a Physics Material 2D to prevent the character from sticking to walls
- Character still gets stuck at bottom coming from a specific angle

Added the RigidBody2D to the character so it is affected by physics.

Added a coin without any interactions

Creating the basics

Referenced an existing character controller to handle character movement physics

- Allowed the player to move left and right
- Made it possible for the player to jump

Added a Circle Collider to the coin

- Set collider as a trigger

Added animations to the game

- Added Idle, Jump, Running animations to character
- Edited the controller to detect the time after player jumps to fix animation bug
- Created transitions between character animations
- Added a spinning animation to the coin

Added interaction between the player and coin

- Set the player script to destroy the coin on contact

Basic UI and scoring

Added text and ScoreManager object

- Created Text Mesh Pro for score display

Implemented score increase

- Score increased when coin collides with player
- Was adding 2 points so added a Boolean check to limit it to 1

Fixing character movement

Realized that the character should only be moving to the right without the player's input

- Modified the character controller to allow only the required movement
- Removed methods to control horizontal movements

Level Generation

Created method to scroll background

- Extended length of the temporary tilemap to test
- Loops clones of background when off the edge of the camera view

Created small tilemaps to be used for generation

- Issue: sections of a tilemap could not be selected for generation
- Solution: grids can be saved as prefabs, allowed prefabs to be generated
- Level parts will be created with 20 units in length, coded with this in mind

Created LevelManager to spawn level parts

- Initially found the position manually to test spawns
- Tested single spawn using variable value
- Tested multiple spawns using variable values
- Created method to spawn land based on distance from player

Android build compatibility

Installed the Android SDK integration with Unity

- Set up developer options on Android Phone

Changed player movement to allow touch control

- Allowed jumping with any numbers of fingers touching the screen

Tested building to Android Phone [Success]

Making Improvements

Began Implementing death case

- Used a variable y value to determine if player has fallen down a pit
- Restarts scene upon death

Implemented destruction of level parts

- Used a list to track existing level parts
- Destroy part every time a new part spawns
- Created a separate condition for the starting platform

Implemented background music and sounds

- Original song created by someone else for a previous project
- Imported Asset Store 8-Bit sound pack
- Attached new GameObjects to main camera to link sounds

Menu and UI

Implemented a start menu when the game is started

- Implemented functional "Play" button
- Button changes scene and starts the game

- Background music [Original track] to be added later

[Testing]

- Canvas appears small on mobile device – fixed by changing the scale type of the canvas to “fit to screen”
- Jump audio plays in air – fixed by moving the audio to the CharacterController after the grounded check
- Can jump off coins – fixed by changing the layer to coin and unchecking the coin layer in “whatIsGround”

Implemented game over menu

- Displays score
- Has a button to restart

[Testing]

- Game breaking bug stops all movement upon restarting – fixed by resetting the time scale upon starting the scene
- Death sound starts playing constantly upon death, never finishing the audio – fixed by moving the audio to the GameManager during GameOver
- Player can get stuck on corners of ground – fixed by putting a movement check in CharacterController that checks the velocity of the rigidbody

Finalizing

More level parts were made

Spikes were added that cause a game over

Main menu music was added

- Original song created by someone else for a previous project

Second Iteration

Updated the camera, to follow the player only on the x-axis

- may revise to make it move vertically to a limit

Implemented holding the button for a higher jump

- Numbers need tweaking but works alright for now

Attempted implementation of object pooling

- Attempted to switch spawning from using Transforms to using GameObjects
- Using setting active and inactive GameObjects did not work, Unity would not set the level prefab as active
- GameObjects using SetActive was changing the original prefab’s settings rather than instances
- Attempted the same method but using Transforms, was unsuccessful

Used a different method which involved Dictionaries and Queues

- Created a class called Pool which uses strings as a tag
- Each level part has a separate Pool
- Randomization is calculated and used in the tag

Object pooling re-using level parts caused coins collected to still be gone when previously collected

- Changed coin collection from Destroy to SetActive(false)
- Used a loop to set all children of the spawning level part