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CSI-180-01
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Timeline

Project Selection : 02/09

Planned Timeline	Actual Working Timeline
Week 1 : 02/10 - 02/16 - Create a base unity or visual studio project - Researching 2D Scrolling - Start creating a 2D scrolling background	Week 1 - Base project created - First player sprite put in - Researched SkiFree Code - Researched 2D Scrolling - Spent the week familiarizing myself with Unity, as I had to use Unity for another class to create a game.
Week 2 : 02/17 - 02/23 - Finish and test 2D scrolling background - Researching 2D player movement - Start creating 2D player movement	Week 2 - Did mostly research during this week - Familiarizing myself with player movement, scoring, collisions, enemy ai, etc. - Needed to work on the Unity project for my other class as we were behind, but in turn I am all caught up with Unity knowledge, and have the ability to create the game now
Week 3 : 02/24 - 03/01 - Flesh out and finish 2D player movement - Researching UI elements - Attempt to create a UI overlay	Week 3 - Putting in background sprite - Creating the scrolling mechanic - Allowing camera to follow player constantly, while also having an ‘out of bounds’ for the player
Week 4 : 03/02 - 03/08 - Finish creating the UI	Week 4 - Completed finished my Unity

- Researching enemy spawning - Learn and attempt to create random enemy/obstacle spawning	project for my other class, and learned how to implement player movement, enemy AI, player UI, scoring system, and endless scrolling. - Now that I have all the knowledge and information in my head, I will attempt to transfer it into a playable game
Week 5 : 03/09 - 03/15 - Tweak and finish obstacle spawning - Tweak and finish Enemy AI	- This was spring break, I sort of took it easy and did less work than I thought - That being said, I did make 8 sprites for objects players can run into using a pixel art website - Also fixed up blurry sprites in Unity
Week 6 : 03/16 - 03/22 - Test out point system, movement system, and health bar	- Had to redo a lot of the scrolling and player movement system - The player movement, scrolling background, enemy movement, and obstacle movement are all calculated on one variable and I spent a little while accessing the same variable amongst all objects.
Week 7 : 03/23 - 03/29 - Final Test of enemy ai, enemy movement, obstacle spawning - Use this week to finish off all code regarding enemy instances	- Implemented player health system, and what happens upon collision with stones and trees in the game - Need to create skier spawner with AI
Week 8 : 03/30 - 04/05 - Final Test of player movement, ui changing, player input - Use this week to finish off all code regarding player instances	- Lots of bug testing - Fixing a lot of systems I already have - Testing the game out multiple times and changing the gameplay
Week 9 : 04/06 - 04/12	- TONS of UI sprite creation - Game Logo + Pause Menu

- Final Test of the landscape, art models, player/enemy sprites - Use this week to finish off everything visual	- Tons of UI implementation - Making sure the Game Manager works - I want more coding 'managers' than public pointers
Week 10 : 04/13 - 04/19 - Fixing up any final bugs / errors - Making game feel enjoyable to play	- Creating and testing the Skier AI system - Fixing any bugs - Adding a time variable so players want to keep going
Week 11 : 04/20 - 04/26 - Getting feedback in class / from friends / play-testers	- Finalizing the game, testing it a ton - Finding any present bugs and fixing them - This is the polish week

Project Due.

Resources/Notes

Parts Required

- Player/Character
    - User Inputs
        - Escape Key
            - Opens up pause menu
        - Down Arrow Key
            - Increase player's overall speed slightly
            - Maximum cap of 25 - 30 mph
        - Up Arrow Key
            - Slow down player's overall speed slightly
            - Minimum cap of 1 or 2 mph
        - Left Arrow Key
            - Move player slightly to the left
        - Right Arrow Key
            - Move player slightly to the right
        - Space → *IF TIME PERMITS*
            - Jump over small obstacles
- Enemies/Obstacles
    - Enemy Artificial Movement
        - Start with having skiers randomly spawn, going a constant rate, in one direction → down the mountain

        - After solidifying that, add in random movement inputs to enemy AI
        - Don't forget: enemy action on obstacle hit, enemy action on player hit
    - Randomly spawning stationary obstacles
        - Randomly put them onto the background as user traverses through the area
        - Test how many is too much/too little.
        - Tree Sprite
        - Rock Sprite
- User Interface
    - Pause menu is brought up when players press the escape button, and they are given a few options
        - QUIT GAME: quit the game, end the game loop, and close the application
        - RESTART GAME: restart the game, restart the game loop, and place players back at the beginning
        - RESUME: resumes the game where it was left off, continues game loop, and places players where they were before opening the menu
    - Constantly updating UI in the top left of the screen
        - Health Bar
            - Basic health bar in the top left → green is current health red is health lost
            - No items to regain health
            - Players have 3 hits before they ‘die’ and the game is ended (Will see if I need to up this more after game is created)
        - MPH (Player Speed)
            - Constantly changing float that displays the users current speed
            - Speed will be changing when player uses controls, and the UI will affect this
            - In turn, MPH(Speed) is directly related to player scoring and point system
        - Point System
            - Points are based on a calculation of how long players have been playing, how many times they have been hit, and their current speed
            - Points are updated every frame and will be in the top left with the rest of the UI
- Visual Aspect
    - Player Sprite → Pixel art
    - Enemy Skier Sprites
    - Obstacle Sprites
- Scrolling
    - Move the mountain behind the player instead of the actual player.
    - Continuous looping mountain sprite

Software/Websites

Software:

- Unity
- Visual Studios
- Unreal Engine ? (Probably not)

Videos/Tutorials:

- Player 2D Movement
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- Endless Runner
- Random Obstacle Spawning
- UI + Scoring
- Game Loop Information

Websites/Forums:

- SkiFree Source Code (Fortran)
- Official SkiFree Website
- Unity SPRITE Manual
- Unity Learn 2D Scrolling Movement