Game Proposal: Titan’s Trial

CPSC 427 - Video Game Programming

Team Members:

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Story:

In this 2D arcade survival shoot ‘em up game immersed in Greek mythology, you step into the role of a defiant mortal. You have cheated Thanatos (Death) once already for whi ch you have been relegated to Tartarus by Hades. As you face waves of relentless mythological adversaries such as minotaurs, harpies and echidna with the use of divine weapons like Cronos’ scythe, Zeus’ lightning bolts and other boons of the heroes and Olympians periodically manifest to aid your defiance. You continue your fight out of Tartarus only to be met with more resistance. Is there an end to your fight, are the countless enemies ever going to relent, will there be a final boss at the entrance to Hades? Find out if there is an end, in this instant classic.

Technical Elements:

- **Rendering**
    - Geometry used for the platforms
    - Sprites for characters (player & enemy)
- **Asset control and interaction (Gameplay)**
    - Playable character
        - Able to control character with WASD
        - Able to aim with arrow keys

        - Able to fire/use with space
    - Enemy
        - Moves until collision with wall and reverse
        - Falls down empty space
    - Collision
        - Walls and platforms are impenetrable by player and most enemies
        - Collision with weapon kills enemies
        - Collision with player and enemies kills player
- **Game logic**
    - Enemies that follow shortest path to user based on user input
    - Enemies that remain still once the player is in line of sight
    - Weapons spawn over intervals of time or score being reached
- **Animation**
    - Animation for weapon firing
    - Animation for enemy deaths
    - Animation for enemies and player actions
- **Assets**
    - Sound bites for interaction with the world
    - Multiple character sprites
    - Stage sprites

Advanced Technical Elements:

More advanced features listed in order of importance/priority most to least:

Progression:

- Score of time, kill count, and score kept in memory and presented to user
    - *Impact: Less sense of achievement*
    - *Alternative: Score kept for each run separately*
- Bonus Concept: Score is also based on proactiveness, new combos and attacks. Rewards new and risker gameplay for better scoring
    - *Impact: player tries to play safe with the same weapon and play defensively, leading to a more boring experience*
    - *Alternative: just a normal kill count + time count explained above*

Enemies:

- A mini boss will spawn and the normal enemy spawns are stopped until boss is defeated
    - *Impact: smaller feeling of accomplishment*
    - *Alternative: Animations/encouragement at reaching score thresholds*

Weapons:

- Weapons of different types can be picked up and used to kill enemies
        - Long range projectile
        - Short range
        - AOE
    - *Impact: Less adaptability to different game styles*
    - *Alternative: Weapon changing over time*

- Bonus Concept: Multiple weapons/projective interact with each other
    - *Impact: Small impact of less interesting weapons, less encouragement for exploring different weapons*
    - *Alternative: No implementation of feature*

Levels:

- Multiple screens / environments
    - *Impact: Game less interesting/captivating over time*
    - *Alternative: Changing background of level over time*

Devices:

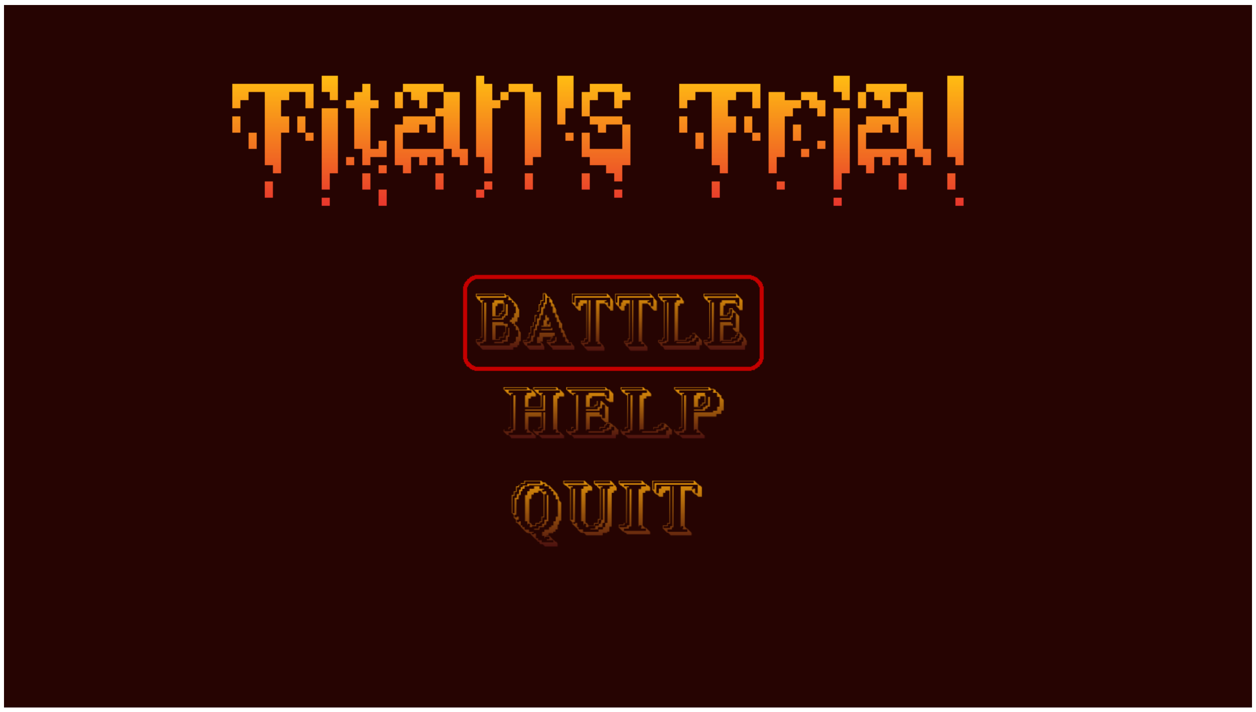
Will support keyboard input

- WASD for movement
- Arrow keys for aiming
- Action buttons such as ‘space’ ‘c’ ‘v’ for firing or interacting with weapons

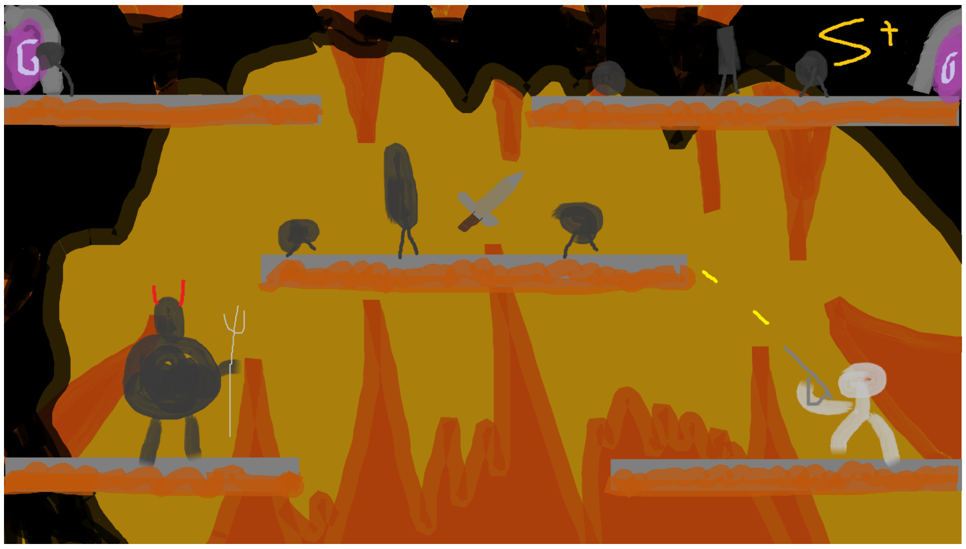
Concepts:

Produce basic, yet descriptive, sketches of the major game states (screens). These should be consistent with the game design elements, and help you assess the amount of work to be done.

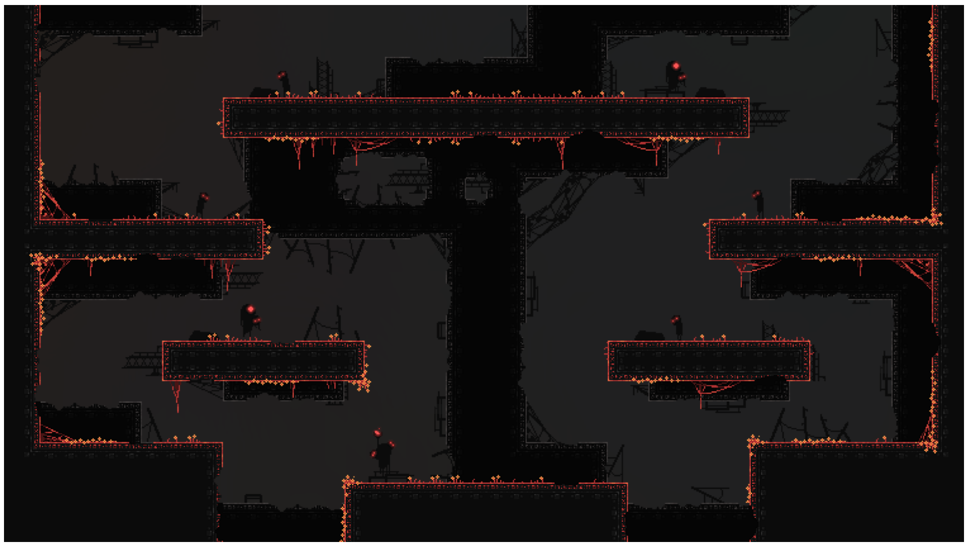
Main menu:



Level screen (paint):



Level screen (asset):



Tools:

Specify and motivate the libraries and tools that you plan on using except for C/C++ and OpenGL.

Tool	**Use**
JSON library https://github.com/nlohmann/json	Read config files/loader files for game data and constants
Tiled https://www.mapeditor.org/	For designing the stage

Team management:

Scrum with weekly sprints and meetings, a task board on GitHub. Assigning of major tasks happens in a team meeting prior to milestones.

Development Plan:

Stretch goals

Skeletal Game

Week 1

- Basic level design (floor, wall and platform locations)
- Player Character sprite
- Player Character movement (wasd)
- Basic Player Character collision (with walls and floor)
- Single weapon spawning and sprite (Random location)
- Single enemy spawning and sprite (Random location)

Week 2

- Character sprite transformations
- Character-Platform collision
- Single weapon collision handling
- Basic enemy behaviour (simple movement pattern)
- Enemy-Wall/Floor/Platform Collision

Week 3

- Single weapon aiming and firing (arrow keys + spacebar)
- Enemy sprite transformations
- Enemy-Player_Character collision handling
- Enemy-Player_Attack collision handling (ie. Enemy-Bullet)

Minimal Playability

Week 1

- Player movement animations
- Pause menu with controls displayed
- Additional enemies (Random choice when spawning)
  - Enemy projectiles/traps and collision with walls, floor, platforms and player
- Additional weapons (Random choice when spawning)
  - Different types of weapon (short range, long range, AOE, different damage)

Week 2

- Enemy artificial intelligence for pathing and attacks
- Enemy and weapon animations

Playability

Week 1

- Title screen
- *Physics based background animations*
- *Additional types of equipment outside of weapons (eg. improved movement options)*

Week 2

- Addition of a mini-boss (*complex geometry*, advanced AI)
- *Ability to use 2 weapons at once (and interactions between them)*
- *Scoring system*

Final Game

Week 1

- Comprehensive tutorial screens from title screen
- Player stats maintained and displayed during play
- *Particle system*
- *Starting weapon choice from menu (Progressively unlocking weapons with high scores)*

Week 2

- Audio for all game elements (Weapon acquisition and use, enemies, movement, etc.)
- *Multi-directional weapon aiming (Mouse and click instead of arrow keys and spacebar)*