Game Proposal: Attackalantus

CPSC 427 - Video Game Programming

Fall 2019/20

Version 2: 2019/10/04

Team Members (Team 11):

Wesley Ferguson	26689159
Juntao He	82275603
Zhong Zhuang	10336162
Yuting Wen	44625168
Peter Han	14912166
Tim Guo	35223149

Story:

Deep in the ocean, something horrible has emerged: the forces of Atlantis are waging war upon humanity. Once a lowly beach bum, you are forced to fight through hordes of sea monsters in order to defend your home. The game will have around 5 - 10 stages (levels). In order for the player to clear all stages, the player needs to defeat all minions and boss(es) to pick up the key to unlock the next stage.

Technical Elements:

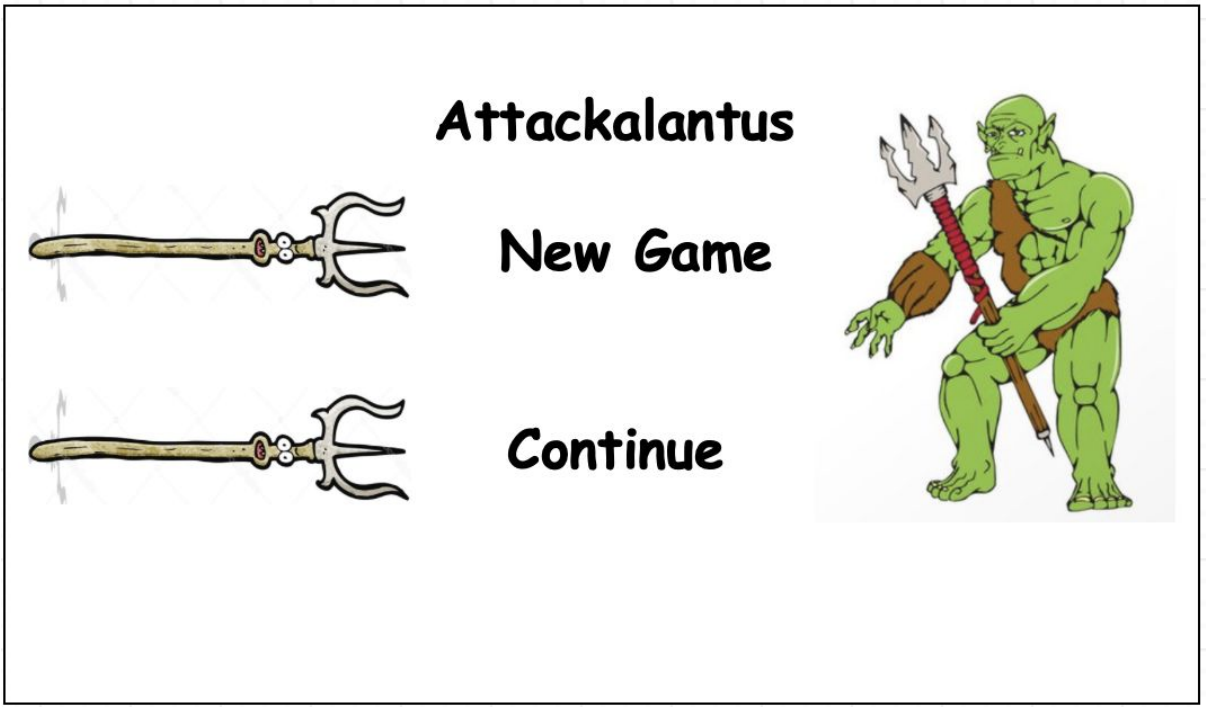
2D geometry manipulation (transformation, collisions, etc.)

We will have translations for each entity listed in the rendering section. There will be many collision checks, as we need to check for touching enemies, projectiles, and items. Additionally, we would like to implement various space transformations as items. For example, an item that, when thrown, creates a vortex that distorts space centered at a point and pulls enemies towards it.

Gameplay logic/AI & Concept Art

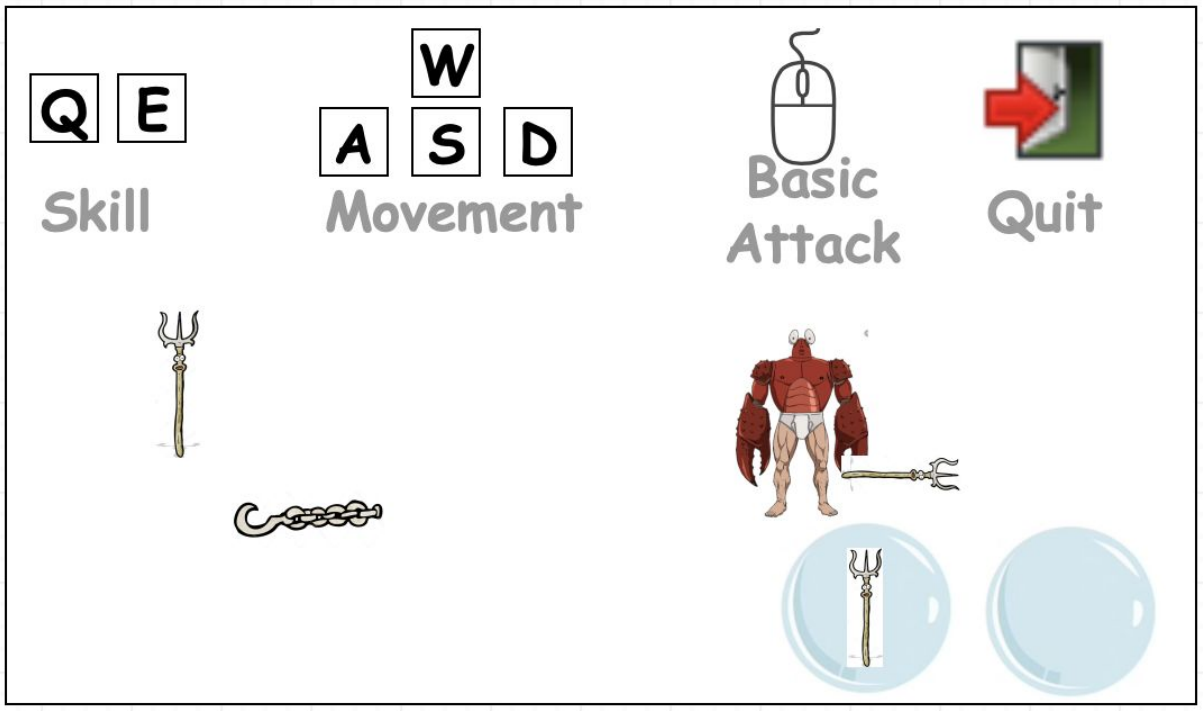
The core gameplay will be surviving as enemies periodically spawn from specified locations and attempt to attack the player. There will be various items/power-ups spawning in random locations, forcing the player to make strategic decisions regarding whether they should risk trying to go pick up the item, and when they should use the item once it's picked up. The enemies will have a basic AI, following the player and trying to kill them. Different types of enemies may have different AIs; some will shoot projectiles while others may have erratic movement.

Concept art for start screen:



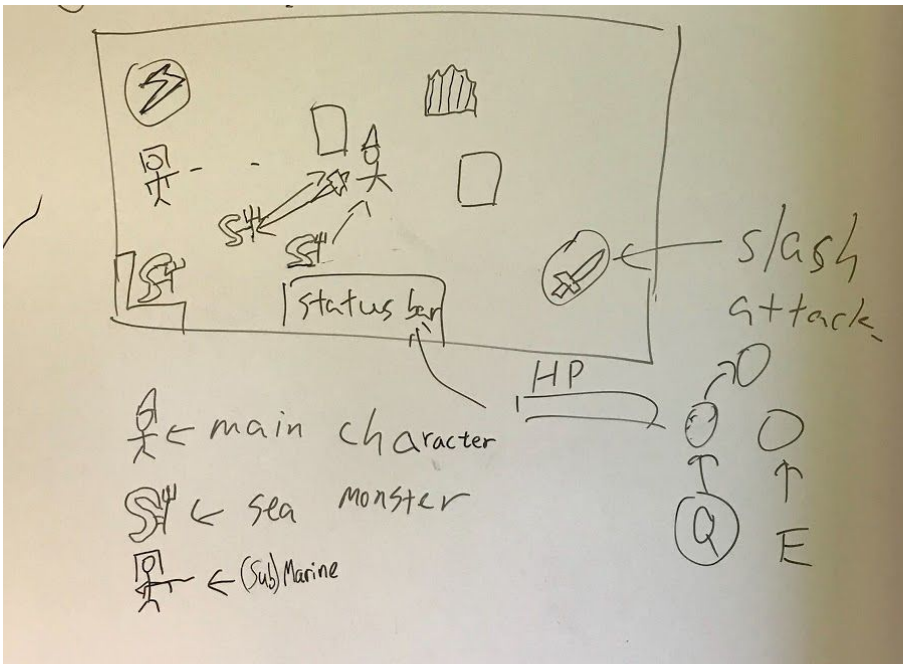
When the player pauses the game, to reload the game, or starts fresh, they will be greeted with the Start Screen that allows them to start a game with the tutorial as an option to review the controls and abilities.

Concept art for UX tutorial screen



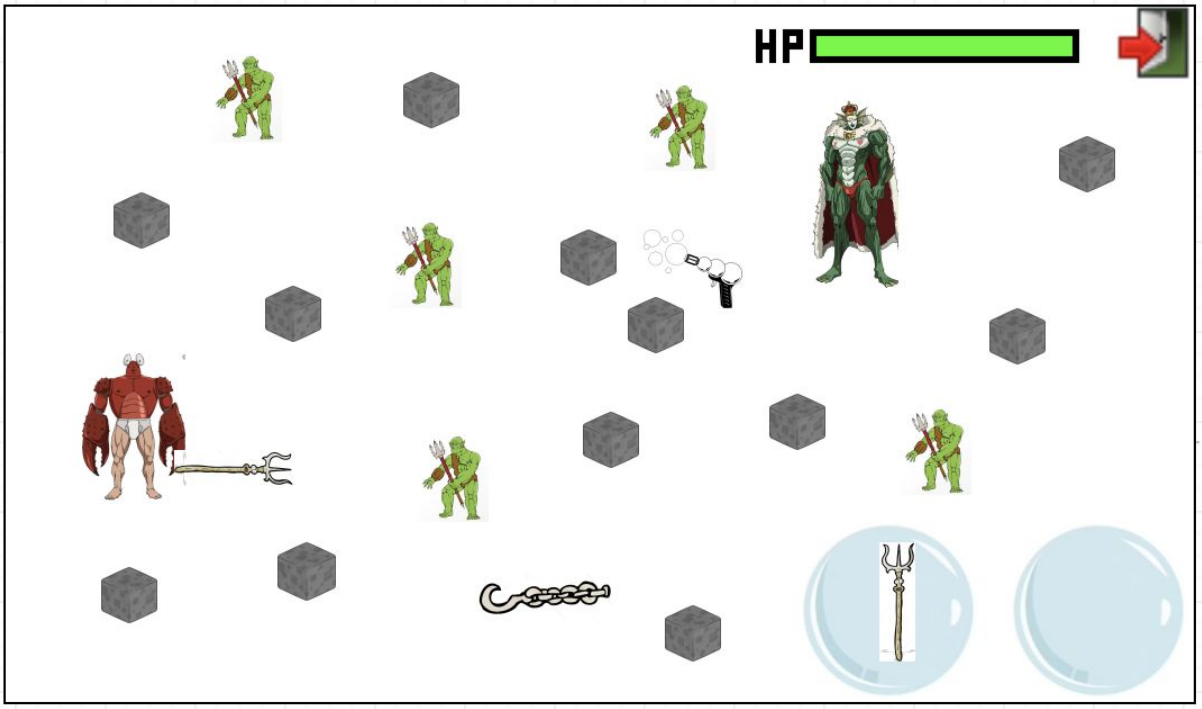
The tutorial screen will go over character movement within a defined space with minimal terrain, a target dummy will be provided to try out the different abilities. More user experience, prompts and text description will be provided as we start to implement the abilities. The abilities that are picked up appear in the bubble on the lower right corner for the player to use. We could also scale the button and controls upon click to give the player feedback that they are pressing the right controls.

Concept art for the game screen in the middle of a level:



After surviving a certain period of time, the player will need to defeat a boss in order to complete the stage. The boss will be unique through their sprite, abilities, and AI. We would like to customize the bosses' AI based on its theme; for example, one boss could surround the player with water and try to drown them.

Concept art for an end-of-stage boss fight:



The boss will have a complex AI and pathing and is able to use the abilities that are generated as well. They will gravitate to the nearest abilities or prefer water based abilities.

Basic short ranged enemies will use basic straight line pathing and navigate around terrain to chase the player, more advanced enemies will keep their distance and use long ranged attacks. More advanced enemy AI will be added when the player advances past the end-of-stage boss fights.

Physics

We will have basic projectile physics. We are also likely to rely on physics for certain abilities, for example, a weapon that moves in curves or an ability pushing/pulling enemies in certain directions.

Advanced Technical Elements:

1. 2D abilities that have special visual effects and warp the terrain of the game.
    a. Impact if skipped: Medium; although this would just be as additional abilities, unique and fun visuals could be a large value addition for the game
    a. Alternative: cut out one of the parts (visual effects or terrain transformations)
2. Pause screen and save and load.
    a. Impact if skipped: Medium; no impact to gameplay, but would improve the game as an actual product by allowing players to play through multiple levels over different sessions.
3. Random generation of terrains between stages.
    a. Impact if skipped: Low; this would just improve the replayability of the game.
    b. Alternative: hardcode more stages with pseudo-random terrain.
4. Shadows and lighting.
    a. Impact if skipped: Low; this would just be for additional visual immersion.
    b. Alternative: embrace a less realistic look, causing shadows to not be in the theme of the game anyway

Devices:

We will only support keyboard and mouse. The keyboard controls movement in the up, left, down, right directions (using WASD) and using skills (with spacebar). The direction of attacks/abilities will be chosen using either the arrow keys or the mouse.

Tools:

For the entity models/sprites, we will use free assets found online, OpenToonz, SDL. We do not currently have plans to include additional libraries.

Development Plan:

List of tasks

- Entities/texture rendering
- physics/movement, collisions, boundaries,

- The world & assets
- UI/UX
- AI systems
- Input systems
- Skills/Abilities

Week: October 4 - **Skeletal Game**

- Basic entity creation - shapes for player and enemies
- Empty game stage and boundaries.
- Character movement based on input
- Collision and movement physics for enemy (simple path in straight line to character).
- Movement control physics for character and
- Basic attacks, player/enemy health
- Creative Components:
    - Created structure for and began implementing Entity Component System
    - Added random enemy spawning and basic AI

Week: October 11

- Implement stage terrain/obstacles
- Create/implement at least three abilities
- Create entity sprites
- Random ability spawning

Week: October 18 - **Minimal Playability**

- AI of different enemies, short ranged “chase” enemies vs long ranged “avoid” enemies
- Create animations for the entities
- Creative Components:
    - Variable landscapes/environments (ice, mud, rocks)
    - Randomly generated terrain/obstacles

Week: October 25

- Add variety to available abilities
    - Charged move if charged for longer moves faster
    - Freeze, or slow mo of enemies
    - Electrocute
    - Missile physics
- Character physics based on environment:
    - complex water currents
    - carry the character on air
    - kinetic friction on ice
    - decreased mobility on mud

Week: November 1

- UI: Start screen interface
- Enemy AI:
    - Charge and fast dash momentum
    - Advanced pathing
- Boss AI:
    - Able to use generated abilities of characters
    - Basic pathing

Week: November 8 – **Playability**

- UX tutorial levels, introduction to ability learning and enemies encountered
- Add more levels

Week: November 15

- Enemy and Boss advanced pathing and group behaviours
- Abilities that interact with the terrain

Week: November 22

- Time based stages:
    - day to night transition
    - simulate 3d shadows
    - street lights that turn on
- Audio:
    - feedback for ability use
    - charging of abilities
    - Background music:
        - elevator music for tutorial
        - Pleasant, loopable battle tracks for the main game
        - boss stage will have final fantasy-esque music

Week: November 29 – **Final Game**

- Bug fixes, feature enhancements, QA