Pyromaniac

COMP710 Individual Game Project
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<u>Game Rules, Mechanics, and Design Decisions</u>

Concept:
The aim of *Pyromaniac* is to create a fun and addictive arcade-style game with satisfying and intense combat. It emphasizes short sessions with an escalating sense of tension and danger.

Setting:
Pyromaniac is set in a chaotic arena environment where the player is relentlessly hunted by waves of enemies.

Gameplay:
The player will control a character on screen to move around and outmanoeuvre enemies which are moving towards the player at a constant speed. The player can also attack an area in front of them with their flamethrower to eliminate the enemies. The horde will get more intense and difficult to survive over time.

There will be randomly spawning power-ups on screen which the player can collect to unlock temporary abilities such as invincibility, unlimited flamethrower, or instantly-killing all enemies on screen.

If the player is hit by an enemy, they lose the game and will be able to restart.

Objective:
The player's objective is to survive the increasingly difficult horde for five minutes, after which the final boss will appear. The player must defeat this boss to win the game.

Mechanics:
- 8-Directional movement using WASD or Left Stick
- Spew flames in front of the player with the attack button
- The flamethrower will overheat and will have a cooldown system to add strategic timing to the combat
- Enemies constantly move towards the player, increasing in numbers and speed over time
- Power-ups spawn randomly on the screen during gameplay and will drastically affect the gameplay
- The player's score increases based on the amount of enemies killed

Visual Design:
- Simple, stylized pixel art with high contrast between the player, enemies and background for visibility
- Different icons for power-ups for clarity
- Minimalist UI with only a score counter and timer during gameplay

Audio Design:
- Combat sounds are punchy, satisfying, and make it clear when an enemy has been eliminated
- Heavenly sound for power-up pickups
- Different music tracks for the main game and the boss fight

Key Algorithms

Enemy Spawning:

Every X seconds (custom delay):
       Choose random enemy type to spawn
       Choose random side of screen and position on that side
       Initialise enemy object and texture

       SpawnEnemy(enemyType, spawnLocation)

Enemy Movement:

Every frame:
       Target direction = playerPosition - enemyPosition
       Normalise target direction

       Move enemy towards target direction at enemySpeed

Flamethrower:

If player is attacking AND NOT overheated:
       Determine player facing direction
       Rectangle area in front of player

       Flamethrower heat ++

       If enemy is inside rectangle:
              Damage enemy
              Slow enemy
              Tint enemy red

Difficulty Scaling:

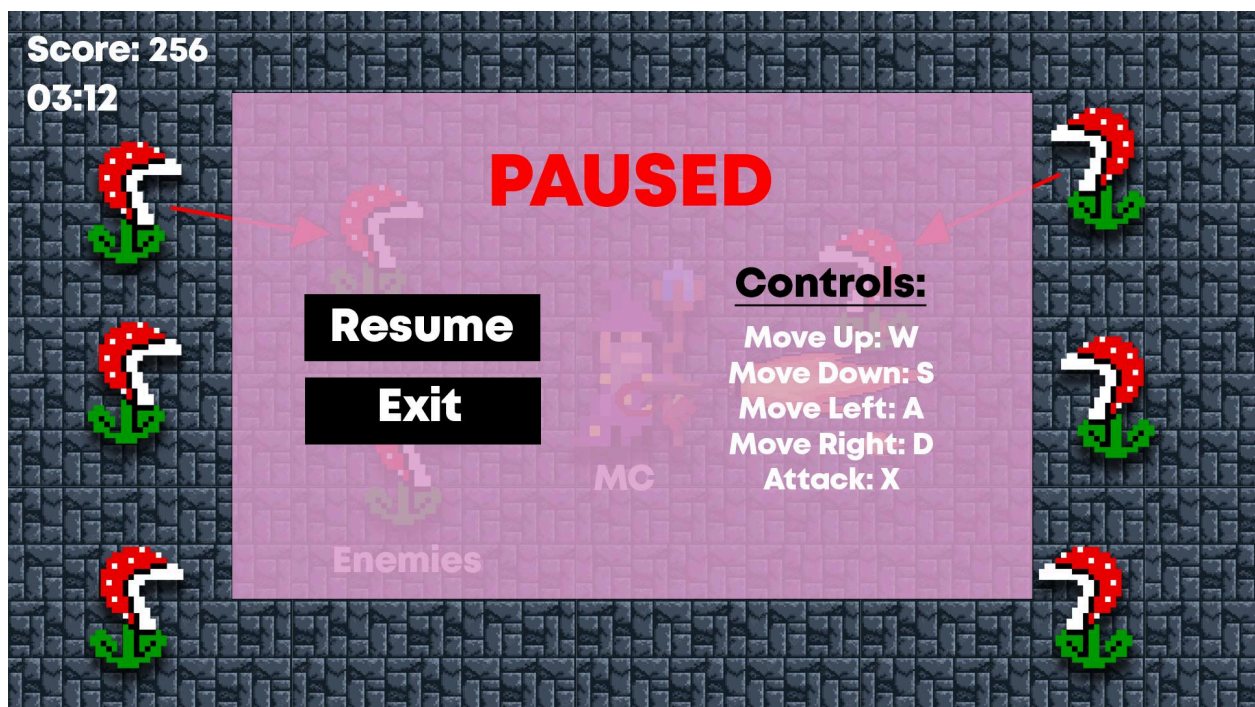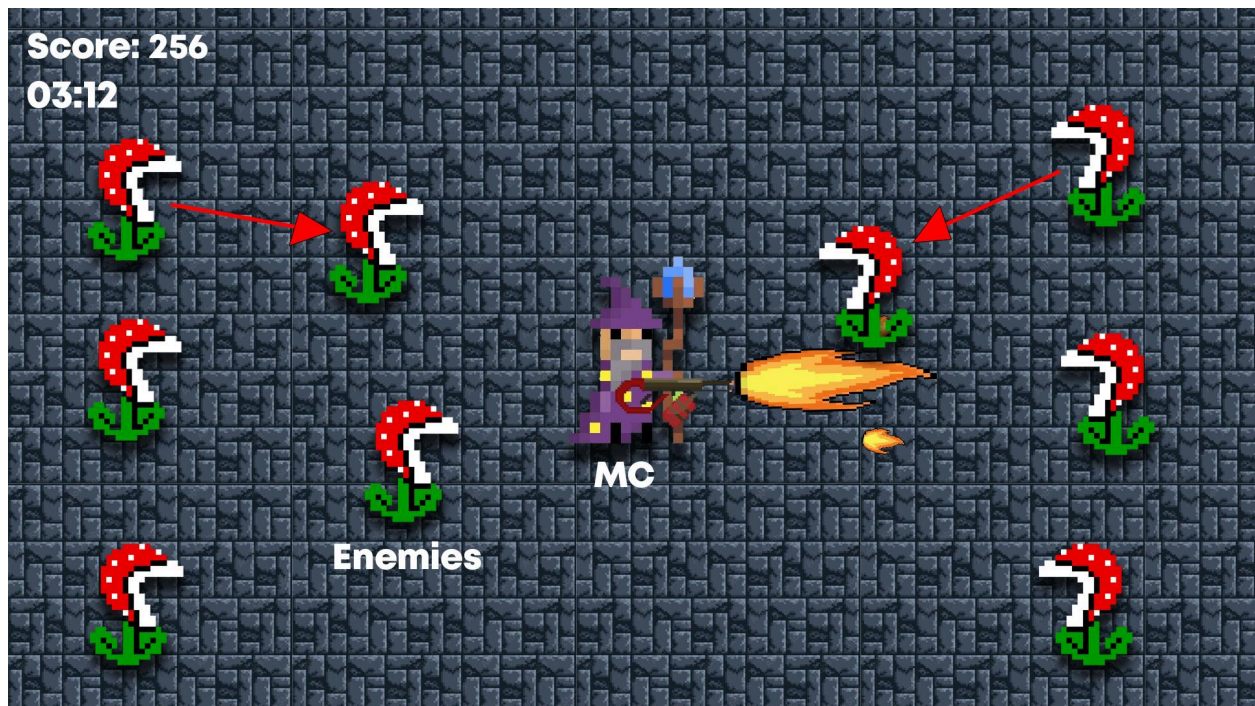If X minutes passed:
       Increase spawn rate of enemy types
       Decrease spawn delay
       Increase enemy speed and health

Control Scheme

	PC	Xbox
Move Up	W	Left Stick Up
Move Down	S	Left Stick Down
Move Left	A	Left Stick Left
Move Right	D	Left Stick Right
Attack	K	X

Mock-Up Interface

Score: 256
03:12

YOU WIN!

Score: 728

Replay

Exit

Enemies

Cheat Features

Pyromaniac will have a variety of cheat/debug tools implemented using ImGui.

Access Debug Menu
- Key: *Backspace*
- Effect: Displays the ImGui menu which will allow the player to activate all of the below features.

God Mode
- Key: *F1*
- Effect: Player becomes invincible

No Cooldown
- Key: *F2*
- Effect: Allows the flamethrower to be used infinitely without overheating

Kill All Enemies
- Key: *F3*
- Effect: Kills all enemies currently on screen

Skip Timer
- Key: *F4*
- Effect: Skips the timer ahead to the next minute. E.g. 2:35 → 3:00

Display Attack Hitbox
- Key: *F5*
- Effect: Displays the exact hitbox for the flamethrower attack

Restart
- Key: *F12*
- Effect: Starts the game again at 0:00

Required Asset List

Sprites:
- Main Character
- Flamethrower
- Flames
- Power-Ups
- Enemy Type 1
- Enemy Type 2
- Enemy Type 3
- Boss
- Background

Audio:
- Background Music
- Boss Music
- Attack Sound
- Enemy Death Sound
- Powerup Pickup Sound
- Victory Sound
- Game Over Sound