

CVG Engine Programming Unity Project

This is a simple Unity game prototype created as part of a University module submission. It demonstrates basic object-oriented programming techniques and implements simple AI.

Game Description

The Game has a start screen with simple UI including two buttons. One button loads the game scene and the other quits the application when clicked.

The Game scene contains a player character on a plane with randomly and crudely placed cube obstacles. Enemies are spawned in waves in increasing numbers. They have a chance of spawning as a faster enemy which is more difficult to kill. These faster enemies also have a chance of dropping health for the player when killed.

The enemies start off in a wander state where they get a random point on the plane to navigate to. If they see a player they will chase until they get close enough and then go into an attack state and damage the player. If they lose sight of the player they will go back into the wander state.

There are certain UI elements representing the score and health of the player as well as a mini-map and text counting down the waves.

When the player dies a game over scene is loaded which includes a play again button and a quit button.

TL;DR - The player must kill all the zombies which spawn in increasing numbers through waves.

Gameplay Mechanics

Some main gameplay mechanics include a top-down controlled player with shooting, an interface based finite state machine controlling the AI, wave based enemy spawning and randomly generated obstacles.

Game Controls

- Movement W A S D / ↑ ← ↓ →
- Aim Mouse
- Sprint Shift
- Fire Left Mouse Button / Space
- Change Fire Mode Right Mouse Button / Tab
- Pause Escape / P

Prefabs

- Explosion - This is instantiated when a bullet ray hits an object
- Health - This has a chance of being instantiated when a fast zombie is killed
- Obstacle - These are randomly placed on the ground plane when the scene is loaded to create a more interesting level

- Shell - These are projected from the players weapon and are collected and reused in an object pool
- Zombie & Fast Zombie - These are two variations of an enemy which will try to kill the player
- Zombie Death Particles - A particle effect that sprays a bunch of red cubes when a zombie is killed

Credit

- **Alex Smith** - <https://github.com/alexsmith1095>

Created for a second year programming module for Computer & Video Games at University of Salford

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