CE318 High-level games development

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Pacman 3D

<https://essexuniversity-my.sharepoint.com/:u:/g/personal/sa18154_essex_ac_uk/EVjfxrEyvvxMv989Ih0766gBRgHKbodNggfSZaIl9damHg?e=YRgAU6>

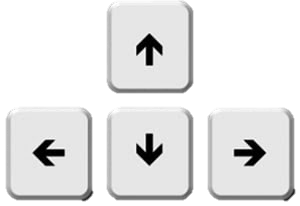
Overview

The game is exactly as the name suggests. It is a 3D implementation of the classic arcade game Pacman. You will be presented with a maze and will maneuver the player character around it while collecting PickUps to acquire points. You will of course also avoid colliding against enemies as this results in losing a life and being returned to the start position. If you manage to collect all the PickUps without losing all your lives then you win, otherwise of course, you lose. The aim of the game is to collect the Pickups as fast as you can to get a higher score and move onto the next level.

Gameplay

Scoring points is the aim of the game, therefore, a point system is an essential component to enhance gameplay. You can move freely around areas that aren’t walls/borders; every time you collide with a PickUp your score will go up by 1. Another vital component of the game is a penalty system which puts you at risk of losing the game, giving a challenging aspect, and enhancing enjoyment. Every time you collide with an enemy you will lose a life and you will be returned to the original start position. You will begin with 3 lives so if you collide with an enemy 3 times you will lose the game. As an additional feature the level will also include a timer in which you have to collect all the PickUps by, otherwise, you lose the game. If you manage to collect all the PickUps before time runs out, your score will be multiplied by a variable based on how quickly you completed the level and how many lives you had remaining. This will give you the incentive to be as quick but also as precise as possible to get higher score multipliers for not losing any lives, which is another additional feature as you can save and view your scores in the game by interacting with the main menu.

Interface



The controls are very simple. Movement will correspond to the directional arrow keys from a keyboard input. The game displays your score on the top left of the scene, and your lives on the top right. End game messages such as “You Win!” or “You Lose!” are displayed at the top center of the scene. The time remaining is displayed at the bottom center of the scene. You can also bring up the main menu by pressing spacebar which will display it at the center of the scene.

Objectives

* Collect all PickUps
* Avoid enemies
* Complete all levels
* Beat high score

Look & Feel

No this isn’t Maze Runner. It’s Pacman 3D. There is a total of three levels in the game. The maze designs for the first two levels are based off the original 2D Pacman maze allowing you to reminisce back to the good old days when you had time to visit arcades. All the same colours, everything feels familiar. Well… almost everything. Pacman appears to be on a floating maze and don’t forget that everything is animated in 3D. The PickUps which used to be 2d images are now 3D objects floating around the maze and are also rotating. Just because they can. The walls are raised and are casting shadows onto the terrain. As you move around the maze, the camera also moves relative to your position. The nostalgia you first felt quickly turns into the complete opposite as it feels as if you’ve been dragged into the future, maybe you tripped and fell into the Tardis and you’re not even in the same dimension. The third level is a bonus level with a maze designed to be more challenging than the original Pacman and includes more features such as more enemies or special PickUps that’s include bonuses such as speed boost. This will greater enhance the modern-day characteristics of the game.

Screenshots (Prototype)

A picture containing electric organ

Description automatically generated

A screenshot of a computer

Description automatically generated with medium confidence

A screenshot of a computer

Description automatically generated with medium confidence

A screenshot of a computer

Description automatically generated with medium confidence

Graphical user interface, diagram

Description automatically generated

Graphical user interface

Description automatically generated with low confidence

Story

The game has no main backstory, Pacman isn’t out for revenge. He just enjoys picking up objects as quick as he can, avoiding his enemies, and setting new high scores!

References

I had some trouble when it came to the enemy movement as I want them to be able to navigate to random spots around the maze while searching for you, however I kept encountering errors. The two videos below are the main sources that I used to try and come up with a solution. For the prototype the enemies will stay stationary, but I’ve placed them in positions which act as an obstacle to your path. This is just a compromise to show off all the other main game mechanics which I have started to implement.

Basic Enemy Movement, Abhinav a.k.a Demkeys ([Basic Enemy Movement | Unity AI Tutorial - YouTube](https://www.youtube.com/watch?v=IpXxJbj3Jhk))

PATROL AI WITH UNITY AND C#, Blackthornprod ([PATROL AI WITH UNITY AND C# - EASY TUTORIAL - YouTube](https://www.youtube.com/watch?v=8eWbSN2T8TE))

Smooth Camera Follow, Brackeys ([Smooth-Camera-Follow/CameraFollow.cs at master · Brackeys/Smooth-Camera-Follow · GitHub](https://github.com/Brackeys/Smooth-Camera-Follow/blob/master/Smooth%20Camera/Assets/CameraFollow.cs))