



UMS
UNIVERSITI MALAYSIA SABAH

UH6461002 MATHEMATICS WITH COMPUTER GRAPHICS

FACULTY OF SCIENCE AND NATURAL RESOURCES,

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SC32103 REAL TIME GRAPHICS

Mini Project

GROUP 1

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ONEDRIVE LINK TO PROJECT FILES:

https://umsedumy-my.sharepoint.com/:f:/g/personal/jonathan_liew_bs20_iluv_ums_edu_my/EuBjSwDUaBDoDSli9v5R6YBYbieRuGNwgyHskcX9UxCA?e=78bU3h

Introduction

This mini project aimed to develop a simple 3D game for desktop with control input by using Unity. Few 3D models were used to build up this game together with character animation. The game's objective is to fight the enemies and secure the princess and guards who were kidnapped at the final stage. Player can also unlock new weapons to fight the enemies as the game progresses.

Duration to complete game

30 days (3 January 2023 to 1 February 2023)

Title

The Crusader: Last One Standing

Genre

3rd Person Player Action Role Playing Game (RPG)

- Rotating Camera View that follows player

Target Audience

Young Teenagers (Aged 13+) – Adults, generally players who enjoy Action games

Theme/ Setting

Medieval, Swords, Fantasy, Olden Times Era

Editor used

Unity 2021.3.11f1

Background music used

Epic Build Up Music - The Storm

Other Tech Stack

Blender, Unity Asset Store

Platform

PC

Tested on

ASUS TUF Gaming F15 GeForce GTX1650, 16GB RAM

Levels

2

Goal

- Linear moment (approximately 5-10 minutes combat through enemies) from start to end point of map.
- Rescue Princess and guards that has been captured.
- Travelling between maps (2 stages), fighting your way through enemies (in mass) of different difficulties (determined by current stage/ level)
- Have final boss at the end (win to end)

In-Game Feature Development Priority

- Stage progression
- Branching dialogue system
- Inventory/ Loot collecting
- Real-time combat with mass enemies

What we aim for/ Remarkability:

- Provide simple graphical environments.
- Ensure players get to achieve adrenaline rush during combat/ battle while enjoying the experience of decent difficulty throughout our game.
- Survival + Hero (Superior/ Powerful) feeling.

Controls

Mouse, Keyboard

Game Rules

There are some simple rules and instructions on how to play this game:

Rules

1. Player needs to eliminate enemies to save the princess and guards.
2. Checkpoints allow user to save the game progress.
3. Once the player's health drops to 0, player will consider as dead.
 - 3.1 On dead, player can choose to restart from check point, restart from beginning or return to main menu.
4. Player's maximum health will increase based on player's level.
5. Kill enemies will restore health and gain XP to level up.
6. Player can pause the game.
7. Player can adjust the volume of game from pause menu.

How-to-Play

1. Click play to start the game.
2. Click load to read the previous game save file.
3. Click exit to quit the game.
4. Use WASD key to move the character.
5. Use 1234 keys to select different weapons.
6. Use Left Mouse button to attack enemies.
7. Use Right Mouse button to rotate camera view.

References

Mario, God of War, Diablo, Mobile Legends, Metal Slug, Smurf

Uniqueness

- Save Progress system to load from last played between levels and play sessions.
- Avoid singleton pattern (increase flexibility between levels) – using static variables between portals.
- Using coroutines (Unity's IEnumerator) – smooth transfer of data and loading progress between maps/ levels
- Only one way dependency (by using a player or enemy controller linking from one class/ namespace to another) – increase flexibility when making edits in any class, prevents major errors due to small changes in a class as it is dependent on one or more classes and vice versa (circular dependencies)
- Delegates are also used to avoid costly methods

Example: Delegates are used in our level up system where system does not need to call Update() every frame to check if we have levelled up. Instead, this delegate(action) will trigger the level up function when minimum experience points have been achieved to level up.