

A project report on

# **Apocalypse: The end of evil**

by  
**Priyank Godhani (201702100710005)**  
**Rishit Mavani (201702100710010)**  
**Naman Upadhyay (201702100710017)**

in partial fulfillment of the requirements for the degree of

**Diploma**  
in  
**Information Technology**  
at  
**Uka Tarsadia University**

Under the guidance of  
**Mr. Ankit Dharsandiya**



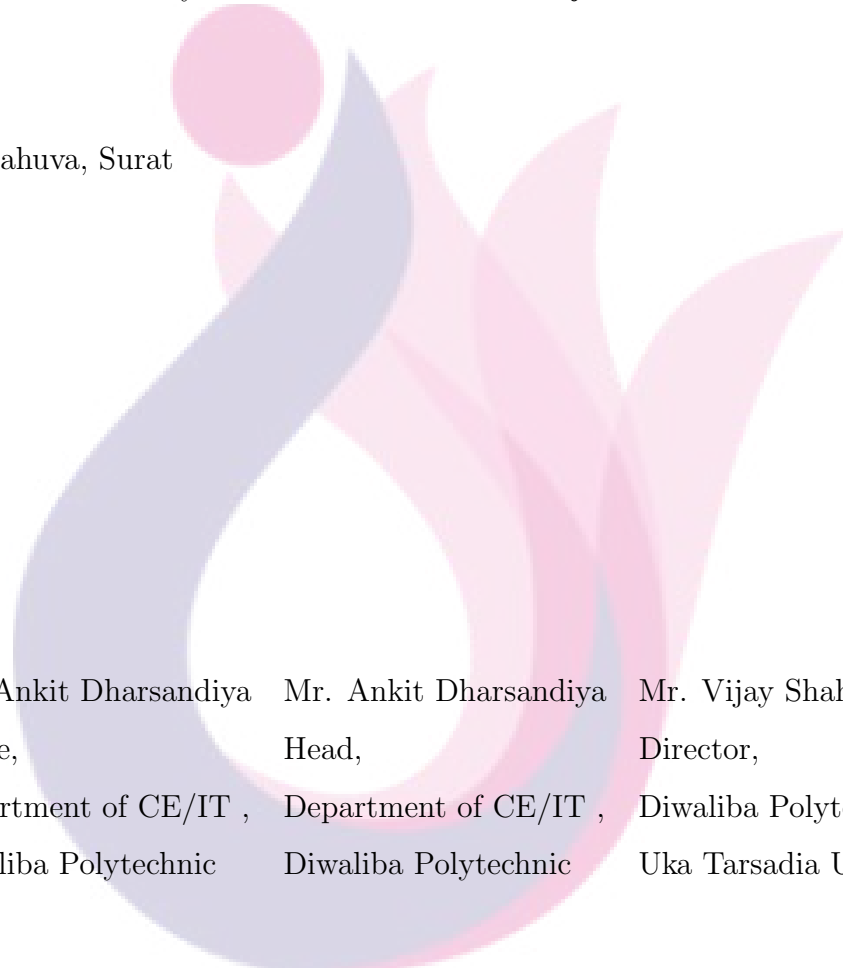
Department of CE/IT  
Diwaliba Polytechnic  
Mahuva, Surat  
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# CERTIFICATE

This is to certify that the project report entitled “**Apocalypse: The end of evil**” has been carried out by **Priyank Godhani (201702100710005)**, **Rishit Mavani (201702100710010)**, **Naman Upadhyay (201702100710017)** at **Diwaliba Polytechnic** for the partial fulfillment of **Diploma in Information Technology** degree to be awarded by **Uka Tarsadia University**.

**Date:**

**Place:** Mahuva, Surat



Mr. Ankit Dharsandiya	Mr. Ankit Dharsandiya	Mr. Vijay Shah,
Guide,	Head,	Director,
Department of CE/IT ,	Department of CE/IT ,	Diwaliba Polytechnic,
Diwaliba Polytechnic	Diwaliba Polytechnic	Uka Tarsadia University

Examiner's Signature

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**Priyank Godhani**

**Rishit Mavani**

**Naman Upadhyay**

# ABSTRACT

*Apocalypse : The end of evil is a first person shooting game which is based on zombie survival, where player has to eliminate the amount of zombies(npcs) to clear the stages. The game is created using unity 3D and it is scripted with C#. The objects such as buildings, street lights, trees, bushes and rocks were implemented using unity assets store. The first round takes place in the center of a city at midnight where the humans are infected by zombies, the player's objective is to eliminate those zombies without dying. The second round takes place in the middle of an unknown jungle the time of the day is afternoon, here the humans are infected as well as the animals are infected and wants to kill the uninfected beings. In this stage the player will be provided with more different types of weapons such as bow and arrow, harpoon.*

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# LIST OF ABBREVIATIONS

NCPS	.....	Non-playable Characters
FPS	.....	First Person Shooting
ESC	.....	Escape
UI	.....	User Interface
F	.....	Function
E-R	.....	Entity–Relationship
2D	.....	Two Dimensional
3D	.....	Three Dimensional
C#	.....	C-Sharp

# Chapter 1

## Introduction

This is an FPS (First Person Shooting) that shows the gameplay around guns and zombies based combats in the perspective of main person. The player experience via the protagonist eye view.

This is a survival game in which the player must have to survive till last from zombies. This game contains the start menu, pause menu and level menu where start menu shows the options to start game, credits or quit the game whereas the pause menu use to pause the game via escape (esc) key whenever the player want to pause the game and level menu use to select the level of game.

### 1.1 Overview

Apocalypse : The end of evil is a zombie first-person shooter (FPS) is a video game genre centered on gun and other weapon-based combat in a first-person perspective that is, the player experiences the action through the eyes of the protagonist. The genre shares common traits with other shooter games, which in turn makes it fall under the heading action game. Since the genre's inception, advanced 3D graphics have challenged hardware development, and cross-platform gaming has been integral.

The protagonist's arms are at the bottom of the screen, carrying whatever weapon is equipped. The gamer is expected to propel his avatar through the game by moving it forward, backward, sideways and so on using the keyboard. Forward movements of the controller result in the avatar moving forward through the scenery, usually with a slight left-right rocking motion to properly simulate the human gait. In order to increase the level of realism, we included the dead zombie effects with blood and weapon fire effects.

## 1.2 Problem definition

As of today, FPS peripherals do not allow the user to become totally engulfed in their experience. This problem is solved by creating a more realistic experience for them. We are creating gaming peripherals that will let the user reload, fire, kill and use a secondary weapon to kill the zombies and enjoy ended up playing our game.

## 1.3 Scope

- There is no option for multiplayer.
- There are some limited weapons for the user to use.
- There is no option for age restriction.
- No option available for playing online with friends.

# Chapter 2

## System Planning

### 2.1 Project development approach

An approach and methodology for project development refers to the way in which the development of a project is carried out. There are various project development approach examples, each posing their own benefits to overall successful project completion. Here we've used spiral model for game development.

#### 2.1.1 Spiral model

The spiral model is a risk-driven software development process model. Based on the unique risk patterns of a given project, the spiral model guides a team to adopt elements of one or more process models, such as incremental, waterfall, or evolutionary prototyping.

This one is a flexible model. The spiral model has a repetitive approach, going forward in a circular manner where the project passes through four phases over and over in the form of a spiral, until it reaches the completion, hence allowing several rounds of refinement.

In game development, the typical steps in a spiral lifecycle model are<sup>[1]</sup>:

1. Design and planning
2. Implement the plan or in other words code the game.
3. Play test: This involves playing the game and analyzing it for improvements, looking for bugs/issues etc.
4. Evaluation of the current progress. Understanding what we did right, what we did wrong, and with new point of observations, move back to step 1.

Advantages of Spiral model<sup>[1]</sup>:

1. Risk is low.
2. One should always start with development of core features.
3. A working prototype is ready in less time.
4. This model allows for faster changes

Disadvantages of Spiral model<sup>[1]</sup>:

1. Can be a costly model to use.
2. Risk analysis requires highly specific expertise.
3. Doesn't work well for smaller projects.
4. May be hard to define objective, verifiable milestones.

## 2.2 System modules

There are two modules in our game Apocalypse: The end of evil:

### 2.2.1 User module

In user module user can perform following task:

**Registration:** User can register with there information in the game.

**Play:** User can experience the game UI.

### 2.2.2 Level module

In level module user can perform following task:

**Level select:** User can select level accordingly.

## 2.3 Functional requirements

Table 2.1: Functional requirements

ID	Title & Description
F1	Title: Select resolution Description: User can select the resolution according to their graphics and compatibility of their system.
F2	Title: Enter details Description: User needs to fill their details after pressing play button. There a simple details like username, age, email.
F3	Title: Select level Description: User can select levels on the basis of there progress.
F4	Title: Play game Description: User can play game after clicking on the play button available on the menu screen.

## 2.4 Non-functional requirements

**Performance:** To run this game system must have installed normal graphics drivers.

**Portability:** This game can run on windows, MacOS and Linux platform.

**Stability:** This game can run on low-end devices.

## 2.5 Timeline chart



Figure 2.1: Timeline chart



# Chapter 3

## System Design

### 3.1 Use case diagram

Use case diagram model the functionality of a system using actor and use cases<sup>[2]</sup>.

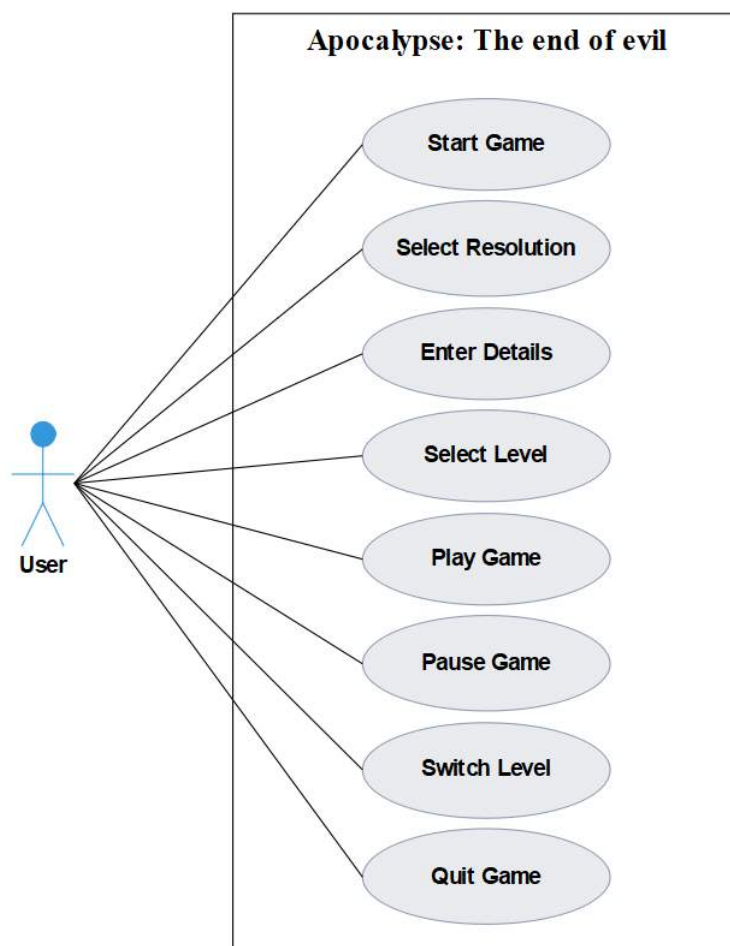


Figure 3.1: Use case diagram

As show in figure 3.1 this use case diagram shows the accessibility of user.

### 3.2 Sequence diagram

UML sequence diagrams are interaction diagrams that detail how operations are carried out. They capture the interaction between objects in the context of a collaboration<sup>[3]</sup>.

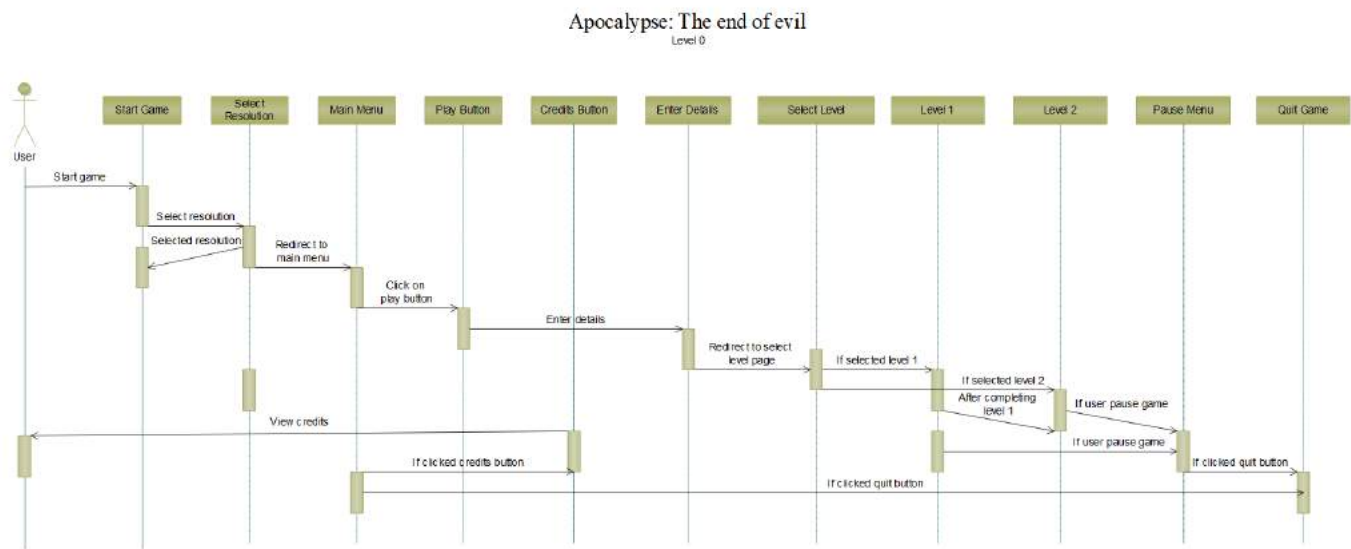


Figure 3.2: Sequence diagram

As show in figure 3.2 this sequence diagram shows the steps followed by user.

### 3.3 Activity diagram

Activity diagram is basically a flowchart to represent the flow from one activity to another activity. The activity can be described as an operation of the system<sup>[4]</sup>.

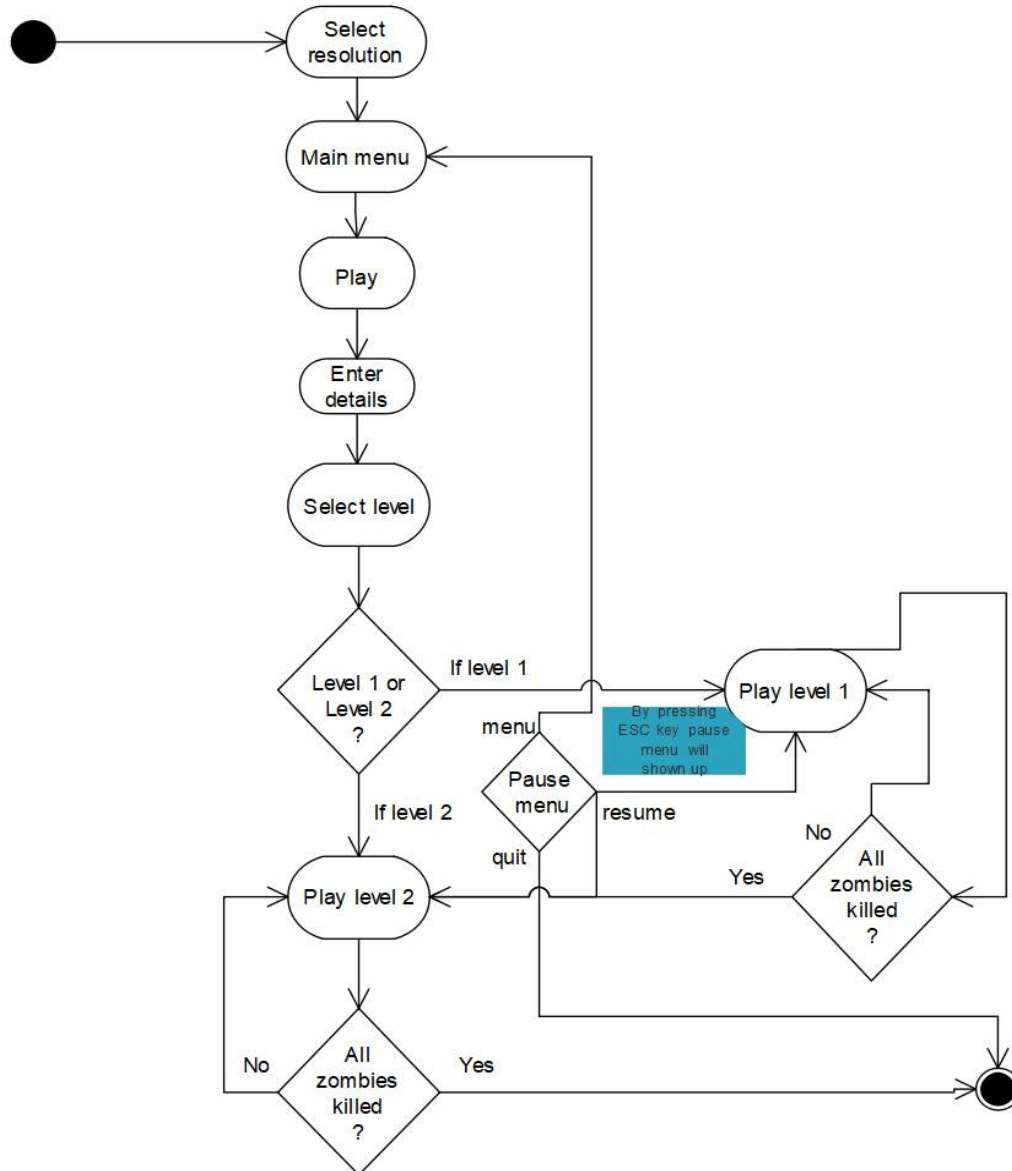


Figure 3.3: Activity diagram

As show in figure 3.3 this activity diagram shows the activities which can performed by user.

### 3.4 Class diagram

Class diagrams are one of the most useful types of diagrams in UML as they clearly map out the structure of a particular system by modeling its classes, attributes, operations, and relationships between objects<sup>[5]</sup>.

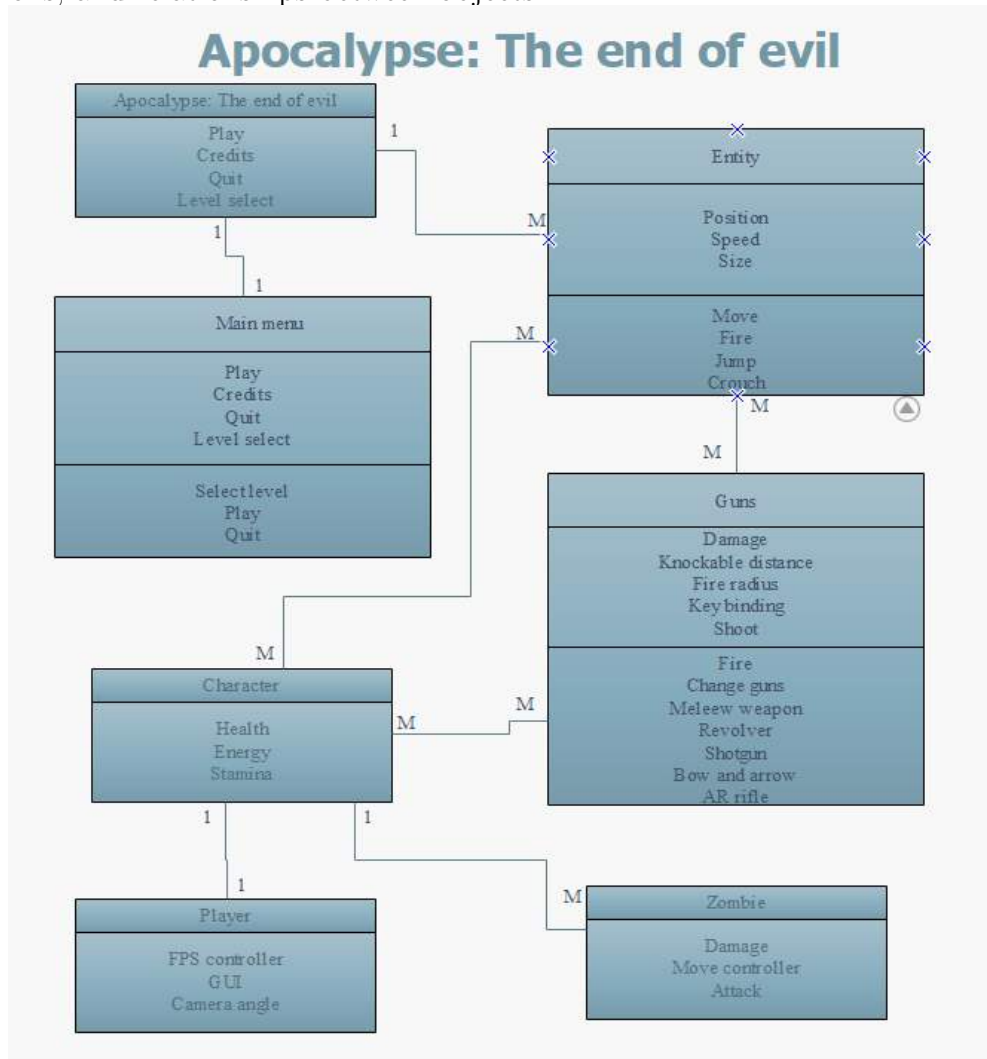


Figure 3.4: Class diagram

As show in figure 3.4 this class diagram shows which table is connected with each others.

### 3.5 Data flow diagram

A data-flow diagram (DFD) is a way of representing a flow of a data of a process or a system (usually an information system). The DFD also provides information about the outputs and inputs of each entity and the process itself<sup>[7]</sup>.

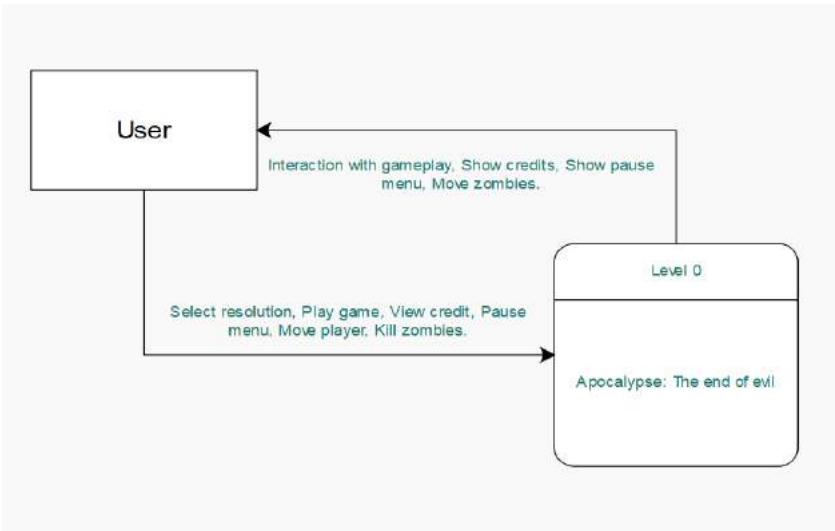


Figure 3.5: Data flow diagram

As show in figure 3.5 this is the level 0 data flow diagram of Apocalypse: The end of evil.

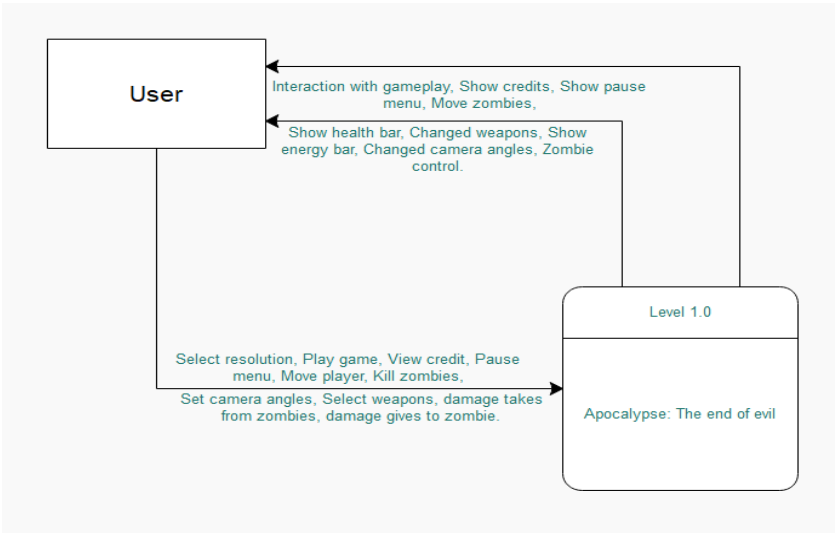


Figure 3.6: Data flow diagram

As show in figure 3.6 this is the level 1 data flow diagram of Apocalypse: The end of evil.

# Chapter 4

## Implementation

### 4.1 System development environment

#### 4.1.1 Platforms

##### 1. Unity 3D:

Unity3D is a commercially available multiplatform game engine used for the production of 2D and 3D video games as well as non-game interactive simulations and visualizations. Unity is one of the most popular game engines available due to its combination of power, flexibility, and ease of use.

You can extend the editor with whatever tools you need to match your team's workflow. Create and add customized extensions or find what you need on our asset store, which features thousands of resources, tools and extensions to speed up your projects<sup>[8]</sup>.

##### 2. C#:

A script must be attached to a GameObject in the scene in order to be called by unity. Scripts are written in a special language that unity can understand. It's through this language that we can talk to the engine and give it our instructions. The language that's used in unity is called C# (pronounced C-sharp). All the languages that unity operates with are object-oriented scripting languages. Like any language, scripting languages have syntax, or parts of speech, and the primary parts are called variables, functions, and classes<sup>[9]</sup>.

## 4.2 Implementation

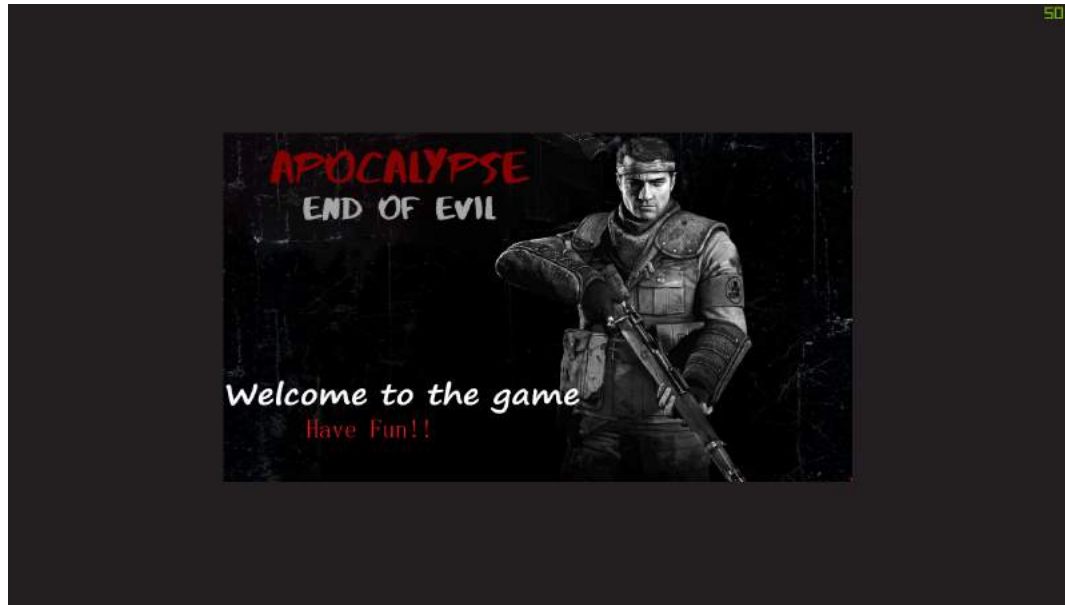


Figure 4.1: Starting page

As shown in figure 4.1 starting page shows up when user starts game.



Figure 4.2: Main menu

As shown in figure 4.2 main menu shows up with some couple of options.



Figure 4.3: Credits page

As shown in figure 4.3 credits page shows up as user click on credits button, it shows the name of developers.



Figure 4.4: Level menu

As shown in figure 4.4 after clicking the play button user will redirect to level menu where user can select level to play.





Figure 4.5: Starting of level 1

As shown in figure 4.5 this image shows up when user starts the level 1 of game.



Figure 4.6: Gameplay of level 1

As shown in figure 4.6 this is the gameplay of our game where we can see the player-ground where player will walk and play.



Figure 4.7: Gameplay of level 1

As shown in figure 4.7 this is the gameplay of our game here when the user holds right-click mouse button cross-hair will be disabled and have to aim through the gun.



Figure 4.8: Gameplay of level 1

As shown in figure 4.8 this tutorial message will pop-up when user killed a preferred number of zombies and he/she is ready to level up. This message will pop-up for 5 seconds.





Figure 4.9: Checkpoint of level 1

As shown in figure 4.9 this is the checkpoint of our game from where player can save the game and will redirect to next level.



Figure 4.10: Pause menu

As shown in figure 4.10 pause menu comes up when user press the escape key to pause the game.



Figure 4.11: Level 1 complete

As shown in figure 4.11 this image shows up when level 1 gets complete.



Figure 4.12: Starting of level 2

As shown in figure 4.12 this image shows up when level 2 starts.





Figure 4.13: Normal camera view

As shown in figure 4.13 this is the normal view of player.



Figure 4.14: Gameplay of level 2

As shown in figure 4.14 this image shows that level 2 has health and energy bar at top left side.





Figure 4.15: Mission failed

As shown in figure 4.15 this screen comes when the user fails to kill the zombies and dies due to zombie attacks.



Figure 4.16: Gameplay of level 2

As shown in figure 4.16 this image shows that boars and cannibals are chasing the player to kill and destroy the humanity.





Figure 4.17: Gameplay of level 2

As shown in figure 4.17 this image show dead body boar killed by user to save his/her life.



Figure 4.18: Checkpoint of level 2

As shown in figure 4.18 this image show the another checkpoint which saves the player progress and redirect to the next level.



Figure 4.19: Level 2 complete

As shown in figure 4.19 this image shows that the level 2 complete. Also, it says to be patient because there is lot to come in future.



Figure 4.20: Levels saved

As shown in figure 4.20 this image shows after the player completes level 2 and touches the checkpoint the progress have been saved and after restarting game level 2 is still unlocked.





Figure 4.21: Starting of level 3

As shown in figure 4.21 this image shows up when level 3 starts.



Figure 4.22: Gameplay of level 3

As shown in figure 4.22 this image shows starting of the level 3 where player born with some weapons.



Figure 4.23: Gameplay of level 3

As shown in figure 4.23 this image shows outside world of the stage from a window with AK-47 in hands.



Figure 4.24: Gameplay of level 3

As shown in figure 4.24 this image shows the cannibal (zombie) tries to hit the player model.



Figure 4.25: Gameplay of level 3

As shown in figure 4.25 this image shows the player finding checkpoint before zombies kills him/her so that he/she can go to the next level.



Figure 4.26: Checkpoint of level 3

As shown in figure 4.26 this image shows the another checkpoint which saves the player progress and redirect to the next level.





Figure 4.27: Level 3 complete

As shown in figure 4.27 this image shows that the level 3 complete. So, users will moves to the next level.



Figure 4.28: Starting of level 4

As shown in figure 4.28 this image shows up when level 4 starts.

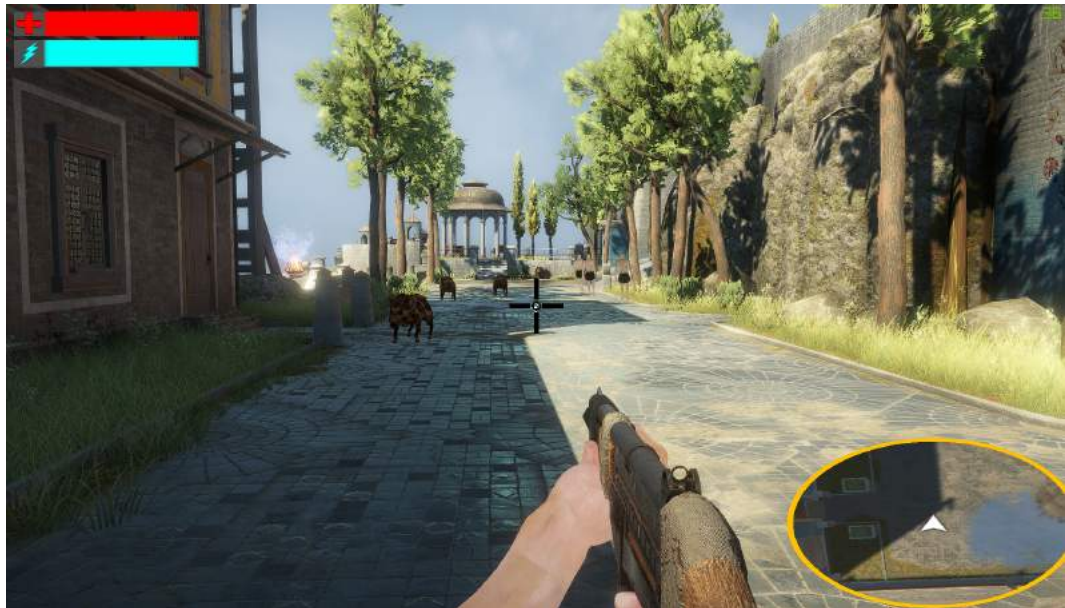


Figure 4.29: Gameplay of level 4

As shown in figure 4.29 this image shows the starting of level 4 where user born with upgraded weapons and ready to kill those zombies.



Figure 4.30: Gameplay of level 4

As shown in figure 4.30 this image shows the player finding the checkpoint so the user can save the world from zombies and completes the game.





Figure 4.31: Checkpoint of level 4

As shown in figure 4.31 this image shows the another checkpoint which saves the player progress and completes the game.

After touching checkpoint it will redirect to the ending screen.



Figure 4.32: Level 4 complete

As shown in figure 4.32 this image shows that the level 4 complete. Here, the player completed the game.



Figure 4.33: Game completed

As shown in figure 4.33 this image shows after the player successfully completes all the four levels. This screen have other options to go through.



Figure 4.34: Restart game

As shown in figure 4.34 this image shows level menu if the user selects the restart game option to play again. Here, the user will get all the missions unlock.

### 4.3 Test cases

Table 4.1: Test case

Test ID	Case	Test Data	Expected Result	Actual Result	Pass/Fail
1	Play button	- Redirecting to level select menu	If play button is clicked it should be redirect to first detail fill-up and then level select.	If play button is clicked it should be redirect to first detail fill-up and then level select.	Pass
2	Credit button	- Redirect to show developers name	If credit button from menu is clicked then it should show developers name successfully.	If credit button from menu is clicked then it should show developers name successfully.	Pass
3	Quit button	- Exit to the desktop	If the quit button is being clicked player should exit from the game and shows desktop.	If the quit button is being clicked player should exit from the game and shows desktop.	Pass
4	Level select	- Selected level should be initialize	If the user selects the level 1 then it should redirect to play level 1 rather than level 2 and vice-versa.	If the user selects the level 1 then it should redirect to play level 1 rather than level 2 and vice-versa.	Pass
5	Level connectivity	- Level to level redirection	After finishing any level, it should redirect to the another upgraded level rather than to quitting the game and starting another one.	After finishing any level, it should redirect to the another upgraded level rather than to quitting the game and starting another one.	Pass



# Chapter 5

## Conclusion and Future Work

### 5.1 Conclusion

The Apocalypse: The end of evil is a first person shooting game. In this game the player have options to select level and has to kill the zombies with some limited weaponry. After killing all the zombies and wild animals user will then reach to the upper level and have to complete particular missions.

### 5.2 Future work

- Improvisation of game-play more reliable. Also, focusing on graphics quality and fixing the bugs, errors and limitations of the game. We will try to implement the feature of multiplayer support.

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