A Project Report on

ASURA: A 3D Storyline Using Unity Engine

Submitted in partial fulfillment of the requirements for the award
of the degree of

Bachelor of Engineering

in

Information Technology

by

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Approval Sheet

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Declaration

We declare that this written submission represents our ideas in our own words and where others' ideas or words have been included, We have adequately cited and referenced the original sources. We also declare that We have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in our submission. We understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

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Abstract

Within the modern technological era, there is a growing desire for video games with compelling narratives and storylines. The popularity of e-sports has grown, and many players have found success in streaming and tournaments. With an upsurge in expansive user base, the gaming industry is taking off in wonderfulness, drawing in major innovation powerhouses to compete within the commercial center. This paper discusses a single-player game with an Indian folklore story. The purpose of this paper is to pique children's and teenagers' interest in Indian culture by portraying it as a video game. According to the study, video games are played or have been played by more than a 90% of children. It has the potential as being a very extremely powerful method of disseminating information if applied effectively. This enables us to develop a Mahabharata-themed video game that will pique gamers' interest in the epic story. It's a fun game designed for operating systems like Windows. A player can learn about Indian mythology and respond to the game's difficulties while playing the shooter game. Unity3D software is essential for creating unique and entertaining games, as well as creating responsive video games and providing a more visual world. A Computer program like Unity3D employments inventive approaches to game advancement. The Unity engine provides a comprehensive solution with interactive media installation features. It serves an important purpose in game development. Unity3D makes use of OpenGL to render 3D graphics.

Blender is a 3D rendering and animation program widely used by professional artists to create animations, visual effects, 3D prints, interactive 3D applications, etc. Although the Unity Engine and frameworks play an important role in the development process, they are not the only factors. Game creation frameworks include graphical user interfaces (GUIs) such as a level editor, script editor, sound editor, and material editor that aid in the separation of functions. Blender allows users to create flexible models by providing 3D modeling, texturing, graphics editing, animating, match moving, rendering, motion graphics, video editing, and compositing. During the development of this game, Unity3D was used for the interactive game interface, while Blender software was used to create 3D characters.

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List of Abbreviations

FPS: First Person Shooter
RPG: Role-Playing Game

Chapter 1

Introduction

The problem we recognized is that Indian culture has had a significant influence on our lives. Our modern era is steering us toward modernization and western culture, and we will see a need for our younger generation of being heavily involved in Indian culture and mythology.

1.1 Preface

Storyline A game in which one or more players collaborate to tell a spontaneous story. A storytelling activity is a social or cultural activity where stories are shared. Every culture has its own story that is told for entertainment purposes. Some stories are told to increase educational knowledge, cultural inheritance, or to instill moral worth. The plot, characters, and narrative point of view are all important components of stories and storytelling. A new generation of emerging technologies has made gaming a profitable industry over the past few years. Computer games have quickly gained popularity among children as a popular or well-liked form of entertainment. There are six stages within the game development life cycle: start, pre-production, generation, alpha-testing, beta-testing, and release, which productively aids within the advancement process. A storyline game is one where the players compete together to create a narrative. Storytelling and narrative, as well as realistic graphics and even gameplay, are fundamental. By simulating being in the real world, storyline games allow the player to feel more immersed in the game. Hundreds of adventure games were available at one time, but today's new generation of 3D games is making a significant contribution to the industry. This storyline was linked to the development of mythological concepts, oral narratives, and puzzles. This project is about a one-of-a-kind storyline based on an Indian legend known as the Mahabharata. The basic game hierarchy includes an entire game with multiple scenes and multiple game objects. The player is completely engrossed in the experience, meeting the main character and sharing his or her setbacks. This game was designed in a three-dimensional format. This type of historical video game provides learning potential for specific purposes such as learning about events or details in history. This means that your entire game will be played in the first person with a 3D interface. An incredibly challenging strategic game with numerous stages where the main character must overcome numerous obstacles and solve numerous puzzles to make it further in the game. The level design should be approached correctly. It begins with the creation of content or concepts for the game area, followed by the modeling and texturing of the terrain, and then provides ultra 3D effects using Maya software, which produces a realistic effect. All of the puzzles are intricately linked to major events in the Mahabharata legend. Players assume the role of

the main character and attempt to accomplish their objectives in a virtual game environment.

Consequently, this is one of the most effective methods of introducing the younger generation to Indian culture.

1.1.1 Key Objectives

- Develop an Indian-themed video game.

- Introduce Indian culture to young people.

Chapter 2

Literature Review

Players are drawn into an intriguing world through interactive storytelling. The first step in creating that environment is to make your narrative more engaging so that players and the game can connect. An interface can be found in a variety of mechanisms, such as mini-levels, story puzzles, and so on. We examined online comments and reviews for a variety of video games to better understand how young people connect with video games and why historical features should be prioritized. Today's younger generation is more interested in downloading and purchasing a large number of video games.
It was the perfect way to actualize our concept that is to utilize a first-person shooter. As opposed to most first-person shooter games, the concept we developed will provide a unique experience. We looked at mythical-themed action-adventure games like Raji: An Ancient Epic, which starts with a new battle between demons and gods. We also used a similar concept to accomplish the goals of the Mahabharata story. A player can learn about the majority of Indian mythology topics by interacting with the learning mechanism. To begin from one level to another, the player must fulfill the tasks appointed to him. The concept of game development refers to the process of designing, developing, and releasing a game behind the themes to make the game look amazing and operate effectively while providing a smooth user experience. We hope that by adopting this method, we will be able to provide gamers with a historical experience that both entertains and educates them.

Year	Author	Methodologies	Findings
2020	Nithiyaa Muniandy, Sathya Manoharan, Kohilah Miundy	Providing prototype of game development	How the game development cycle has been used while developing the game and also how to engaged gamers into learning via problem solving skills
2020	Aditya, Anitha M	Conveying the necessity of blender software	How blender can be useful in creating 3D Models and how it supports animation feature which plays vital role in most of the 3D games.
2018	Pa. Megha, L.Nachammai, T.M. Senthil Ganesan	Developing a 3D game using Unity Game Engine	First person shooter game including quizzes that helped to promote education.
2018	Baradaran Rahimi F, Kim B, Levy R.M, Boyd J. E	Understanding historical concepts based on certain events	How can we provide learning potential via game.
2017	Ismail Buyuksalih, Serdar Bayburt, Gurcan Buyuksalih, A.P. Baskaraca	Use of 3D modelling in Unity Engine	How Visualization can be achieved using Unity Engine.
2014	Brent Cowan, Bill Kapralos	Functionalities of Unity Engine	How various functionalities can be used for various operations.
2012	Jigming XIE	Introducing main technology characters of Unity3D	How the Unity3D component model is and how would be the game project hierarchy
2011	Matthias Labscutz, Katharina Krosl	Use of Maya software	How this software can be used as 3D Modelling, Animation tool.
2011	Ken Hartsock, Alexander Zook, Sauvik Das, Mark O. Riedl	Introducing story of Gameplay	How story can be generated and how to provide game world that is functional and supporting each player's play style.

2.0.1 Objectives

1. To build a video game with exciting game scenes using Unity 3D involving the Indian culture.
2. To involve youngsters in Indian culture in an entertaining way.
3. To build 3-dimensional visual world with high graphics.
4. To achieve perfect efficiency in creating 3D modelling using blender.
5. To create, e d i t and restoring audio using audition tool.

Chapter 3

Project Design

3.1 System Architecture

As a part of the development process, an extensive explanation must be included. It was completely begun with picking a game idea which ought to be appealing game concept and Provide user with a suitable stage where the game can be played. As a another step, a point by point portrayal of all the game components was to be included in a game plan report. Besides, it'll contain data with respect to the game mechanics as well as the software and technology that will be utilized for development. Having decided plan records, the another step was to consider the game structure which incorporates design, environment, surface, and other objects meaning containing UI parts, Animations, Lighting effects and audio management These are all factors that make a developer have a better understanding of how game works and the way the application feels.

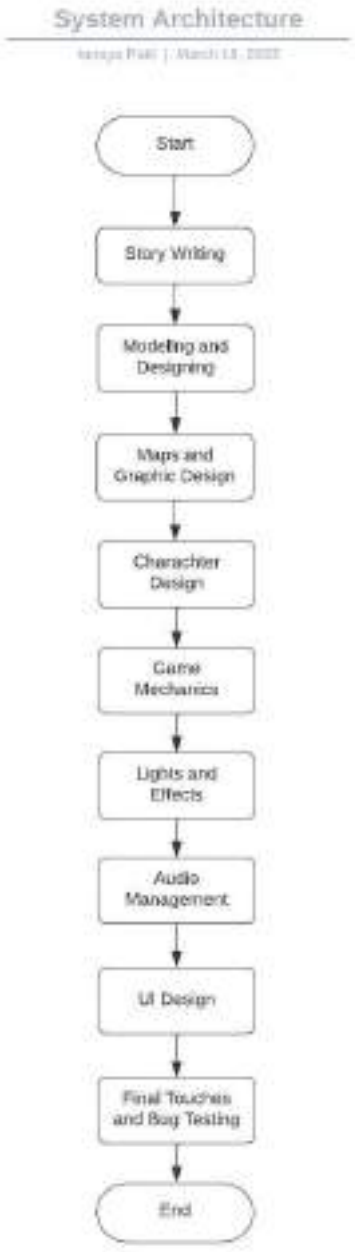


Figure 3.1: Flow Diagram

3.2 UML Diagrams

3.2.1 Activity Diagram

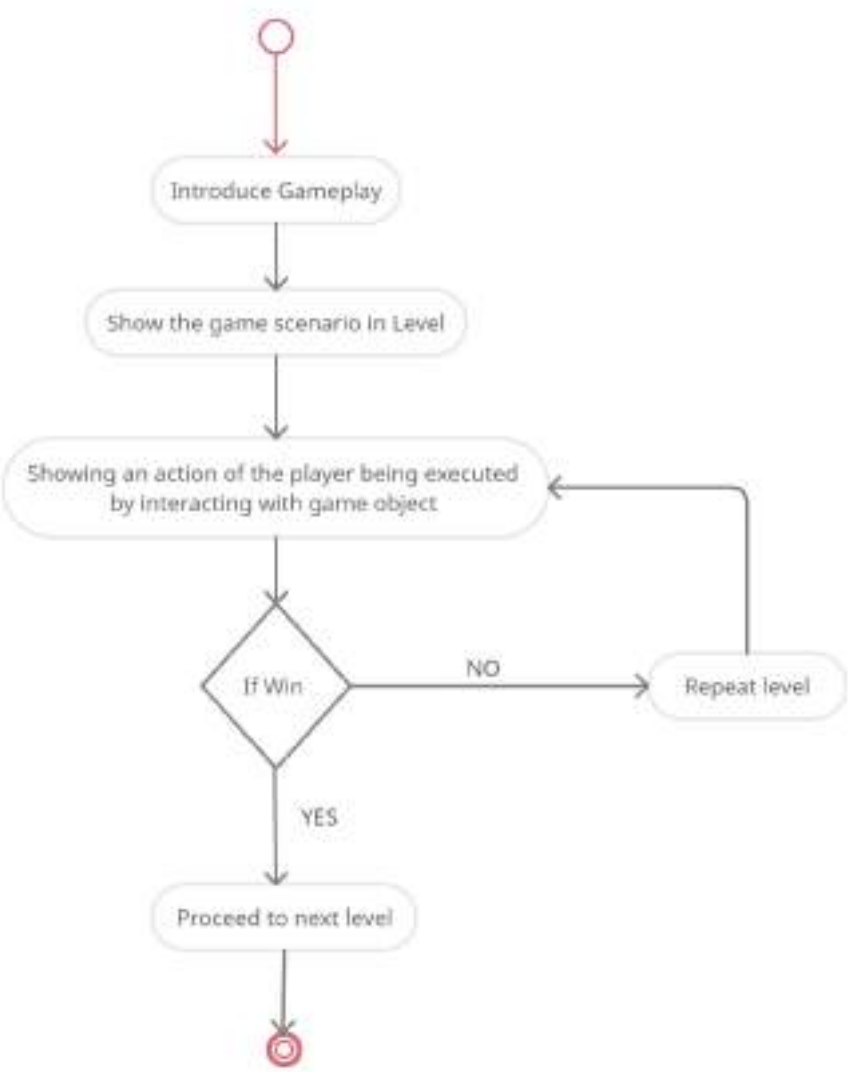


Figure 3.2: Activity Diagram

As soon as the player begins playing the game, he or she will be introduced to the game's concept or overview. The player will enter the first level and begin fighting enemies as soon as the introduction is finished. If the player succeeds in completing or winning level 1, he or she will advance to the next level. If a player fails to complete level 1, he or she must restart from the beginning.

3.2.2 Use Case Diagram

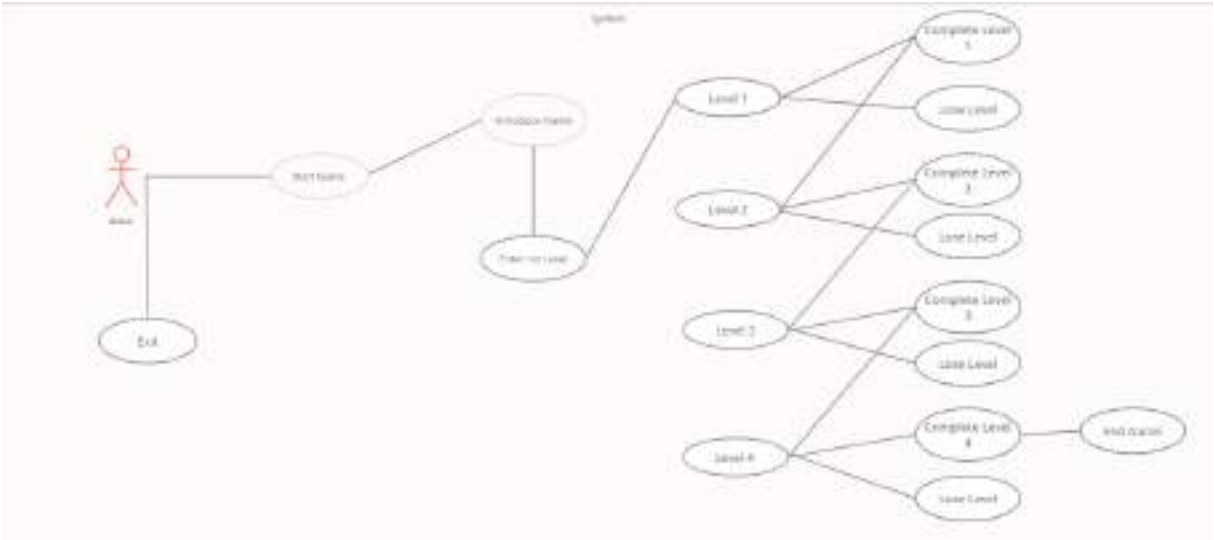


Figure 3.3: Use Case Diagram

The above use case diagram representing the graphical representation of a system. This diagram also describing the interactions between the system and its actors. The use cases and actors in use-case diagrams describe what the system does and how the actors use it, but not how the system operates internally. There are a total of 11 use cases that represent the story line game's specific functionality. A player, or actor, is interacting with a specific use case. A player begins by playing the game. If a player wishes to exit the game, he or she can do so by using the Exit use case. After that, the player can interact with the storey information mode and proceed to level 1. If the player wins the game, he or she can advance to the next level; if the player loses, the player must return to level 1. As a result, the player must complete all of the levels, and as soon as he or she completes the fourth level, the game is over.

3.2.3 Sequence Diagram

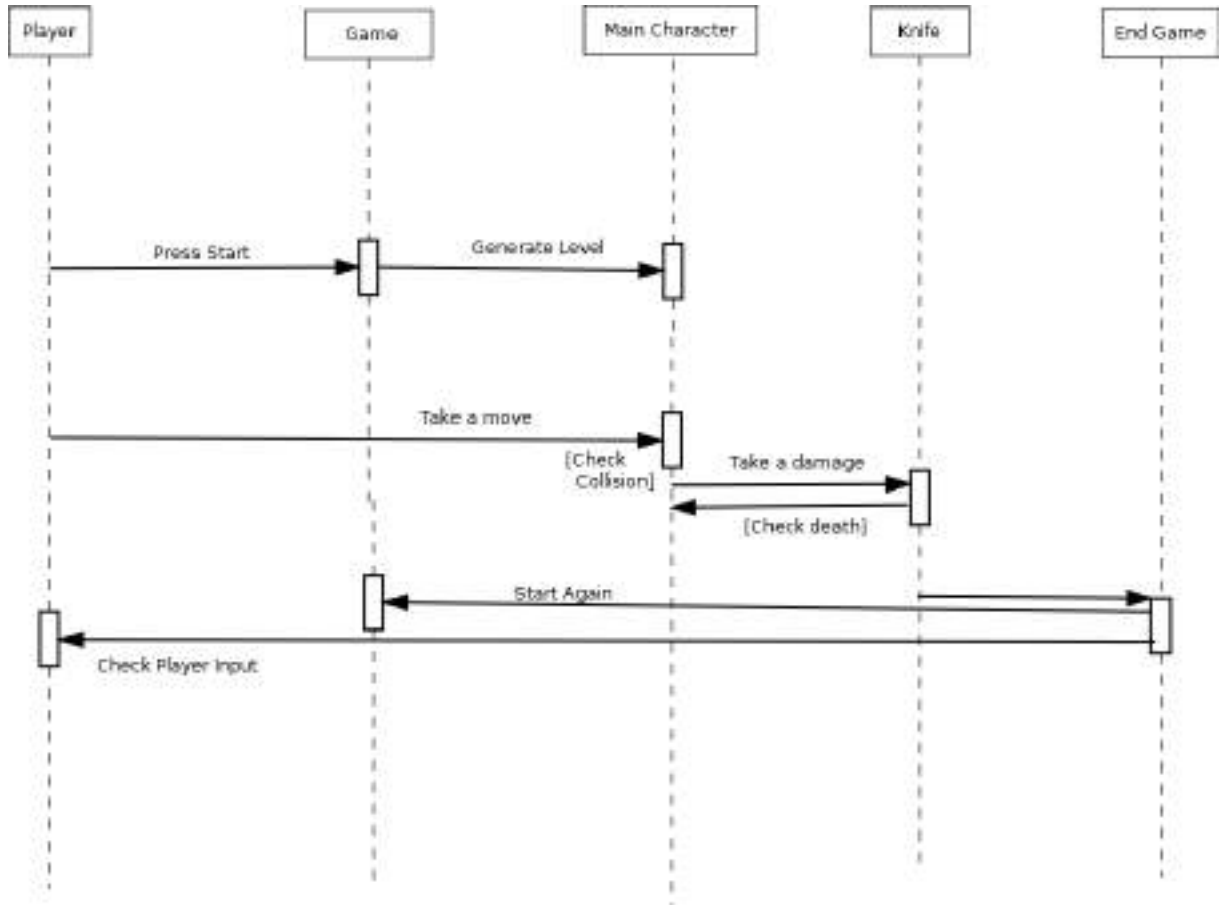


Figure 3.4: Sequence Diagram

In the field of software engineering, a sequence diagram or system sequence diagram depicts object interactions in time order. It depicts the scenario's objects as well as the sequence of messages exchanged between them in order to carry out the scenario's functionality. First, the game is started by the player. A player, who is our main character, enters the level and must fight enemies in order to complete the level. And once the player has taken control of all enemies and solved the puzzle, the level is completed.

Chapter 4

Project Implementation

4.0.1 Design Implementation

The levels were sketched out using the Unity 3D computer program.

Step 1: The first step is to choose a template: Depending on prerequisites, the template or format can be customized. Furthermore, this template includes pre-selected options. It speeds up the initial project preparation process.

Step 2: Create a new scene based on the previous scene's dialogue:
To manipulate the template, a developer must begin with the creation of a new scene, after which Unity will open a sample scene with only a Camera. The camera gives the developer the ability to see a picture of a particular point within the scene.

Step 3: Layout the terrain:
The primary step is to select a 3D Game Object to add a terrain game object to the scene. After choosing a 3D game object, go ahead and select Terrain. The terrain inspector window has some features that assist the user in designing perfect terrain. The terrain attribute in Unity3D can be used to create terrain based on the developer's specifications. [1]

This includes toolbars for editing the terrain. This enhances the responsiveness of the terrain by having several features.
1. Layout terrain tiles.
2. Design and paint terrain.
3. Add trees and fogs.
4. Then the Details or objects such as grass, a river, and flowers should be included.

Step 4: Building a neighboring terrain:
This is done so that the adjacent terrain tiles can be completed quickly. To do so, go to the terrain toolbar and select Create neighbor terrain.

4.0.2 Overview of all Levels of the game

After accessing these features, the ultimate diagram of the terrain which means level can be seen, which is appeared below.

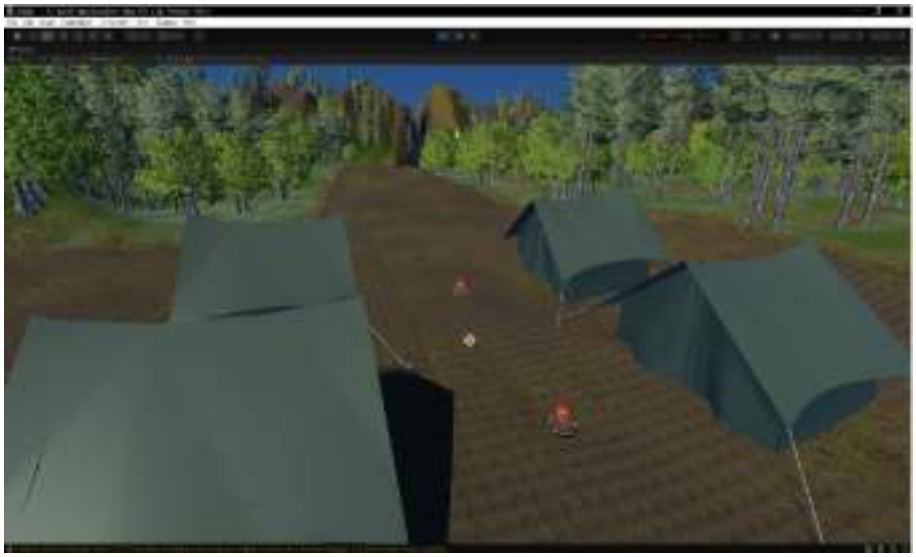


Figure 4.1: LEVEL 1

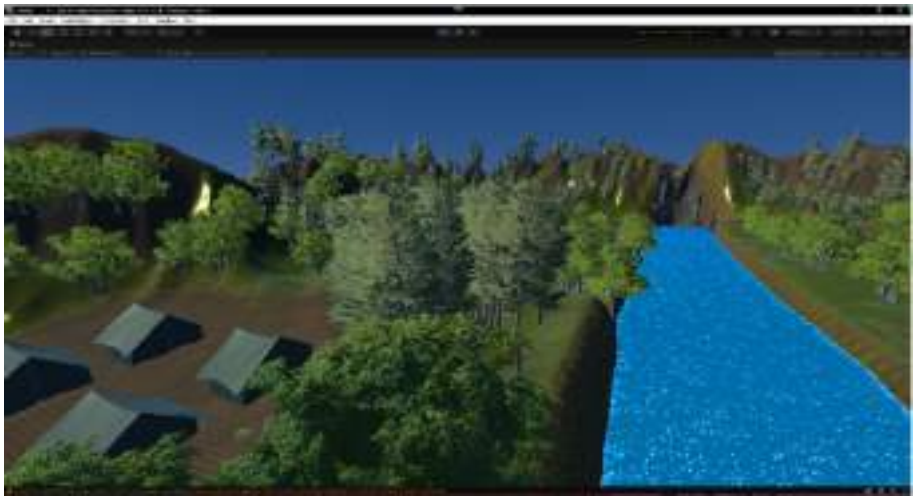


Figure 4.2: LEVEL 1

Figure 4.3: LEVEL 2

Figure 4.4: LEVEL 2

Figure 4.5: LEVEL 3

Figure 4.6: LEVEL 3

Figure 4.7: LEVEL 4

Figure 4.8: LEVEL 4

This is how the level design was carried out. Significantly, the player completes all of the levels to win.

This game is based on first person shooter game. So, the first person view is given below:

Figure 4.9: An image of a FPS view

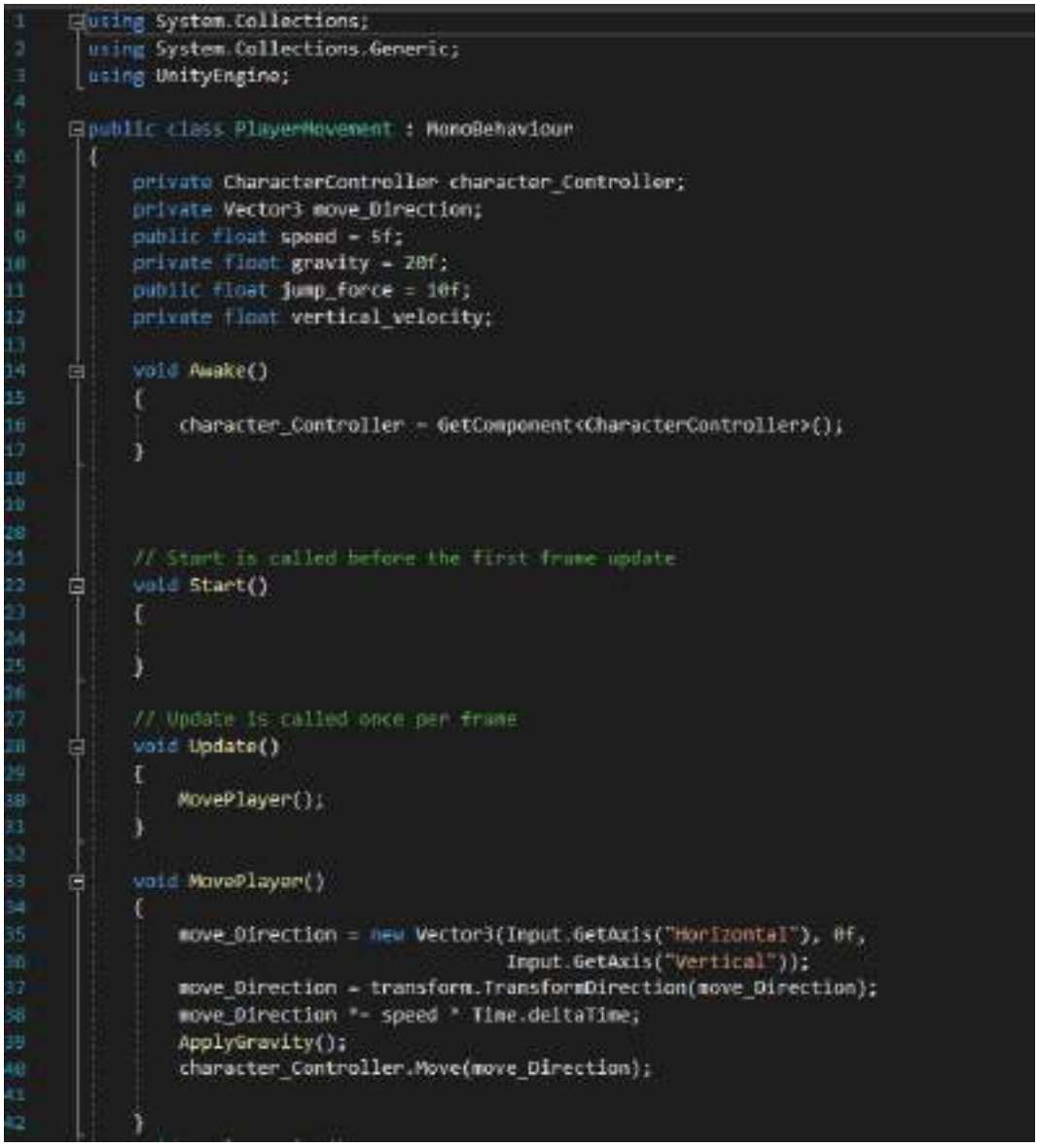
4.0.3 3D Charachter Design

The character design is divided into six sections..
Part 1:Drawing Preparation:
The complete process starts along with your creation of a character. To accomplish this, we will use Blender's Grease Pencil tool to create the initial sketch. Developer should have a front and a back view. The toggle Quad View alternative permits developer to isolate the screen into four areas, with a character model situated where they need it within the x, y, z-planes based on the sides, beat, and bottom of each segment. The next step is to import a file containing the 2D drawing into Blender and use this imported file to set each background picture of the cube as one of the character outlines.
Part 2: Shape Insertion:
Open edit mode and eject the cube to create a basic shape that matches your background image. This step allows developer to divide the character into parts, which will help them refine it individually. To enlarge the details, divide them into new layers, work with them, and then layer them back under their original area. After dividing the character's background image into cubes, subdivide the cubes into shapes that best fit the outline of the drawing.
Part 3: Using Layers:
Creating new layers that are copies of existing ones allows developer to move the outlines of layers to reflect how clothes and other coverings cover the character. Consequently, It is not required to begin at the beginning.
Part 4: Texturing the model:
Developers will have a 3D character demonstrate all one smooth color by including a sub-surf modifier under the modifiers heading. The texture paint tool is also available. Include a new paint slot to the tool shelf first, followed by adding a new shading type texture to the texture panel.
Part 5: Rigging Model for Animation:
Create a model skeleton. In object mode, join the mesh and rigging model. And for animation, move parts of the model to create the appropriate pose and key frame it for each frame of animation.
Part 6: Rendering the Character:
The final and most important step in character processing is to render the character in order to bring out the most realistic details.

4.0.4 Code Snippets

1. Player Movement

The code for player movement shown below generates a gameObject, i.e. the player, to move up, down, left, and right in response to the user's input. Firsly, We are using input.GetAxisRaw method which returns th evalue of the virtual axis identified bt axisName i.e Horizontal or vertical. The value generated by this method is in the range of -1, 0, 1 depending on which key the user has pressed on the up/right/left/down arrows. Then we are updating the position of our gameObject to a new position created by MovePlayer() method. To jump the player we are applying gravity function which determines whether your object is grounded or not. The above script can be used same as player movement for enemy movement.



```
using System.Collections;
using System.Collections.Generic;
using UnityEngine;

public class PlayerMovement : MonoBehaviour
{
    private CharacterController character_Controller;
    private Vector3 move_Direction;
    public float speed = 5f;
    private float gravity = 20f;
    public float jump_force = 10f;
    private float vertical_velocity;

    void Awake()
    {
        character_Controller = GetComponent<CharacterController>();
    }



    // Start is called before the first frame update
    void Start()
    {

    }

    // Update is called once per frame
    void Update()
    {
        MovePlayer();
    }

    void MovePlayer()
    {
        move_Direction = new Vector3(Input.GetAxis("Horizontal"), 0f,
                                     Input.GetAxis("Vertical"));
        move_Direction = transform.TransformDirection(move_Direction);
        move_Direction *= speed * Time.deltaTime;
        ApplyGravity();
        character_Controller.Move(move_Direction);

    }
```

Figure 4.10: Player Movement Script

```
    void ApplyGravity()
    {
        if (character_Controller.isGrounded)
        {
            vertical_velocity -= gravity * Time.deltaTime;
            Playerjump();
        }
        else
        {
            vertical_velocity -= gravity * Time.deltaTime;
        }
        move_Direction.y = vertical_velocity * Time.deltaTime;

    }

    void Playerjump()
    {
        if(character_Controller.isGrounded && Input.GetKeyDown(KeyCode.Space))
        {
            vertical_velocity = jump_force;
        }
    }

}
```

Figure 4.11: Player Movement Script

4.1 Existing System Architecture

There are plenty of the story mode games available online such as Raji: An Ancient Epic which is an action-adventure game in ancient India which strongly focuses on Indian Mythology. This game is based on third-person action game. In this 21st century, there are increasingly progressed computer advances and related applications created to assist individuals in complex computing and issue tackling. One self-evident example can be found within the game industry. There's an existing game that is an experience game-based evaluation framework in which teachers can effectively alter the learning substance with a user-friendly interface. They can too effectively manage the learner's learning status by analyzing the two-way specification chart. The test result at that point appears that after utilizing their proposed framework, learners are more inquisitive about the game-based learning exercises, and the learning productivity and aptitude capacity are much more moved forward. The I-Storytelling framework attempts to bring almost a story through interactions between independent operators with individual task systems which are custom-made to fit their particular parts within the story. The client interacts with the framework by covering up objects that are central to the story and by influencing the computerized characters through a discourse recognition interface. These intelligent, alongside irregular character beginning positions, give a implies of creating distinctive story lines for each execution of the framework.

4.2 Proposed System Architecture

Our extension proposes a special story line delineating the old plot of Mahabharata to get a youthful gathering of people fascinated by the Indian culture. The game will not follow the entire story line of Mahabharata but will hop through the vital events providing information to players moreover whereas letting the player complete levels related to the events within the Epic. The diversion arranged will be 3D. This permits for the utilization of superior graphics in a 3-dimensional game hence expanding the by and large feel of the game.stem Architecture. So our proposed system architecture as follows: The main story line of our game is based on the historical concept. Enemies have once once more taken over the world and it's up to the main character to save the world. To do so he must return the Lord Krishna's peacock feather to its original place which is a deep inside the temple which he should enter by solving many puzzles /mysteries additionally by battling enemies side by side who are there to stop him from doing so. The clues to the puzzles/mysteries would be appeared through parts of Mahabharata by taking the character in past and reliving a few scenes of Mahabharata. Hence, entering a deeper and deeper into temple he would battle the main villain and return the feather to its unique place and after that light spreads everywhere and Enemies are defeated.

Chapter 5

Testing

5.1 Functional Testing

5.1.1 Unit Testing

The first level of testing is unit testing, which is frequently carried out by the developers themselves. It is the process of ensuring that individual components of a piece of software are functional and work as intended at the code level. In a test-driven environment, developers will typically write and run the tests before passing the software or feature to the test team. Manual unit testing is possible, but automating the process will shorten delivery cycles and increase test coverage. Debugging will be easier as a result of unit testing because issues will be discovered earlier in the testing process and will take less time to fix than if they were discovered later. For our gaming application, unit testing is the most appropriate software method. We began writing code in the form of units, such as player movement, enemy movement, and attack script, at this point. We also tested each module separately so that we could easily understand each snippet and identify any errors. It aided us in comprehending the desired output of each module that we had divided into separate units.

5.1.2 Integration Testing

After each unit has been thoroughly tested, it is combined with other units to form modules or components that perform specific tasks or activities. These are then put through integration testing as a group to ensure that the entire application behaves as expected. User scenarios, such as movement of player or enemy are frequently used to frame these tests. Integrated tests are usually made up of a combination of automated functional and manual tests and can be performed by either developers or independent testers. We had written a code for every single unit that we had divided in unit testing, as we had already mentioned. The next step is to combine them all into a single module. This testing is critical in determining which units will work together without errors. Modules were integrated and tested using sequence diagrams to ensure that they behaved as expected.

5.2 Non Functional Testing

5.2.1 Compatibility Testing

Compatibility testing determines how well a program or piece of software will perform in various environments. It's used to see if your product works with a variety of operating systems, platforms, and resolution settings. The goal is to ensure that your software's functionality is supported consistently in any environment that your end users are likely to use. The software we're using is Unity Engine. It's free software for creating, designing, and developing 2D and 3D games. We made certain that our gaming application worked on all operating systems. This application runs flawlessly on a variety of operating systems.

Chapter 6

Result

This project is entirely application-based As the player propels through the levels they must unravel puzzles/mysteries to develop through the game The clues to the puzzles/mysteries would be shown through parts of the Mahabharata by transporting the character to the past and reliving some scenes from the Mahabharata. As a part of the development process, an extensive explanation must be included. It was completely begun with picking a game idea which ought to be appealing game concept and Provide user with a suitable stage where the game can be played.As a another step, a point by point portrayal of all the game components was to be included in a game plan report. Besides, it'll contain data with respect to the game mechanics as well as the software and technology that will be utilized for development. Having decided plan records, the another step was to consider the game structure which incorporates design, environment, surface, and other objects. These are all factors that make a developer have a better understanding of how game works and the way the application feels. The foremost objective is to create an engrossing playing environment with high-quality graphics. This is a single-player strategy game that you can play on a computer. The player will progress through several stages. This game has been structured to aid in the progression of the story. The primary focus will be on the story, levels, objects, animation, visuals, scripting, and gaming engine tools. This game will be primarily used in the gaming industry to provide a fun experience. This can be used to make the game more enjoyable for people of all ages, with a focus on children.

Chapter 7

Conclusions and Future Scope

This project's goal is to create a game architecture that provides a learning outcome while also allowing for emergent interaction between the game and the player. In this paper, a storytelling game similar to Raji: An Ancient Epic was created with Unity3D software, complete with high-quality visuals and animation created with After Effects and the Audition Tool. Blender was utilized for creating the 3D models. Board games of the ancient world and other forms of entertainment are not nearly as engrossing and fascinating as video games. Through the player's active involvement in the medium increases the level of satisfaction he or she derives from it, becoming more involved in the aspects of the game and more willing to participate. Games have significant effects on players based on the time they spend playing them. While excessive gaming can be harmful, moderate gaming can be beneficial, enjoyable, participatory, and, most importantly, educational. Not only do young people enjoy playing games, but they also enjoy creating them. As a result, the next generation of instructional gaming will be produced by the same generation that grew up with video games. Individuals who are interested in video games will have a good time as a result of this comprehensive synergy between education and digital gaming. In addition, with our game, we attempted to accomplish nearly everything listed above, so that anyone who played it, whether children or adults, would have interactive entertainment while also learning something about Hindu mythology or culture. This game can be made in future with the highest level of regulation possible. There will be AR/VR technologies that provide the user with a more leveraging experience which will promises players more immersive gameplay, control and entertainment. There will be a deeper concept of Indian mythology which enable players to be mentally active while experiencing all the fun of traditional game and can change the way we play games.

Bibliography

[1] Nithiyaa Muniandy, Sathya Manoharan, Kohilah Miundy, “A REVIEW ON DEVELOPMENT OF 3D ADVENTUROUS SERIOUS GAME: THE SEASONAL RUN”, IJAST, vol. 29, no. 7s, pp. 1821-1830, Apr. 2020.

[2] Aditya, Anitha M, ”Using 3D Models form Blender for use in OpenGL Virtual Reality Applications”, IRJET, vol. 07, no. 8, e-ISSN: 2395-0056, p-ISSN: 2395-0072, Aug. 2020.

[3] G. Liu and J. Wu, ”Design and Implementation of Virtual Campus Roaming System Based on Unity3d,” 2019 International Conference on Machine Learning, Big Data and Business Intelligence (MLBDBI), 2019, pp. 147-150, doi: 10.1109/MLBDBI48998.2019.00034.

[4] Pa.Megha L.Nachammai, T.M.Senthil Ganesan, ”3D Game Development Using Unity Game Engine” SSRG International Journal of Computer Science and Engineering 5.4 (2018): 15-18.

[5] F. B. Rahimi, B. Kim, R. M. Levy and J. E. Boyd, ”A Game Design Plot: Exploring the Educational Potential of History-Based Video Games,” in IEEE Transactions on Games, vol. 12, no. 3, pp. 312-322, Sept. 2020, doi: 10.1109/TG.2019.2954880.

[6] Buyuksalih, Ismail, et al. ”3D MODELLING AND VISUALIZATION BASED ON THE UNITY GAME ENGINE–ADVANTAGES AND CHALLENGES.” ISPRS Annals of Photogrammetry, Remote Sensing Spatial Information Sciences 4 (2017).

[7] B. Yang, T. Zhang and K. Duan, ”Development of a BCI Simulated Application System Based on Unity3D,” 2015 International Conference on Virtual Reality and Visualization (ICVRV), 2015, pp. 277-280, doi: 10.1109/ICVRV.2015.30.

[8] B. Cowan and B. Kapralos, ”A Survey of Frameworks and Game Engines for Serious Game Development,” 2014 IEEE 14th International Conference on Advanced Learning Technologies, 2014, pp. 662-664, doi: 10.1109/ICALT.2014.194.

[9] J. Xie, ”Research on key technologies base Unity3D game engine,” 2012 7th International Conference on Computer Science Education (ICCSE), 2012, pp. 695-699, doi: 10.1109/ICCSE.2012.6295169.

[10] Labschütz, Matthias, et al. ”Content creation for a 3D game with Maya and Unity 3D.” Institute of Computer Graphics and Algorithms, Vienna University of Technology 6 (2011): 124.

[11] K. Hartsook, A. Zook, S. Das and M. O. Riedl, "Toward supporting stories with procedurally generated game worlds," 2011 IEEE Conference on Computational Intelligence and Games (CIG'11), 2011, pp. 297-304, doi: 10.1109/CIG.2011.6032020.

Appendices

Appendix-A: Unity 3D Application Download and Installation

1. Go to Unity's Download Page and click Download Installer for Windows

2. Open the downloaded installer.

3. Accept the license and terms and click Next.

4. Select the components you would like to be installed with Unity and click "Next". Note: If you ever want to change the components, you can re-run the installer.

5. You can change the location where you want Unity installed, or leave the default option and click "Next"

Appendix-B: Creation of account

6. Unity requires an account for use. Start by opening Unity which can be done through the Desktop or Start Menu shortcuts.

7. If you have a Unity account already, you can sign in here and skip the rest of this guide. If you do not have a Unity account, click "create one".

8. Fill in the forms to create your Unity account. Then click "Create a Unity ID".

9. You will receive a confirmation email sent to the email used to sign up for a Unity ID. Click "Link to confirm email" to confirm your email.

10. Go back to the Unity application and click "Continue" after confirming your email.

11. Select "Unity Personal" and click "Next".

12. You are now setup to create games using Unity 3D Personal Edition.

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