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A 2D GAME (Two-Dimensional Game)

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ABSTRACT

This Android application's main programming language is Android/Java and the UI of the application is written in XML, when the application is opened, the user is presented to where one can play the classic game of truth or dare. When the user spins the bottle and the bottle lands in a certain direction in the program, the person that it lands on gets to choose between two options "truth or dare". And when the user chooses one of the two options, they are brought upon pre-existing questions and if they aren't satisfied with that, they can add more through a custom way in both of the options. The program is made to replicate the classic game of truth or dare in a more portable environment. This program was really fun to create because I really find the game truth or dare very enjoyable and what's so special about this program is that you can add custom truth or dare in this application which isn't very common in other truth or dare applications out there. It is a multi platform game engine that supports 2D and 3D graphics.Games were commonly scripted in Java# and Java Swing, which makes them much easier to understand.Currently, 2017.2 is the most updated version and at the time of release, Boot and JavaScript were removed from scripting languages, respectively.The development of a serious game requires perfect knowledge of the learning domain to obtain the desired results. But it is also true that this may not be enough to develop a successful serious game.

I. INTRODUCTION

The project is a platformer genre game, where the aim is to reach endpoint through obstacles and enemies in each stage. It was made using 2D and it is a Windows Operating System game. Unity was chosen to develop the game was, that it is becoming more and more famous in producing some amazing games.

A free version was used to make this game, and even though not all the features are available in this version, the tools provided were more than enough to develop a simple 2D game. an ultimate game-developing platform where it is possible to release the same project on multiple and various platforms, such as Linux, Mac, Android, iOS, Xbox, PlayStation and more. Even though 3D games are more attractive and visually more realistic, 2D games are also very popular as well, especially with smartphones and tablets gaining popularity each year increasingly. With that in mind, Unity developers decided to release 2D features in 2013 with completely new 2D features and toolsets.

With these additions, developing 2D games is much easier now, compared to earlier. In this thesis, I will take a closer look at the new features of Unity 2D and explain how a game can be developed even with a basic knowledge about programming and game engine. While working on the game, I was able to acquire a deep understanding of java language. Although there were some syntaxes that were new, but it was not hard to comprehend them. The purpose is to show the advantages of using to learn about the latest 2D features that have been updated over the past years, since 2D was introduced.

The game that was developed was solely for study purposes and is used as an example in this thesis. This thesis can also be used as a tutorial to create a basic 2D game from start to finish. Certain terms used in this thesis will be exactly the same as for example GameObject and Rigidbody. Scripts for the game can be found in the Appendices.

II. LITERATURE

A literature review of 2D games shows that this type of game has been around for decades and has continued to evolve over time.

One of the earliest examples of 2D games is the classic arcade game, Pong, released in 1972. This simple game involved two paddles hitting a ball back and forth and became the foundation for many future 2D games.

Another iconic 2D game is Super Mario Bros., released in 1985. This platformer game became a huge success and is still popular today. It features Mario, a plumber who jumps and runs through levels while avoiding obstacles and enemies.

The rise of personal computers and gaming consoles in the 1990s brought about a new generation of 2D games, such as Sonic the Hedgehog, released in 1991, and Donkey Kong Country, released in 1994.

These games utilized more advanced graphics and sound capabilities, which helped to create more immersive game play experiences.

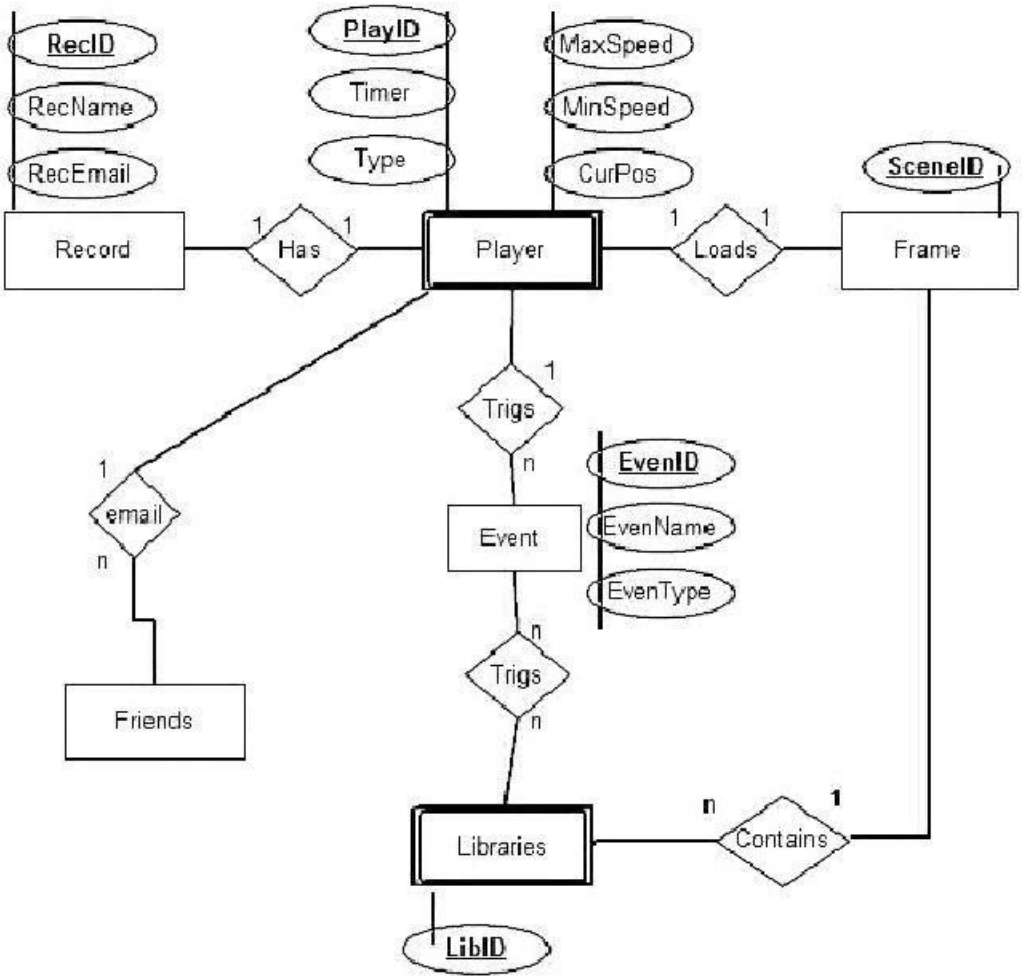
METHODOLOGY:

Its consists of the main components of the game as 2D features as how to move the character up, down, left and right and all their enrollment in the game, as the player, to connect with the friends by email, its record and the libraries where the records are being stored.

In short, our methodology proposes two main components for the design and development of a 2D game, a main game with quests and a set of learning mechanisms. These learning mechanisms are related with the main game but they are independent and played in parallel with main game. Thus, it is easier to include learning contents in the game by defining independent learning mechanisms.

This kind of learning mechanisms can be diverse, for example, quizzes, puzzles, or mini-games. But the knowledge is embodied mainly in those mechanisms that appear during the game, which means that the main game can be more oriented for fun factor engaging the player more.

- The following E-R diagram shows the overall architecture and the methodology of our application-



III. 2D FEATURES

The 2D game engine has built in 2D toolsets, which are essential in developing 2D games.

Without these toolsets, previously game developers had to use third party software to modify sprites. Graphics or textures in 2D use a sprite renderer whereas in 3D a mesh renderer is used

Present 2Dtoolsets are also used to customize and alter the physics mechanics of the sprites, making development of 2D games much easier and faster.

GAME DEVELOPMENT:

At the start of any project, there should be a goal and proper planning to achieve success.

A clear concept about the goals makes it easier to plan the steps ahead and make the necessary adjustments.

There are also certain requirements that are needed to be fulfilled, in order to make a game morepotent.

To make a game playable and interesting, it must have proper game design, graphics and game play.

With the help of a game engine, proper planning and a clear vision, it is easier to make a simple yet beautiful game.

IV. PLANNING AND REQUIREMENTS

Visual Studio can also be used for scripting, but it is required to set the default IDE from inside, while working on the project, several steps were planned beforehand so that the process would become easier.

The first step was to design the game, which was a fairly easy task as playing various games have helped to acquire sufficient knowledge about platformer genre games. The idea of designing is to keep the player engaged with the game and introduce new challenges on every corner.

The objectives for completing the stages were an essential part of the game design. The basic platformer concept is to move from one point to another, but by including objectives on each level, the player is expected to fulfill these in order to complete the current level. Acquiring textures for the game graphics was the most important and toughest part during the development. As it was required to search several websites and Unity's asset store for the desired material, which is free to use.

There were several moments during the design phase where the process was altered due to the fact of unavailable asset. With the basic idea and knowledge about graphics design and Photoshop, such obstructions can be avoided.

For the gameplay part, the input was kept fairly simple and intuitive, so that players are able to focus on the game rather than on the controls. For developing the game, it is essential to write the code.

The scripts are attached to the gameObjects, which functions in the game accordingly. MonoDevelop is the built-in Integrated Development Environment (IDE) that is provided by default when downloading the gameengine

V. CONCLUSION

I explained about the game development and programming with the 2D game engine along with the various features that make developing games easier. Developing games is a quite difficult and lengthy process without proper planning and execution .Working on the thesis not only helped me acquire knowledge about the 2D game engine and game development, but also about programming. As I was able to gain in-depth ideas about the game making and programming which I would not have come through during normal day to day practice. The game developed was for learning purposes and to introduce the latest features in 2D. This

project will be developed further and improved in the future. With a suitable game engine and a bit of knowledge about programming, it is possible to create games. Even though there are many game engines, each having its own perks and features. At the end it all comes down to individual choices, on which game engine to work on as every game engine serves for the same purpose. Over the last few years, Unity has developed a lot and now includes many more features for 2D game development. The game engine has seen significant changes and with its growing popularity more developers have chosen it over other engines, mainly because of its simpler user interface. To conclude, an overall idea about a modern day, two-dimensional game has been presented in this thesis. It is important to acquire knowledge in hopes of creating more complicated and wonderful games but in a simple way.

VI. REFERENCES

Here are some of the references for the project 2D Game:-

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