Hyper Casual Game Development

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Thesis submitted to the faculty of Computer and Information Sciences at PIEAS in partial fulfillment of requirements for the Degree of BS Computer and Information Science.

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This is to certify that the work contained in this thesis entitled

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It is fully adequate, in scope and quality, for the degree of BS Computer and Information Science from Pakistan Institute of Engineering and Applied Sciences (PIEAS).

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To all the Game Developers who ignite their imagination and bring joy to others.

Acknowlegement

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Contents

List of Figures

Abstract

This thesis presents the design, creation, and analysis of "Rescue Me," a 2D mobile hyper casual game made with the Unity game engine. The game seeks to entertain and intrigue players while portraying the difficulties faced during flood disasters. In this game, players take on the role of a heroic figure entrusted with rescuing drowning people within a set amount of time while avoiding numerous hazards. Players may navigate floodwaters and identify drowning people thanks to the game's simple controls that use a virtual joystick. As the levels progress, they become more difficult, with additional difficulties putting the player's talents to the test. When a level is completed successfully, it grows and offers the player a sense of accomplishment, unlocking further levels. The game's artwork was painstakingly created using Adobe Photoshop and Adobe Illustrator, resulting in attractive pictures that enhance immersion. Characters, surroundings, and problems are all designed to completely immerse players in the flood rescue concept and inspire participation and empathy for the victims. To create a satisfying gaming experience, a multitude of game design components, such as level design, player feedback, and difficulty balancing, were used throughout development. To improve game dynamics, performance, and user experience, rigorous testing and debugging approaches have been used.

Chapter 1

Introduction

Game development refers to the procedures of creating and designing video games. A handful of the abilities required for such a task include programming, art design, and audio engineering. Though it may be a challenging and time-consuming process, game development is also a very rewarding sector that allows people to express their creativity and creative ideas. A team of skilled professionals from small independent studios to major studios work to produce a game from start to finish. Because of the expansion of mobile gaming and the availability of gaming platforms, there has never been a dire need for game development professionals, today. As a result, for those with the desire and talent to succeed in business, game development has emerged as a lucrative and intriguing career alternative. Individuals with the ambition and talent to succeed will find a range of opportunities in game design, whether they are interested in producing console, PC, or mobile games.

Currently, there are four types of games produced in the market.

i. Hardcore

ii. Midcore

iii. Casual

iv. Hyper Casual

Hardcore and Midcore games are video games with a steep learning curve and a focus on challenges. They usually cater to more seasoned or dedicated players and provide a high level of depth and complexity. Making hardcore games may be quite difficult, especially if you want to push the boundaries of what is currently possible in terms of aesthetics, gameplay, and other features. Some of the various occupations involved in game creation include creating graphic assets, developing code, designing the game's mechanics, and playtesting. Hardcore games may be difficult to construct for small groups of players and might need a significant amount of time, money, and skill.

Hypercasual games are designed to be simple to play and have a minimal learning curve. They are popular on mobile devices and are distinguished by short stages, simple physics, and quick gameplay. The majority of Hypercasual games are free to play, with the opportunity to purchase in-game items or power-ups. They are meant to be played in quick spurts. Hypercasual games include the video games Flappy Bird, Doodle Jump, and Stack.

1.1 Objectives

For this project, developers are charged with building a super casual game centered on rescuing lives underwater. This game will be made using following tools.
Game programming in:

- C#

Game art in:

- Adobe Photoshop
- Adobe Illustrator

Game Engine:

- Unity Game Engine

1.2 Motivation

The gaming industry has changed as a result of Hypercasual games. These games were created during the 2019-2022 pandemic because they are entertaining and do not require the same amount of focus and attention as serious games. We fully encourage these games since you may play them while browsing social media and the internet. In comparison to other genres, downloads for hyper-casual games increased by 15% year on year[1], according to Sensor Tower's 2021 mobile gaming report. All other genres saw stagnation or even loss. In addition to more than 13 billion downloads, hyper-casual games generated USD 3.4 billion in ad monetization revenue for the whole year. Hyper casual games are defined by a single-core mechanic and a global appeal. They are capable of both user acquisition and virality. Here are some of the reasons why super casual games are important:

- Economic impact: Hypercasual games have evolved to account for a considerable chunk of the mobile gaming business, thanks to the possibility of big profits from in-app purchases and advertising.
- Cultural impact: Several Hypercasual games have soared in popularity, and they have had a substantial impact on popular culture.
- Accessibility: Hyper casual games' basic game mechanics and quick play periods make them accessible to a wide spectrum of players, even people who have never played a game before.
- Innovation: Despite having simple gameplay, several Hypercasual games have pushed the boundaries of gameplay and design, spurring the development of new and cutting-edge game systems.

1.3 Anatomy of Hyper Casual Games

When developing a Hypercasual game, there are a number of essential elements to consider [2] :

Gameplay

To maintain player interest, the primary gameplay mechanic should be simple to comprehend and execute, but also challenging and rewarding.

Art Style

In order to function efficiently on a broad variety of devices, Hypercasual games frequently employ basic, minimalist visual designs.

Level design

To keep the player engaged and returning back for more, levels should be designed to be completed rapidly, with increasing difficulty.

Monetization

For monetization, Hypercasual games frequently rely on in-app purchases or advertisements. To ensure that the game is fair and pleasurable for all participants, it is crucial to establish a balance between monetization and player enjoyment.

1.4 Challenges

Hypercasual games are a category of mobile games that are designed to be simple to learn but difficult to master. The difficulties of creating Hypercasual games include:

I. Simplicity

The gameplay mechanics and controls of Hypercasual games should be straightforward. This can be difficult, as it necessitates that the game be pared down to its essential components and that the game designers be extremely selective about what they include. This could lead to the deletion of input data.

II. Addictiveness

Hypercasual games are intended to be highly addictive, luring players back to play repeatedly. This can be difficult to accomplish, as it requires a well-balanced game and a progression system that keeps players interested.

III. Short play sessions

Since Hypercasual games are typically played in brief spurts, it can be difficult to

keep players interested for extended periods. This necessitates that the game be extremely replayable and have an effective progression system to retain players.

IV. Monetization

As is the case with all mobile games, Hypercasual games must be monetized. This can be difficult, as free-to-play games frequently rely on in-app purchases or advertising to generate revenue. It can be challenging to find the optimal equilibrium between monetization and gameplay.

1.5 Significance

Mobile games that are designed to be straightforward to take up and play, with uncomplicated controls and gameplay mechanics, are known as Hypercasual games. Typically, they are intended to be played in brief spurts and are highly addictive. The allure of Hypercasual games lies in their simplicity and accessibility, as players of all ages and abilities can appreciate them. They are also very popular because they are free to play, with in-app purchases available for additional content or to eradicate advertisements. Hyper-casual games frequently place a heavy emphasis on replayability, as players attempt to surpass their previous high scores or complete objectives to access new content[3].

1.6 Project Workflow

- Ideation / Discovery.
- Rapid Prototyping & Validation.
- Game Design & Development.
- Validate Marketability
- Validate Engagement
- Validate Revenue Potential

- Validate Scalability

Chapter 2

Literature Review

Hypercasual mobile games are distinguished by their basic gameplay, brief levels, and instant accessibility. These games are designed to be simple to take up and play, with a common emphasis on replayability.

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"Doodle Jump", a 2009 iPhone platformer game, is among the earliest examples of a Hypercasual game. The objective of the game is to reach as high as possible while controlling a character that autonomously leaps from platform to platform. The success of "Doodle Jump" paved the way for the emergence of Hypercasual games in subsequent years.

"Fruit Ninja" (2010), "Flappy Bird" (2013), and "Tap the Tower" (2014) are additional early examples of hyper-casual games. These games helped establish the genre as a significant influence in the mobile gaming market by gaining widespread popularity.

In the years since, the market for Hypercasual games has continued to expand, with new titles and franchises constantly being introduced. Today, Hypercasual games are among the most popular and lucrative games on the App Store and Google Play, and their popularity shows no symptoms of abating.

2.1 Mechanics of HCG

Following are the Mechanics which are mainly used in Hyper Casual Games[4]

i. Timing mechanics

ii. Puzzle mechanics

iii. Merging mechanics

iv. Stacking mechanics

v. Draw Mechanics

vi. Swerving mechanics

vii. Resizing mechanics

viii. Turning mechanics

ix. Pushing mechanics

x. Agility or dexterity mechanics

xi. Direction mechanics

xii. Rising and falling mechanics

xiii. Growing mechanics

Timing Mechanics

In numerous Hypercasual games, timing mechanics are a common component. These mechanisms involve conducting actions or making judgments at particular points in time, typically in response to on-screen prompts or changing game conditions.

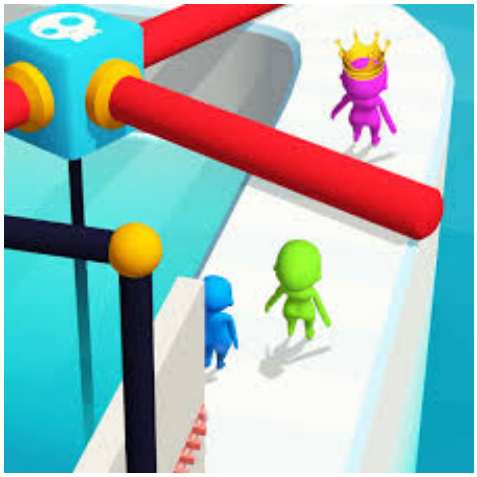

Figure 2.1: Fun Race 3d

Puzzle Mechanics

Puzzle mechanics are a form of gameplay element that require the use of logic and problem-solving skills to overcome obstacles or accomplish objectives. Puzzle mechanics are frequently incorporated into hyper-casual games in order to add a degree of difficulty and strategic thought to the gameplay.

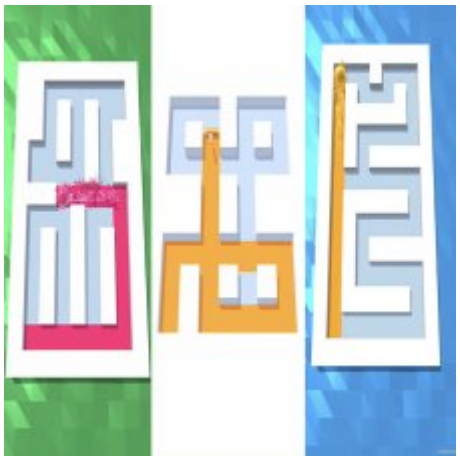

Figure 2.2: Roller Splat

Merging Mechanics

Typically, merge mechanics refer to gameplay elements that involve integrating

or merging two or more objects or elements in order to advance or accomplish a specific objective.

Figure 2.3: Merge Dogs

Stacking Mechanics

Stacking mechanics typically refer to gameplay elements that involve layering or arranging objects in order to accomplish a specific objective. These mechanics may involve a variety of actions, such as constructing the tallest possible tower of objects, arranging objects in a specific pattern, or balancing objects on top of one another.

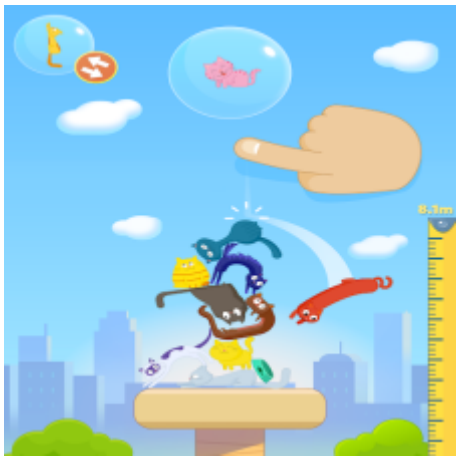

Figure 2.4: Cat Stack

Draw Mechanics

Draw mechanics typically refers to game elements that require sketching or tracing lines on the screen to accomplish a specific objective. This may entail sketching a

path for a character to follow, tracing a specific shape, or drawing a line to connect objects.

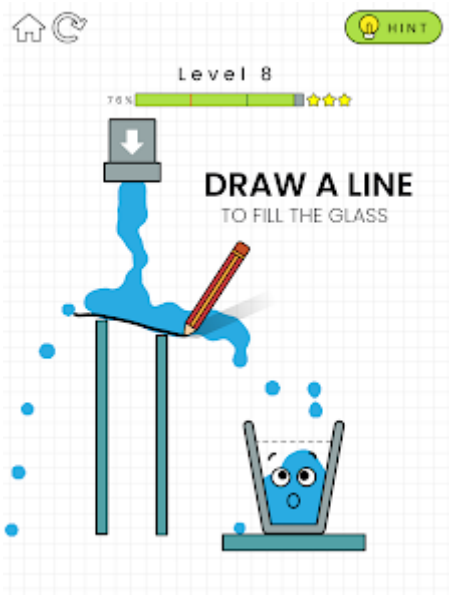

Figure 2.5: Happy Glass

2.2 Controls of HCG

Hyper casual games are designed to be easy to pick up and play, and as a result, they often have simple controls that can be used by players of all skill levels. The specific controls for a hyper casual game will depend on the specific game, but some common control schemes include:[5]

- Single Touch
- Joystick
- Tap
- Slide
- Swipe
- Hold
- Release

- Drag
- Others

2.3 Art Styles of HCG

Mobile games that are designed to be simple to play and extremely addicting are known as Hypercasual games. Typically, they have basic, colorful visuals and are performed in brief spurts. The art style of a hyper casual game can vary, but it is typically designed to be eye-catching and engaging in order to captivate the player and encourage them to play for as long as possible. Bright, vivid hues, simple forms, and a minimalistic aesthetic are common elements of the art style of Hypercasual video games[6].

Following are art styles that are commonly used in Hyper Casual Games:

- 2D
- 3D
- Pixel
- Cartoon
- Cell Art
- Low Poly
- High Poly
- Photo Realism
- Stylized Realism
- Isometric
- Other

2.4 Look of Camera in HCG

The camera in Hypercasual games is typically positioned to provide the player with a clear view of the gameplay area and any obstacles or adversaries they must avoid. The appearance of the camera in a Hypercasual game can differ, but it is typically designed to be simple and uncluttered in order to make the gameplay as straightforward as possible.

- First Person
- Third Person
- Over the Shoulder
- Top Down
- Face On
- Other

2.5 Progression in HCG

Progression in a hyper casual game (HCG) refers to how the game challenges the player and how the player's skills and abilities develop as they continue to play the game. In an HCG, progression can take a variety of forms but is typically accomplished through the use of increasingly difficult levels or challenges that require the player to think and react more swiftly and precisely as they advance. Some collectible card games may also include progression systems that enable players to acquire new characters, abilities, or other in-game rewards as they play, providing additional motivation to continue playing and improve their skills. The purpose of progression in an HCG is to keep the game engaging and difficult for the player over time and to encourage them to continue playing in order to develop and advance through the game.[7]

Following are some of the ways in which a Hypercasual game progresses

- Level Based
- Star Based
- Upgrade Based
- Star Based
- Percentage complete Based
- Engagement Based
- Content-Based

Chapter 3

Methodology

The project was divided into these parts:

- Ideation
- Prototyping

3.1 Ideation

After Research and study, we finalized 5 ideas for our game. We tried different genres of the game which are explained above. Some of those Ideas are given below

3.1.1 Simulation (Hostel Life)

A realistic and compelling game called "Hostel Life" let players feel the difficulties and camaraderie of living in a hostel. Between those who have never had the chance to live in a hostel and those who want to recreate their favorite memories, the game attempted to fill the gap. "Hostel Life" provided a nostalgic and familiar experience with realistic gameplay and interesting storytelling, capturing the essence of hostel life through its choices and interactions.

3.1.2 Stacking (Diets)

Players in the addictive stacking level-based game "Diets" had to eat the food items that showed up on the screen. The player's health was influenced by what they consumed, with some meals having a detrimental effects on their health, such as fast food, which could cause health problems. The main goal was to choose goods that would improve the player's health in order to make healthier decisions. Players were required to plan ahead and choose wisely during the gameplay to keep their characters healthy.

3.1.3 Racing(RC Motorsports)

The thrilling racing game "RC Motorsports" required players to complete levels by taking certain places in challenging races. The goal of the game's fast-paced gameplay was to display excellent racing abilities and cunning movement. To maneuver through exhilarating tracks and attain the necessary position to advance, players had to perfect their control over remote-controlled vehicles. The game's immersive experience, refined gameplay, and exhilarating races were designed to provide racing enthusiasts with an adrenaline-pumping trip.

3.1.4 Arcade(Flood Rescue)

The central idea of the game was to rescue flood victims while overcoming various obstacles that were put in your way at various levels. The game's level-based progression system gave players the chance to negotiate more difficult situations and carry out risky rescue operations.

3.1.5 Puzzle/Strategy(Magneto)

The Idea of the game was to move one Magnet by the force of the other Magnet. The first magnet will move and clear different objects and its motion was depending on the second magnet.

We decided on the Flood rescue Game for our Project because of the following reasons

- Not much work done in this type of genre
- Provided Clear scope of the game

We worked on the Flood rescue Game. The main theme of the game was to rescue people from a boat who are stuck in an area affected by flood and created different scenarios for our game. But the game was lacking a puzzle element which is a key role in developing Hyper Casual Games. We worked on the idea and made some changes to the game.

3.1.6 Puzzle/Strategy(Rescue Me)

The final Idea of our game was "Rescue Me". The Theme of the game is to rescue people who are underwater. The core gameplay of our game will be

- The player appears in the scene on a boat.
- User can control the player through a joystick placed at the left bottom of the screen.
- The objective of the game is to rescue people who are drowning underwater.
- The level is passed when all the people are rescued.

Following is the Game Design Document of our game which provides a Complete Picture of the Game:

3.2 Game Design Document

A game design document (GDD) describes the design and development of a video game in writing. It is a comprehensive plan outlining the various elements of the

game, such as its mechanics, levels, and overall gameplay. The GDD functions as a road map for the development of the game, providing the development team with guidance and direction as they construct the game. It is an essential instrument for ensuring that all aspects of the game are well-considered and cohesive, and for ensuring that the game is developed in accordance with the designers' vision. As the game evolves and changes throughout the development process, the GDD may be revised and updated [8].

3.2.1 Overview/Theme

Idea Summary The game's central concept centers around the necessity of rescuing individuals in peril underwater. The player will assume control of a character using a joystick interface to navigate a path filled with perilous impediments. The character will require a combination of precise timing and strategic planning to reach safety.

Goal The primary goal is to rescue individuals in peril before they encounter obstacles or reach the water's surface.

3.2.2 References

Links and Screenshots of some of the games that describe the view, artwork, and feel of the game that we are proposing are given in 3.1, 3.2 and 3.3.

Rescue Wings:

Figure 3.1: Rescue Wings

Aquavias:

Figure 3.2: Aquavias

Atlo's Adventure:

Figure 3.3: Alto's Adventure

3.2.3 Art Style:

- 2D
- Low Poly
- Stylized Realism
- Other

3.2.4 Look Feel / Camera:

- Third Person

- Side View

The game will utilize a third-person, side-view perspective, as depicted in the image below. The camera will be placed at a zoomed-out distance to provide a comprehensive view of the game's environment. Seventy percent of the scenery will consist of underwater elements, while the remaining thirty percent will depict the environs above water. A watercraft will serve as the starting point for the character's rescue missions, after which he or she will save individuals in peril. As they progress through the game, players will face a variety of challenges, including the need to deftly avoid underwater obstacles and dangers, such as submerged detritus or obstacles. By retaining concentration and employing strategic maneuvering, players will be able to overcome these obstacles and complete their rescue missions successfully.

Figure 3.4: Sample Environment

3.2.5 Mechanics:

Controls

- Landscape
- Timing

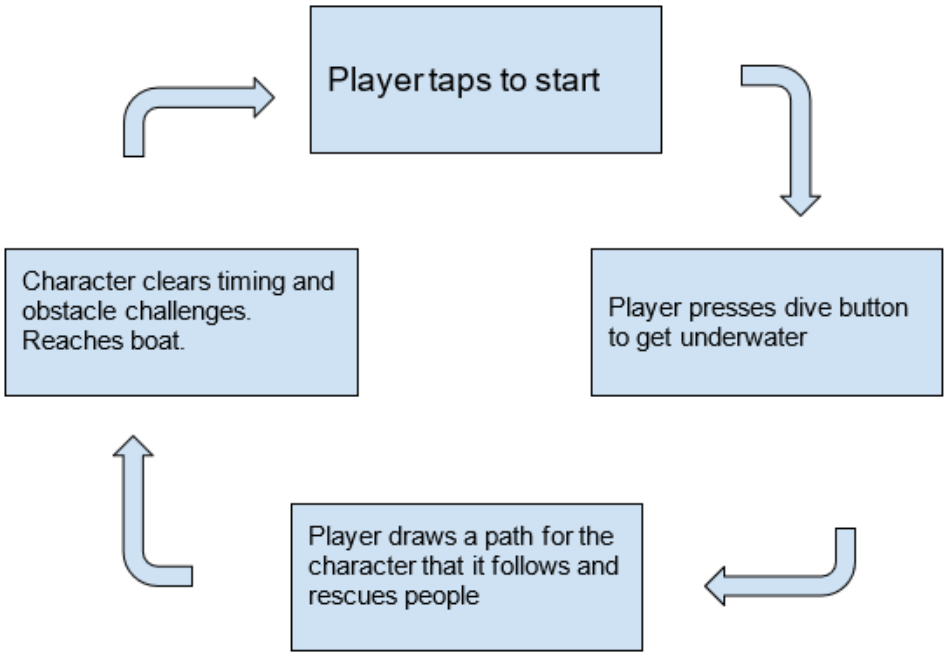

Figure 3.5: Core Loop of the game rescue me

- Tap
- Other

The orientation of the game will be landscape just like shown in the above image. There will be main menu buttons that a player has to tap to use them.

3.2.6 Progression

- Level Based
- Upgrade Based
- Star Based
- Other

The player must complete a level to move on to the next one. Players' performance on a level will be based on the number of stars that they get for that

level. The time taken to rescue persons at a level defines the number of stars for that level. Over time we will add more interesting stuff in the game for the player.

3.3 Unity Workflow

In this section we explain how the game was created in Unity using various tools.

3.3.1 Main-Menu

In the mainmenu, we have used an image for the background and added three buttons with functionality of settings menu, play and info.

There is a built-in function of "On-Click" which is located in inspector view of UI-Buttons and events are added which will occur on clicking the respective buttons. All the buttons when clicked play a sound and background music is also being played. Background music plays with a built-in function called "On-Awake", whenever the game is loaded. It continues to play without being destroyed whenever a scene is loaded.

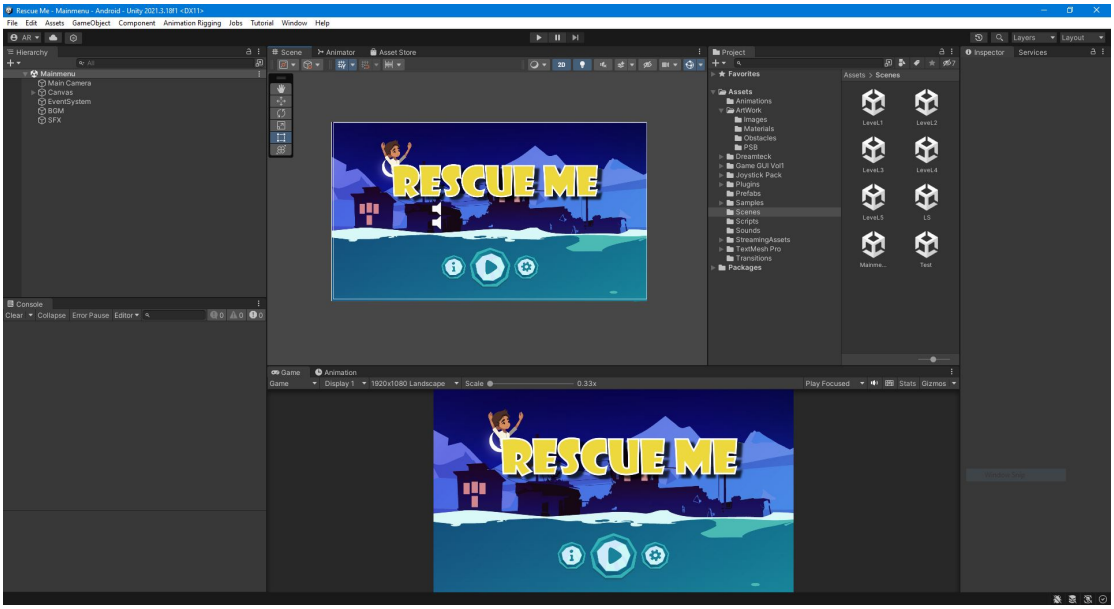

Figure 3.6: Main-Menu

3.3.2 Level-Select

Whenever you click the Play button, Level-Select screen will be reached where locking mechanism is implemented using "Level-Loader" which has a script attached to it, which means a user cannot play the next level, if the previous is not completed.

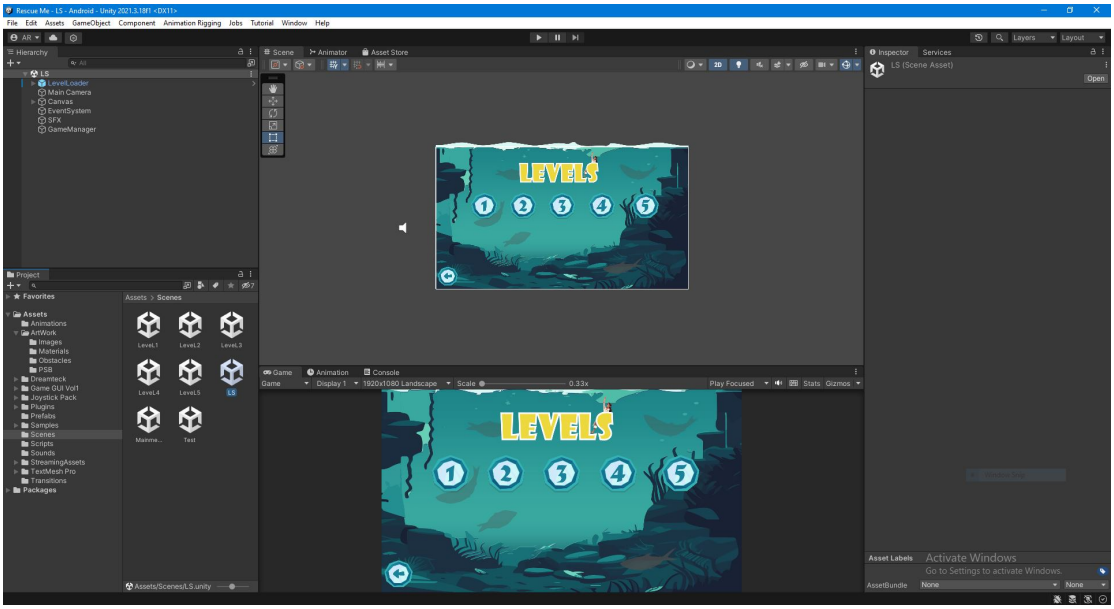

Figure 3.7: Level-Select screen

3.3.3 Game-play

When a user selects a certain level, It will load the gameplay screen. Levels have been designed in a way that every level is more difficult than the previous one. "Game-Manager" is added and it is handling the functionality of level success. Joy-Stick is being used for controlling the movements of character. Time functionality is encorporated which emphasizes the player to complete the level within that time-span. Obstacles are added into the gameplay.

There is a pause button present in the left-bottom corner which on click shows the pause menu. Pause menu has three buttons "Resume", "Menu" and "Quit".

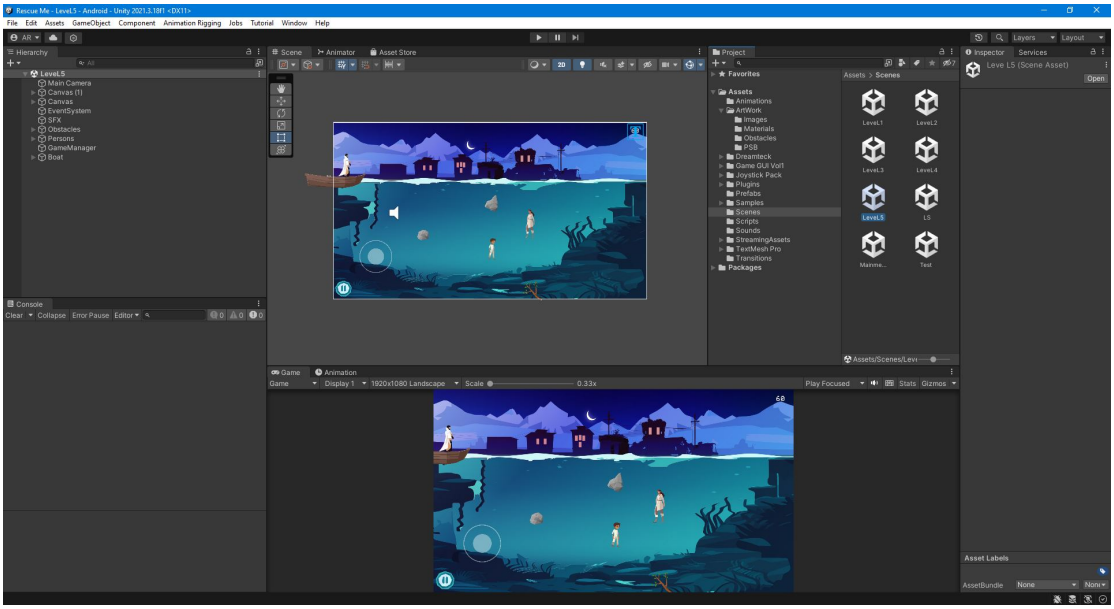

Figure 3.8: Game-Play

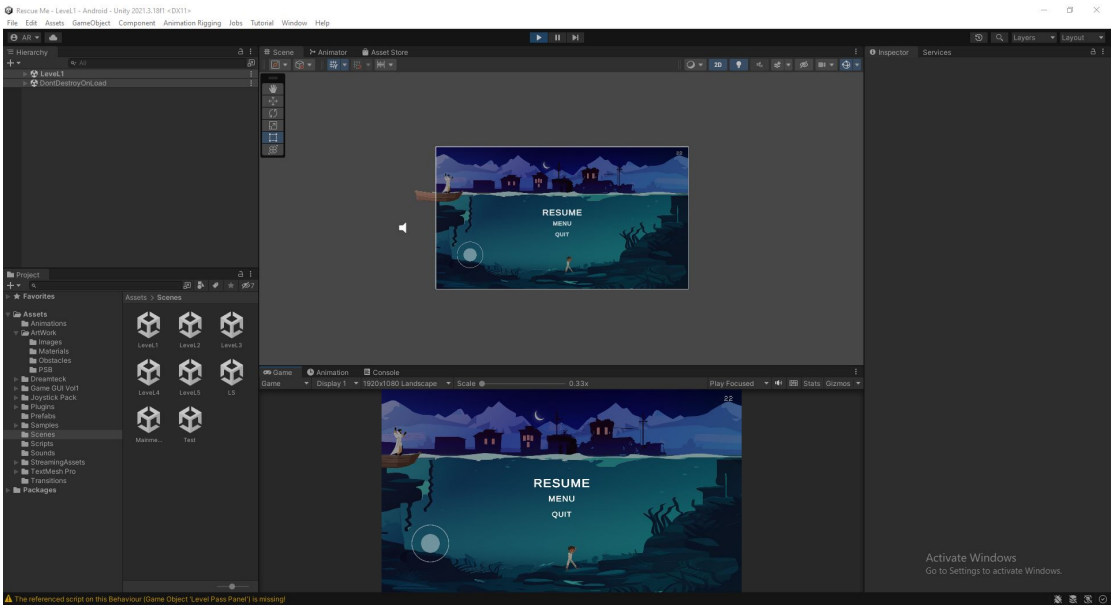

Figure 3.9: Pause-Menu

3.3.4 Animation

There are multiple animations used in the game which are created in unity, It has an animation system called "mechanim" which helps creating cool animations. The animation system in Unity is based on Animation Clips, which include information on how the position, rotation, or other aspects of certain objects should change over time. Each segment corresponds to a single linear recording. The Animation Clips are then grouped into an Animator Controller, which is a flowchart-like structure. The Animator Controller is a "State Machine" that keeps track of which clip is playing and when animations should transition or merge. The Animation Clips, Animator Controller, and Avatar are all brought together on a GameObject via the Animator Component. This component includes a reference to an Animator Controller as well as (if applicable) the model's Avatar. The Animator Controller, in turn, holds references to the Animation Clips that it utilises[9].

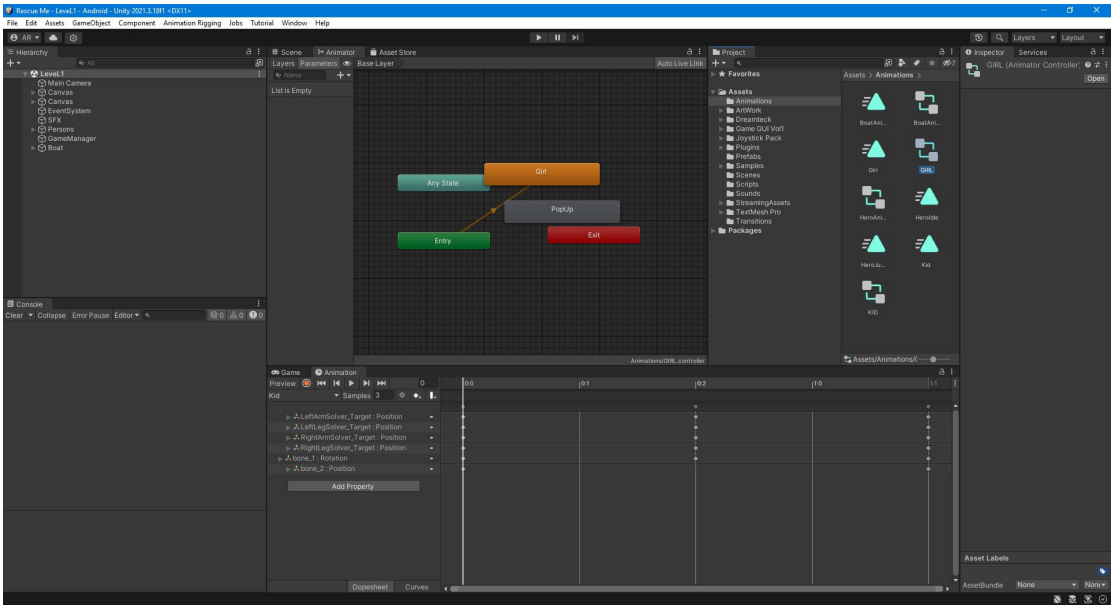

Figure 3.10: Animation controller

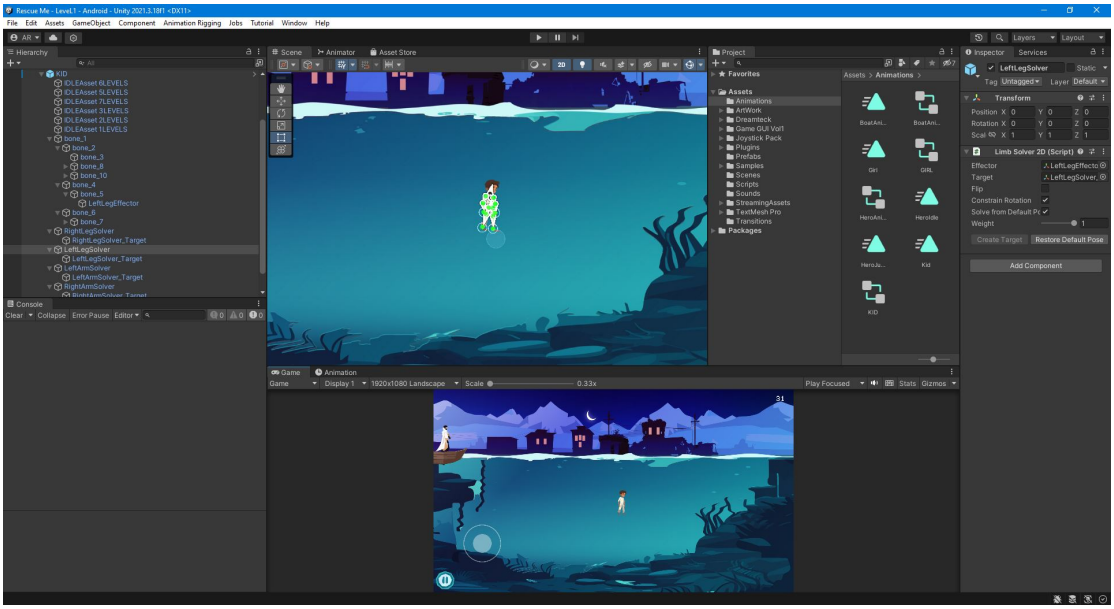

Figure 3.11: bones attached in the scene

Figure 3.12: Bones attached to the body of the character

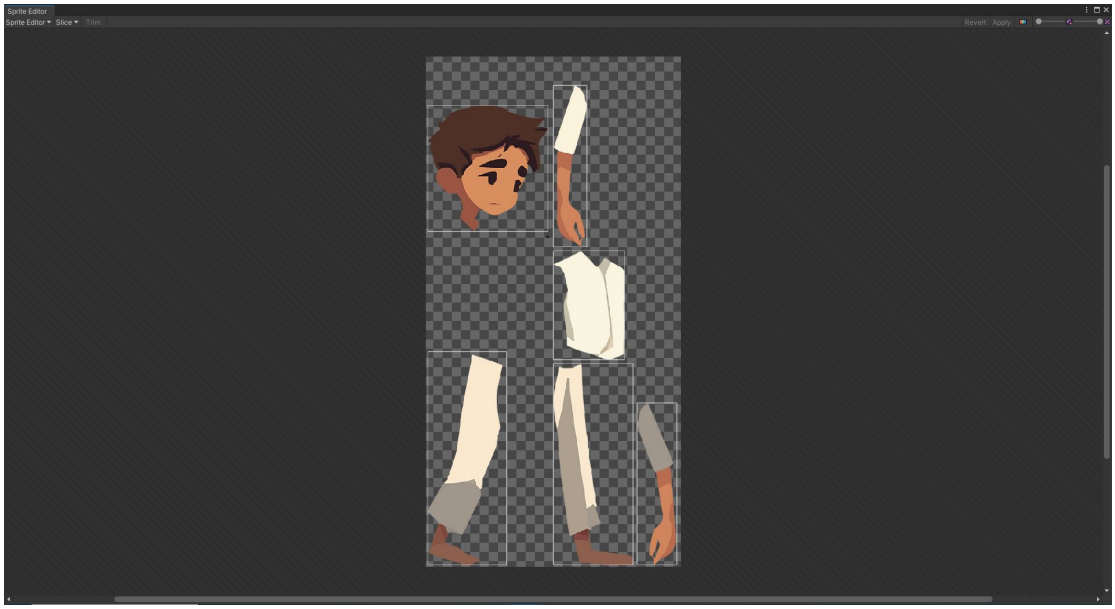

Figure 3.13: Sprites of the kid character's body part

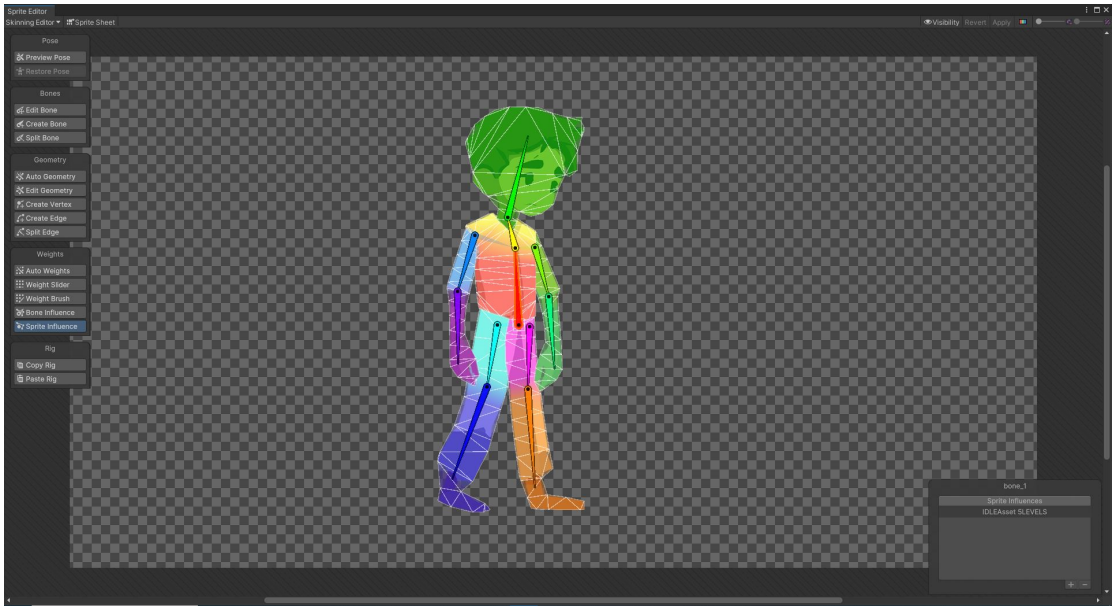

Figure 3.14: Influence of bones on the character's body

The images illustrate the following:

- The animation segments are imported from an external source or created within Unity. In this instance, they are imported motion-captured humanoid animations.

- In an Animator Controller, animation segments are organised and inserted. This image depicts an Animator Controller within the Animator interface.

States (which may be animations or sub-state machines with nesting) are represented as nodes connected by lines. This Animator Controller can be located as an asset in the Project window.

- The unique bone structure of the constructed character model (in this case, the astronaut "Astrella") is converted to Unity's standard Avatar format. This mapping is stored as an Avatar asset alongside the imported character model, and is displayed as shown in the Project window[10].

- An Animator component is associated with the character model during animation. The above Inspector view displays the Animator Component, which has both the Animator Controller and the Avatar assigned. These are combined by the animator to animate the model. The Avatar reference is only necessary when animating a humanoid figure. For other forms of animation, only an Animator Controller is required.

3.3.5 Level-Success

Level completion occurs when the player successfully rescues all submerged persons within the time limit. When the game objects which are tagged as "collectible" are less than or equal to zero, the level will pass and you can move forward to next level.

The level is considered to have failed if the player fails to save a specified number of people within the time limit. If the characters hit another object, the level will fail and vice versa.

Figure 3.15: Level-Pass screen

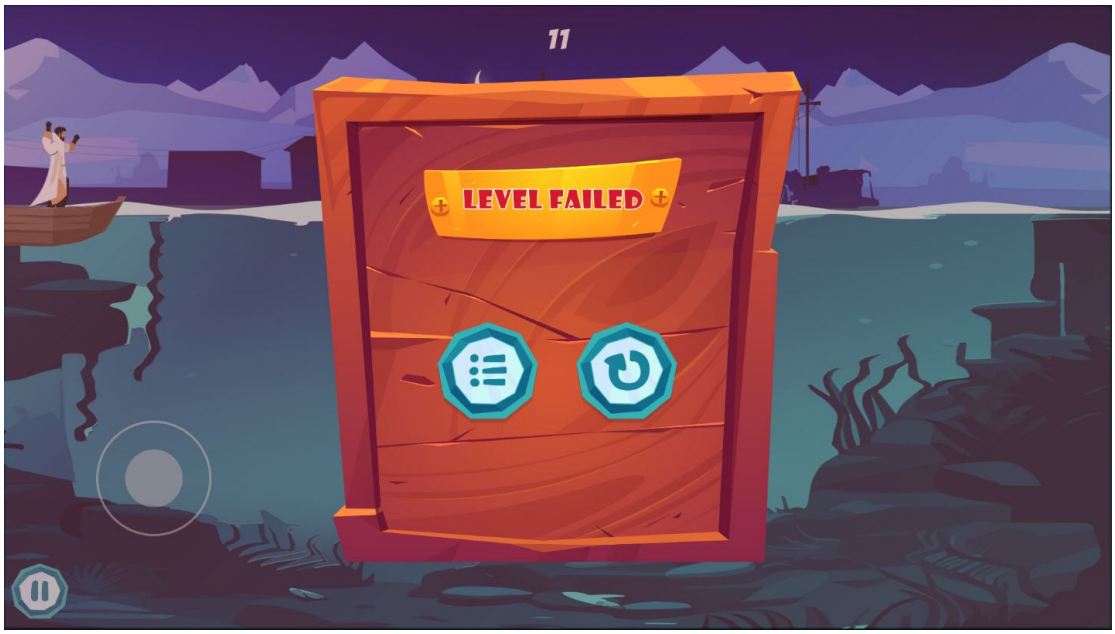

Figure 3.16: Level-Fail screen

Chapter 4

Game Art and User Interface

The user interface and game art both significantly improve gamers' overall gaming experiences.

I. Immersion and Ambience: The visual style and immersive world that players enter are created by game art. Character designs, set designs, props, and special effects are among its components. Games may immerse players in distinctive and intriguing worlds and foster a stronger emotional bond and sense of immersion by utilizing compelling and unified art styles. [11]

II. Aesthetics and Appeal: A game's appeal and ability to draw players can be considerably enhanced by well-executed game art. Visual aesthetics, including appealing color combinations, eye-catching compositions, and meticulous attention to detail, can arouse feelings, pique interest, and leave a lasting impression. Games may stand out and distinguish themselves in a crowded market by using art.

III. Emotional Engagement: The use of artistic components in games, such as character designs, locations, and story-driven graphics, can affect players' emotions. Game art can generate a variety of feelings that enhance the overall gaming experience, whether it is the thrill of an exciting action scene, the beauty of a magnificent location, or the connection with well-designed characters.

4.1 Game Art

Our game's art direction and visual aesthetic take a minimalistic stance. The focus is on clarity, crisp lines, and stripping visual components down to their bare essentials. Through the tasteful application of minimalistic compositions, constrained color palettes, and subtle details, the art direction aims to communicate meaning and evoke emotions. The aesthetics of the game are reduced to their most basic components so that players may concentrate on the main gameplay and story without being sidetracked. The calm, clarity, and visual harmony evoked by the minimalistic art style immerse players in a meditative and peaceful gaming experience.

We have taken great delight in using a variety of platforms, including Adobe Illustrator, and relying on our own artistic abilities to create the game art as part of the game development process. The following major points highlight our original artwork:

- Handcrafted Artwork: Our team of artists has painstakingly created every part of our game's artwork, from character designs to environments and user interface components. We spent several hours designing, painting, and perfecting our visuals to make sure they were unique and suited to our particular game concept.

- Artistic freedom: By avoiding using or copying pre-existing artwork from the internet, we have placed a significant emphasis on keeping our artistic freedom. Instead, we have worked hard to develop a distinct visual identity for our game that will allow us to properly convey our creativity and vision.

- Artistic Coherence: We have made sure that our art maintains a consistent and cohesive style throughout the game by using tools like Adobe Illustrator. We have given careful consideration to colour schemes, line work, and shading methods to produce a unified visual experience that will increase players' aesthetic appreciation and immersion.[12]

- Unique Artistic Vision: We got the chance to infuse the graphics with our own artistic vision because we made all of the game art from scratch. We drew influence from a variety of sources and genres while incorporating our own touches, creating a graphical style that stands out and perfectly expresses the themes and atmosphere of our game.

- Attention to Detail: We have given great consideration to each and every aspect of our aesthetics due to our commitment to original artwork. We have worked hard to achieve a degree of detail that adds depth and richness to the game world and creates a visually captivating experience for players, from exquisite character designs to intricate backdrop features.

- Intellectual property: We have made sure that we are not violating any intellectual property rights by producing our own artwork. This safeguards our work and enables us to completely own and manage our artistic works. It also ensures the originality and legality of the visuals in our game.

In conclusion, our game art has been painstakingly made using tools like Adobe Illustrator, enabling us to create distinctive visuals that highlight our team's artistic abilities, uphold consistency, and convey our distinct vision. The focus on handcrafted artwork exemplifies our dedication to provide players with an authentic and ethical gaming experience.

4.1.1 Character Design

We concentrated on developing three distinctive and memorable character designs for our game. With meticulous attention to detail, each character has been given a unique visual identity that reflects their unique personalities and positions within the game's plot. We prioritize quality over quantity so that every character receives unique consideration and attention to detail[13]. Every element has been painstakingly created to make them visually appealing and instantly recognizable, from their body proportions and motions to their face traits, dress styles, and dis-

tinctive accessories. Because there are fewer characters, we have more time and resources to focus on making them visually appealing, distinctive in the game world, and memorable to players.

The three characters in your game are described in depth here:

I. **Hero:**

The main character of the game is the hero, who is motivated by a sense of duty and a desire to protect others. Their physical attributes mirror their bravery and tenacity. They are strong and resilient, with a muscular frame and a self-assured demeanour. They wear a tough yet functional suit and are armed with tools and equipment that indicate their preparation for difficulties. They might have looks on their faces that show how determined they are to save the other characters. The hero stands out as a representation of courage and hope thanks to a distinctive hairdo or striking item.

Figure 4.1: Hero Posture 1

Figure 4.2: Hero Posture 2

II. **Kid:**

The young protagonist, who depends on the hero's protection and direction, represents innocence and fragility. With smaller proportions and infantile features, they have a youthful and playful aspect. They might dress comfortably and casually, expressing their relaxed demeanour. As the child explores the gaming environment, their facial expressions could be a mixture of

wonder, trust, and perhaps terror. Their interactions with the hero and their surroundings demonstrate how dependent they are on direction, emphasising how crucial it is that they be rescued.

Figure 4.3: Kid Posture 1

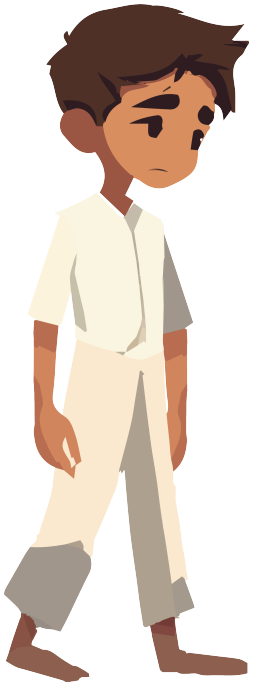

Figure 4.4: Kid Posture 2

III. **Girl**

The girl's persona stands in for a damsel in need of the hero's assistance. Her flowing hair, delicate movements, and sense of vulnerability may give off an aura of elegance and beauty. She might be dressed delicately, and her expressions on the outside might imply a combination of thanks, hope, and expectation. The game's narrative is driven by the girl's interactions with the hero and the surrounding environment, which underscore how dependent she is on their valiant efforts.

Figure 4.5: Girl Posture 1

Figure 4.6: Girl Posture 2

4.2 User Interface

The user interface (UI) in our 2D game has been thoughtfully created to give players a fluid and simple gameplay experience.[14] To provide straightforward navigation and accessibility, the UI elements are carefully positioned and arranged. Players are guided through numerous game functions, such as inventory management, level selection, and settings, using simple and clear icons, buttons, and menus. The game's overall art style is complemented by the UI's visually appealing design, which creates a seamless visual experience. The UI improves gameplay clarity and makes sure that players can fully immerse themselves in the game's universe without unneeded distractions thanks to its user-friendly design and effective presentation of pertinent information.

4.2.1 Screens

I. **Home Screen:**

Players first interact with the UI when the game is launched, which is the Home Screen. Players can move between the many game portions thanks to its warm and instructive introduction. The game's emblem is generally displayed on the home screen along with eye-catching graphics or animations that illustrate the game's plot or characters. Additionally, it might offer options for launching the game, getting to settings, seeing your achievements, or connecting to social media.

Figure 4.7: Home Screen

II. **Levels Screen:**

Players can see a visual representation of the game's levels or stages on the Levels Screen. It enables users to choose a specific level to play or monitor their game progress. The Levels Screen frequently uses a grid or list style with icons, thumbnails, or explanations for each level to represent it. Additional details like unlocked achievements, stellar performance, or completion statuses might also be shown. Players can choose their preferred challenge or growth path from a comprehensive summary of their possibilities on the Levels Screen.

Figure 4.8: Easy Levels Screen

Figure 4.9: Hard Levels Screen

III. **Game Screen:**

The core gameplay happens on the game screen. Players can manage their characters and participate in the rescue operation in this immersive setting. The game world, which includes any water or drowning risks that players must avoid, is often shown on the game screen. The player character, interactive elements, and any challenges or impediments are also included. In order to give players crucial gameplay information, the Game Screen may also feature HUD (Heads-Up Display) components like health bars, timers, or score counters. The Game Screen is made to increase player involvement by giving them an engaging visual and interactive experience while they at-

tempt to save drowning victims.

Figure 4.10: Game Screen

4.2.2 Buttons

We completely redesigned the user interface (UI) for our ultra-casual mobile game, giving buttons and other UI components great consideration. In our game's user interface, the following general buttons are frequently utilised.

I. **Play Button:**

- The primary menu or level selection screen prominently features the Play button.
- It functions as the main action button to begin the game.
- The button's aesthetic attractiveness encourages players to start their gaming session.

II. **Pause Button:**

- During gameplay, the Pause button may be found in the lower-right area of the screen.

Figure 4.11: Play Button

- By pressing the button, the game is momentarily stopped, and a pause menu or overlay appears.
- The buttons have a distinctive and recognizable appearance that makes it simple for players to halt the game.

Figure 4.12: Pause Button

III. **Main-Menu Button:**

- The pause or overlay contains the Main-Menu button.
- Players can go back to the main menu or a specific home screen by tapping this button.
- For easy understanding, the button design could feature an icon or wording that designates "main menu".

Figure 4.13: Main-Menu Button

IV. **Retry/Restart Button:**

- When a player misses a level or desires to restart the current level, the Retry or Restart button displays.

- It enables gamers to swiftly try again and get better results.
- For ease of identification, the button design could include an icon or wording that denotes "retry" or "restart".

Figure 4.14: Retry/Restart Button

V. **Settings Button:**

- The main menu or pause menu contains the Settings button.
- Players can modify game choices and audio settings by tapping this button to access a settings menu.
- A gear icon may be seen in the button's design.

Figure 4.15: Settings Button

VI. **Next Button:**

- The Next Button is intended to be immediately noticeable to gamers.
- It is denoted with a large arrow symbol.

Figure 4.16: Next Button

VII. **Music and SFX Button:**

- The Music button allows user to mute or unmute the music.

Figure 4.17: Music on

Figure 4.18: Music off

VIII. **Level Select Button:**

- The Level Select Button is often found in the game's user interface, frequently on the Home Screen or in a separate Levels Screen, and it gives players the ability to select a specific level or stage within the game.
- The Level Select Button can have a distinctive icon or text label that says anything like "Level Select" or "Choose Level."

Figure 4.19: Level Select Button

IX. **Info Button:**

- Info button gives information about the developers of the game and basic references.

X. **Levels Button:**

Figure 4.20: Info Button

Figure 4.21: Level 1

Figure 4.22: Level 2

Figure 4.23: Level 3

Figure 4.24: Level 4

Figure 4.25: Level 5

Chapter 5

Evaluation and Outcomes

Our Unity mobile game, which is based on the heroic deed of saving drowning people, has been developed and implemented with great success. We have developed a game that not only offers a fun and immersive experience, but also successfully communicates the significance of water safety and the urgency of rescue operations through intensive design, iteration, and testing. The following results demonstrate the beneficial effects and favourable reception of our game

I. **Engagement and enjoyment of the game:** High levels of player involvement and enjoyment were consistently recorded in user feedback and play testing sessions. Players engaged in lengthy play sessions and repeated games as a result of the rescue mechanics and engaging game play mechanics[15].

II. **Education Effects:** The game was successful in disseminating information about water safety and the significance of quick action in drowning cases. Within the setting of the game, players were able to understand and put into practise safety procedures like situation assessment, the use of life-saving equipment, and CPR[16].

III. **Empathy and an emotional connection:** Players said they had a strong emotional bond with the drowning victims and felt obligated to save them. The story and character development encouraged empathy and helped people see the seriousness and ramifications of water-related problems[17].

IV. **Positive comments and evaluations:** Players gave the game favorable reviews, praising its captivating action, simple controls, and powerful message. Reviews highlighted the game's original idea, strong narrative, and the thrill of successfully saving virtual lives.

V. **Impact on Awareness of Water Safety:** Using mobile channels to reach a large audience, our game helped spread awareness about water safety. The game's depiction of rescue operations and safety procedures sparked discussions and raised awareness of the dangers associated with water.

VI. **Commercial Potential:** Initial market research and player interest point to a promising commercial future. The game's favourable reviews and high demand create chances for additional creation, growth, and distribution in the gaming industry[18].

5.1 Gameplay level Screens

Figure 5.1: Gameplay Level 1

Figure 5.2: Gameplay Level 2

Figure 5.3: Gameplay Level 3

5.2 Level Progress

Figure 5.4: Level-Pass screen

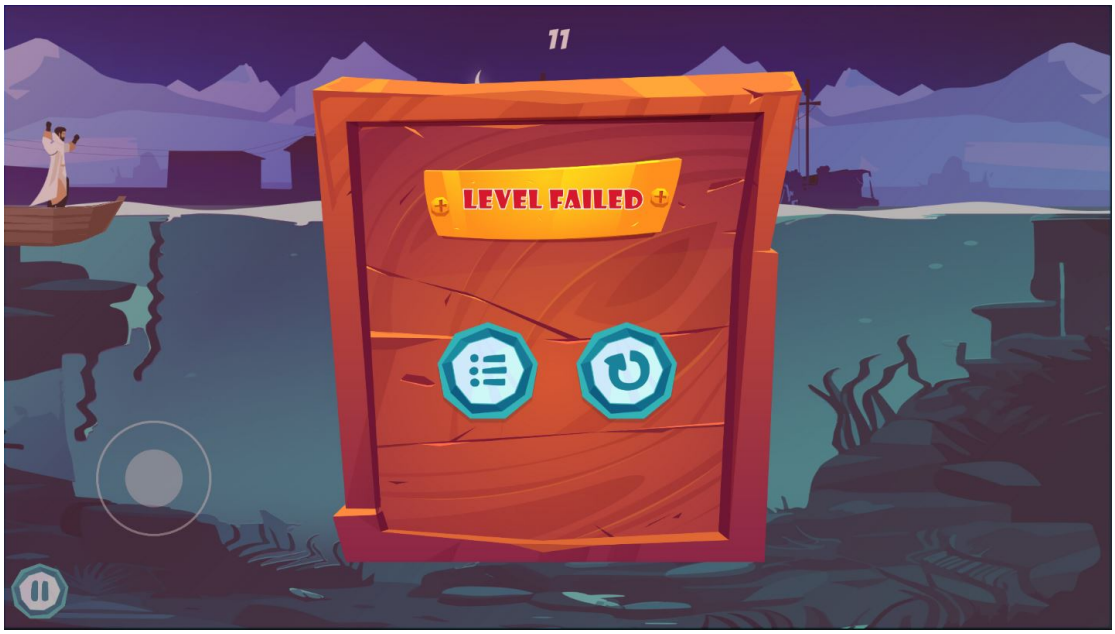

Figure 5.5: Level-Fail screen

Chapter 6

Conclusion and Future Work

6.1 Conclusion

In this thesis, we present the development process of a 2D hyper casual game titled "Rescue Me." The primary objective of this game is to provide players with engaging gameplay experiences through a combination of easy and hard levels, well-crafted characters, and captivating animations.

To ensure a balanced and enjoyable gameplay progression, we have meticulously designed a series of levels that cater to players of varying skill levels. The easy levels serve as an introduction to the game mechanics, allowing new players to familiarize themselves with the gameplay concepts and controls. On the other hand, the hard levels present challenging obstacles and complex puzzles, offering a rewarding experience for more experienced players seeking a higher level of difficulty.

Furthermore, we have placed great emphasis on the development of fluid and visually appealing animations. Through meticulous animation work, we have brought the characters and the game world to life, creating an immersive experience for the players. From subtle character movements to environmental effects, these animations contribute to the overall engagement and enjoyment of the game.

In conclusion, our thesis showcases the successful development of "Rescue Me," a 2D hyper casual game that combines easy and hard levels, well-crafted char-

acters, and captivating animations. This project highlights the significance of thoughtful level design, character development, and animation in creating an enjoyable and immersive gameplay experience for players.

6.2 Future Work

1. Game can be scaled to a fully functional 3D game, more playability can be added and 1000s of levels can be made also.

2. In-Game ads and purchases can be added, e.g. skins etc.

3. The game can be further developed to transition from a 2D experience to a fully immersive 3D environment. This would enhance the visual fidelity and realism, creating a more immersive gameplay experience for players.

4. To extend the longevity of the game, additional features and gameplay elements can be introduced. This may include new challenges, different rescue scenarios, or alternative game modes that provide unique gameplay experiences and keep players engaged.

5. The game's level design can be expanded to create thousands of levels, offering a vast array of unique and challenging scenarios for players to tackle. Procedural generation techniques can be employed to generate levels dynamically, ensuring endless replayability and variety.

6. To generate revenue and support further development, in-game advertisements and purchases can be incorporated. This may include the option for players to unlock cosmetic items, such as skins or accessories for the hero character, or offering additional content or power-ups through in-app purchases.

7. Integrating social features into the game can enhance the player experience and promote community engagement. This may include leaderboards,

achievements, and the ability to compete or collaborate with friends or other players globally.

8. Expanding the game's compatibility across different platforms, such as PC, consoles, or virtual reality devices, can significantly broaden its audience and reach[19].

9. Implementing accessibility features, such as adjustable difficulty levels, visual and audio aids, and customizable controls[20], would ensure inclusivity and cater to a wider range of players with diverse needs.

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