

CPT306 Individual Project  
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Bachelor Degree – Year 4

Module Code	Module Leader	Module Title
<b>CPT306</b>	<b>Hai-Ning Liang</b> <b>Nan Xiang</b>	<b>Principles of Computer Games Design</b>

**Section A: Your Details***To be completed by the student (in English using BLOCK CAPITALS)*

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**Section B: Assignment Details***To be completed by the student (in English using BLOCK CAPITALS)*

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Date and Time of Submission	2023.5.21

*Assignment details can be found in the assignment description.***Section C: Statement of Academic Honesty***To be completed by the student*

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- (iii) I confirm that this is my own work and that use of material from other sources, including the Internet, has been properly and fully acknowledged and referenced.
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Student's signature	CHUANXINZHAI	Date	2023.5.21
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# Hero Survival

## 1. Game Overview

### 1.1 Introduction

Welcome to the exhilarating world of "Hero Survival", a riveting blend of action, survival, and adventure that brings a fresh perspective to the gaming landscape. The game offers a variety of different enemy types and map styles, giving players a whole new experience. The protagonist is stranded on the islands which are filled with monsters. All you have to do is to defend the ruthless and fearsome opponents and collect coins scattered around the map in order to score certain marks for survival. So, are you ready to dive into the gripping world of "Hero Survival"?

### 1.2 Genre

Survival, Action, Adventure.

## 2 Unique Selling Proposition (USP)

- ✧ Revolutionized Survival: Unlike traditional survival games, hero survival not only requires the player to fend off enemy attacks, but also to collect coins. It requires the player need to balance defense and resource collection. This exciting game mechanic creates an intense, immersive game atmosphere.
- ✧ Dynamic Enemy AI: My game has a variety of monster opponents with dynamic artificial intelligence that can adapt to the player's strategy to pursue and attack the player all the time. The different behavior and attack patterns of enemies provide a challenging and unpredictable gameplay experience that keeps the player engaged.
- ✧ Different beautiful map styles: My game offers multiple maps, each with its own unique features. There are grassy styles, desert styles and so on. Players can explore different maps while playing the game. In addition, the player can also adopt different strategies to attack the enemies depending on the terrain.
- ✧ Diverse enemy types: "Hero Survival" has a wide variety of monster opponents, each with their own unique characteristics and attack patterns. In some maps, there are also big bosses. This variety keeps players on their toes and ensures that each game is fresh and unique.
- ✧ Progressive difficulty: The game has a progressive difficulty curve, with each level being more challenging than the previous one. The enemies become more numerous, the damage gets higher and the maps are bigger (meaning harder to collect coins). This ensures that the player is always stimulated and challenged, adding to the playability of the game.

## 3. Story Synopsis and Game Description

### 3.1 Game story description

A meteorite impact made our planet Eldora suffered a huge impact, a catastrophic event - the fall of the Sky Portal. The whole planet is torn apart. Our hero, an experienced swordsman named Mark, is stranded at a divided area. The fall of the Sky Portal threw the world into chaos, spawning many monsters. These monsters tirelessly hunt down the protagonist, Mark, attempting to kill him. Meanwhile, some remnants of ancient gold coins have been scattered around the world. Our hero has to survive and escape this terrible place while fighting off the monsters and collecting these ancient coins.

The hero's journey in "Hero Survival" isn't just about surviving – it's a strategic adventure of resilience, courage, and the unyielding spirit of a hero to save his world from descending into darkness.

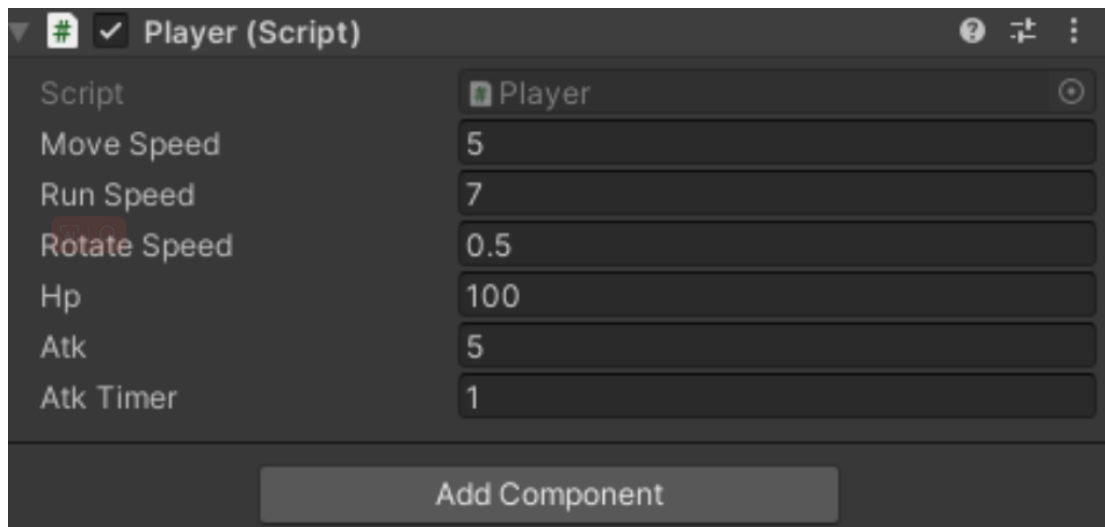
### 3.2 Game protagonist's description



<https://assetstore.unity.com/packages/3d/characters/humanoids/rpg-tiny-hero-duo-pbr-polyart-225148>

Mark is the protagonist of “Hero Survival”. He was not only a trained swordsman known for his agility, strength and courage, but also a survivor with a tenacious spirit and unyielding will to protect his home. He was stranded by the fall of the Sky Portal, but he dive himself into defeating the enemy and collect the coins to escape.

*Mark's HP is 100, and he causes 5 damage per attack.*



### 3.3 Problem statement

The monsters released from the portal – the game's villains – are as diverse as they are deadly. Each possesses unique abilities and attack patterns, and all are relentless in their pursuit of Mark.

Additionally, coins are scattered around the world. Mark doesn't know the coins' locations. He must kill the monsters when finding and collecting the coins.

### 3.4 Villains' description



<https://assetstore.unity.com/packages/3d/characters/creatures/rpg-monster-duo-pbr-polyart-157762>

<https://assetstore.unity.com/packages/3d/characters/humanoids/fantasy/mini-legion-rock-golem-pbr-hp-polyart-94707>

Up to now, I have made three types of monsters: (More monsters will be developed in the future)

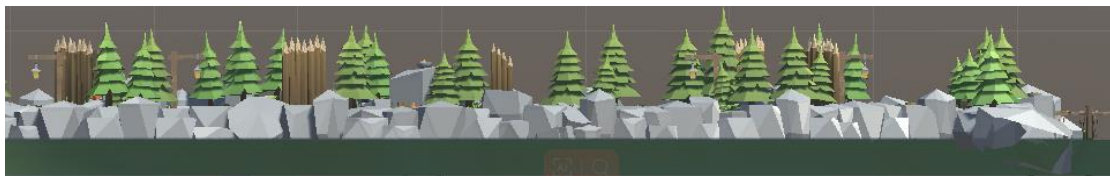
Slime: It turns out to be a very cute creature, but because of the fall of the Sky Portal. It was infused with an evil gene in its body and chased after the protagonist. *Slime's HP is 5, and it causes 2 damage per attack. Kill it will gain 5 scores.*

Turtle Shell: Originally a terrapin. Because of the fall of the Sky Portal, it grew evil horn spines. *Turtle Shell's HP is 10, and it causes 3 damage per attack. Kill it will gain 10 scores.*

Moffitt: Originally it was stone. Because of the fall of the Sky Portal, it began to have a human but evil nature. Its power is high and serve as a boss. It will only appear on the second stage and when the player reaches 100 points. *Moffitt's HP is 30, and it causes 5 damage per attack. Kill it will gain 30 scores.*

### 3.5 Game scene description

Up to now, I have made two scenes: (More maps will be developed in the future)



Scene 1: Forest. There are trees, stones, rivers in the environment.

Scene 2: Desert. There are bonfire, camps and cactus in the environment.

## 4. Game Mechanics and Gameplay (Actions and Outcome)

### 4.1 Movement

Players control Mark's movement across various locations in Eldora. This involves moving backwards, forwards, left and right and running to attack and dodge enemies.

### 4.2 Combat and Survival

Mark needs to use the sword in his hand to inflict a series of attacks on the monsters. He also has to dodge the monster's attacks for survival.

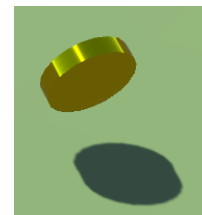
It can result in the defeat of enemies or lead to Mark taking damage.

### 4.3 Coin collection

Scattered across the map are golden coins, remnants of the shattered Sky Portal. Players must guide Mark to find and gather these coins.

It can increase the player's score and is helpful for Mark's survival.

*Player will gain 5 scores when collecting a coin.*



### 4.4 Main rules and Win/Lose Conditions

There is no other rules. All you have to do is to survive from the monsters and collect coins to gain certain scores.

Win: Reaching the target score while still alive. (In the first stage, the score is 100; In the second stage, the score is 200.)

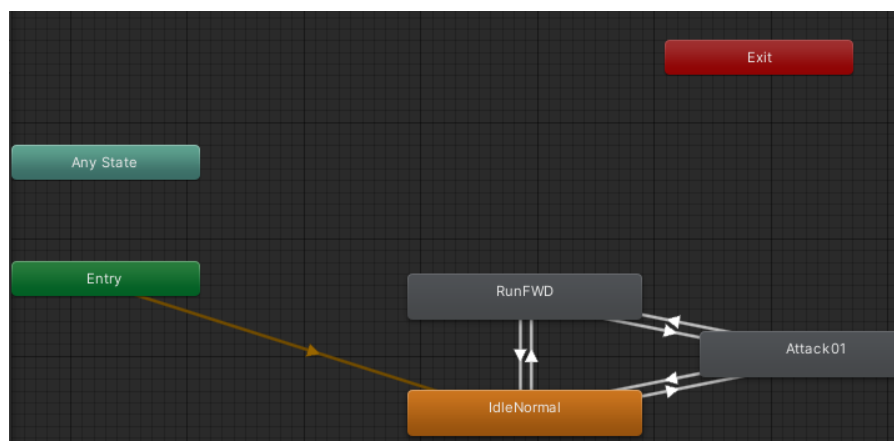
Attacked to death by monsters before reaching the target score.

## 5. Game Elements

### 5.1 AI

"Hero Survival" have dynamic AI for the monstrous opponents. Each enemy type has unique behaviors and attack patterns, making them unpredictable and challenging to defeat.

Monsters will spawn from all four edges of the map and keep chasing Mark.



## 5.2 Animation

The game uses high-quality animations to depict Ark's movements, combat actions, and interactions with enemies. This contributes to the game's immersive feel and enhances the impact of both combat and exploration. The animations of enemy actions are meticulously designed to represent their unique traits and abilities, adding to the gameplay's tension and diversity.

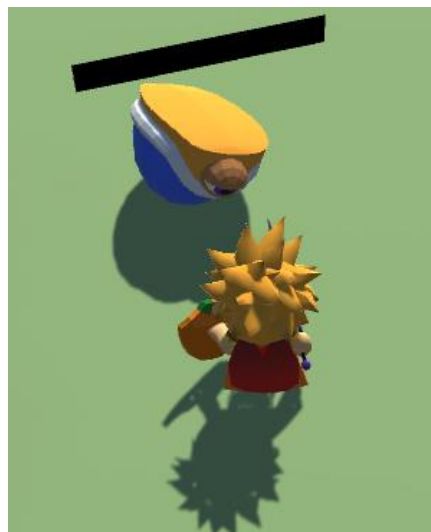
Mark: has the animation of movement, attack, death, victory celebration.



Slime: has the unique animation of movement, attack, death.



Turtle shell: has the unique animation of movement, attack, death.



Moffitt: has the unique animation of movement, attack, death.



### 5.3 Graphics

"Heroic Survival" features detailed, atmospheric graphics that encapsulate the landscape of Eldora's world. Each map has been carefully designed to enhance immersion and provide a visually striking gameplay experience. Mark and enemy character designs have been carefully crafted to be both visually appealing and reflective of their attributes.

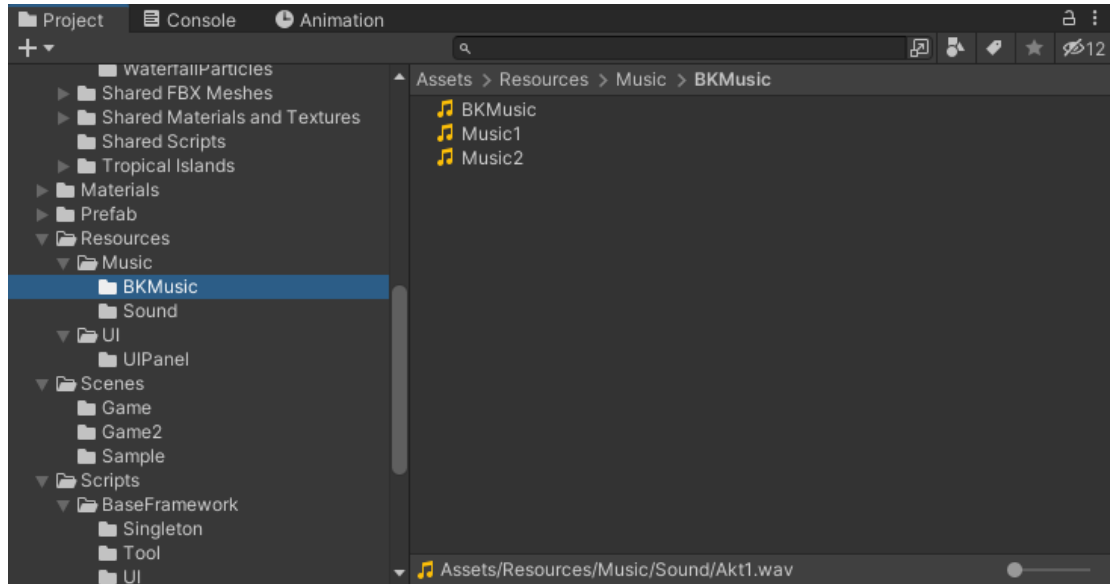




## 5.4 Sound and Audio

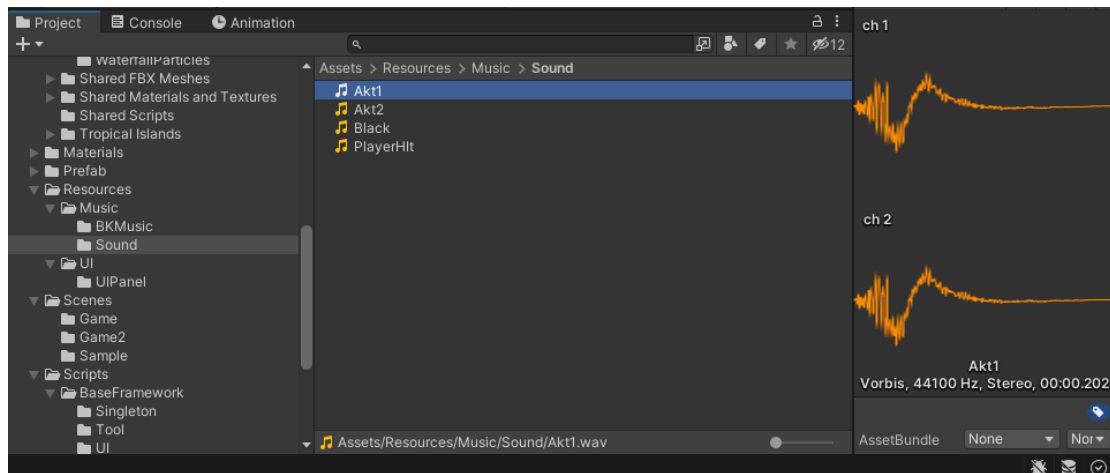
The game features an atmospheric sound design that includes suspenseful background music, distinct sound effects for different actions and enemies, and immersive ambient sounds. The sound design heightens the tension and contributes to the game's immersive and suspenseful environment.

The game has a background music.



The hero has the audio of attack, being attacked, death.

The monsters also have the audio of attack, being attacked, death.



## 5.5 Networking

At this stage, “Hero Survival” focuses on the single-player experience. Now, it runs locally and doesn’t require network support.

## 5.6 Game progression

Up to now, there are two stages in this game. The first scene is in forest, players need to reach 100 scores by killing monsters or collecting coins to survive successfully. The second scene is in desert, players need to reach 200 scores for survival. There would be a boss appear when player get 100 scores.

## 6. UI and UX

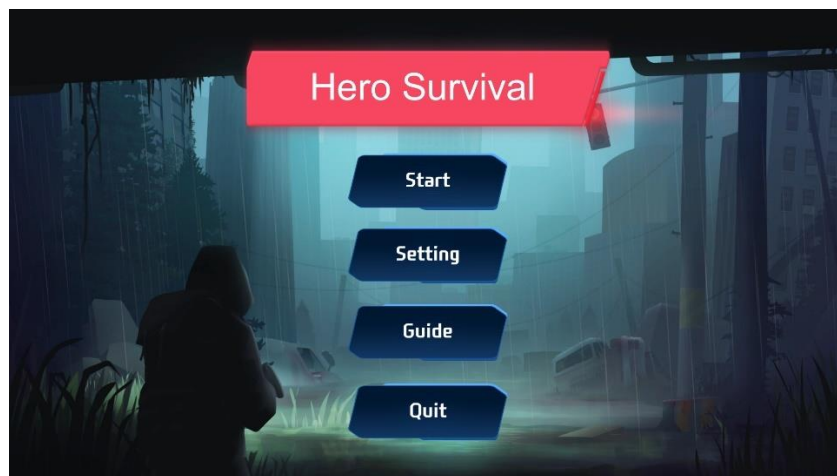
### 6.1 User Interface

"Hero Survival" have a minimalistic and intuitive UI. Essential information such as HP, enemy count, and score is subtly integrated into the game screen. Clear, easily understandable icons are used to represent different elements of the game.

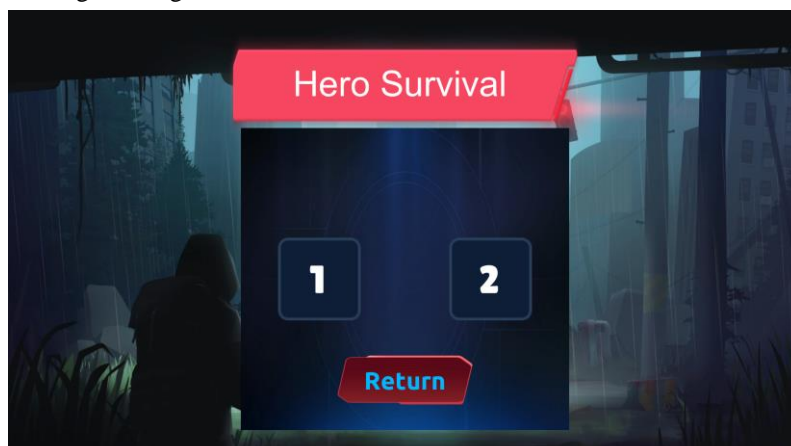
Game scene:



Main game interface:

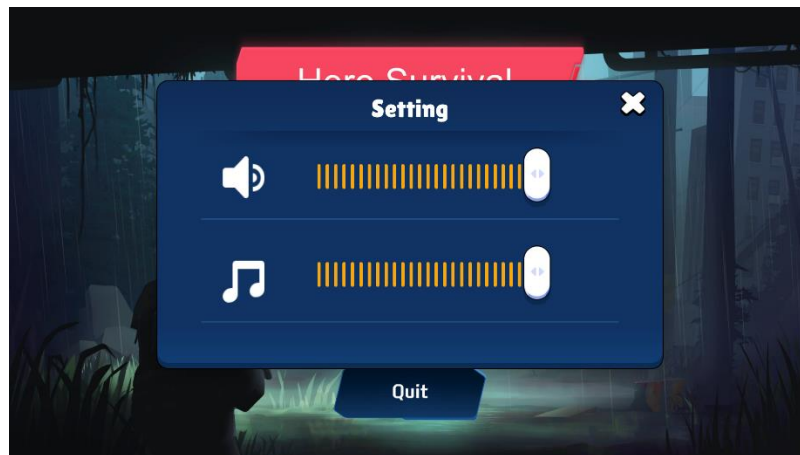


Click start to choose game stage.

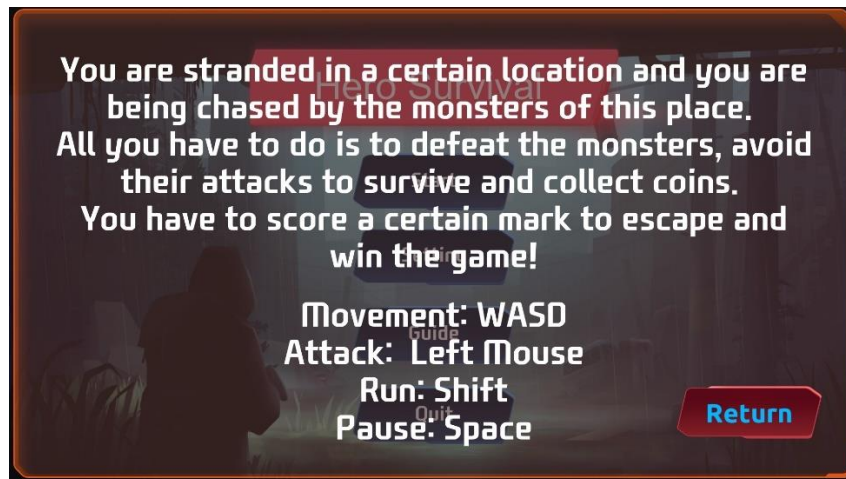




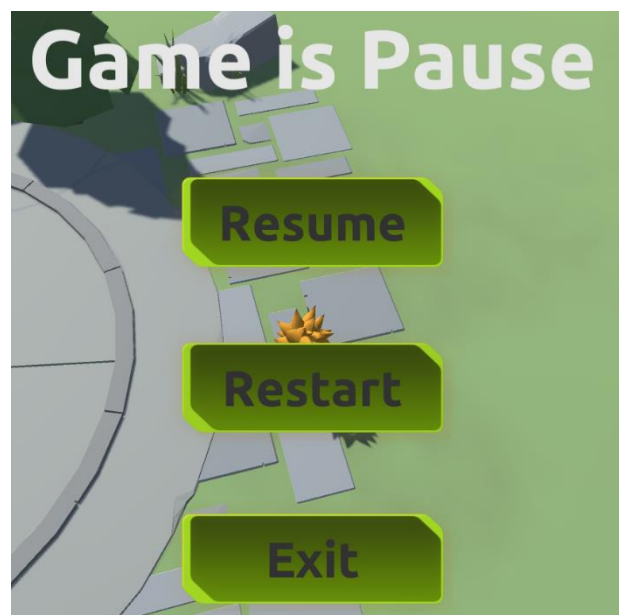
Click Setting to adjust the volume of the game.



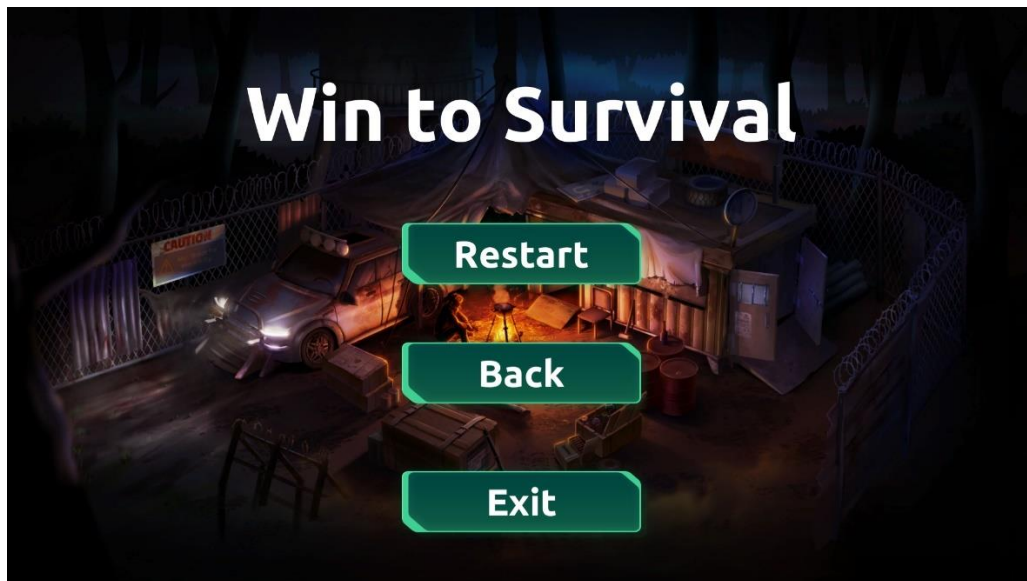
Click Guide to read the game background and control methods.



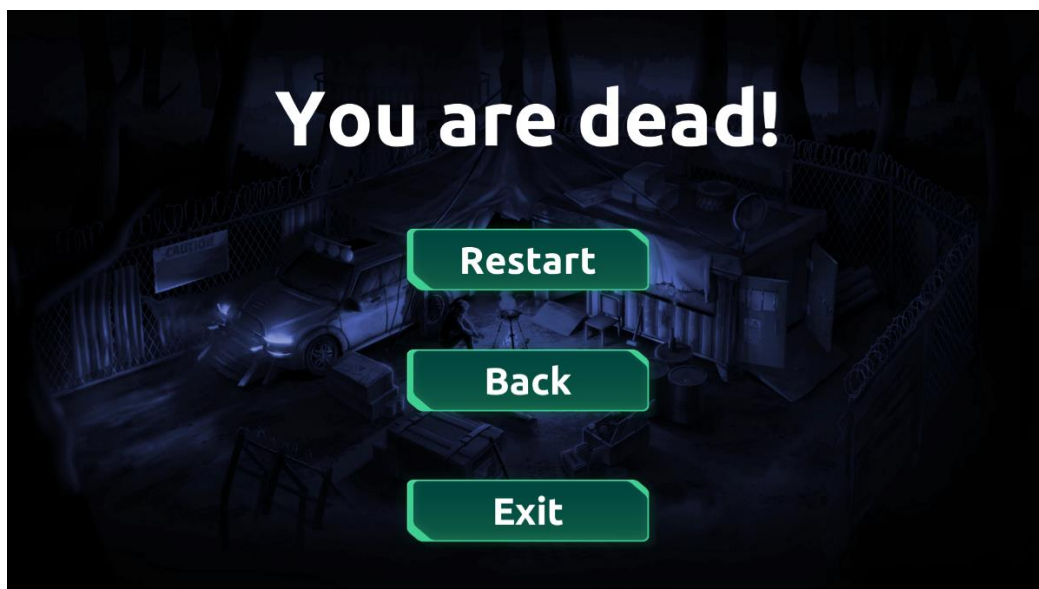
Pause the game:



Win page:



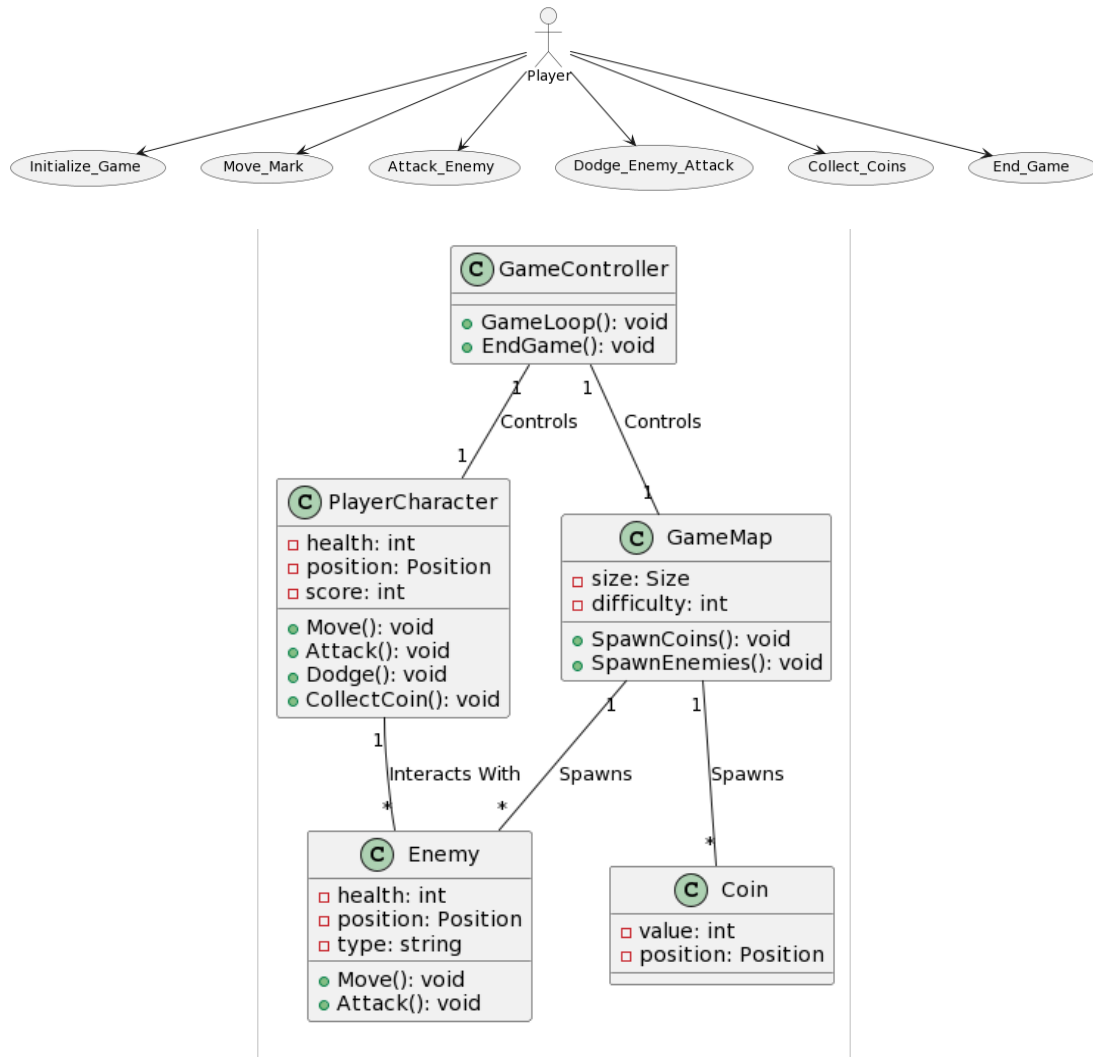
Lose page:



## 6.2 Interactive mode

W	Move frontwards
S	Move backwards
A	Move Left
D	Move Right
Left mouse	Attack
Mouse	Control the player's view
Shift	Run
Space Key	Pause the game

## 7. Implementation



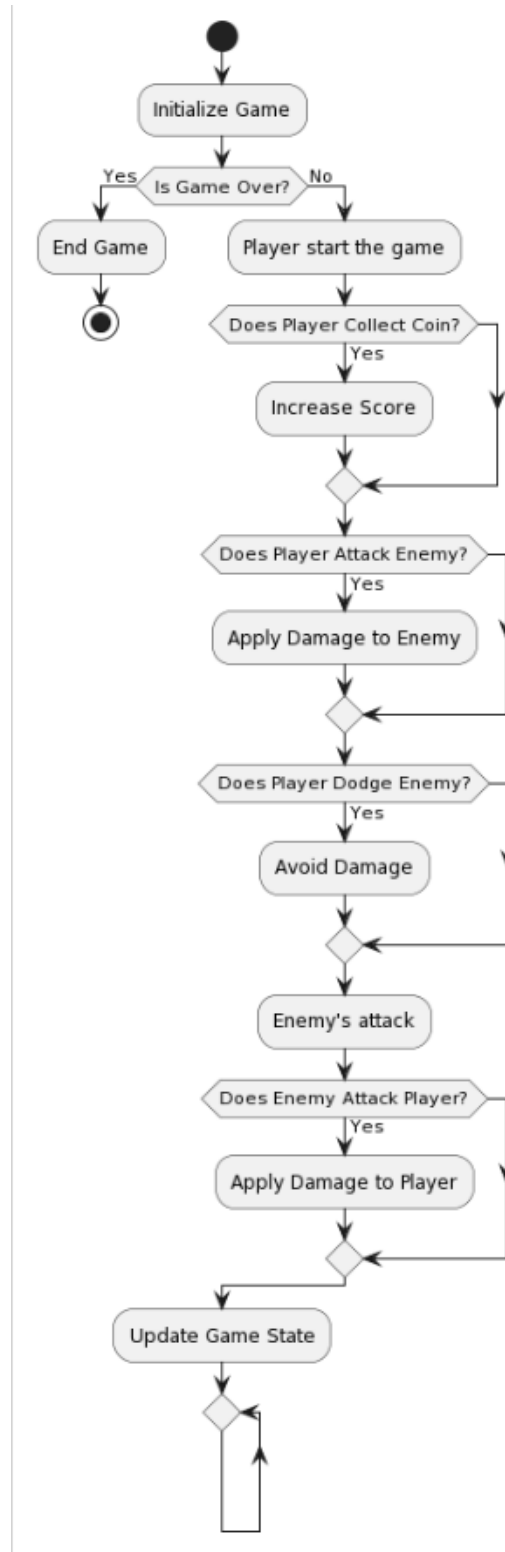
"Hero Survival" can be broken down into several key components that interact to form the gameplay experience. These core components include:

- (i) **Player Character (Mark):** This object represents our protagonist Mark. It would have properties such as health, position, and score, and methods for actions such as move, attack, dodge, and collect\_coin.
- (ii) **Enemy:** This is a class of objects for the different enemies in the game. Each enemy will have properties like type, health, and position. They would have methods for actions such as move, attack.
- (iii) **Game Map:** This object represents the game's environment where the action takes place. It would have properties such as size and difficulty, and methods to spawn\_coins and spawn\_enemies at randomized intervals and positions.
- (iv) **Coin:** This object represents the coins that Ark must collect. Each coin would have properties such as value and position.
- (v) **Game Controller:** This class controls the overall game logic. It keeps track of Mark's score, the game state (win or lose), and triggers events such as enemy spawns, coin spawns, and game end conditions.

Workflow and Triggered Events:

The game starts with initializing the game map, spawning the player character Ark, and starting the game controller. The controller then begins the main game loop, where Ark's actions and the enemies'

responses are continuously processed. Simultaneously, at specified intervals, the controller triggers the map to spawn new coins and enemies. When Ark performs the collect\_coin method, the score property on the Ark object is increased. When Ark or an enemy performs an attack, the attack method decreases the health property of the target. If Ark's health reaches zero, the game controller ends the game with a loss. If Ark's score reaches the target score, the game controller ends the game with a win.





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## 8. Ethical and Social Issues

### 8.1 Target Market

**Geographics:** "Heroic Survival" has global appeal. The game's universal themes of survival, exploration and fighting against the odds make it appealing to players around the world. The game will initially be released in English to cater for the market.

**Psychographics:** This game is aimed at players who enjoy action-adventure and survival games. In addition, it will appeal to players who enjoy atmospheric exploration, character progression and the satisfaction of overcoming challenging enemies.

**Demographics:** The game is aimed primarily at the age group of 15 to 35, as this demographic typically enjoys action-adventure and survival games. However, given its intuitive controls and engaging gameplay, it can appeal to game enthusiasts outside this age group as well. "Hero Survival" is designed to be gender-neutral and should appeal to both male and female players.

### 8.2 Target Platform

"Hero Survival" is designed for PC platforms initially, given the immersive exploration and combat elements that can be best experienced on these platforms.

### 8.3 Technical Requirements

For PC: Recommended Requirements

Operating System: Windows 10 or higher

Processor: Intel Core i3 or equivalent

Memory: 4 GB RAM

Graphics: NVIDIA GeForce GTX 960, or equivalent

DirectX: Version 11

Storage: 1 GB available space

### 8.4 Issues

ESRB: (T for Teen)

**Violence:** As "Hero Survival" involves combat against monsters, it includes elements of violence. While this is a common theme in many video games, it's important to ensure the depiction of violence is responsible and appropriate for the target age group. Excessive or gratuitous violence can be distressing for some players and could lead to criticism from parents or media.

**Addiction:** Video games can be highly engaging, and it's important to encourage healthy gaming habits. "Hero Survival" should include messages or features that remind players to take breaks and balance gaming with other activities. This is part of a broader ethical responsibility to prevent video game addiction.

**Diversity and Inclusion:** To appeal to a broad audience and respect all players, "Hero Survival" should avoid stereotypes and include diverse representation. This might involve having a diverse range of enemy designs or including options for players to customize Mark's appearance.

**Accessibility:** The game should be designed to be accessible to players with different abilities. This includes considerations like color-blind modes, subtitles, and customizable controls.

**Data Privacy:** "Hero Survival" collects player data, for instance, for save game states, player profiles, or analytics. It is crucial to respect privacy laws and regulations. The game should be transparent about the data it collects, and data should be stored securely to prevent breaches.

**Social Behavior and Values:** Games can influence the behavior and values of players, especially younger ones. Ensure that your game promotes positive values.

**Health Issues:** Prolonged gaming sessions can lead to physical health issues like obesity, eye strain, and musculoskeletal problems. Incorporating reminders to take breaks, move around, or even gameplay mechanics that encourage physical activity could help mitigate these issues.

## 9. Limitations and Future Work

- **Limitation - Lack of Multiplayer Option:** Currently, "Hero Survival" is a single-player game which may limit its appeal to players who enjoy multiplayer experiences. The limitation exists primarily due to the initial design focus and technical complexities of implementing a robust and engaging multiplayer system.  
**Future Work:** As a solution, a future update could include a cooperative multiplayer mode, allowing players to join forces with friends to combat monsters. This would significantly enhance the game's social aspect and replayability.
- **Limitation - Static Environment:** While the game features various unique locations, these environments are not currently interactive. This may result in a less immersive experience for players. The constraint arises from the need to balance development resources and focus on core gameplay elements first.  
**Future Work:** Future versions of the game could feature destructible environments or interactive elements, adding another layer of strategy to the gameplay.
- **Limitation - Limited Enemy Variety:** At present, the game might lack a diverse range of enemy types. Now has three types. This limitation is due to the time constraints in development and the priority given to other game elements.  
**Future Work:** Future updates could introduce new enemy types with different behaviors and abilities, creating more varied and unpredictable combat scenarios.
- **Limitation-Limited Map scene variety:** At present, the game might lack a diverse range of scenes. Now has two types, forest and desert.  
**Future Work:** Design more map styles in the future.
- **Limitation - Linear Progression:** The current game progression is quite linear, with the player facing an endless onslaught of enemies. This could potentially make the game monotonous over extended play sessions.  
**Future Work:** A future update could introduce more varied mission types or objectives, or a story mode with different stages and unique challenges, to add more depth to the gameplay.
- **Limitation - Platform Availability:** Currently, the game is targeted at PC and console platforms, limiting its audience to only those platforms' users.  
**Future Work:** To expand the audience, future work could include porting the game to mobile platforms, ensuring that more players can access and enjoy the game. Special attention should be given to adjusting controls and gameplay elements to suit the mobile platform.

## 10. Conclusion

"Hero Survival" represents an exciting venture into the world of action-adventure survival games. With its engaging gameplay mechanics, a unique protagonist in Mark, and immersive survival elements, the game brings a fresh perspective to the genre. The core concept of battling monsters while surviving in

various landscapes presents a compelling challenge to the players, offering countless hours of engagement and fun.

Despite certain limitations such as lack of multiplayer options and a static environment, the game stands strong with its unique selling propositions like AI and unique character progression. The limitations identified also serve as the stepping stones for future development and enhancement, paving the way for possible updates that could enrich the gameplay further.

While "Hero Survival" makes its mark in the current gaming landscape, there are several paths of growth and expansion that lie ahead. These include broadening the game's scope with multiplayer modes, interactive environments, varied enemies, non-linear progression, and expanding to other platforms. This potential for future growth opens up a world of opportunities for both the developers and the players.

In conclusion, "Hero Survival" is not just a game - it's an evolving, immersive experience. With a continuous commitment to improvements and updates, it promises to become a staple favorite among survival game enthusiasts globally. It represents a journey - one filled with challenges, victories, and the thrill of survival - a journey that we are confident will resonate with gamers worldwide.