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Helheimr
Technical Report



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1 Executive Summary

Helheimr is an Isometric (top down view), Hack and Slash game set in Hel, land of the dead from Nordic Mythology. The game will be created using Unreal Engine 4.14.

Main Character – a lone Viking, will fight against hordes of monsters while gathering equipment, skills and experience. Player will have to fight against different monsters with various strengths and abilities. Some of the monsters will be cowards that will fly at the very sound of danger but other will hunt the player down mercilessly. The game is by no means easy. The player will have to defeat the monsters but will also have to defeat their own weaknesses.

Some of the key features that Helheimr has:

- Grim world of Hel with bloodthirsty monsters – from spiders to frost giants
- Many different enemies that will have different AI for them – some are cowards that will escape but some will hunt you to the very end
- Many different inventory pieces from long swords to steel helmets

2 Introduction

This Technical Report will guide the reader through the creation of the game Helheimr. At the start the document will tell about the background information regarding Helheimr. What are the ideas behind it and how it will be made, but will also go into more detail regarding the implementation of the game via Visual Programming made by Unreal Engine.

Game development is very difficult task that is difficult to explain to people that aren't interested in it, but the document will try to make it easy for the reader to understand the difficult concepts in game development.

2.1 Background

I choose a gaming development stream as this was always my ambition and passion so naturally I would create a game as part of my final project. I choose Isometric camera as I always loved games like Diablo. The market isn't saturated with games like that and it's very hard to find a good isometric game.

2.2 Technologies

The game was made using Unreal Engine. After long consideration and research, I have concluded that Unreal will be the best one to do the game in, due to couple of reasons. Unreal has visual programming instead of coding. So far, I have only created games with proper coding notably Unity with C#, this would be a great new experience. The knowledge of Unreal Engine 4 would make my resume look very appealing to potential employers and because I would like to follow Gaming Development career so I need to create a game as my final year project to go into Master's degree.

Main Hero was created using Mixamo and Adobe Fuse because it's the fastest way to get both the character and his animation. Fuse and Mixamo are supporting each other, so you could transfer the model straight to Mixamo without having to download the model from Fuse.

The problems with Mixamo is that they stopped supporting Unreal Engine 4 in December 2016. Therefore, the FBXs you create using Mixamo do not have additional Unreal only

bones in them such as Root. But I have worked around that as my character was built before that time, so he still had the Unreal FBX from Mixamo.

The images were created using a program called GIMP 2. Gimp stands for Image Manipulation Program and is considered free version of Photoshop. I have used Gimp before so using it didn't cause me any problems.

3 System

3.1 Requirements

Requirements are the functions that a given program must be able to perform. They are usually split into functional and non-functional requirements.

3.1.1 Functional requirements

Functional Requirements are requirements that are needed to be in the application, they are the functions that the user will use while using the application. They would be known as capabilities.

Requirement 1 Start new Game

Description & Priority

This requirement will talk about player starting new Game. The player will need to finish this use case to start playing the game.

Use Case

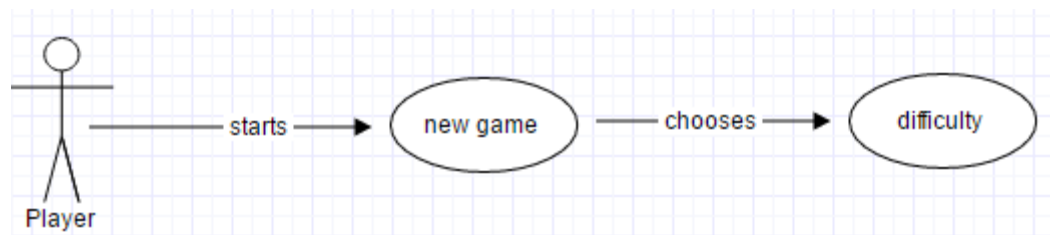
Scope

The scope of this use case is to let the Player start a new Game.

Description

This use case describes the starting of a New Game by Player. The player can choose the difficulty of the game during this Use Case.

Use Case Diagram



Flow Description

Precondition

The System must be up and running.

Activation

This use case starts when Player clicks on New Game in the Main Menu

Main flow

1. After selecting the new game player will have to choose the difficulty level
2. The player will be then spawned in the Throne Level.
3. The player will get a small widget which will explain the story and basic control. To start the game, the player needs to click the Understand button.

Termination

The system presents the next

Post condition

The player will be in the game and will be able to freely roam the world and continue on their quest.

Requirement 2 Levelling Up

Description & Priority

This requirement is basically the main theme of the game. The players will kill opponents and do quests and will be given experience. If the player gets enough experience they will Level Up.

Use Case

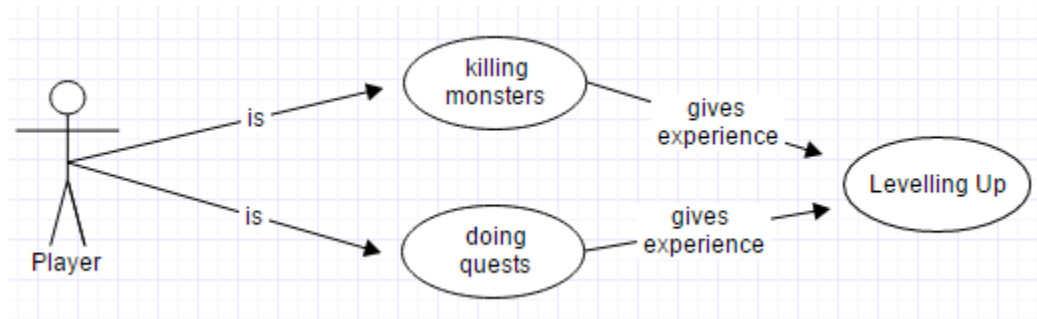
Scope

The scope of this use case is to allow the players to level up by playing the game.

Description

This use case describes the Levelling Up of the character after getting enough experience through killing Monsters and doing Quests

Use Case Diagram



Flow Description

Precondition

The Player must have started the New Game or loaded Saved Game and be in the game outside of Safe Zone.

Activation

This use case starts when Player plays the game.

Main flow

4. The Player kills Monsters to get experience, the rarer the Monster the more experience the Player will get
5. The Player fills out the experience progress bar.
6. The System acknowledges that the Player have filled the Progress Bar.
7. The Player receives a Level Up and skill points.
8. The Player's experience bar resets.

Alternate flow

Exceptional flow

Not Applicable

Termination

The system presents the next

Post condition

The Player can play the game and Level Up once they got enough experience points.

Requirement 3 Inventory

Description & Priority

This requirement describes the different scenarios that the Player can do with the Items in the game.

Use Case

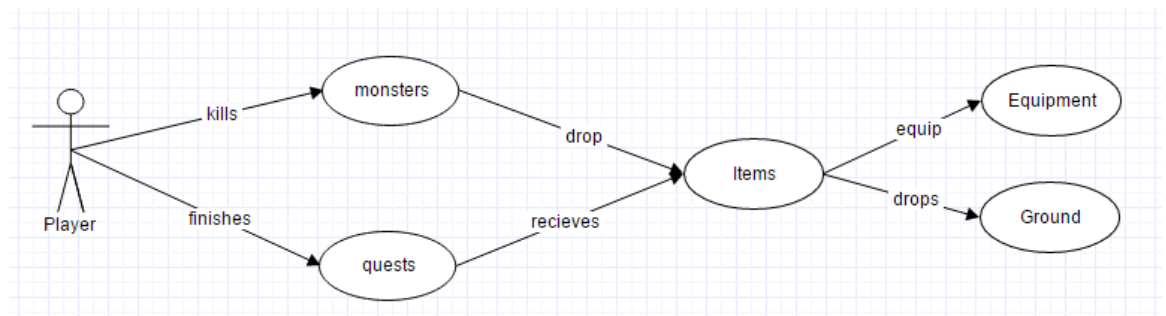
Scope

The scope of this use case is to allow the Player to have option to interact with the items.

Description

This use case describes interaction between the player and the items in the game.

Use Case Diagram



Flow Description

Precondition

The Player must have started the New Game or loaded Saved Game.

Activation

This use case starts when Player kills an opponent and it drops an item. Or

This use case starts when Player completes a quest and receives an item.

Main flow

9. The Player clicks on the item
10. The System transfers the item into Player's Inventory
11. The Player has an option to leave the items if their rarity is too low. (A1)
12. After player transfers the items in their inventory they have choice to either equip the items or go to the trader to sell them. (A2)

Alternate flow

A1: Ignoring he Items

1. The Player sees that the items are not rare
2. The Player has option not to pick the item up as not to clog up their inventory
3. The use case continues at position 3 of the main flow

A2: Selling items

1. The player goes to the town and talks to NPC and chooses the trading tab.
2. The Player has option to sell the items and buy new ones from the trader to gain Gold.

Termination

The system presents the next

Post condition

The Player can continue on his journey.

Requirement 4 Saving Game

Description & Priority

This requirement will talk about player saving the game so that they can come back to it.

Use Case

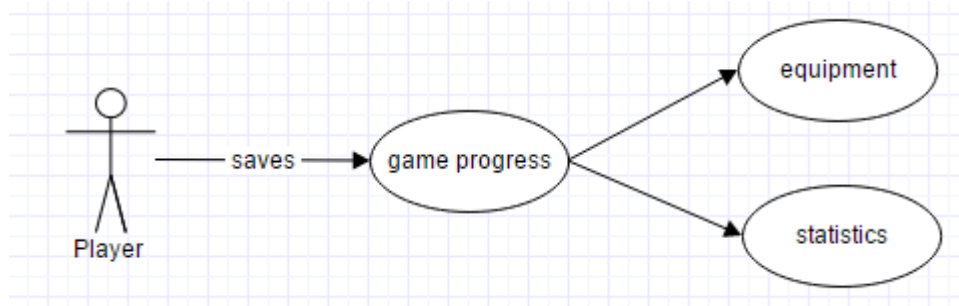
Scope

The scope of this use case is to let the Player save their current progress.

Description

This use case describes the starting of Save Game by player

Use Case Diagram



Flow Description

Precondition

The System must be up and running.

Activation

This use case starts when Player decides to leave the game.

Main flow

13. The Player goes to the Pause Menu
14. The Player clicks on Quit Game button
15. The Player has option to choose from go to Main Menu or Leave the game altogether.
16. The progress will be saved upon clicking either button

Alternate flow

A1: Auto Save

1. While playing the game the player will get Auto Saves
2. Every 20 minutes the progress will be saved.

Termination

The System either goes back to Main Menu or back to the desktop

Post condition

The Player is in Main Menu or Desktop

Requirement 5 Loading Game

Description & Priority

This requirement will talk about player loading their progress.

Use Case

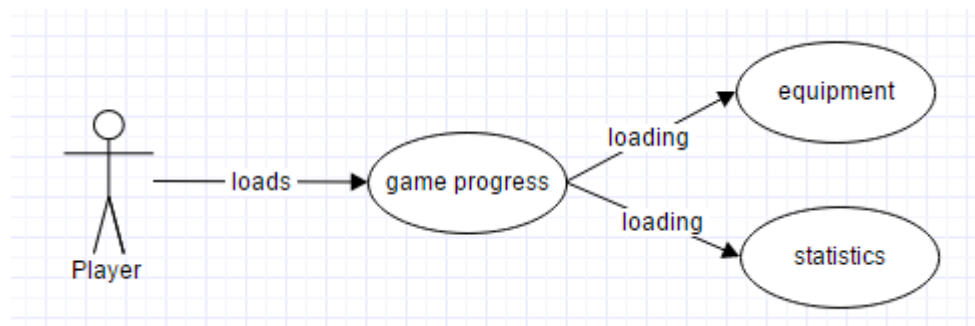
Scope

The scope of this use case is to let the Player load their progress that is saved in the System.

Description

This use case describes the loading the Game by player.

Use Case Diagram



Flow Description

Precondition

The System must be up and running and the player must be in Main Menu. The Save Game must exist before Loading the game is possible.

Activation

This use case starts when Player starts the game.

Main flow

17. The Player is in the Main Menu and clicks on Load Game.
18. The Save file will be loaded after player clicks on the button.
19. The System will load the Hero, Map will reload and the Monsters will replenish
20. The Player will be spawned back in the last safe town they visited.

Termination

The system loads the level and player is able to load the game.

Post condition

The system goes into a wait state

Requirement 6 Options Menu

Description & Priority

This requirement will talk about player changing the options in the game

Use Case

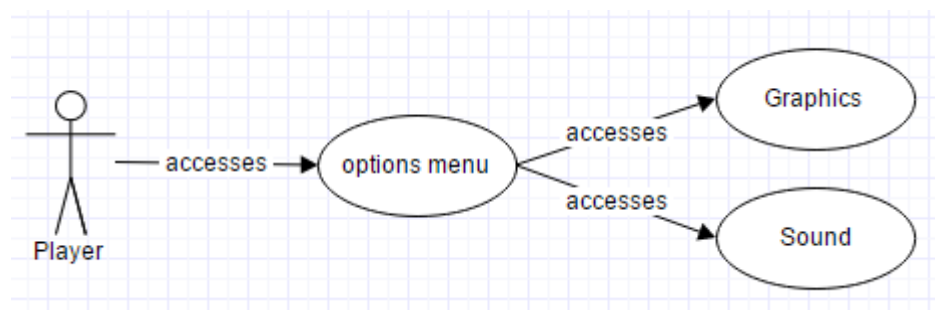
Scope

The scope of this use case is to let the Player change the game options such as Graphics, Sound and Interface/ Input.

Description

This use case describes the changing options in the game by player.

Use Case Diagram



Flow Description

Precondition

The System must be up and running and the player must be in Main Menu

Activation

This use case starts when Player clicks the Options button in the Main Menu

Main flow

21. The Player is in the Main Menu and clicks on Options
22. The player will get option to click on Graphics, Sound and Interface buttons.
23. The System will load the GUI that the player has chosen.
24. The Player will be able to change various settings in the game.

Termination

The System changes the options as the player have specified.

Post condition

The system goes into a wait state

3.1.2 Non-Functional Requirements

The non-functional requirements are requirements that judge the overall characteristics of the product. They would usually be concerned with the behavior of the system rather than what the system can do.

Performance requirement

The performance requirement is whether the system that the player has meets the minimum requirements. The game should work on standard computers depending on the Graphics Quality chosen from the Main Menu.

Availability requirement

There are few options as to how distribute the game.

Steam Greenlight – it's a platform made by Steam to share the games that you made. Steam users can rate the game that you made and if you are successful you can sell your game via the Steam marketplace.

Itch.io – is a platform that allows the user to quickly share indie games. It's also very good place to test out your game by allowing you to share demo of your game. Then the users can test the game out for you.

If I had to choose I would choose steam as the greenlight have allowed many games to be sold on the steam market and some of them are very popular games. This would also

open possibility for me to find other people that would be interested in working on the game to improve it beyond my expectations. It is still too early for me to releasing the game, this is due to the fact that people vote for the best games and Helheimr requires a lot more work on it.

Security requirement

There isn't much security in the game. There will be no accounts or need for constant connection to the internet except maybe downloading the game and patches. One of the possible security issues could be tampering with hero's stats. But this isn't multiplayer game so there would no need to protect against it.

Reliability requirement

The player must be able to start the game via exe file and should be able to load the game progress. The game cannot have crashes or bugs that make the game unplayable.

3.1.3 Usability requirements

There is a special Help menu that will help the player in using the game. This will consist of basic story and of basic control settings. Testing has proven that there isn't enough of help available to them, so I made sure that the help menu is really helping the user.

The map should be very easy to understand and a clear marking should be placed where the player is currently standing. The game has 2 types of maps – a large map and mini map. The mini map will consist of an arrow that will indicate the position of next quest.

The system documentation could be easy to understand and get to know in short amount of time. The documentation should be concise and easy to read.

The camera needs to be placed in a right place to ensure smooth gameplay for the player. The player will be able to change the camera settings notably the camera angle and camera zoom.

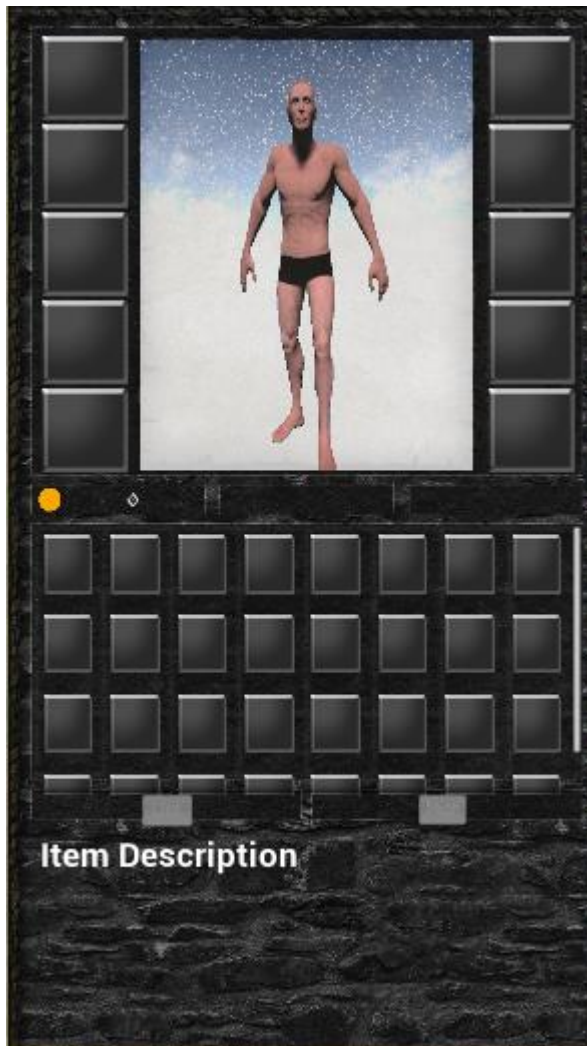
One of the big aspects of this game is item management. If player's inventory is full the player should be given information that the item cannot be picked up. Then player can use their inventory to throw away bad equipment. There will be 2 different types of inventory management, at the start it will be simple one with buttons changing and dropping the items.

3.2 Implementation

In this section is will showcase pieces of code that are implemented in the game. Those will be supplemented with the screenshots from Unreal Engine 4, while its very difficult to showcase the code due to sheer size of it I will try my best to keep you informed about what is going on. Instead of standard programming I will be using visual programming called Blueprints in Unreal Engine.

The Unreal Visual Scripting is 'a complete gameplay scripting system based on the concept of using a node-based interface to create gameplay elements from within Unreal Editor.' (Unreal Docs, 2017) The visual scripting for Unreal defines Object Orientated classes or objects in the engine. (Unreal Docs, 2017). It works by connecting nodes, events and functions to create a playable game.

Inventory



Inventory Screenshot

The first section will be Inventory. Player can pick up the items from the ground, then place it in the inventory and then be able to equip it. It was challenging section because of the complexity of the code and the amount of distinct parts that you need to connect. The implementation was made simpler by using Use button instead of standard Drag and Drop.

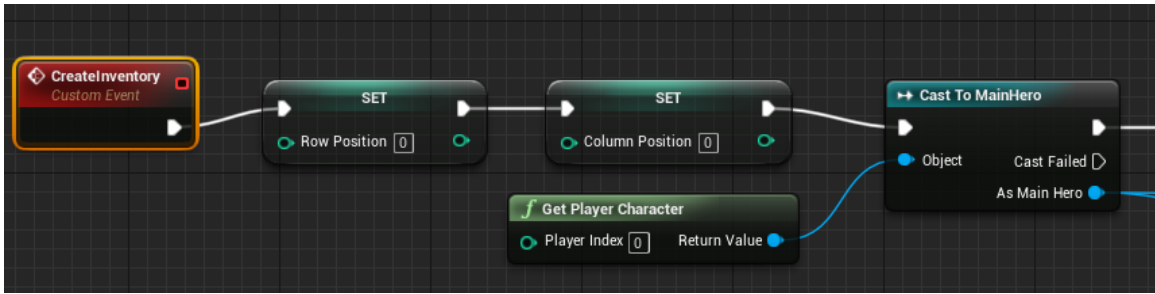


Image 1

Before we can place items into our inventory we need to create it. It will be a custom event called Create Inventory. The inventory will be built by placing an image and name of the item onto a position in the inventory. Image 1 will create inventory via event, then it will take the values of row position and column position and set it to 0, 0 so the start of the array. It also needs to Cast it to Main Hero so that the we can access the 'Blueprint' variables of Main Hero class such as inventory size and current inventory.

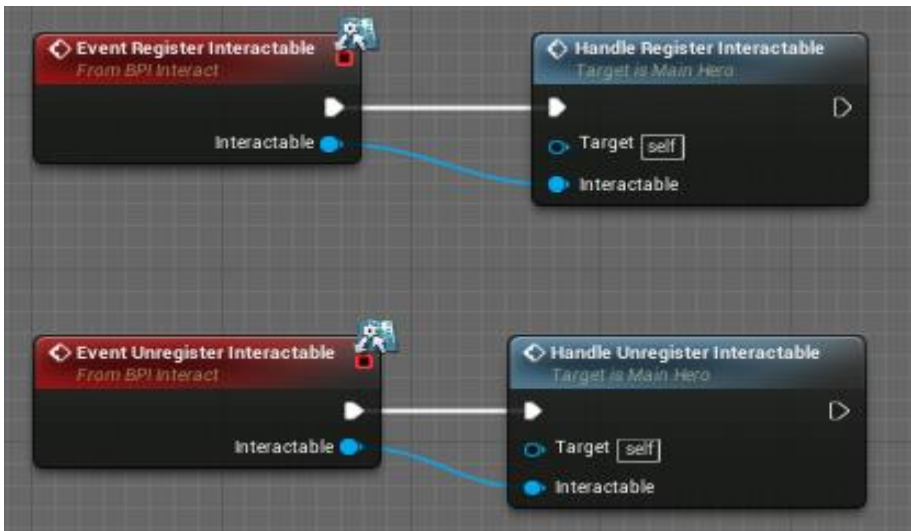


Image 2

First you need to make sure that you can acknowledge that the item on the floor is pickable item. This will be done using a Blueprint Interface. There we can specify what is a pickable item. After it finishes it check, then the item will be highlighted to show that it's a valid item. Valid items are the equipment pieces that the player will find.

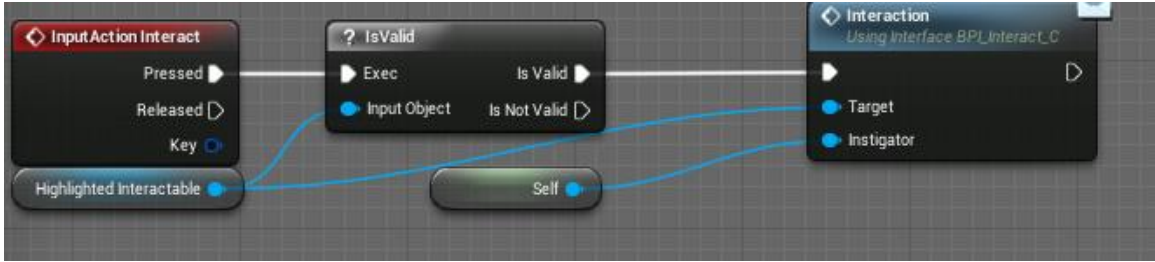


Image 3

After we come across a valid item to pick up the item will be highlighted. If we press the Input Action button for Interact which is E, the game will check whether the item is valid to be picked up. If the item is valid this will call the Interaction function which will pick up the item. The interaction function is linked to self as the player is conducting the action and picks up the item.

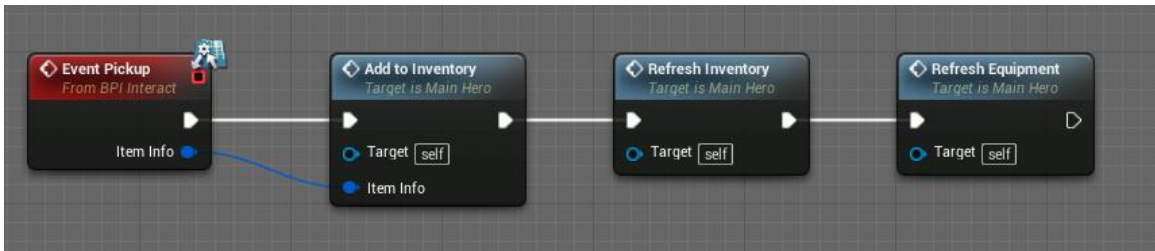


Image 4

The item will be placed into our inventory and it needs to be refreshed to see whether we have space and to update it. The item info from the item will be placed into the inventory so that we get the same item that we picked up.

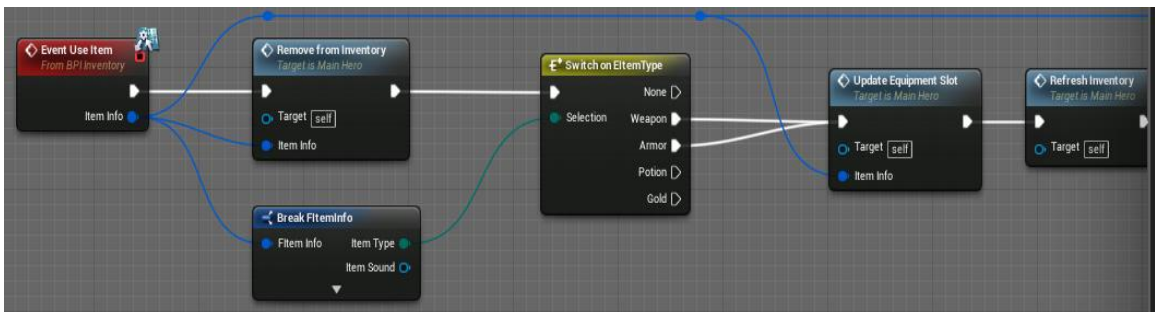


Image 5

After we have the item in our inventory, there will be 2 options – to use the item and to drop it. The image 5 is what happens when we press the Use Button. The item will be removed from inventory, the Item Information needs to be taken from the Master Item Blueprint so that it can be placed in the valid space.

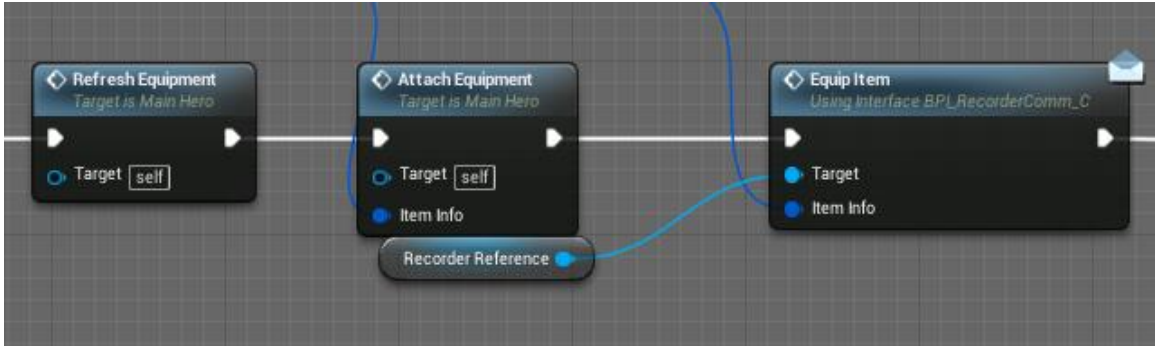


Image 6

The Equipment needs to be refreshed so that we see the current equipment in the slot. The item will be then attached to our skeleton based on the Item Information – each item has different attach point so that Helmet goes on head and not on feet. Then the Item will be equipped into our equipment slot after its destroyed from the inventory.

The dropping of the item will also take similar approach. You will choose the item you want to drop, then you will destroy them item from your inventory, refresh the inventory and then spawn the item in front of the player so that you can pick it up again.

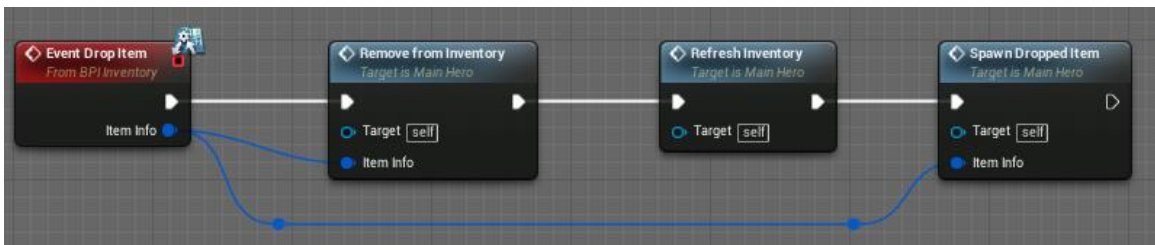


Image 7

The BreakItemInfo is very important method as it allows us to get the item information and break it into different parts – Name, Value, Slot or Attach Point. This is then used for equipping the items,

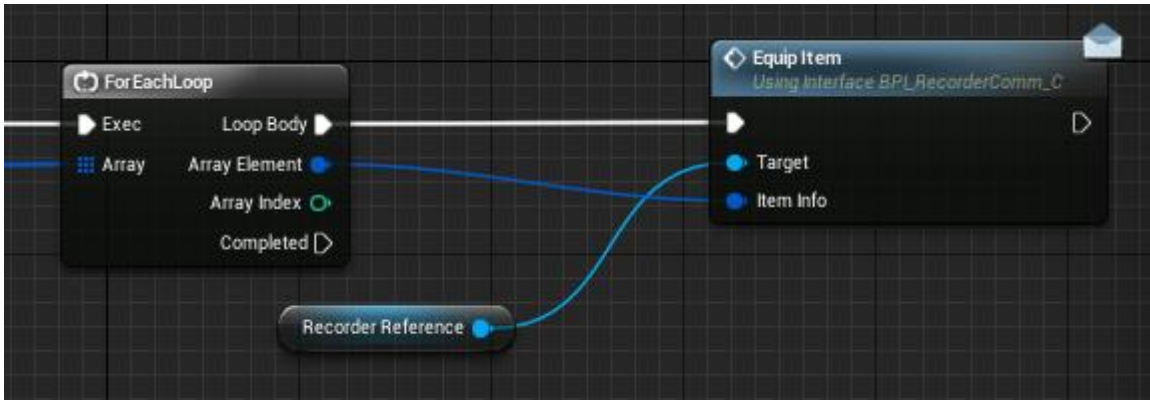


Image 8

This loop will be used with the Inventory Preview. It basically loops through the items that you have equipped and transfers the information into the Character Recorder so that we have live preview of the Inventory.

Saving/ Loading

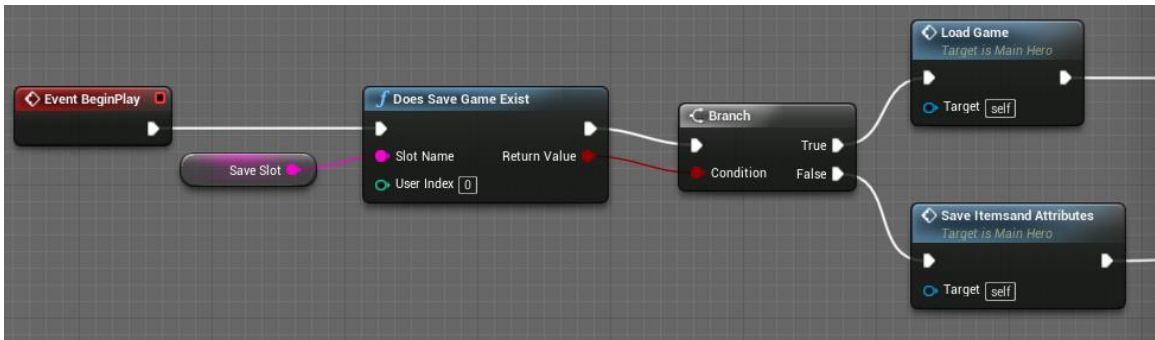


Image 9

After the game is started the system will check whether the Save Game exist in Save Slot. The Save slot is a variable that can specify which save slot will be checked (if any). Then depending whether it exists it will either Load game or Save the game in new slot. This could be upgraded into having different save slots that the player will choose from at the beginning of the game.

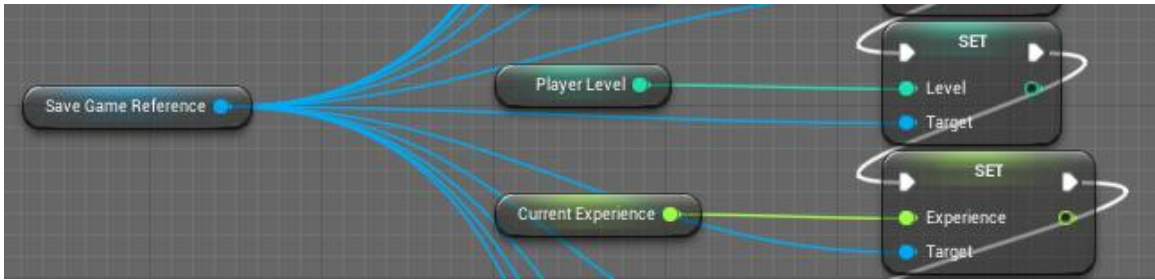


Image 10

The Save game reference holds the variables that are corresponding to the ones in the Main Hero Class. This is to make it easier for the system to save and retrieve the information. The Save game reference takes the Player Level that is held in the Main Hero class and sets the Player Level in Save Reference to be loaded later. This is very similar for saving and loading of each variable.

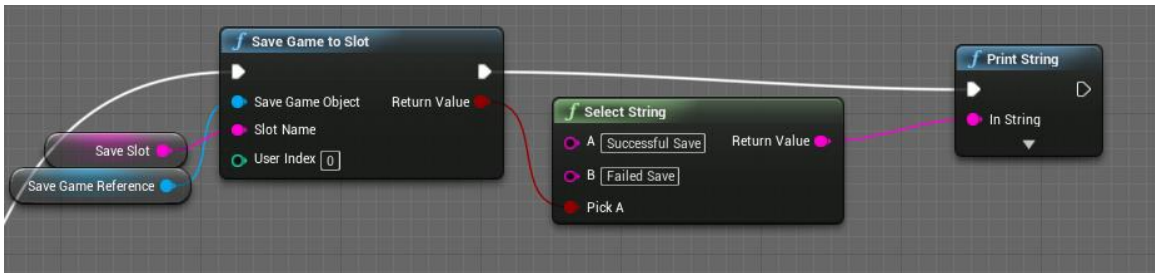


Image 11

After the Variables from Main Hero are saved into Save Game Blueprint we need to save the variables into Save Slot. Which takes 2 variables – Save Game slot and Save Game Reference. Save game reference will keep the variables that need to be saved, while save slot will save them into a file. Then we have some debugging print string which allows us to see whether we successfully saved the game.

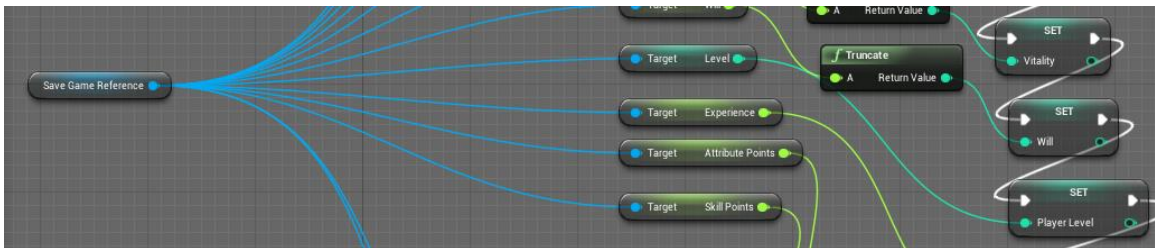


Image 12

This is the standard way of loading the variables in the save file. It takes the reference of the Save Game Blueprint which holds the variables for each Saved item for example player level. The Player level variable is then set into Player Level variable so that it can be loaded and loaded as the player turns on the game.

Enemy Artificial Intelligence

The enemy AI will be working in few different ways. But the main way will be the enemy will be patrolling a certain area searching for the player. The pawn sensing cone will be 45 degrees. So not every enemy will sense the player being behind them. The pawn sensing can be adjusted depending on the enemy.

Depending on the enemy type the sensing would be different. For example, a bear would be able to notice the player from way longer distance than a mere pawn. This would also be the case with different types of enemies. Ranged enemies would attack hero from the distance, but as the hero comes closer they would need to either move, change weapon or stay where they are. Different enemies would have different 'intelligence' and way of acting while on battlefield.

Enemy Name	Pawn Sensing Range(UU)	Pawn Sensing Angle (*)
Big Spider	1000	45
Alpha Wolf	1300	10
Gruntling	500	25
Frost Giant Boss	500	20
Ice Spider	1000	45
Spiderling	250	45
Troll	1000	45
Wolf	1000	45
Bear	1500	360

UU – Unreal Units

(*) - Degree

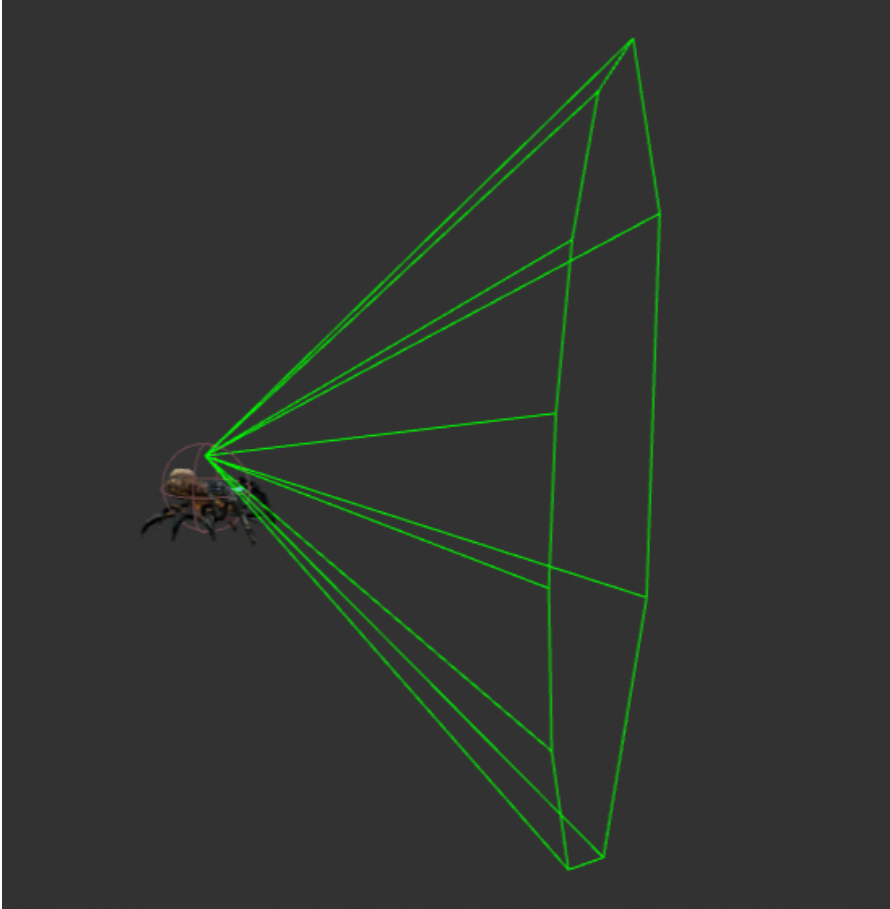


Image 13

Image 13 is the pawn sensing cone. This can be edited depending on the enemy. For example, bigger enemies or bosses would have larger cone so that they would get aggressive faster.

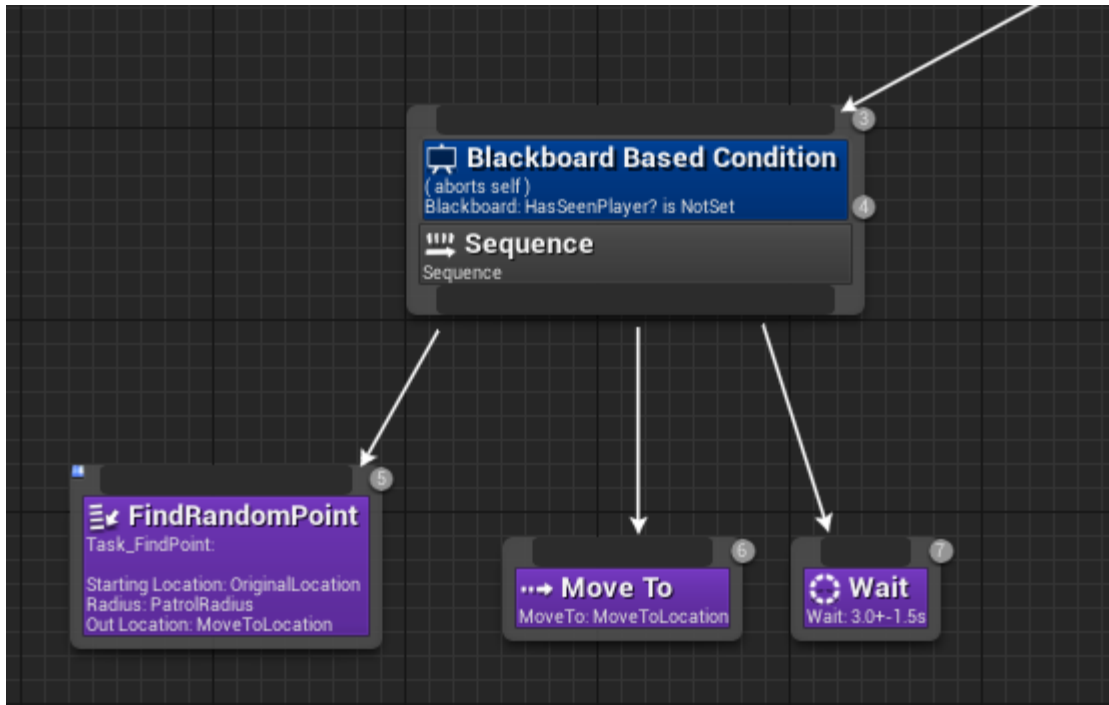


Image 14 – Patrol Settings for AI

This is the AI behavior tree; the AI will be behaving the way its programmed with the blackboard. The behavior tree is split into two different states – Patrolling state and Aggro State. The AI will by default be patrolling area searching for the player.

The AI works as follows – it will find a random point around a certain area, then it will move to the next point and it will wait for 4.5 seconds until it moves to the next area. As soon as it senses the player it will chase it until death of one actor.

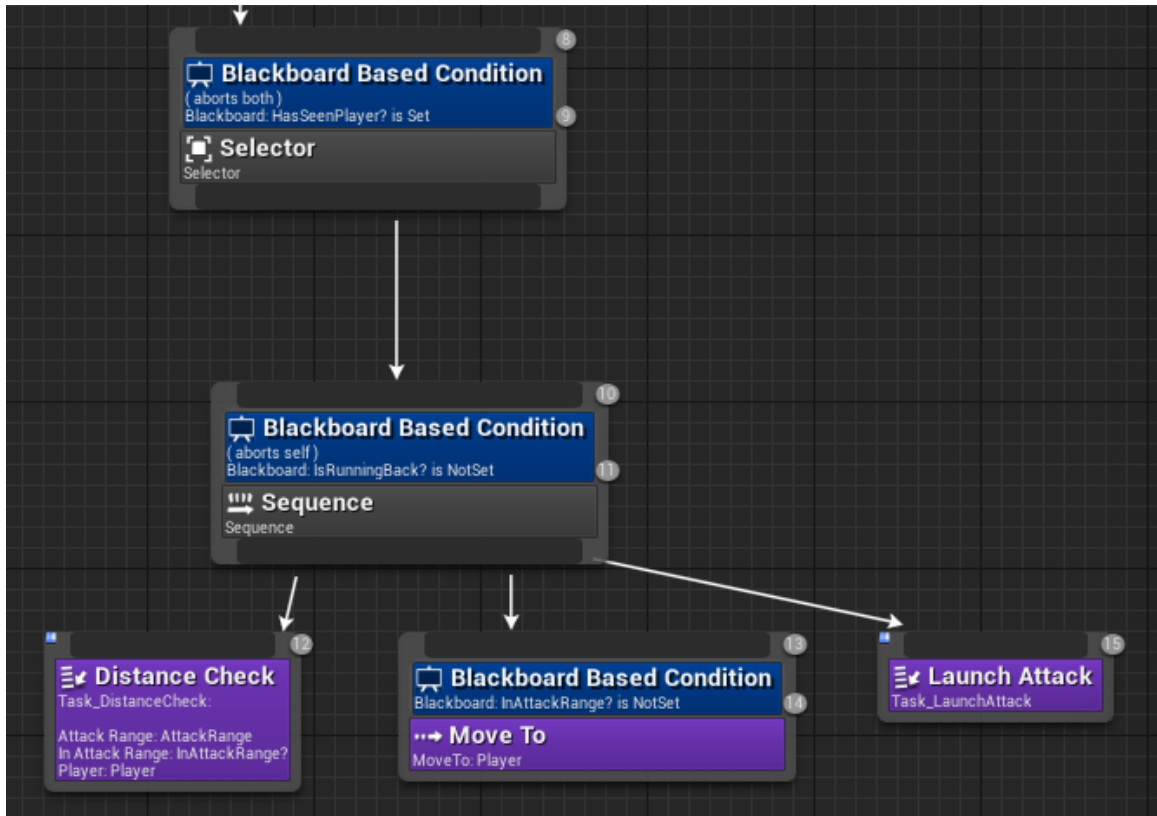


Image 15 – The aggressive state for AI

This is the aggro state. After HasSeenPlayer? Boolean is triggered positive, the AI will chase the player. It will attack the player depending if it's in the AttackRange. If not it will move towards the player and then it will launch attack. This could be modified in many different ways – for example, ranged enemies would have certain area around them which would trigger if the Player hero will get onto it. Then the enemy would run away to find a better position. Or this could be changed that the enemy will swap ranged attack into melee attack.

This could be also modified so that there are 5 smaller enemies, if 3 of those 5 die, then the remainder would scatter and run away from the player.

The Behavior tree would end when the Actor or Enemy are dead or when the player runs outside of the chase zone.

Change Level Blueprint

After you get to the teleport at the end of the Throne Room Level you will get option to leave the area. The game will be paused while you access the Trigger Box and you will get the option to either go to next level or to stay in the current one.

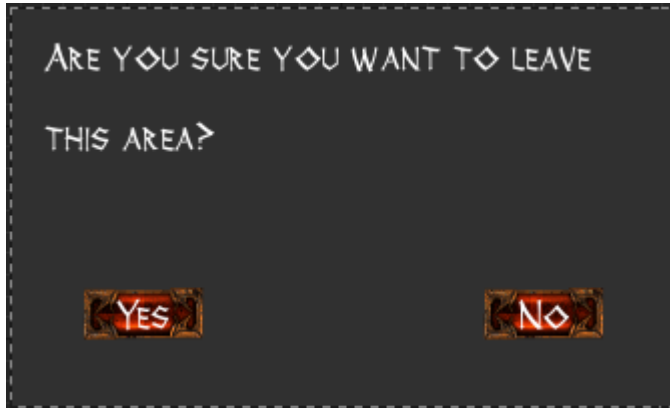


Image 16 – Teleport widget

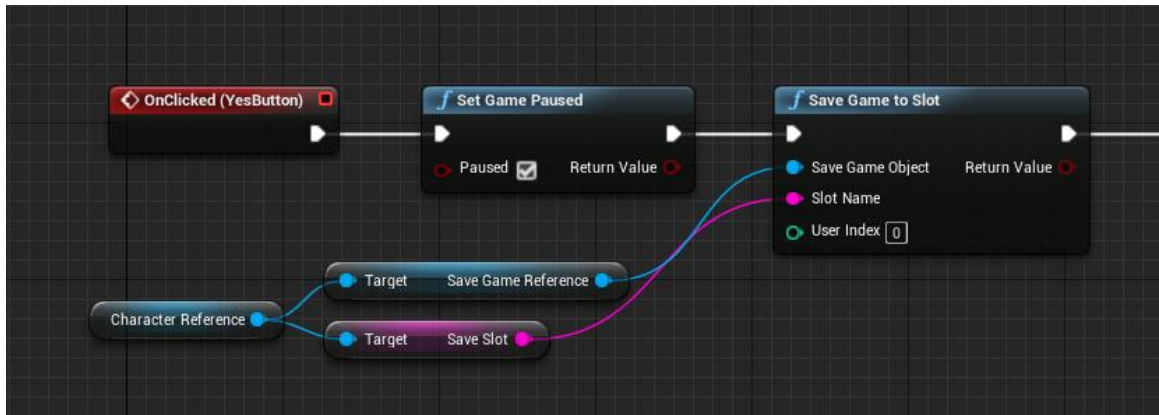


Image 17

After you click the yes button the game will be paused, then the Character reference will take Save Game Reference and Save Slot. So that the game status will be saved in the given Save Slot. This is basic as there is currently only 1 save slot in the game.

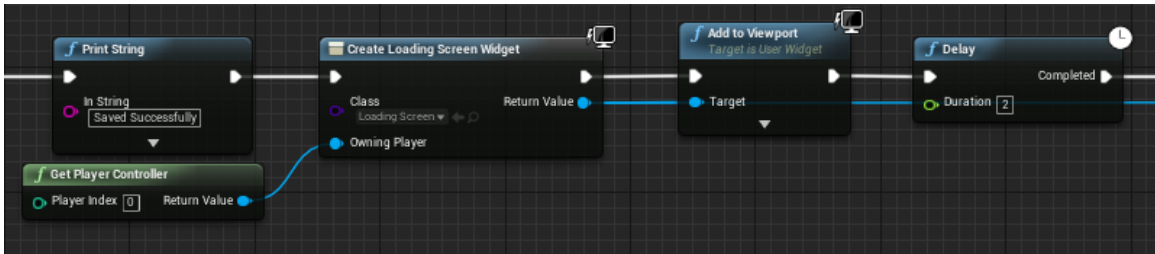


Image 18

If this is successful then the Print String will be shown on the screen so that player knows what is happening. Then Create Widget with Loading screen will be shown for the player that is taken from Player Controller. This will be added to the viewport so that the player can see it and there will be 2 second delay after.

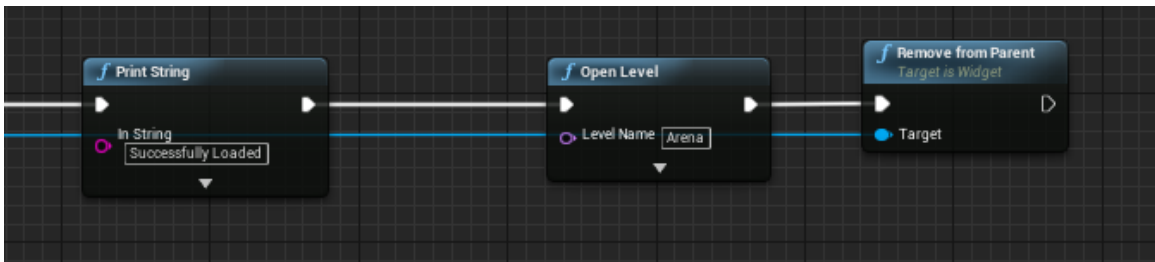


Image 19

This will be finished with another Print String confirming that the game has successfully loaded and a new Level – Arena will be opened, then the Widget will be removed from parent so that it doesn't appear on screen anymore.

In case that the player doesn't want to change level and wishes to stay in the current one.

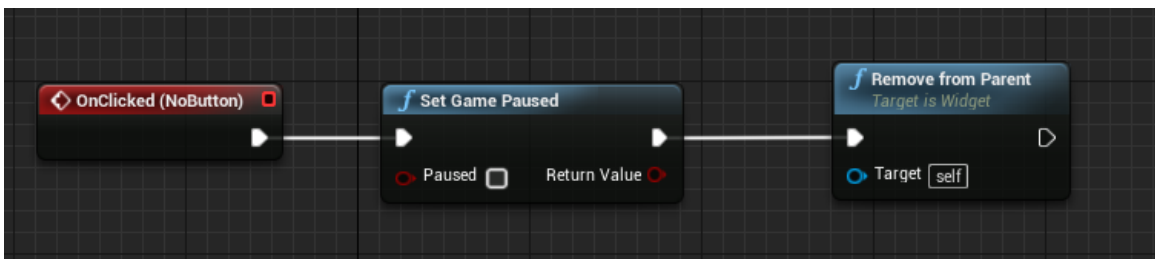


Image 20

The game will be un-paused and the widget will be removed from screen.

Player Died



Image 21 – Death Screen Widget

If the player's health goes below zero we need to have a good method that will respawn our player. Firstly, we need to see whether the player has received any damage from the enemies.

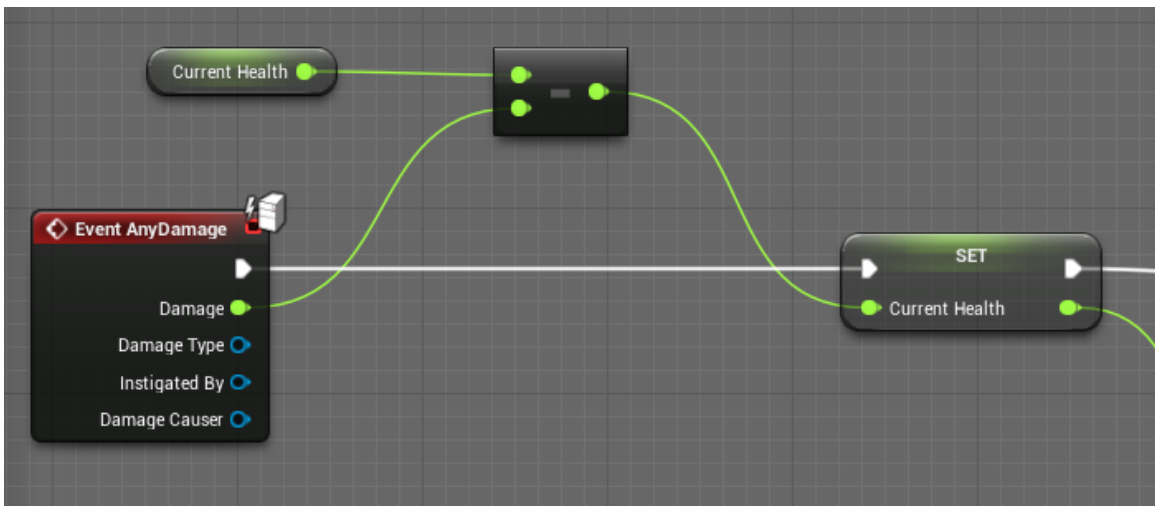


Image 22

This method will be checking that if player has received any damage, this needs to be subtracted from the Current Health Variable. Then the health subtracted will be set as the

current health this will be happening real time so there is no delay after receiving the damage.

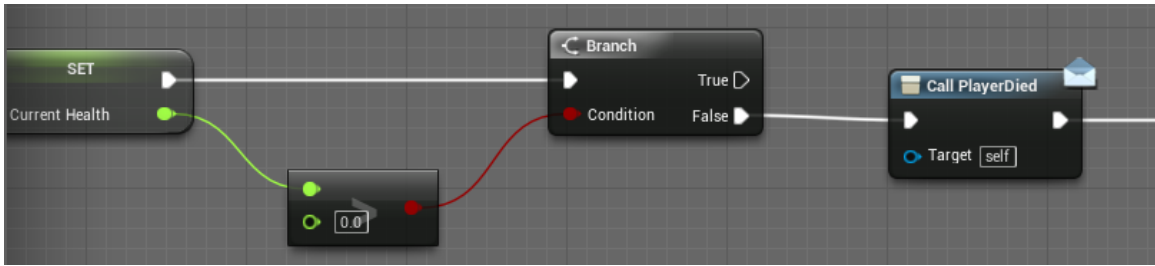


Image 23

The current health will be then checked so that it doesn't go below zero. When it goes to zero it will trigger a Boolean statement in the Branch. If health is zero then it will call a method called Player Died. Which could be supplemented with a animation of player death.

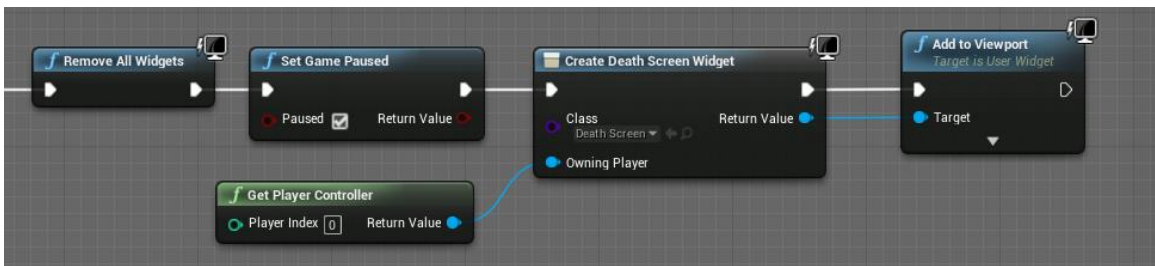


Image 24

My method is that when player's current health reaches zero it will cause the game to remove all the widgets from the screen, then the game will be set paused and a Death Screen Widget will be shown, this will be shown to a player via Add to Viewport. The death screen will contain a button that will allow the player to respawn in current zone at the teleport. This can be improved by taking experience and gold from the player to make the game more challenging. Also, if the items contain a durability variable, this could take a percentage of the items durability.

Graphic Settings

Settings are very important part of any game. They allow the player to choose the graphics quality. On lower end computers, the settings would need to be set to low to enjoy a smooth gameplay.

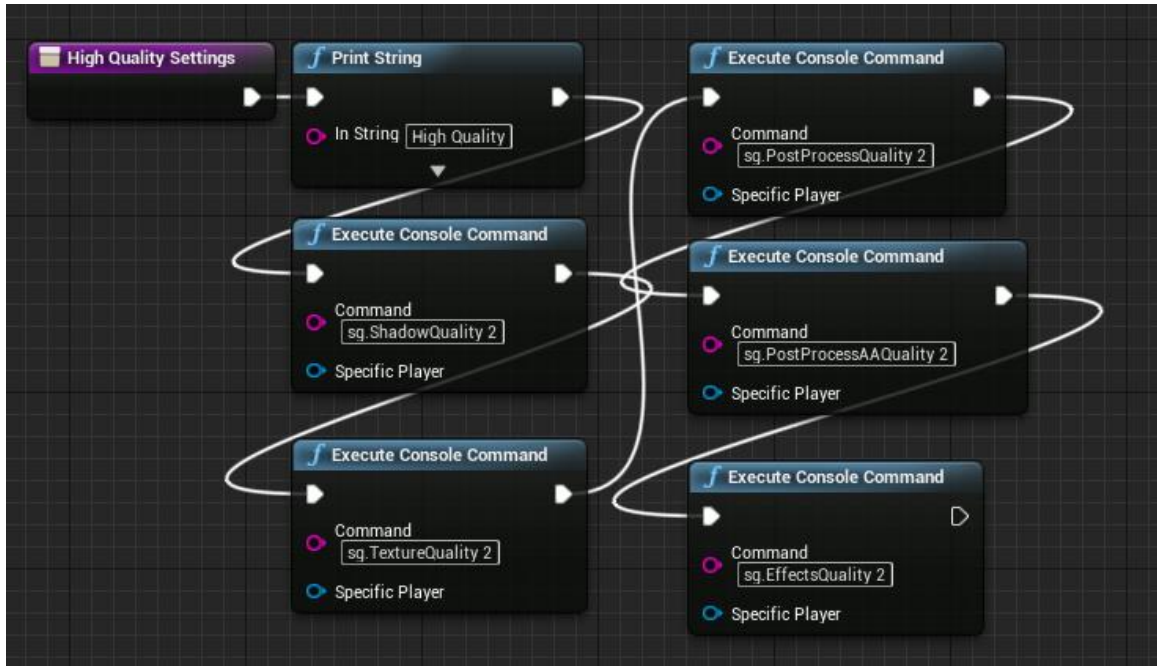


Image 25 – Quality Settings

From Unreal Engine, you can execute console commands. After the High-Quality Settings button is pressed a Print String would be printed informing the player if it was successful. Then it would execute different console commands:

Shadow Quality – this would affect the quality of the shadows.

Texture Quality – this would affect the quality of the textures

Post Processing Quality – this would affect the quality of post processing

Post Processing Anti-Aliasing Quality – affects the post processing with anti-aliasing

Effects Quality – this would affect the quality of effects in the game.



Image 26

3.2.1 Types of items in the game:

- Weapons: Swords, Axes
- Shields: Shields
- Armor: Helmets, Chest Armor, Gloves, Boots, Amulet
- Potions: Mana Potions, Health Potions

All the items above will have different variations. For example, there is normal long sword but also Jomsviking and Vangardian swords which are unique versions of the normal sword.

After the player presses the Inventory button they will see the Inventory menu on the right side. There they will be able to see the equipment box where all the loot will be as well as the equipment that the hero has currently equipped.

3.2.2 Types of Skillsets in the game:

There will be different skills that the player can use. It will be split into 3 different sections at the start:

- Berserker
- Raider
- Scout
- Guardian

The skills will add different statistics independently of the Character Menu. For example, Berserker will add a lot to Melee Damage but little to Health. Berserker class will be more of a high risk/ high reward character. He will be weaker than Raider but will yield more damage.

Raider would be the standard build of the hero. It yields similar output to damage and health.

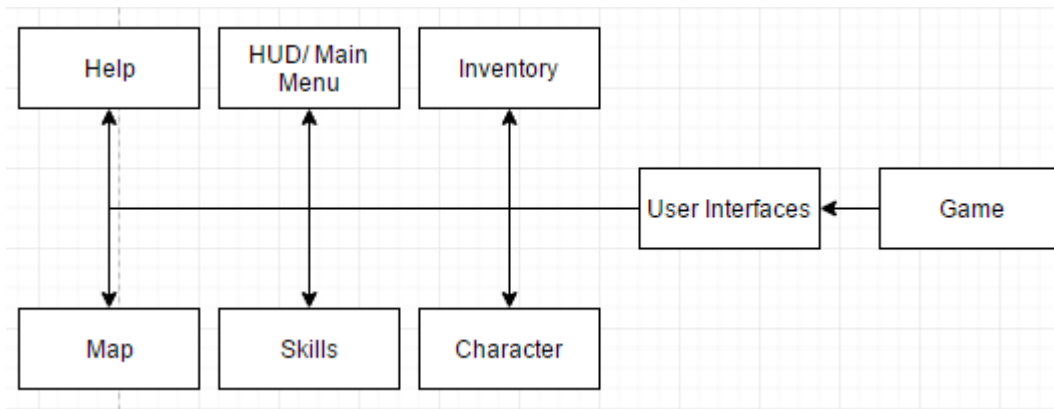
Scout is a class that allows the players to utilize the speed and mobility.

Guardian is a class that gives a huge increase of health but leaves damage relatively low. It would be a class that would be good in multiplayer games where the guardian would take the damage on himself utilizing his huge health pool.

3.3 Graphical User Interface (GUI) Layout

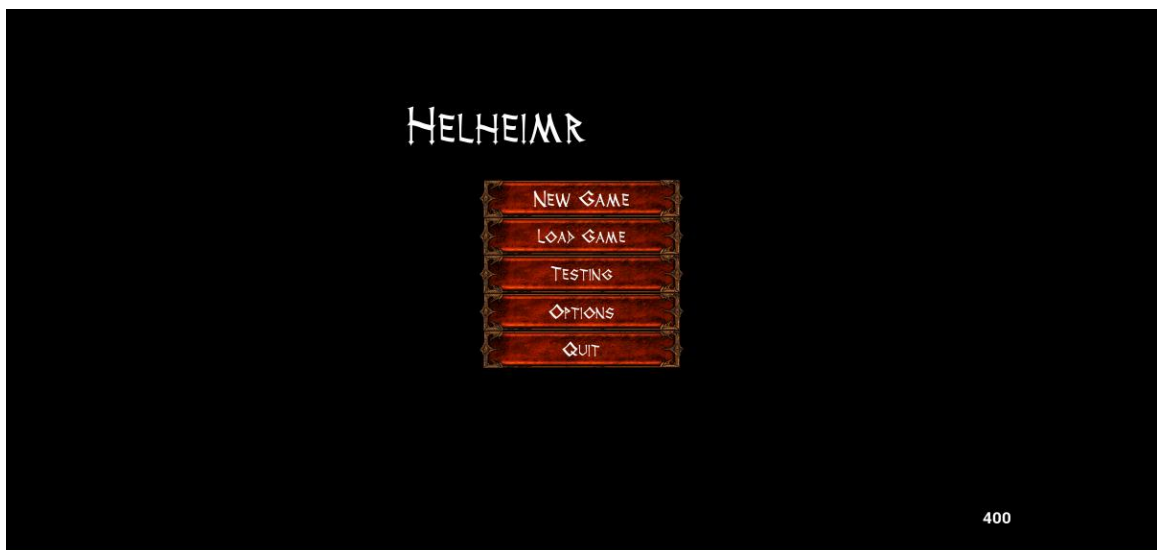
There will be few user interfaces in the game. Most of the implementation code will be placed in the user interfaces. For example, when you add an attribute point on Character screen, it will take the value from Main Hero class, but it will do all the code in the Character screen blueprint.

Due to usability testing I have put a lot of effort to make the user interfaces as user friendly as possible. This has few benefits, it allows the users to learn how the game operates faster thus keeps their interest in the game longer. If the user interfaces are bland and give not enough information on how to play the game, players will lose interest in the game.



User Interfaces System Architecture

3.3.1 Main Menu



This is the Main Menu User interface. It's very simple so that people won't get confused if it has many options. It's divided into different buttons:

New Game – This will start the new game. From there the player can choose the difficulty level of the game. There will be 4 difficulties to choose from Easy, Normal, Hard and Ragnarok.

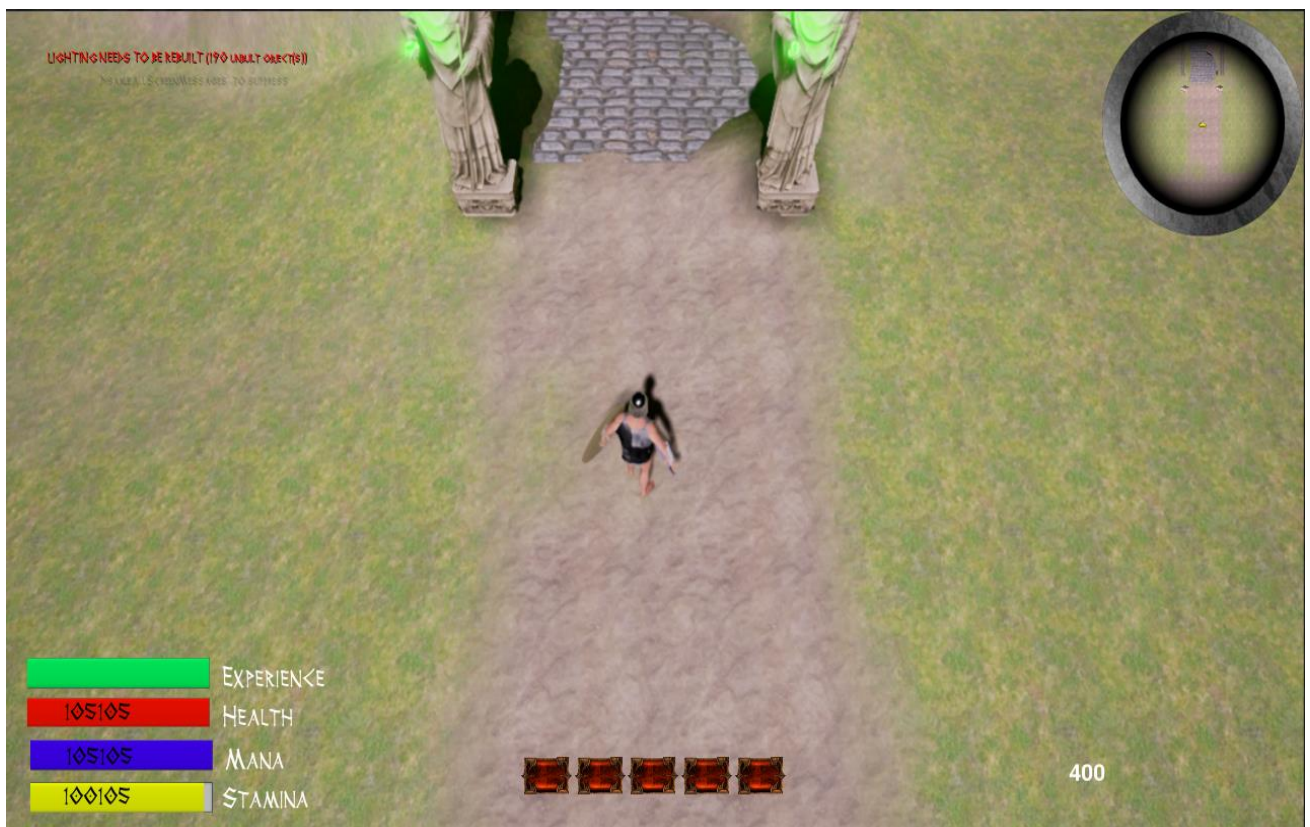
Load Game – Load Game will load the progress of your save. So far, the Saves have been only possible for one player but additional functionality will be added in future updates. The Level and attribute points will be saved and loaded upon starting the game.

Testing – Testing is a special button used for testing of the game. This was used extensively by the users that were testing the game. From there they could choose the various levels that were in the game. So far only 2 levels have been completed, the Arena and Throne Map.

Options – Options are self-explanatory. From there the player can choose the graphics settings – the quality of the game as well as the resolution and sound settings.

Quit – The player can quit the game to the desktop.

3.3.2 Game Screen

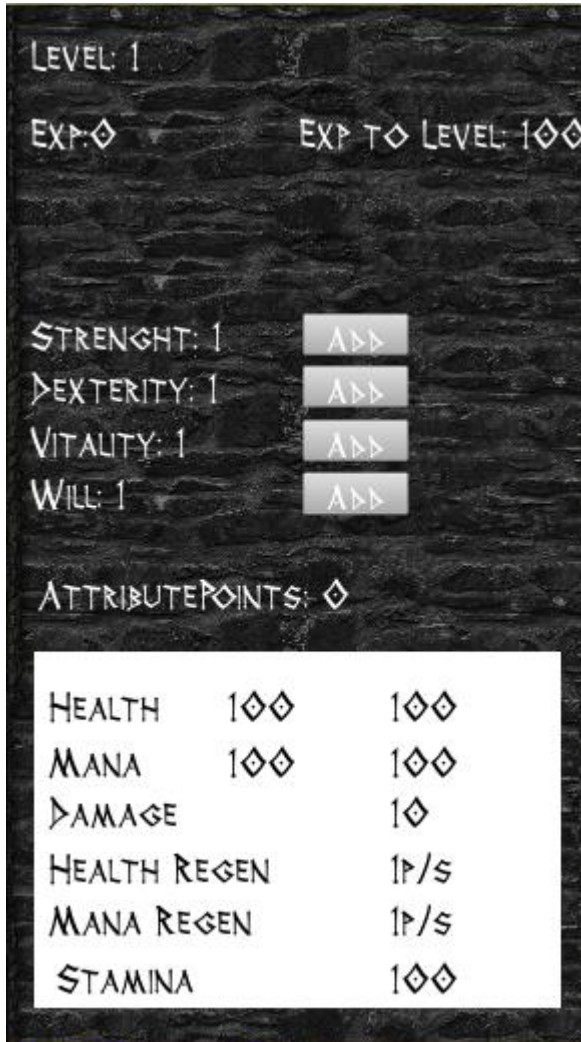


This will be the GUI of Helheimr. It contains Mini-Map where the player can check their current position. It will also have 4 buttons, those buttons will correspond to the following widgets – Character, Inventory, Skills and Map.

In the bottom, right corner there will be 4 progress bars. They will update in real time as player gains experience or takes damage.

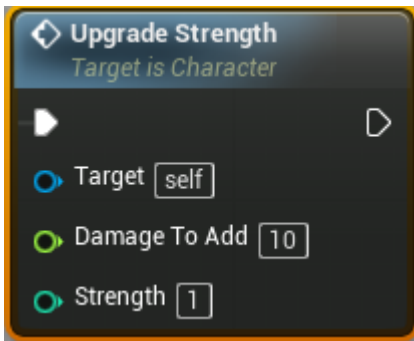
3.3.3 Character

The next GUI is the Character Menu. The hero will have 4 main stats. After levelling up player will be able to allocate 4 attribute points and one skill point to chosen attribute. There are lots of ways to build your character it's up to the player to choose how they will build their character.



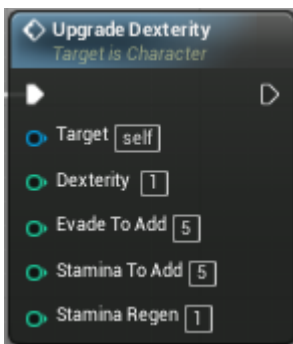
Character Menu

- **Strength** – more of it the stronger is the hero. As of now the strength will only add the melee damage that the player will inflict.



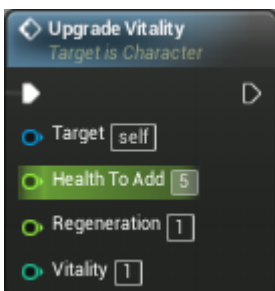
Strength Attribute

- **Dexterity** – more of it the stronger and more often critical hits that it can give. It would also improve the Stamina and Regeneration. Extra things would be Evade Rate, this would cause the player getting less damage from the enemies.



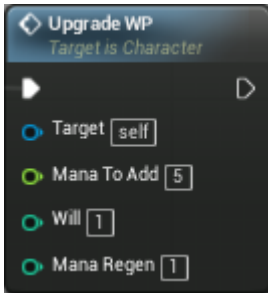
Dexterity Attribute

- **Vitality** – more of it the more health the player has. Health regeneration is also affected by this skill.



Vitality Attribute

- **Will** – more of it the more mana the player has. Mana regeneration is affected by this skill.



Will Attribute

All the things that the skills add can be later changed and upgraded as I will be developing the game more and more.

The box below the statistics will be one to tell player the details of the character. As the game is improved and more statistics are added this box would be swapped into a brand-new box on the right of the Character box due to lack of space. The box will be toggleable so that player can open it as they wish for comparing items.

3.3.4 Inventory



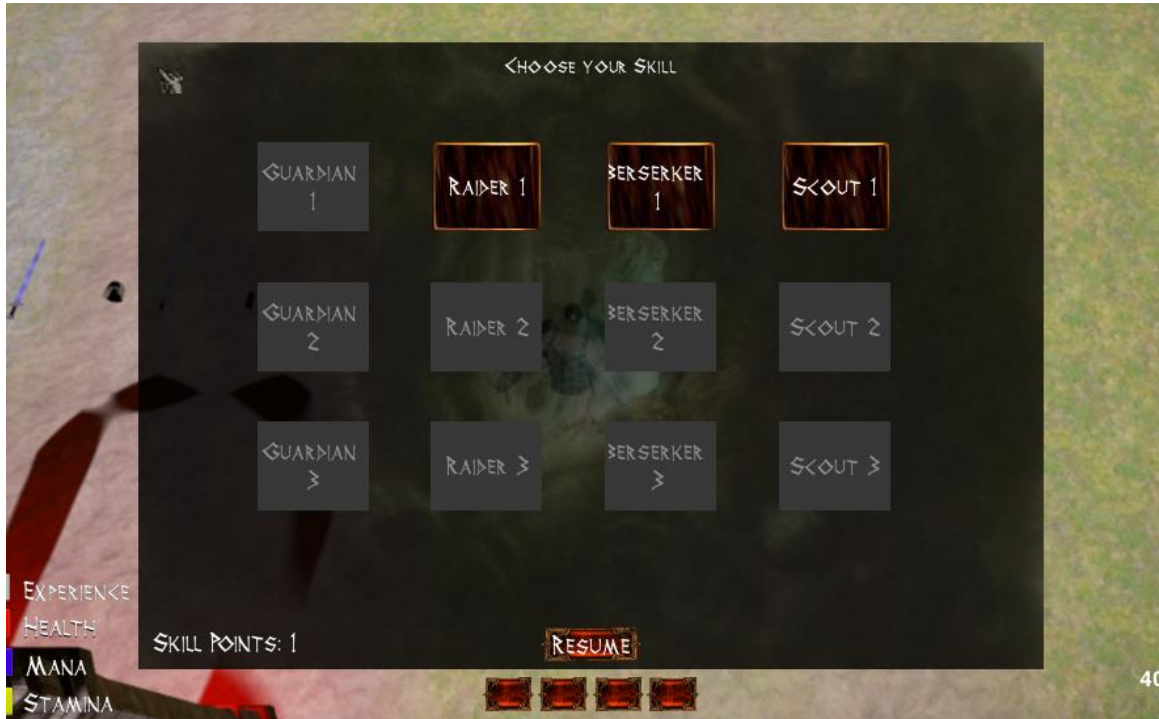
Inventory

This is the inventory interface. It's split into two different parts – equipment and inventory. The player puts items in the inventory and then has option to equip them or drop them. The dropped item will spawn few units away from the player so it can be picked up at will. The player in the top part is the Character Recorder which is live preview screen. As the player equips or drops the item it will be shown on the preview. The preview was done as

its very simple yet effective way to make your inventory more interactable. So far, the inventory only works with the Use Item button. There is no drag and drop inventory. But this will be implemented in the future updates as there is a bit of work to be done with that.

3.3.5 Skills

There are 4 distinct categories of skills. Your game style will depend on which ones you choose.

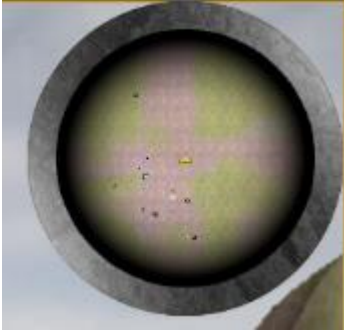


Skills Menu

The skills will not be mutually exclusive as there isn't that many skills to choose from. All those skills will give different bonuses depending on the Skill Group. In the future, this will be greatly expanded as I will introduce 4 different skill trees to choose from.

3.3.6 Map

Map will allow players to see the map of the level. The map is split in two separate parts – mini-map and full map. The mini-map will be always turned on while the big map will be toggled with M button.



Mini Map

This is the mini map circle. It will show quests, monsters and the main hero position. This could be easily modified and I plan on adding the option in the menu to edit the looks of the mini map to suit user's needs.

The mini map is somehow similarly created to the player in Inventory Preview. There is a large camera placed above the main hero, the camera output is recorded on a big plane, which can be then placed on Widget and display the camera on MiniMap.

3.3.7 Pause Menu

Pause menu will be the menu that players could access by pressing Escape. From there they could access the options or save and quit. The Adjust Difficulty is a test button as it allows the player to change the difficulty while playing the game.



Pause Menu

3.3.8 Help

Help menu is very important for the inexperienced players. It will contain tips and key bindings that players can see if they just started the game. This will be split into two different parts. One of those will be screen shown at the start of the game which will explain the game story in a little paragraph and will explain simple controls. It will also contain key binding of the proper help widget. There the player will get extra key bindings that aren't shown in the small screen.

WELCOME TO HELHEIMR NAMELESS WARRIOR! YOU HAVE BEEN CASTED ASIDE BY CRUEL GODS, BUT NOW IT'S YOUR TIME TO TAKE REVENGE. FIGHT THROUGH THEIR WEAKLING MINIONS AND GET YOUR WELL EARNED SPACE IN VALHALLA. REMEMBER, ONLY YOU HAVE THE POWER TO OVERTHROW THE CORRUPT GODS, WHO HAVE BEEN PLAYING WITH LIVES FOR TOO LONG

BASIC CONTROLS:

USE LEFT MOUSE BUTTON TO MOVE.
USE RIGHT MOUSE BUTTON TO ATTACK.
USE H TO OPEN FURTHER HELP MENU.

I UNDERSTAND. LET'S PLAY!

Welcome Screen

3.3.9 Main Hero



Hero Image

The player will be able to change the skin of the player while playing. This would be related to one of the 'final' skills in the game where the player would get lots of extra powers such as health and increased damage but during limited time.

3.4 Testing

3.4.1 Overview

Testing is very important aspect of game development. Testing will bring out bugs, imbalances and that the game functions as it should be. For the testing section I have conducted 3 different types of tests: Beta testing, Think Aloud test and Release Candidate Survey.

The one problem with usability testing is that there is a lot of possibilities for bias. For example, your friends and family will not see the problems with your game and will say that everything is fine. The best types of usability studies are among the people that do not know you personally and will be very critical towards your game.

For the usability testing I have gathered a few people from diverse backgrounds. Some of the people were very interested in those types of games while others didn't really play games. This allowed the testing to have a big spectrum and get more accurate results.

3.4.2 Beta Testing

People were given a beta test version of the game. I didn't tell them what specific parts of the game they need to play and they were free to do whatever they wanted. After the test was completed I asked them to write a sentence about the game.

Main point of beta testing was to test the functions of the application that I have created and to test them with the previously made functions to test whether it caused any problems.

This produced very interesting testing because people weren't answering questions that they were told and were free to explore the game in their own way. This way they found more problems with the game.

The beta testing was conducted monthly as the development progressed. The game was tested by mainly myself since there was not enough content to show to people. But the beta version was released to the testers every few weeks.

From the beta testing, I found the following problems. This was mainly informal testing so people were not given survey to fill out therefore I will not provide individual results, other than the average results of the test.

Animation – The overall problems with the animation. Many people considered that the animation is the biggest problem of the game. Due to the models being downloaded and not made it was difficult to create proper animations for them other than use the ones that were given with the model.

Artificial Intelligence – The problems with the artificial intelligence. Their pathfinding, how they react when they see the player and their overall behavior. People have reported that often AI acted very weird and instead of attacking the player it was running away.

Balance – The balance in the game. Some people noted that many of the monsters are too weak or too strong. This problem would often be fixed after the game is changed from the input of the players. Due to lack of content and proper testing done I couldn't test all the possible ways that people would build their character. As the game gets more content more people would test it so I would be able to balance the game properly.

Inventory + Equipment – People were reporting that there aren't enough equipment pieces, or different equipment. Most of the weapons now are single models but with different names and statistics. People usually were happy about the mix of the items but still some noted that there needs to be more of them.

Maps – The design and amount of the maps. Many people said that there aren't enough maps for the release testing. As of writing this document I have finished 2 maps, one was full map and other was a testing arena. People really enjoyed playing the large map and were anxious to play more.

3.4.3 Think Aloud Test

https://youtu.be/G1_zCMmxsYc - YouTube link to the Think Aloud test.

Think aloud test is usually done 1 on 1 with the tester. The tester will be playing the game according to a script. As the player is playing the game the developer will be taking notes of the player playing the game. Think aloud is a very efficient way of testing as it allows the player to control how the testing goes, they will be playing the game and the developer will be taking the notes. The player will make the decisions without any significant input from the developer.

Note. The same version of the game as Release Testing was used.

Instructions:

The tester was given a set of instructions of what they were supposed to do while testing the game Helheimr.

Start a New Game -> Choose Easy

After the game starts read the instructions

Click the red button when you read through the instructions.

Pick up the items given to you.

Roam around the map killing enemies and improve your statistics.

Cross the bridge when you are ready and kill the boss in the throne room (he is strong)

After you kill the boss follow the path north and go to the portal.

The test will end when you reach the portal.

Analysis:

The player had few problems at the start to successfully complete the game. This was due to badly animated character and overall difficulty of the game. The monsters were too strong according to the tester. Over the course of the testing the player had become better at the game and could easily complete the game within reasonable amount of time.

Tester also complained about the problems with certain textures – notably the water texture. The big problem was the difference between the speed of the enemies, as the enemies were very fast their animation seemed broken.

Overall the test was a success, the tester enjoyed the game but only after learning how the system works.

Think Aloud testing is very effective because it allows the player to do a test according to the instruction but still in their own way. It allows the tester to react to the game without the input from the developer. The player plays at their own pace and learns the game, this makes the testing very efficient as it simulates gameplay in such a way that developer could never simulate on their own.

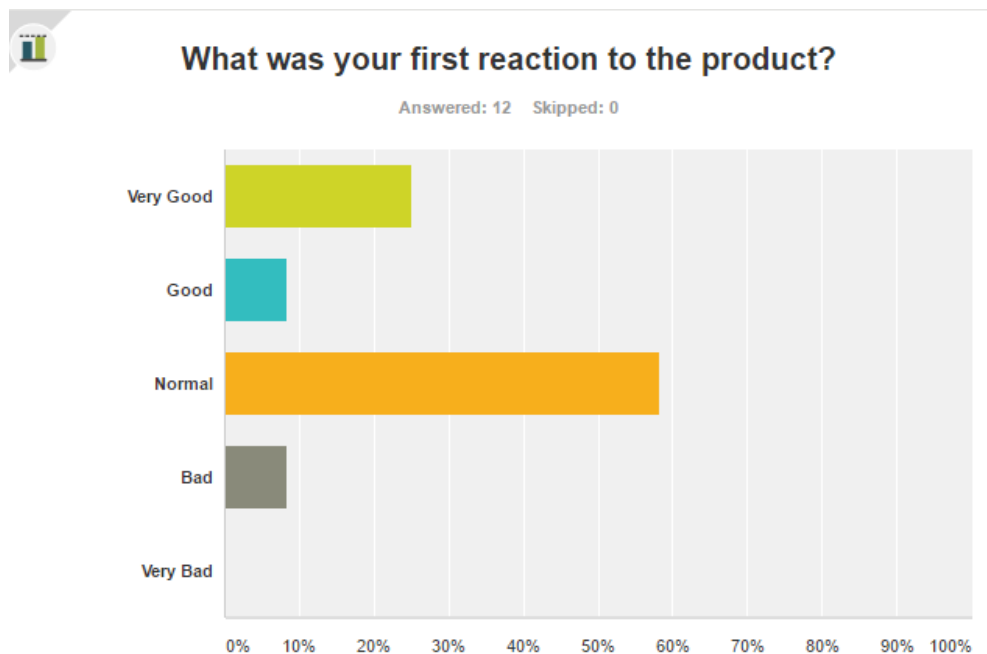
3.4.4 Release Testing

The release testing is testing of the game that is close to being released. Helheimr was release tested before finishing of writing this document to produce as fresh and accurate results as possible. A lot has changed between beta testing and release testing. The people chosen for this testing already had an idea what Helheimr was before as they played it before or were just interested in the idea. Their input was very important to show the direction in which this game must go.

Number of Participants: 12

First Question: *What is your first reaction to the product?*

User Responses:



Analysis of the Answers and Solutions:

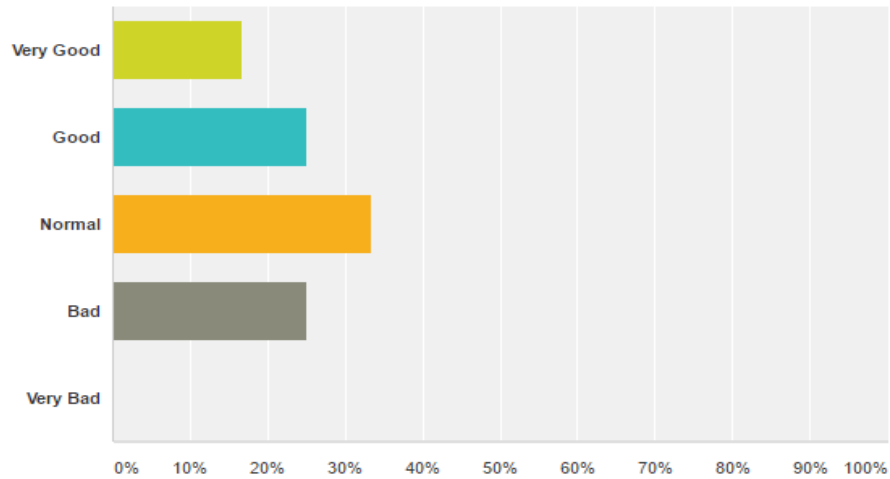
Overall this question was answer positively, but it improved a lot since last testing. People would usually look at how well the User Interface is implemented to see whether the game will be good. The first impression is very important in game development as it allows to set a tone straight away.

Second Question: *How would you rate the level design of the game?*

User Responses:

How would you rate the level design of the game?

Answered: 12 Skipped: 0



Analysis of the Answers and Solutions:

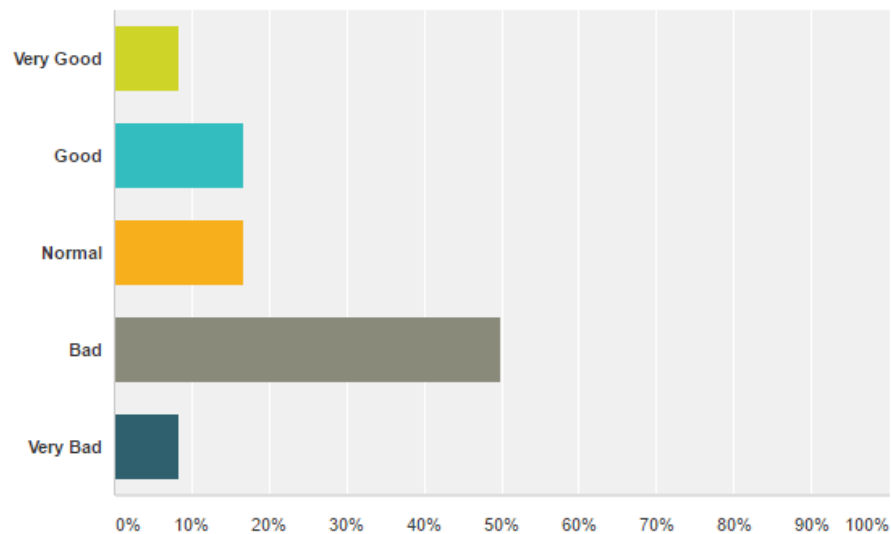
Overall this question was answered very well considering the few levels that I have built. Many people wanted to play new levels and were anxious for latest updates. I really enjoyed the level development and that's why people enjoyed it so much. But I would need to create new levels and make randomization system that would allow the player to have infinite amount of levels through every game play.

Third Question: *How would you rate the controls and animations of the game?*

User Responses:

How would you rate the controls and animations of the game?

Answered: 12 Skipped: 0



Analysis of the Answers and Solutions:

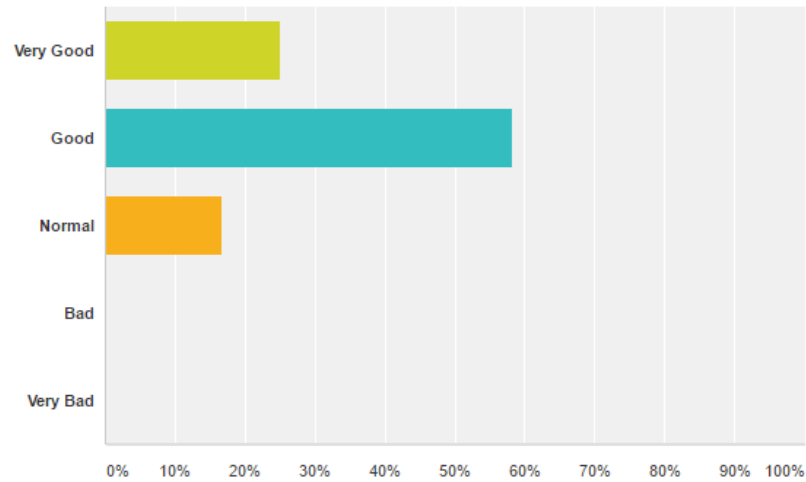
This was rated very poorly, mainly because the animations are broken. The main animation problem is that while the hero holds a weapon in their hand the animation goes only 90 degrees straight. This was fixed somehow by changing the animations in the game, after the animations were fixed people were happier regarding the animations and controls.

Fourth Question: *How would you rate the user interfaces of the game?*

User Responses:

How would you rate the user interfaces of the game?

Answered: 12 Skipped: 0



Analysis of the Answers and Solutions:

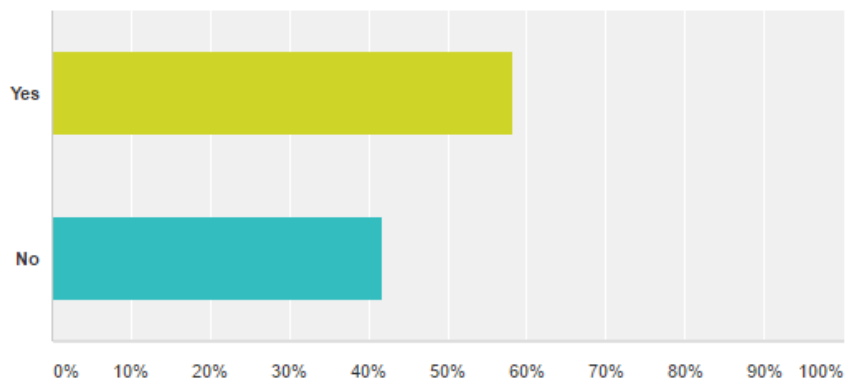
Most people that tested the game choose that the user interfaces were very good in my game. I have spent lots of time trying to do the user interface as user friendly as possible, because at the start of the testing many people were saying that User Interfaces in my game were rather bland and nonexistent.

Fifth Question: Would you consider the game to be replayable?

User Responses:

Would you consider the game to be replayable?

Answered: 12 Skipped: 0



This question had a comment section to explain why the testers said yes or no

not enough contennt 5/6/2017 10:23 AM View respondent's answers
I would like to try and beat the game on the harder difficulties to see if I would be able 5/5/2017 2:55 PM View respondent's answers
yes if there were more enemies and they actually dropped items then you could play over and over 5/3/2017 4:42 PM View respondent's answers
no content 5/3/2017 2:41 PM View respondent's answers
not at this stage, there isnt enough content to play again. 5/3/2017 2:30 PM View respondent's answers
not enough content 5/3/2017 2:23 PM View respondent's answers
diablo 5/3/2017 2:20 PM View respondent's answers

Analysis of the Answers and Solutions:

Testers said that they liked the game and they would like to have the option to play on higher difficulty setting. While others didn't like the game due to lack of content in the game. This would be fixed by adding more content to the game so that people would have more to do while testing. As there wasn't enough content people would be finished after few minutes.

Sixth Question: *What parts of the game did you like? How would you improve them, please explain your answer.*

User Responses:

the setting, nice enemies but their animations dont work properly 5/6/2017 10:23 AM View respondent's answers
Combat animations, art style, angled top down view, enemies 5/5/2017 2:55 PM View respondent's answers
the combat system is funny because of the animation 5/3/2017 4:42 PM View respondent's answers
I like the way the user kills the enemy in the game. But of course with a better animation, it would be better. 5/3/2017 2:53 PM View respondent's answers
there isnt enough content still to say what i like 5/3/2017 2:43 PM View respondent's answers
its ok 5/3/2017 2:41 PM View respondent's answers
interfaces 5/3/2017 2:35 PM View respondent's answers

Analysis of the Answers and Solutions:

People usually liked the game, the main problem were the animations but rest was very good, people especially liked the level design and interfaces in the game.

Seventh Question: *What parts of the game did you dislike? What problems did you encounter, please explain.*

User Responses:

animations, controls, lack of content 5/6/2017 10:23 AM View respondent's answers
Getting stuck on the edge of the map (use a wall instead of a pit), being able to walk into the river, using right click to attack 5/5/2017 2:55 PM View respondent's answers
animation was rather weird, the ai wasnt behaving properly, lack of content 5/3/2017 4:42 PM View respondent's answers
Animation is the problem only. 5/3/2017 2:53 PM View respondent's answers
animations are problem, the items arent finished, no enemies and 2 levels? 5/3/2017 2:43 PM View respondent's answers
animation is bad 5/3/2017 2:41 PM View respondent's answers
animation, ai, lack of content, annoying music - too loud 5/3/2017 2:35 PM View respondent's answers

Analysis of the Answers and Solutions:

This question was very important as it answered many questions on what are the problems in my game. The single answer that was almost always written was Animation. I understand that the animations are the problem therefore it would be the first thing I would change.

Eight Question: *Were the directions given clear? Did you understand what was needed of you and how could you accomplish it?*

User Responses:

no, i dont know what is the story 5/3/2017 2:41 PM View respondent's answers
yes and no, little information provided, but i know i cannot die 5/3/2017 2:35 PM View respondent's answers
a 5/3/2017 2:31 PM View respondent's answers
yes, kind of, i dont know what happened before the story 5/3/2017 2:30 PM View respondent's answers
no 5/3/2017 2:23 PM View respondent's answers
not really, just go around map killing enemies, know 0 story 5/3/2017 2:20 PM View respondent's answers
Yes the help menus were very informative 5/3/2017 2:18 PM View respondent's answers

Analysis of the Answers and Solutions:

This was answered somehow positive, I understand that there isn't enough of the story to keep the person interested but I tried my best on helping the user walk through the game.

Ninth Question: *How would you improve the game? What would you change? What would you get rid of?*

User Responses:

look above	5/6/2017 10:23 AM	View respondent's answers
Allow attacking with a key, equip items quicker	5/5/2017 2:55 PM	View respondent's answers
just add more content, fix the animations and it should be great!	5/3/2017 4:42 PM	View respondent's answers
I would try to improve the animation and maybe add more enemies.	5/3/2017 2:53 PM	View respondent's answers
add more content, fix animations, more content	5/3/2017 2:43 PM	View respondent's answers
more stable, fix bugs and other problems then add new content	5/3/2017 2:41 PM	View respondent's answers
add better animation, more enemies, more loot, more levels fix the current bugs etc	5/3/2017 2:35 PM	View respondent's answers

Analysis of the Answers and Solutions:

Most people interviewed had problems with the animations, this would be fixed in the next update. Many people also said that the lack of content really brings the game down. Content would be levels, items, AI and monsters that would be added to the game.

The last question was asking the users to give me input on how the game changed over the course of the development. Some of the people were testing the game from the start of the development and knew the problems with it. But some never had the chance to test it before.

Tenth Question: *Based on playing the previous version would you consider the game being better? Or maybe worse. Please explain your answer*

User Responses:

yes its good now 5/3/2017 4:42 PM View respondent's answers
Better 5/3/2017 2:53 PM View respondent's answers
at least animations worked before 5/3/2017 2:43 PM View respondent's answers
yes its better now, more stable and looks more complete, but still a lot of work to do 5/3/2017 2:41 PM View respondent's answers
yes it improved a ton since last time i played it, well done 5/3/2017 2:35 PM View respondent's answers
a 5/3/2017 2:31 PM View respondent's answers
i didnt get the previous version :(5/3/2017 2:30 PM View respondent's answers

Analysis of the Answers and Solutions:

Many of the user responses were very positive and they liked the changes that I made with my game since last time they played. Most of them said that I need to fix the problems with the game now rather than adding additional content which I agree upon. If I added more content without having fixed the previous version then I would have way more work afterwards.

4 Further Development

4.1 Development:

Due to lack of resources and time I will not be able to finish the game as I wanted at the start of the development. But if I were to get more time and help I would consider adding the following features:

- **Update the engine version** – At the time this report was done I was doing the game in 4.14 version of the engine while the newest version of Unreal is 4.15. Changing of the engine yields certain advantages such as improved interfaces and functionality. But improving to newer engine doesn't mean that it would be beneficial especially if latest version was just released and it could not be stable.
- **More diverse levels** – Due to game design being such a huge task there isn't enough time to create everything as perfect as I would like. Level design is very difficult aspect of the game design and can be the deciding factor between getting successful game.
- **More diverse enemies** – With more resources I would be able to get more enemies that would have different and better AI to improve the game play. So far, I have basic enemies and basic AI that works but could be improved a lot. Different models with different skills would be very important for this game.
- **More items** – Due to lack of time and modelling skill I couldn't bring many items to the game and most of items are duplicates with different names and statistics.
- **More fleshed out story** – One of the problems is that the story needs to more fleshed out. As the levels are being build the story would be built around them. If I cannot make enough levels I will not be able to create an interesting story around them.
- **More skills** – As of writing of this document I have created 4 different skill categories. In each of those categories people will gain different bonuses that will make your hero stronger.
- **Character Creation Menu** – At the start of the game the user is given a character, in the future I would create a character menu that would allow the user to create the character that they would want.

With more resources the game could become complex and interesting. If there were more people we could split the tasks more efficiently and create a better product in given amount of time. While I must do everything on my own – modeling, planning, coding, these tasks could be split among people according to their strengths.

After the game is created the more resources I would have the more extra content I would produce. As the game gets released and doesn't get enough support from customers it

would be difficult to release new content. The time spent on making the content could be used in more lucrative way.

As the development of the game progresses I plan on releasing different patches that will target various aspects of the game such as:

Animation, User Interfaces, Drag and Drop Inventory system. Those would be released in timely intervals depending on how much I progress. I need to take into consideration the testing as well as editing other parts of the game so that they cause any unforeseen issues.

5 Conclusions

Helheimr was a great game to do as final project. I have enjoyed it immensely, and gained many skills which will allow me to further explore the career of game developer. While doing this project I gained many skills, whether they are time management or keeping control while under stressful conditions. I had many problems with Unreal Engine which I needed to fix, but at the same time I had strict deadlines regarding certain deliverables.

After I finish college I still plan on developing the game further as after the testing many people said that they would like to play it a bit more. Helheimr went from simply a project to a passion that I want to keep on exploring and improving as time goes by.

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7 Appendix

7.1 Project Proposal

Objectives

The project objective is to create a 2D Isometric Hack'n'Slash/ RPG game set in Viking/ fantasy world. The game is meant to be played with mouse and keyboard but as the development goes I could see to implement controller support.

The objects in the game will be modeled using 3d Max - main hero, opponents, items and such. The game will be isometric 2d à la early Fallouts or Diablo. Due to the game being 2d the story will need to be very good so that it brings the player closer to the game. This game was created mainly for the veterans of the genre but many new players will find themselves enjoying it.

The game will have a number of NPC's who will give out quests, different enemies and bosses that the main hero will fight on different levels all with a specific theme. The hero will also gain items and potions which he can use or sell to the vendors. The items will have different grades and the grades will represent the quality of items. The main currency in the game will be gold which the player will be able to use to buy new equipment.

The main hero will have different skills that he will use to defeat his enemies. The game will also have statistics and achievements that will further improve the engagement between the player and the game. As the player unlocks the achievements they will get unique loot that is way better than normal loot.

Background

The game will be set in the Nordic fantasy world. The name Helheimr is a name translated from Old Norse to 'realm of the dead'. The main character was killed while in his sleep and doesn't go to Valhalla, instead is placed in Hel which there is no escape from. The hero must then go through different areas in order to impress god Odin to gain access to Valhalla.

I decided to do 2D/2.5D Isometric game because I like games like Diablo 2 and early Fallouts where this was the camera. Those games are very old yet are way better than some of the games released now. I think this is a very good type of game as it contains the RPG elements, fighting and quest solving. The game theme came from the fact that

Viking era is very interesting to many gamers especially after the release of the show Vikings and that not that many people know the mythology of Norsemen.

Technical Approach

I have researched a lot coming to making of this proposal. One of the problems that I'm facing is the choosing of the game engine. I was reading about pros and cons for both of the engines and came to the conclusion that best option would be to use the Unreal Engine. I really like the graphics and blueprints which will allow easier development for me.

During the research, I have planned to use Unity but after careful consideration I will use Unreal. I have used Unity already for my 3rd year project and I'm familiar with it but I didn't enjoy using it that much. One of the additional things that I might use is the Axis Game Factory's AGFPRO v3. It's special application for Unity engine that will help me to create maps for the game. The models will be made using 3ds Max.

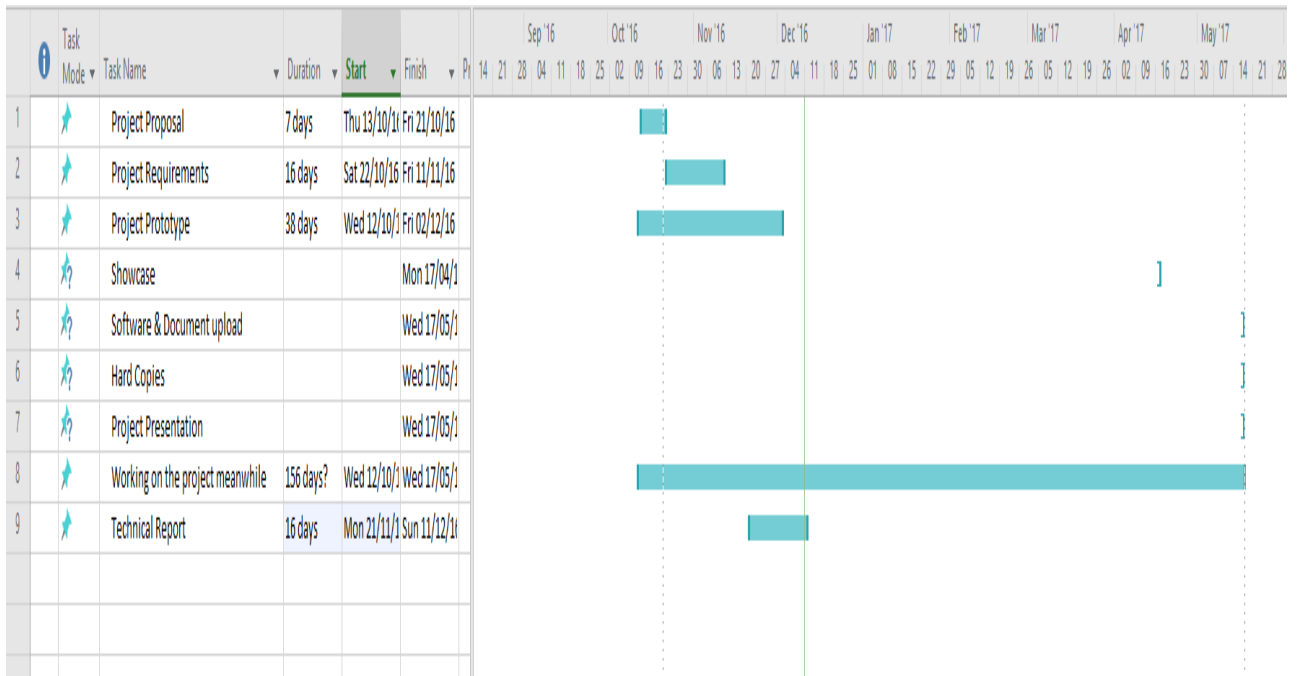
Another option is to create the game with Unreal Engine which according to some users has better performance than Unity but as the research goes on the question will be quickly answered. Also, Unreal engine has way more benefits to me. For once I'm not very good in programming and Unity is mainly using C#, while in Unreal you can make the game using blueprints and there are lots of the blueprints so I could learn from them way faster.

Special resources required

I will not require any special resources. Maybe just to do some research about certain parts of the game to make it bit more historical but it won't be necessary as its not supposed to be historical except overall theme of Viking world.

Project Plan

Project plan is extremely important part of the game development. It immensely helps the developers in what and when they should do.



Technical Details

The game will be created using Unreal Engine with Blueprints and 3d Max to make the models. One of the problems with Blueprints is that they are slower in performance when compared to C++, also with the blueprints there could be a problem with complexity as the blueprint tree will be huge and C++ could be easier to use with that. Depending on their preferences some developers use a mixture of C++ and Blueprints for maximizing the performance and easiness of usage.

7.2 Monthly Journals

Reflective Journal

Student name: Jakub Nazar

Programme (e.g., BSc in Computing): BSc in Computing

Month: **September**

My Achievements

This month, I could choose 2 ideas for project one was internet of things and other was for gaming.

My Reflection

I felt, it worked well to research the idea that I wanted to do and I was confident that it's a good idea however, I was not successful in presenting the idea well during the project pitch presentation. I think this was due to the bad format that didn't allow presentations to be put up on the screen and I had problems with sharing my idea with the dragons.

One of the problems that I got was that I started this year being in Internet of Things stream and after thinking about my project I decided that I will do a game as it will be the easiest to do. So I changed the streams and I didn't get confirmation so I was still not sure whether I will be changed or not and I was thinking about project for internet of things specialization (if I didn't get changed) but on the day of the pitch I got an email that I got changed and my idea had to be scrapped but I had the game ready to present but without slides and better preparation it went really bad I think.

I sent an email to Eamon this morning to talk with him about my possibilities as I want to do the game that I wanted from the start but I will need to talk to someone that will help me with fleshing the game out a bit as I got told in pitch proposal.

Intended Changes

Next month I will try to research more information about what technology could I use as well as start the project proposal. I think I know what technology I will use so it will be easier to write the project proposal.

The most important part of this semester is to write a good project plan. Without the plan I could be doing things just to find myself wasting too much time doing things that I shouldn't.

Supervisor Meetings

Date of Meeting: None yet.

Items discussed:

Action Items:

Reflective Journal

Student name: Jakub Nazar

Programme (e.g., BSc in Computing): BSc in Computing

Month: **October**

My Achievements

I have learned to use 3Ds Max for my Computer Graphics Module. This was an important experience that I will have to use for my final project.

I have also started designing how the game will look and how the story will be portrayed.

I have also designed the main hero on paper. Then I will need to model him using 3Ds Max. In case I couldn't create the hero in 3Ds Max I will have to use Adobe Fuse and Mixamo.

I have finished my Requirements Specification Document before the deadline like I wanted to do this gives me more time to complete other projects and now I can just concentrate on creating the Prototype of the Game.

My Reflection

I have done very little for the project because I have many other modules especially that Introduction to Artificial Intelligence which causes me problems. It's additional subject that we have to do which should have been done last year.

Intended Changes

I will do more work for the project in the current days. I was very busy with different Continuous Assessments over the past days.

During this week I also plan on choosing the engine that I will base my game on. This is because I need to start working on the project ASAP. I know that there will be many CA's coming up and I might not have time to finish the project if I start very late.

Supervisor Meetings

I have met with my supervisor Dominic Carr and I have learned a lot of things about the software project. He gave me many ideas and helped me with things that I struggled.

We talked about the requirements of the project and what he expects of me during the final presentation and mid-point presentation.

Date of Meeting: 28/10/2017

Items discussed:

- Next steps in the project (Project Specification, improve Project Proposal)

Reflective Journal

Student name: Jakub Nazar

Programme (e.g., BSc in Computing): BSc in Computing

Month: **November**

My Achievements

I have finished few CA's and have more time for myself and for doing the projects.

My Reflection

This semester is slowly finishing. It was very hard and stressful few months. **Intended Changes**

I will do more work for the project in the current days. I need to prepare the prototype and Mobile project and then I will have to spend

Supervisor Meetings

I have met with my supervisor Dominic Carr on 27/11/2016. We have talked about my progress on the project and overall work load in 4th year. I also asked him about his expectations of my prototype for the Mid-Point Presentation.

Date of Meeting: 27/11/2017

Items discussed:

- Mid-Point Presentation
- Prototype
- Work Load

Reflective Journal

Student name: Jakub Nazar

Programme (e.g., BSc in Computing): BSc in Computing

Month: December

My Achievements

Finished every CA in the first semester and got relatively good grades. Finished and got good grade in the Mid-Point Presentation and studied for the exams.

My Reflection

This semester is finished. It was very hard and stressful few months. Now only do the exams and then start doing my project. One of the problems is that there won't be enough

time to finish everything perfectly as I wanted. I need to start doing the project as soon as possible.

Intended Changes

In second semester, I will have way more time to work on my project. I think that it won't be as stressful as its short semester for 4th years. I need to change and modify the project plan to help me progress through the semester.

Supervisor Meetings

I didn't meet with Dominic this month as it was not needed. Last month's meeting was very close to December so I could talk for both months and I didn't have much questions except doing the work I have set myself for mid-point presentation. .

Reflective Journal

Student name: Jakub Nazar

Programme (e.g., BSc in Computing): BSc in Computing

Month: January

My Achievements

Got good grades in the first semester with an average of 2:1

Got good grades in the midpoint presentation

My Reflection

After stressful first semester, this should be way easier and we will be given more time to finish our own software project. But this won't be easy as it's not easy to make a game. Especially in 5 months.

One of the very important changes is that Adobe Fuse have ceased the support to Unreal Engine. This causes the models missing certain bones and requires a lot of work to fix in order to import the model into Unreal.

Intended Changes

I will definitively do more software project work this semester. We have less modules and more time to do our own project. I need to quickly plan what I will do during the semester, we have lots of time but it will fly very quickly when were actually working on our projects.

Supervisor Meetings

I met with Dominic last Friday. We talked about the problems with the Unreal Engine and how am I supposed to overcome them.

We also talked about the feedback from first semester.

Also we talked about the version control of the game. Due to the game being very big in terms of size there may be better alternatives to GitHub.

Date of Meeting: 10/2/2017

Items discussed:

- Mid-Point Presentation Feedback
- Problems with Unreal Engine
- The version control for game
- Feedback for semester 1

Reflective Journal

Student name: Jakub Nazar

Programme (e.g., BSc in Computing): BSc in Computing

Month: February

My Achievements

Started doing a lot more Software Project than I did before. As it's the last stretch lots of work needs to be done. I met with Dominic last Friday and he told me to start doing the little things with the project to get momentum going.

My Reflection

Project, Project, Project. I need to do as much as I can before the exams as I will waste a week before to study for them. Also, I have other projects to do which will not help. I wasted a lot of time doing nothing and now will need to turn it 180 degrees.

I enjoy doing this project, even with the errors that Unreal causes its very good engine with lots of things built in into it. One of the problems I have is that my motivation is rather low, so I really need to convince myself that the more time I waste now the more stress it will cause me along the line. Unreal is very strict engine in terms of allowing the user to make mistakes during the creation of the game and will punish heavily if you don't know how to work with it properly whether they are errors while packaging or problems with the engine.

One of the most stressing things during this project is the Level Design. I talked to Dominic about it and he told me that Level Design would be easier to gain marks than the story due to levels are easier to showcase during the presentation.

Intended Changes

The main change that I need to do is to stop wasting time on things I shouldn't like playing games. Now I should concentrate mainly on finishing the project faster.

I intend on finishing the entire GUI before end of this reading week and at least 1 level to be finished so I have solid base coming into the final stretch of the project.

I need to concentrate on level design as it will be difficult to show case the story of the game during 30-minute presentation.

Supervisor Meetings

I met with Dominic today. We talked about the problems I have been having with the Unreal Engine and how possibly work around solving them.

We also talked about the GitHub problems that I have been having.

The final presentation was important aspect of the meeting. I asked about the little things during presentation.

Date of Meeting: 10/3/2017

Items discussed:

- Project work/ load

- Final Presentation
- GitHub

Reflective Journal

Student name: Jakub Nazar

Programme (e.g., BSc in Computing): BSc in Computing

Month: March

My Achievements

Almost finished 4th year. Most of the subjects are almost done. Now I only need to finish the exams and will have very busy 2 weeks to finish the project and the Technical Report

My Reflection

I spent lots of time doing my project now. Last few weeks were very hectic with amount of work for CA's as well as the project. This is my final ever Reflective Journal and I got to say that I'm not happy with myself. I have wasted so much time that now I wouldn't have to worry at all about my final project as I would have finished it easily.

Intended Changes

I need to finish the project quickly so I have time to finish the technical report and get the time to finish the printing.

Supervisor Meetings

I met with Dominic on Friday. We talked about the problems I have been having with the unreal engine. About the presentation and how many assets could I import that I haven't done myself.

Date of Meeting: 31/3/2017

Items discussed:

- Project
- Presentation
- Document

