Requirements and Analysis Document for The Grupp

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Contents

1   Introduction

The group looks to produce a simple, yet entertaining game. The game will contain five unlockable levels and one initial starting level. The levels will be accessible through an overwold map where the player might move and choose a level. A level will be a two dimensional side-scroller moving with the player character. Each level will be more challenging than the last, eventually leading up to a final boss fight. The player will be challenged by maneuvering increasingly difficult enemies and moving platforms.

Some general functionality include:

- The game features save slots.

- The game initially contain six levels.

- Each level, excluding the first, is unlocked by finishing the previous level.

- The players progress is automatically saved at each finished level and only at these points.

- Levels have checkpoints storing in-level session progress, allowing the player to start from that point whenever they die, up to a total of 3 times. After 3 deaths, the player is returned to the overworld.

- The game has sound in the form of music and .

1.1   Definitions, acronyms and abbreviations

- **Overworld Map** - A simple top view over the character and the map showing the progress of the player, simply a level menu.

- **Side-Scroller** - The "camera" follows the player character as it moves left or right.

- **HP** - Hitpoints. Represents an actors life total. If it reaches 0, the actor is killed.
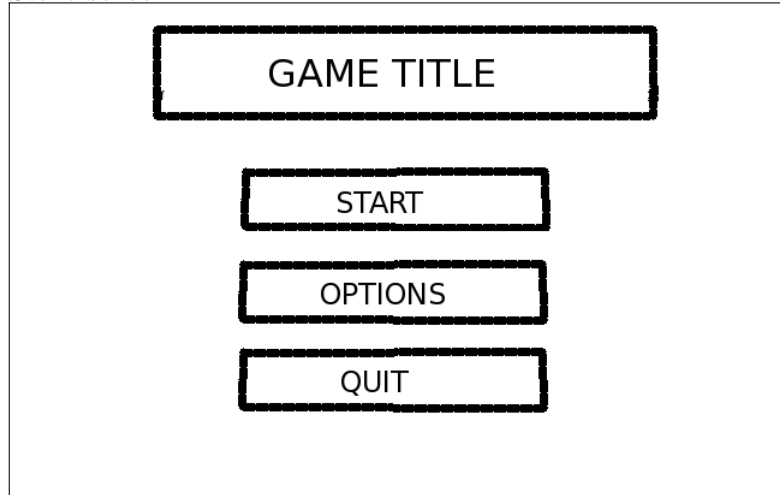
2 Requirements

2.1 User Interface

The game will have three menus and two playing views.

- The start menu

- The save menu

- The options menu

- the the overworld map view

- the level view.

Start screen:

Save Menu:

Select a Save

| Slot 1: Level 4 Saved at 15-04-2018 | Play | Delete Save |

| Slot 2: Empty | Play |

| Slot 3: Empty | Play |

Back

Options Menu:

OPTIONS MENU

RESOLUTION

640x400 ▼

☒

Back

Map View:

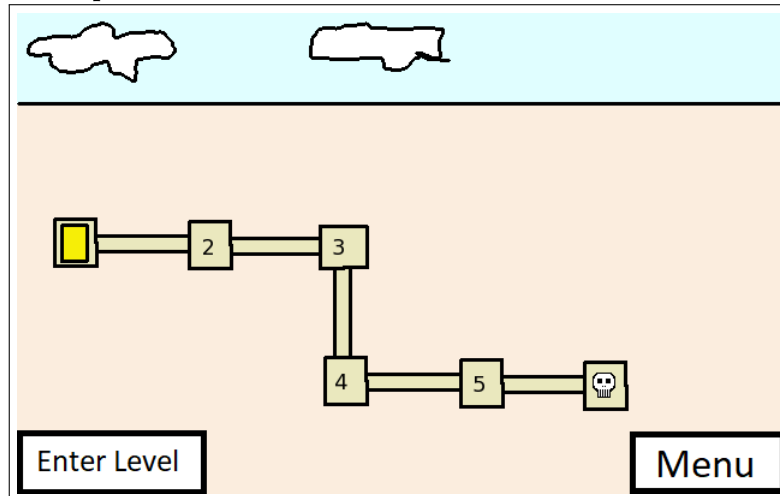Enter Level | Menu

Level View:

Weapon | Healthbar

Terrain

Player

Enemy
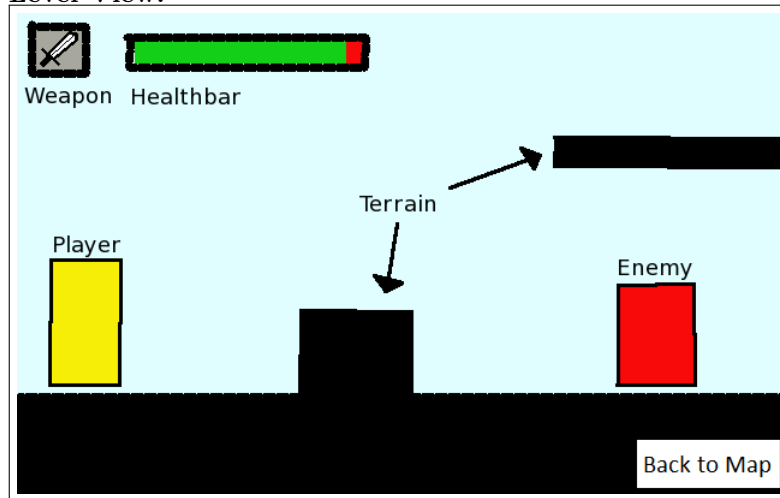
Back to Map

2.2 Functional requirements

The functionality will be dependent on the current state of the game, as follows:

Main menu

The main menu intended as a gateway to get into the game. The player may do the following:

- Start the game, either from the beginning or from a save file
- Adjust settings via the options menu, like sound levels and refresh rate
- Exit the game

Overworld

After getting into the game, the player is greeted with an overworld map that contains several tiles on a line, each tile representing a level. It will have the following functionality:

- Move. Movement to a tile is only allowed if the player has beaten the previous tile's level
- Start a level from the current tile that the player is positioned at
- Return to main menu

Level

- Move. Movement to a tile is only allowed if the player has beaten the previous tile's level
- Start a level from the current tile that the player is positioned at
- Return to Overworld

The user will be able to interact with the buttons by simple mouse clicks allowing the player to change the view.

The user will be able to control the player character using the keyboard it may instruct the character to jump, attack and walk.

The user may transition in between levels on the map view using the keyboard.

2.3 Non-functional requirements

Game

The game needs to be able to save player progression

The game should have options to turn off sound.

The game will be developed in modular way allowing for future implementations.

Technical

The game needs to be runnable on Mac, Linux and Windows.

The finished product will be delivered with instructions regarding the installation and running of the program.

The application will be created in Test driven fashion, as new functionality is implemented, tests will be run to prevent issues with the finished product.

3 Use Cases
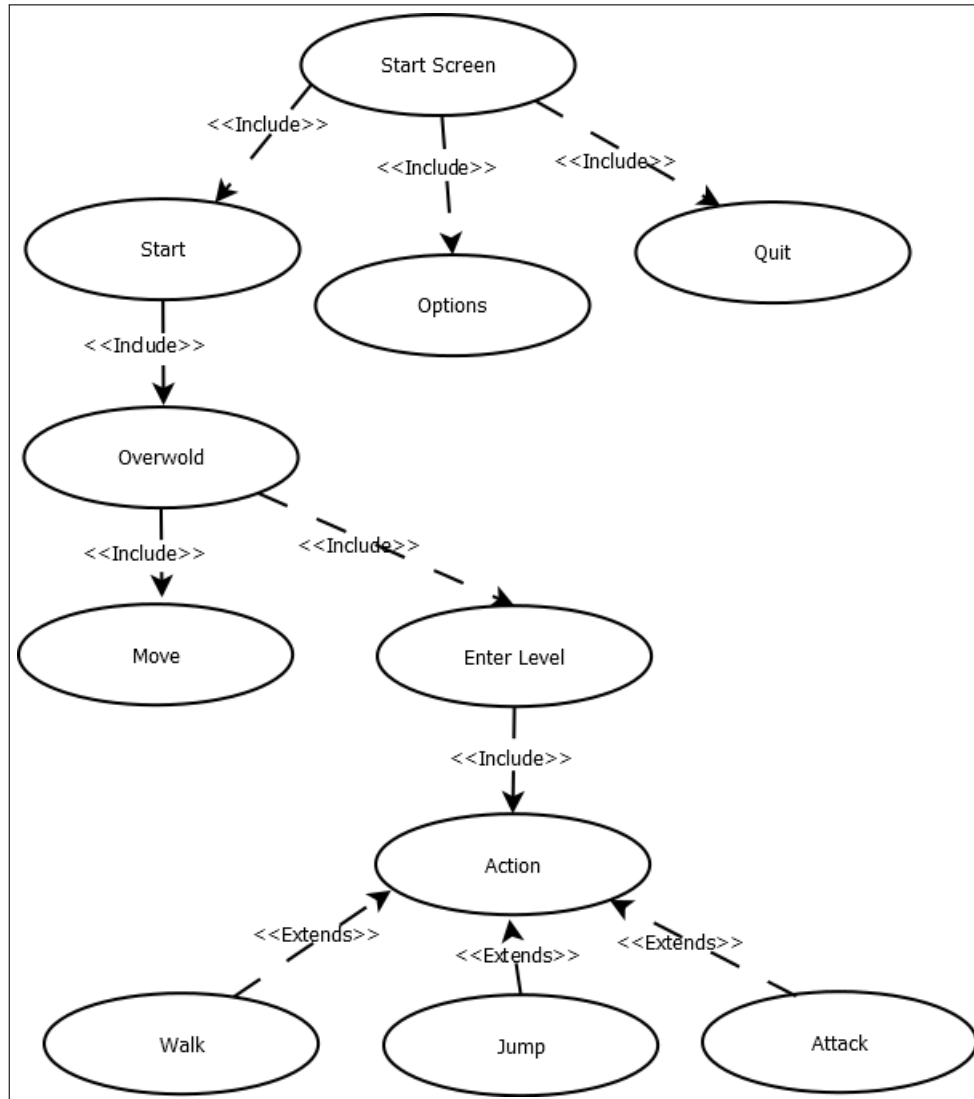
3.1 Use case listing

1.1. Start a game

Summary: Player gets into the actual game
Priority: High
Extends:
Includes: Overworld
Participators: Player

	Actor	System
1	Click on Start Game button	
2		New menu. Three save slots appear
3	Select a slot by pressing Play	
4		Takes player to overworld map. State of map depends on what is saved in Save Slot

1.2. Delete game from Save menu

Summary: Player removes save progress from the game
Priority: Low
Extends: Save Menu
Includes:
Participators: Player

	Actor	System
1	Clicks on Delete save	
2		Save data corresponding to the clicked button is removed from the game

1.3. Return to Main Menu from Save Menu

Summary: Player returns to the Main Menu
Priority: Low
Extends: Save Menu
Includes:
Participators: Player

	Actor	System
1	Click on the Return Button OR press Escape	
2		The game returns to the Main Menu

1.4. Exit Game from Start Menu

Summary: Player quits the game from the start menu
Priority: High
Extends:
Includes:
Participators: Player

	Actor	System
1	Click on Exit Game button	
2		The game exits

1.5. Go to Options Menu

Summary: Player goes to Options Menu to change program settings
Priority: Low
Extends:
Includes:
Participators: Player

	Actor	System
1	Click on Options button	
2		Show Option Menu

1.6. Change resolution in Options Menu

Summary: Player changes the game's resolution
Priority: Low
Extends: Main Menu
Includes:
Participators: Player

	Actor	**System**
1	Click on arrow next to current resolution	
2		Drop down menu with all available resolutions appears
3	Select a new resolution	
4		The resolution is changed to the selected value

1.7. Mute/unmute sound in Options Menu

Summary: Player changes the game's resolution
Priority: Low
Extends: Main Menu
Includes:
Participators: Player

	Actor	**System**
1	Click on checkbox next to sound icon	
2		The game is now muted/unmuted, depending on previous state

1.8. Return to Main Menu from Options Menu

Summary: Player returns to the Main Menu
Priority: Low
Extends: Main Menu
Includes:
Participators: Player

	Actor	**System**
1	Click on the Return Button OR press Escape	
2		The game returns to the Main Menu

2.1. Move on Overworld Map

Summary: Moves the graphical representation of the player character on the
map
Priority: Medium
Extends:
Includes:
Participators: Player

	Actor	System
1	Press Directional Button	
2.1 Legal Move		Moves the character to the point in that direction
2.2 Illegal Move		Character plays an animation, indicating an illegal move. Position remains the same

2.2. Enter Level from Overworld Map

Summary: Takes the player to the relevant level
Priority: Medium
Extends:
Includes: Level
Participators: Player

	Actor	System
1	Press Enter Level Button	
2		Player is taken to the level corresponding to their position

2.3. Return to Main Menu

Summary: Returns the player to the Main Menu from the Overworld Map
Priority: Medium
Extends:
Includes:
Participators: Player

	Actor	System
1	Press Menu Button	
2		The player is returned to the Main Menu

3.1. Walk in Level

Summary: How to move the player character by walking in the level
Priority: High
Extends: Level
Includes:
Participators: Player

	Actor	System
1	Press horizontal Directional Button	
2.1 No Collision		The player character moves in given direction for as long as the button is held
2.2 Collision		If the player character collides with terrain, no further movement in that direction is possible

3.2. Attack in Level

Summary: How to attack enemies in the level
Priority: High
Extends: Level
Includes:
Participators: Player

	Actor	System
1	Press Attack Button	
2		Launches an attack in front of the player

3.3. Jump in Level

Summary: How to move the player character vertically in the level
Priority: High
Extends: Level
Includes:
Participators: Player

	Actor	System
1	Press Jump Button	
2		The player character gains upwards momentum for a period, then begins to descend.

3.4. Return to Overworld Map

Summary: The player returns to the Overworld Map from the Level
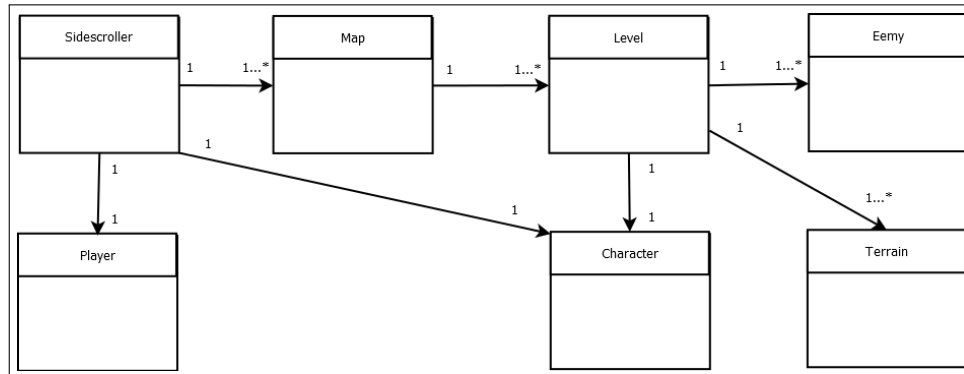**Priority:** Medium
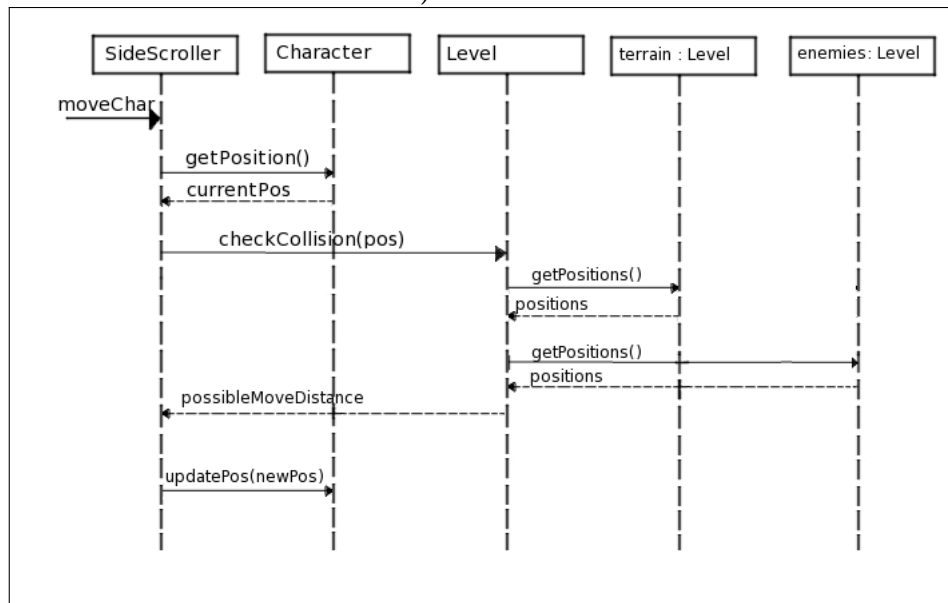**Extends:** Level
Includes:
Participators: Player

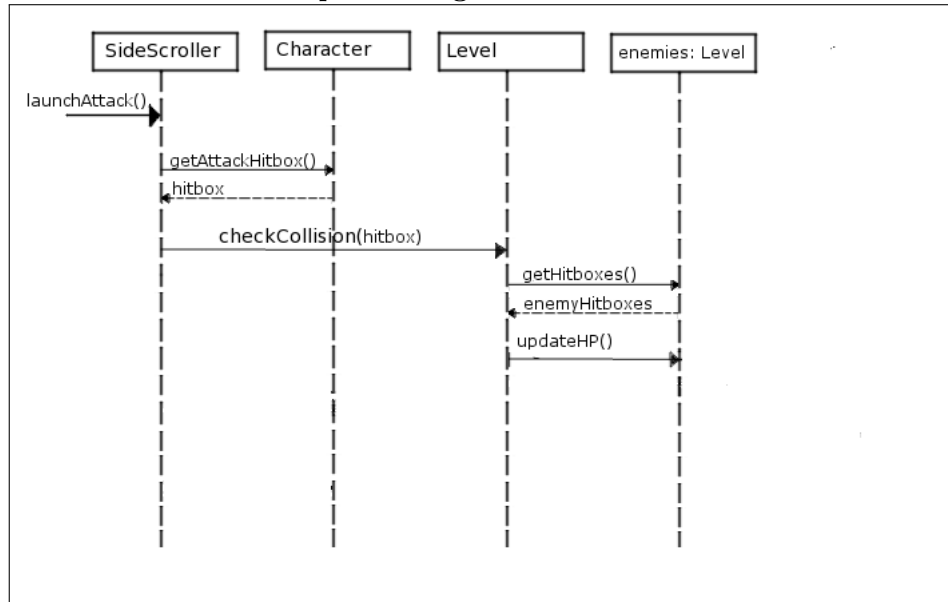|	Actor	System
1	Press Return to map Button	
2		The player is returned to the Overworld Map

4   Domain model

Character move sequence diagram (and jump sequence, since they function more or less the same):

Character attack sequence diagram:

4.1 Class responsibilities

Game: Represents the game as a whole.
Menu: Menu accepting user input.
Map: Overworld map showing available levels.
Level: The core of the game, a two-dimensional platform where a character is controlled.
Character: The unit controlled by the player.
Enemy: An obstacle for the player to overcome.

5 References