CHALMERS

Requirements and Analysis Document MachoDude, Grupp 13

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CHALMERS

Table of Contents

1 INTRODUCTION 1

1.1 PURPOSE OF APPLICATION 1
1.2 GENERAL CHARACTERISTICS OF APPLICATION 1
1.3 SCOPE OF APPLICATION 1
1.4 OBJECTIVES AND SUCCESS CRITERIA OF THE PROJECT 1
1.5 DEFINITIONS, ACRONYMS AND ABBREVIATIONS 1

2 REQUIREMENTS 2

2.1 FUNCTIONAL REQUIREMENTS 2
2.2 NON-FUNCTIONAL REQUIREMENTS 2
2.2.1 Usability 2
2.2.2 Reliability 2
2.2.3 Performance 2
2.2.4 Supportability 2
2.2.5 Implementation 2
2.2.6 Packaging and installation 2
2.2.7 Legal 2
2.3 APPLICATION MODELS 2
2.3.1 Use case model 2
2.3.2 Use cases priority 3
2.3.3 Analysis model 3
2.3.4 User interface 3
2.4 REFERENCES 3

APPENDIX

GUI 4

MAIN MENU 4
LEVEL VIEW 4
CONTROL VIEW 5
STATS VIEW 5
GAME PLAY 6

ANALYSIS MODEL 6

USE CASES 7

CHALMERS

1 Introduction

1.1 Purpose of application

MachoDude aims to be a side scrolling fast paced shooter taking place in a dystopian future where the universe is in danger. Only one man can save us, Machodude, a cybernetically enhanced centaur with a macho attitude. Machodude has to fight several enemies and bosses in the jungle. For definitions, acronyms and/or abbreviations se chapter 1.5.

1.2 General characteristics of application

The application will be desktop single player, full screen game for the Windows/Mac/Linux platforms.

It aims to be a side scroller which means that the player starts on a level with one goal: get to the end of the level, defeating enemies along the way. The graphical style is retro (pixelated, think NES). Which makes the graphics simple to create.

1.3 Scope of application

It will be singe player and non-networked. MachoDude will support screen ratios of 16:9 or 16:10 and will run at fixed resolutions of either 1360 by 768 or 1280 by 800 scaled up to full screen. We're using an open source java game engine called Slick2D. Slick2D is powerful enough for our purposes and easy enough to learn to work with. Also our graphics being retro makes the graphics simple(r) to create.

1.4 Objectives and success criteria of the project

1. It should be possible to complete an entire level in MachoDude. An entire level should include enemies that fight back, challenging obstacles that you have to destroy/navigate around and a boss fight in the end.
2. The game should be able to save statistics such as the number of killed enemies or total time played.
3. One should be able to change the controls for the game.
4. There should be at least two levels.
5. There should remember statistics, controls and level progression from session to session.

1.5 Definitions, acronyms and abbreviations.

MachoDude: The name of our game and the main character himself.

- **Side Scroller:** Is a video game genre, this is how Wikipedia describes side scrollers: "A side-scrolling game or side scroller is a video game in which the gameplay action is viewed from a side-view camera angle, and the onscreen characters generally move from the left side of the screen to the right (or less commonly, right to left) to meet an objective."
- **Slick2D:** Is an open source game engine we use on this project. On their website they describe Slic2D as "…an easy to use set of tools and utilities wrapped around LWJGL OpenGL bindings to make 2D Java game development easier."
- **GUI:** graphical user interface
- **Java:** platform independent programming language
- **JRE:** the Java Run time Environment. Additional software needed to run a Java application.

2 Requirements

2.1 Functional requirements

When playing MachoDude the player should be able to:

1. Start a new level
    a. Move MachoDude character.
    b. Make MachoDude jump.
    c. Fire MachoDudes weapon – will possibly kill an enemy.
2. View statistics
3. Change controls
4. Exit application

2.2 Non-functional requirements

2.2.1 Usability

The controls and the objectives in MachoDude are both very straight forward. Gaming experience or not, one shouldn't have trouble picking up on how to play MachoDude. However, the game will be solely in English. But text is kept to a minimum.

2.2.2 Reliability

Not applicable for this application.

2.2.3 Performance

MachoDude will run at a fixed rate of 60 frames per second. The game play will feel smooth on any modern computer.

2.2.4 Supportability

The application will be run on the Java virtual machine and will thus have full compatibility with all major operating systems.

2.2.5 Implementation

To achieve platform independence MachoDude will use the Java environment. To play MachoDude one must have the JRE installed and configured.

2.2.6 Packaging and installation

MachoDude will able to be downloaded as a zip-archive from Github.com/CognitiveZebra/MachoDude. The archive contains everything you need to play MachoDude except for the JRE.

2.2.7 Legal

Graphics, sound or code used in this project is either created during the project or referenced open source material.

2.3 Application models

2.3.1 Use case model

See APPENDIX.

2.3.2 Use cases priority

1. Play level
2. Collide with blocks
3. Move
4. Jump
5. Fire weapon
6. Enemies
7. Hit enemy/boss
8. Kill enemy/boss
9. Collide with enemy/boss
10. Enemy/boss move
11. Enemy/boss shoot
12. Take damage
13. Die
14. Lose
15. Win
16. Exit application
17. Statistics
18. Reset statistics
19. Change controls
20. Reset controls
21. Play sound

2.3.3 Analysis model

See APPENDIX.

2.3.4 User interface

MachoDude will be a full screen game.

See APPENDIX for pictures of GUI.

2.4 References

Open Source Initiative, 2014. *Oper Source Initiative.* [Online]
Available at: http://opensource.org/
[Accessed 25 05 2014].

Slick2D, 2014. *Slick2d.* [Online]
Available at: http://slick.ninjacave.com/
[Accessed 25 05 2014].

Wikipedia, 2014. *Side scrolling video game.* [Online]
Available at: http://en.wikipedia.org/wiki/Side-scrolling_video_game
[Accessed 23 05 2014].

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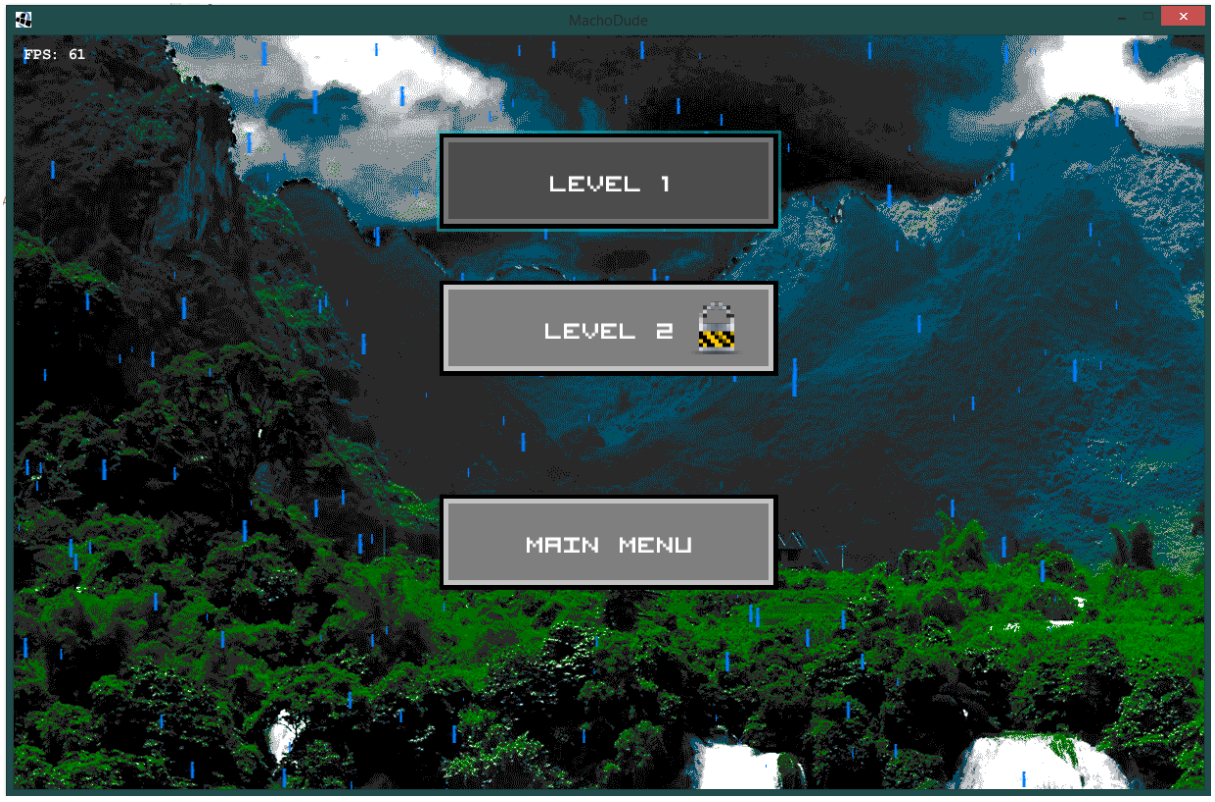
APPENDIX

GUI

Main menu

Level view



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Control view

Stats view

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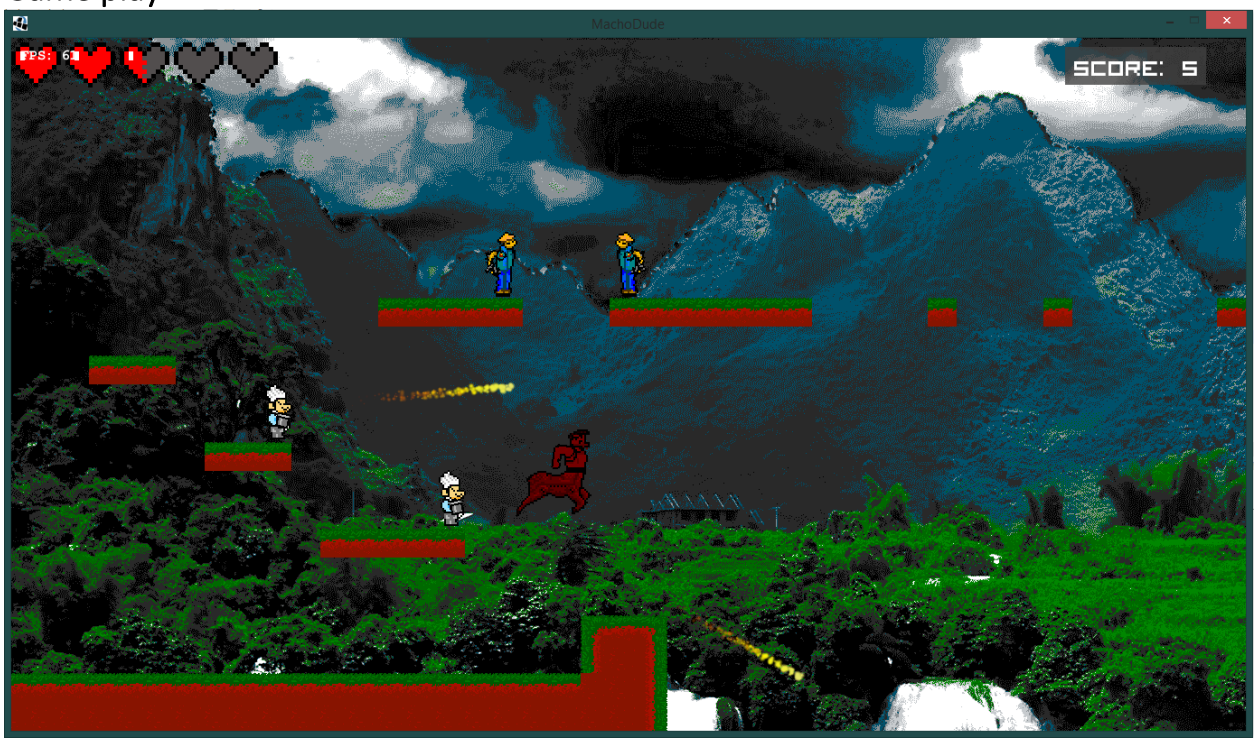
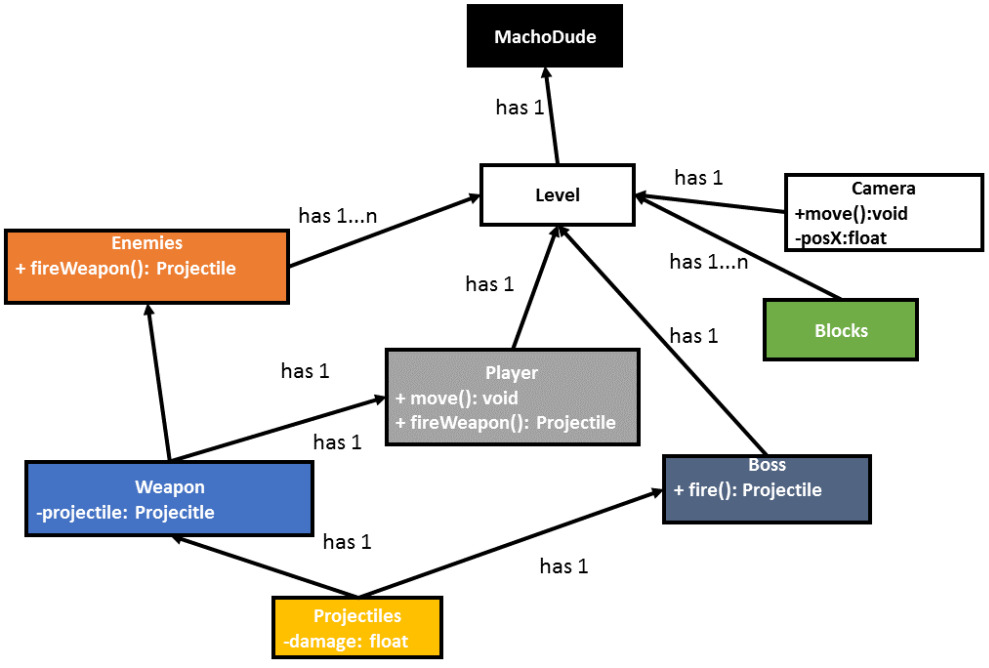
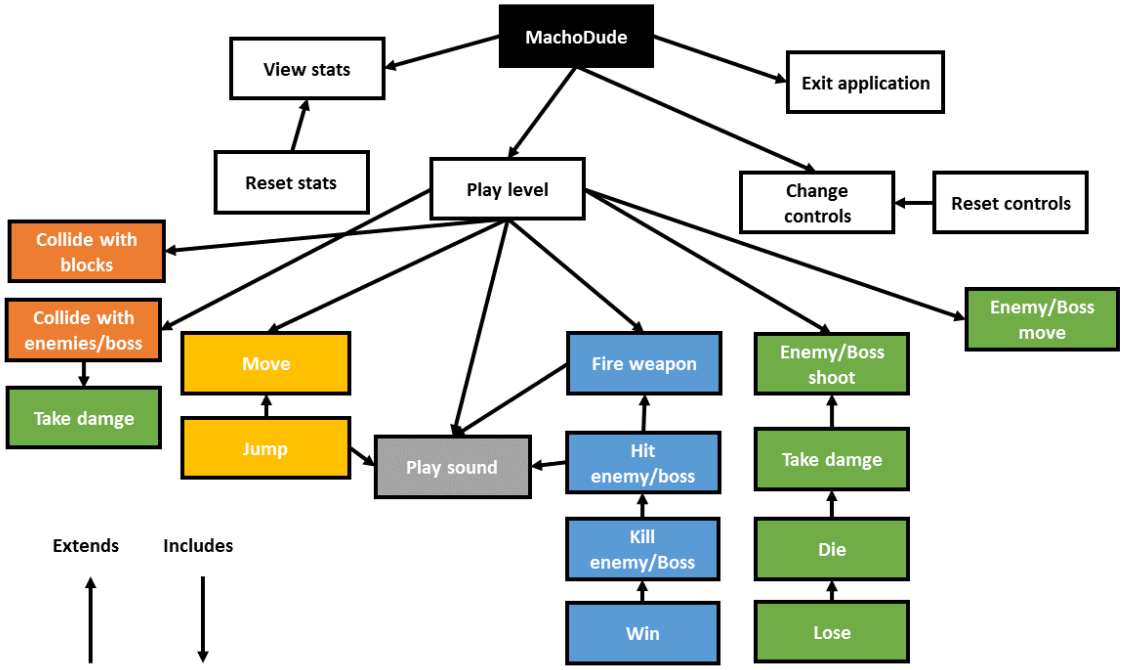
Game play



Analysis Model



Use Cases


MachoDude
View stats
Exit application
Reset stats
Play level
Change controls
Reset controls
Collide with blocks
Collide with enemies/boss
Take damge
Move
Jump
Play sound
Fire weapon
Hit enemy/boss
Kill enemy/Boss
Win
Enemy/Boss shoot
Take damge
Die
Lose
Enemy/Boss move
Extends
Includes