Software Requirements Specification

for
Project Coin Collector
Version 1.0 approved
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The 8-Bit Boys
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1. Introduction

1.1 Purpose

This document explains the Coin Collector software, including the graphics, file interaction, and controls. It will explain the purpose and features of the game, the different interfaces, and what the goal of the game is. This document is intended for the developers of the software.

1.2 Intended Audience and Reading Suggestions

Developers are the intended audience for this document. Developers can read it if they wish to add or remove anything to the game. It will help them understand exactly how the program is designed and how it is functioning. The rest of this document contains the point of the game, a detailed description of the software, all of its functionalities, the purpose of the user classes, what hardware it will run on, and a user manual on how to play the game. For the developer, I suggest reading the overview of the software first, then moving on to the program's functionality and use cases, then reading the operating environment required, and finishing on the user manual.

1.3 Product Scope

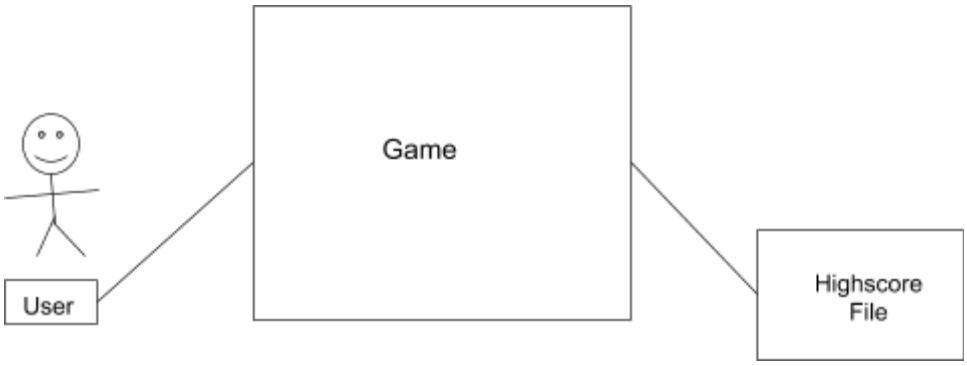
The Coin Collector software is a game meant for entertainment purposes. The game will target a general audience, with simple controls and an attractive theme enjoyable by anyone. More specifically, Coin Collector will appeal to young people, who enjoy video games.

Players will enter the system at an introductory start screen. The system then initializes a game world and displays graphic frames. The game will have 8-bit-inspired graphics. The game world will spawn several coins for players to collect. Players will use arrow keys to move the player character to the coins. For an added challenge, the game will spawn an enemy character players must avoid. The game will also incorporate several power-ups: collecting these will provide an extra challenge, but will pay off by helping the player in the game. A timer graphic displays the time remaining for the player to collect coins. When the player runs out of time or health, or collects all the coins, the game will display an end screen and bring the user back to the start screen. The system also includes a text file containing high scores as well as the mechanisms to write new scores to the file and to read those scores to display in the main game.

2. Overall Description

2.1 Product Perspective

The program is a new, self-contained product.

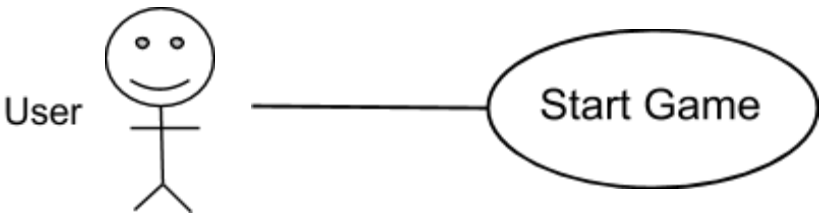


2.2 Product Functions

This section outlines the use cases for the user. The user is the sole actor in this program.

2.2.1 Use Cases

Use Case: **Start Game**
Diagram:

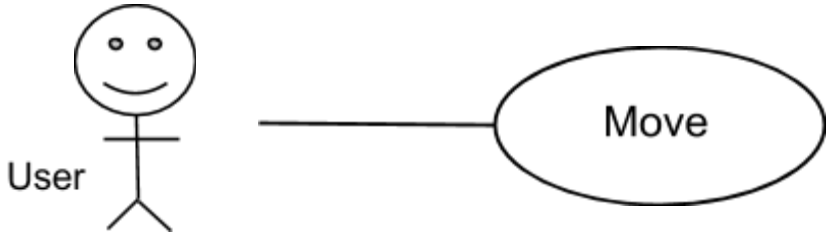


Brief Description
The user clicks on the ‘Start Game’ button on the main screen, which initializes the game and allows for gameplay to commence.

Initial Step-By-Step Description
Before this use case can be initiated, the user has to have already opened the Coin Collector software.

1. User hovers mouse over button
2. User clicks left mouse button
3. System initializes game and updates graphics
4. System responds to user input

Use Case: **Initialize Movement**
Diagram:

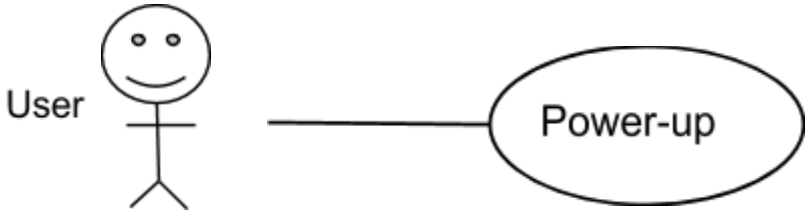


Brief Description
The user holds down an arrow key in order to move the player character across the game screen.

Initial Step-By-Step Description
Before this use case can be initiated, the user must have completed the use case Start Game.

1. Player sprite is displayed in a location on the screen
2. User presses arrow key
3. Player sprite moves in direction indicated by arrow key
4. User releases key

Use Case: **Collect Power-up**
Diagram:

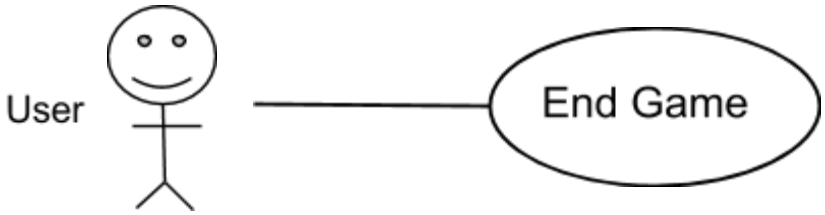


Brief Description
The user moves the player character to a power-up displayed on the screen, which alters the player behavior

Initial Step-By-Step Description
Before this use case can be initiated, the user must have completed the use cases Start Game and Initialize Movement

1. Player is moving
2. Player sprite touches power-up sprite
3. Player behavior changes (e.g. rate of movement increases)
4. After a set amount of time, player behavior returns to normal

Use Case: **End Game**
Diagram:

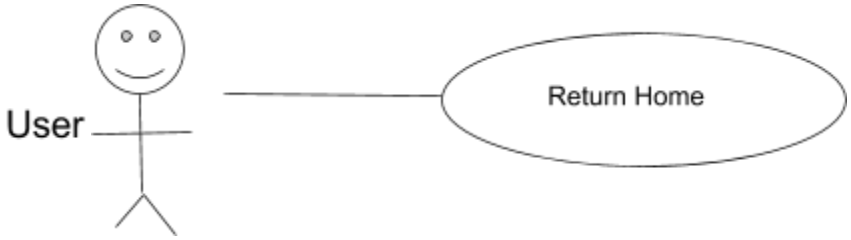


Brief Description
The user clicks on the ‘End Game’ button on the main screen, which terminates the game.

Initial Step-By-Step Description
Before this use case can be initiated, the user has to have already opened the Coin Collector software and be currently on the main screen.

1. User hovers mouse over button
2. User clicks left mouse button
3. System terminates the software

Use case: **Return Home**
Diagram:

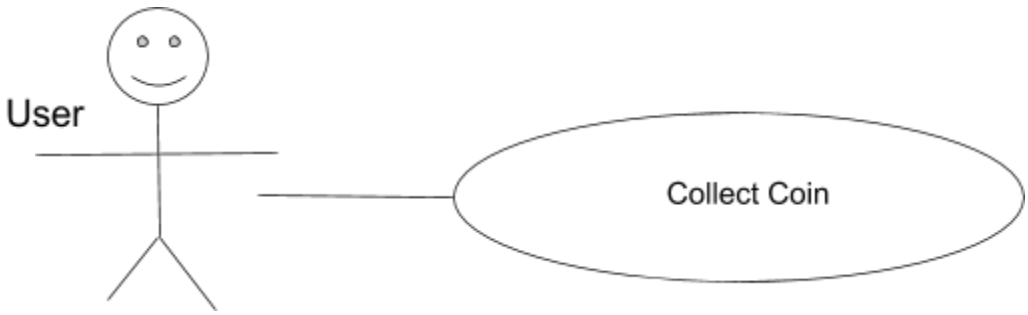


Brief Description
The user clicks on the “Return to home screen” button on the end game window, which brings the user back to the start screen.

Initial Step-By-Step Description
Before this use case can be initiated, the user has to have already completed the use case Start Game

1. User hovers mouse over button
2. User clicks left mouse button
3. Program stops displaying the game screen, and begins displaying the start screen again

Use Case: Collect Coin
Diagram:

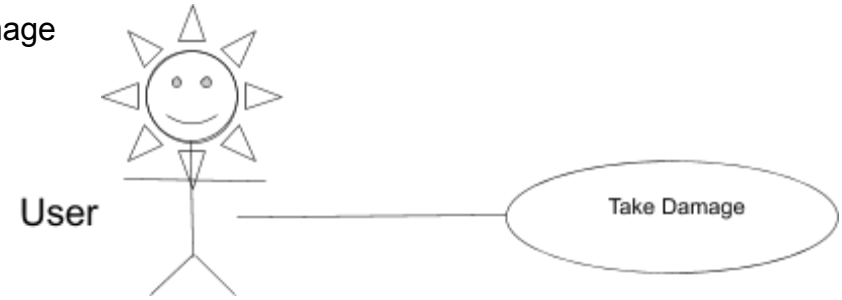


Brief Description
The user moves the player character to a coin displayed on the screen, which increases the player’s number of points

Initial Step-By-Step Description
Before this use case can be initiated, the user must have completed the use cases Start Game and Initialize Movement

1. Player is moving
2. Player sprite touches coin sprite
3. Player points increase

Use Case: Take Damage
Diagram:

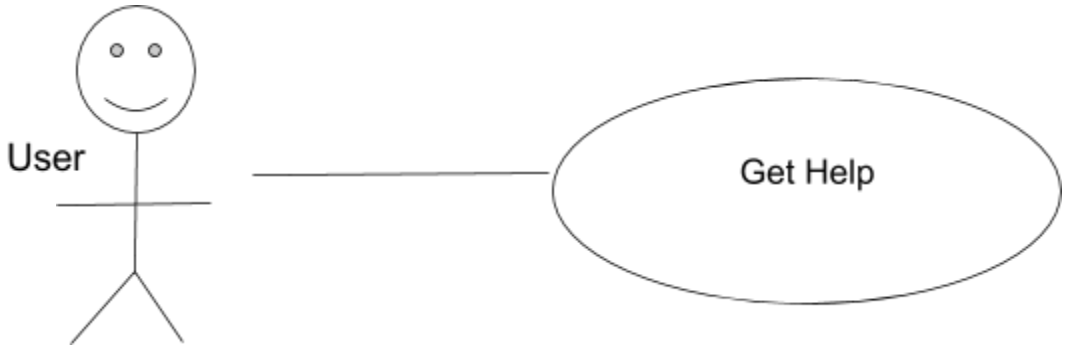


Brief Description
The user moves the player character into the enemy displayed on the screen, which takes a health point away from the player

Initial Step-By-Step Description
Before this use case can be initiated, the user must have completed the use cases Start Game and Initialize Movement

1. Player is moving
2. Player sprite touches enemy sprite
3. Player health decreases

Use Case: Get Help
Diagram:



Brief Description
The user clicks on the ‘How to play’ on the start screen which opens a window with instructions and the game’s objective

Initial Step-By-Step Description
Before this use case can be initiated, the user must have completed the use cases Start Game.

5. User hovers mouse over button
6. User clicks button
7. A window describing how to play and the objective pops up

2.3 User Classes and Characteristics

All users will have access to the same functionality. The game assumes its users have the ability to use a keyboard, view graphics, and count.

Casual gamers have less experience and may not be familiar with the controls. With practice, they should get the hang of moving about the game world and understanding their goals. The ability to collect power-ups will help them master the game.

Hardcore gamers have expansive experience with games like Coin Collector. They will pick up the controls easily and the challenge posed by the enemy will appeal to them. The high-score reading and writing functionalities are geared toward these competitive gamers, who want to challenge themselves to get higher scores. In this way, even if the base game is easy enough for new players, the users that desire more difficulty can seek it out themselves.

2.4 Operating Environment

Coin Collector will run on any computer that can run Java programs. It may not be compatible with older Java versions. To use the high-score functionality, the computer must be able to work with .txt files.

2.5 Design and Implementation Constraints (Optional)

Coin Collector will be programmed in Java, in the Netbeans IDE. It will use a text file to save high-score data.

2.6 User Documentation

A ‘how to play’ guide will be accessible by clicking on a button on the start screen of the game. This guide will explain the controls and the object of the game.

2.7 Assumptions and Dependencies

Zero assumptions or dependencies.