Software Requirements Specification (SRS) for Snake Game in Java

1. Introduction

1.1 Purpose

The purpose of this document is to provide a detailed software requirements specification (SRS) for the development of a Snake Game using JavaScript. This document will outline the functionalities, performance, design constraints, and external interfaces of the Snake Game.

1.2 Scope

The Snake Game will be a simple web-based application where players control a snake to collect food items, growing longer with each item collected while avoiding collisions with the walls and the snake's own body.

2. Overall Description

2.1 Product Functions

- **Game Initialization**: Initialize the game board and snake position.

- **Snake Movement**: Control the movement of the snake using keyboard inputs (arrow keys).

- **Food Generation**: Randomly generate food items on the game board.

- **Score Keeping**: Track and display the player's score based on the number of food items collected.

- **Collision Detection**: Detect and handle collisions with the walls and the snake's own body.

- **Game Over**: Display a game over message when a collision is detected.

2.2 User Classes and Characteristics

- **Players**: Users who will interact with the game. No prior knowledge is required to play.

2.3 Assumptions and Dependencies

- Users will have a keyboard to control the snake.

- The application will be hosted on a web server.

3. Specific Requirements

3.1 Game Initialization

The game shall initialize with a game board of size 20x20 cells.

The snake shall start with a length of 3 cells.

The game shall place the snake at the center of the game board.

3.2 Snake Movement

The snake shall move in the direction of the arrow key pressed by the player (up, down, left, right).

The snake shall move continuously at a constant speed.

3.3 Food Generation

The game shall randomly place a food item on an empty cell of the game board.

A new food item shall be generated when the snake eats the current food item.

3.4 Score Keeping

The game shall increase the player's score by 1 for each food item collected.

The game shall display the current score on the screen.

3.5 Collision Detection

The game shall detect collisions with the walls and the snake's own body.

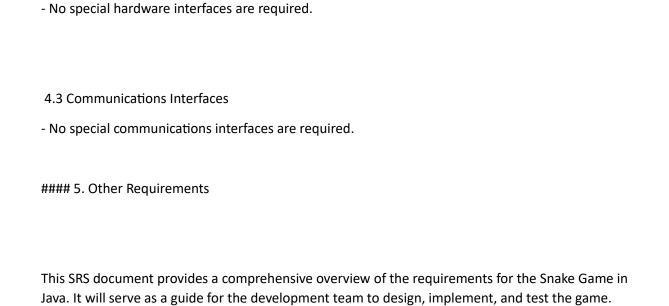The game shall end when a collision is detected.

3.6 Game Over

The game shall display a "Game Over" message when the game ends.

The game shall provide an option to restart the game.

4. External Interface Requirements

4.1 User Interfaces

- The game shall have a simple and intuitive interface.

- The game board shall be displayed in the center of the screen.

- The current score shall be displayed at the top of the screen.

- The "Game Over" message and restart option shall be displayed in a modal dialog.

4.2 Hardware Interfaces

- No special hardware interfaces are required.

 4.3 Communications Interfaces

- No special communications interfaces are required.

5. Other Requirements

This SRS document provides a comprehensive overview of the requirements for the Snake Game in Java. It will serve as a guide for the development team to design, implement, and test the game.