***Snake Game Requirements Specification ***

**3. Requirements**

1. **User Interface Requirements**

* The user interfaces should be appealing visually and simple to navigate. (Priority 1)
* The user interface should include options for starting, pausing and resetting the game. (Priority 1)
* The current and high scores should be displayed on the screen. (Priority 2)
* The game should provide visual feedback for eating the food or hitting the walls. (Priority 2)
* Sound effects should be included for various actions. (Priority 3)

1. **Gameplay Requirements**

* The game should follow the rules of the classic snake game. (Priority 1)
* The movement of the snake should be controlled by the arrow keys. (Priority 1)
* The snake should increase in size when it eats food. (Priority 1)
* The game should end when the snake hits the wall of touches itself. (Priority 1)
* The game should become increasingly more difficult as the snake eats more and the player goes through the levels. (Priority 2)
* Levels should become faster as the player progresses. (Priority 2)
* The game could provide and support a multiplayer mode. (Priority 3)

1. **Score Tracking Requirements**

* The game should track the current score of the player during gameplay. (Priority 1)
* The game should display the score on the screen. (Priority 1)
* The game should also display the high score of the player. (Priority 2)

1. **Error Handling Requirements**

* The game should handle invalid input errors and provide the appropriate feedback. (Priority 1)
* The game should handle memory errors to avoid bugs and potential game crashes. (Priority 2)

1. **Testing Requirements**

* The game should undergo a testing process to ensure that it functions properly. (Priority 1)
* The game should be tested for different scenarios, including boundary and edge cases. (Priority 2)

1. **Documentation Requirements**

* The source code should be associated with comments and explanations about the logic of the game. (Priority 2)
* A project report should be prepared, which contains information about the development process and the issues faced during this process. (Priority 2)

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***3.1 Functional Requirements***

FR\_## - Functional Requirements number

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Req#** | **Requirement** | **Comments** | **Priority** | **Date Rvwd** | **SME**  **Reviewed/ Approved** |
| FR\_01 | User-friendly Interface | The game should be visually appealing and simple to navigate. | 1 | 07/05/2023 | Engjëll Abazaj |
| FR\_02 | Buttons | The game should display visible buttons for starting, pausing and resetting the game. | 1 | 07/05/2023 | Engjëll Abazaj |
| FR\_03 | Control Keys | The player should be able to control the movements of the snake using the arrow keys. | 1 | 07/05/2023 | Engjëll Abazaj |
| FR\_04 | Gameplay | The snake should grow longer when it eats food and move faster as the game progresses. | 1 | 07/05/2023 | Engjëll Abazaj |
| FR\_05 | Game Over | The game should end when the snake touches a wall or itself. | 1 | 07/05/2023 | Engjëll Abazaj |
| FR\_06 | Score tracking and display | The game should keep track of the players points and display them on the screen. | 1 | 07/05/2023 | Engjëll Abazaj |
| FR\_07 | Testing | The game should run through multiple tests and cases to ensure that it works properly. | 1 | 07/05/2023 | Engjëll Abazaj |
| FR\_08 | Levels | The game should have multiple levels which increase in difficulty as the game progresses. | 2 | 07/05/2023 | Engjëll Abazaj |
| FR\_09 | Sound effects | The game should have sound effects for eating food, touching walls and other actions in the game. | 2 | 07/05/2023 | Engjëll Abazaj |
| FR\_10 | High Score | The game should display the high score on the screen and update it whenever a new value is obtained. | 3 | 07/05/2023 | Engjëll Abazaj |
| FR\_11 | Multiplayer Mode | The game could have a multiplayer mode for different players to play together in the same setting. | 3 | 07/05/2023 | Engjëll Abazaj |

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***3.2 Non-Functional Requirements***

**3.2.1 User Interface Requirements**

**Required Screen Formats/Organization**

The game should have a main menu screen containing the new game button, settings, high score and the exit option. During the gameplay the screen should display the environment surrounded by walls, the snake, the food and the obstacles that appear in different levels. The player’s current score and level should be shown as well.

**Menu Structures**

The main menu should contain understandable and intuitive options, such as “New Game”, “Settings”, “High Score” and “Exit”. The settings menu can contain some additional features, such as adjusting the sound level or the brightness of the game or even customizing the snake and the environment.

**Error and Other Messages**

The game should be able to display error messages in case some problem occurs and suggest ways to fix those problems. For example, the player might be trying to move the snake using AWSD keys, but these inputs aren’t supported. Other messages can include an indicator that tells the user when the game is over, or informs the user that they have passed the high score.

**Function Keys**

The function keys can be used as short cuts in the game. For example, F1 can be used to pause and resume, F2 can be used to mute the music, F3 can be used to go back to the main menu and so on.

**Input**

The player should be able to control the snake’s movements using the arrow keys.

**Progress Indicators**

The score should be displayed on screen and the user should be informed if they have passed to a new level.

**3.2.2 Usability**

**Learnability**

* The user documentation and help resources should be comprehensive and accessible.
* The help system should be adaptive to the situation of the user, being able to display the proper message at the right time.
* The system should be easy to learn and consistent in its features so that the user can adapt really quickly.
* There should be a clear set of instructions teaching the user how to play the game and what keys to use to perform certain actions.
* The game should be visually appealing as well and intuitive to enhance the experience of the user.

**3.2.3 Performance**

**Static Numerical Requirements**

The system should support at least 10 terminals concurrently, it should support a minimum of 2 users if multiplayer mode will be a feature and it should be able to handle up to … GB of game data.

**Dynamic Numerical Requirements**