UML Diagrams

And

Related Information

Use Case Model

UC 1 Start Game

Pre-condition: none

Post-condition: the game menu is shown.

Main Scenario

1. Starts when the gamer wants to begin a session of the hangman game.
2. The system asks the gamer to select their name from a list of names already registered to the system, or to enter a new name if this is the gamer's first time playing.
3. The gamer selects their name.
4. The system presents a main menu with a title, the option to play single-player (normal and hard) or multiplayer, the option to look at their stats, and the option to quit the game.
5. The gamer chooses to start a single player game.
6. The system starts the game. (See Use Case 2)

Alternative Scenario

3.1 Gamer's first time playing.

1. Gamer registers. (See Use Case 4)

4.1 The gamer chooses to start a multiplayer game

1. The system starts the game. (See Use Case 3)

4.2 The gamer chooses to look at the leaderboards.

1. The system displays the user's statistics and returns to the menu.

4.3 The gamer chooses to quit the game.

1. The system quits the game. (See Use Case 5)

UC 2 Play Game – Single Player

Pre-condition: ---

Post-condition: Menu, quit, or play again

Main Scenario

1. The gamer has chosen to play a single-player game.
2. The system randomly selects a word. The system displays remaining lives, the hangman platform, remaining tries, words completed, how to return to the main menu, and the hidden version of the word. The system prompts the gamer to guess a letter.
3. The gamer guesses a letter.
4. The system confirms that this letter has not been previously guessed. The system adds this letter to a list of already guessed letters, which it displays to the user.
5. The letter is correct. The system reveals the spots in the word that this letter corresponds to.
6. The word is complete and the gamer has won the round. The system increments "words completed" value.

Return to step 2.

Alternative Scenarios

3.1 The gamer decides to quit.

   1. The system returns to the main menu. (Use Case 1, step 2).

4.1 The system determines that the letter has previously been guessed.
   1. Go to step 3.

5.1 The letter is incorrect.

   1. The system decrements the value of "remaining tries" and updates the hangman platform.

      1a. "Remaining tries" value is above zero.

         1. Go to step 3.

      1b. "Remaining tries" is zero.

         1. The system decrements the value of "remaining lives".
            a. Remaining lives value is above zero.
               i. Go to step 2.
            b. Remaining lives value is zero.

   i. The system saves and displays statistics, tells gamer that they have run out of lives and that the game is over. The system returns to the main menu.

UC 3 Play Game – Multiplayer

Pre-condition: ---

Post-condition: Menu, quit, or play again

Main Scenario

1. The gamer has chosen to play a multiplayer game.
2. The system asks gamer #1 to enter a word or quit.
3. Gamer #1 enters a word.
4. The system verifies that the word is valid. The system displays the hangman platform, remaining tries, round number, how to return to the main menu, and the hidden version of the word. The system Gamer #2 to guess a letter.
5. Gamer #2 guesses a letter.
6. The system confirms that this letter has not been previously guessed. The system adds this letter to a list of already guessed letters, which it displays to the user.
7. The system determines the letter is correct. The system reveals the spots in the word that this letter corresponds to.
8. The word is complete and Gamer #2 has won the round. The system increments Gamer #2's score.

Return to step 4 and switch the roles of Gamer #1 and Gamer #2.

Alternate Scenarios

3.1, 5.1 The gamer decides to quit.

   1. The system returns to the main menu. (Use Case 1, step 4).

4.1 The system determines that the word is invalid.
   1. Go to step 3.
6.1 The system determines that the letter has previously been guessed.
   1. Go to step 5.
7.1 The system determines the letter is incorrect.
   1. The system decrements "remaining tries" value.
      a. "Remaining tries" value is above zero.
         i. Go to step 5.
      b. "Remaining tries" value is zero.
         i. The system increments "round number" value.
            1. "Round number" value is 11.
               a. The system determines which player has a higher score and declares them the winner. The gamers could also have the same score and tie. The system returns to the

> main menu, (Use Case 1, step 4), or the gamers may play again (go to step 2)
>
> ii. Go to step 4. Switch the roles of Gamer #1 and Gamer #2

8.1 Gamer #1 has a score value of 5.

1. The system proclaims Gamer #1 the winner. The system returns to the main menu (Use Case 1, step 4.), or the gamers may play again (go to step 2).

8.2 Both gamers have a score value of 5.

1. The system proclaims that the gamers have tied. The system returns to the main menu (Use Case 1, step 4.), or the gamers may play again (go to step 2).

8.3 Gamer #2 has a score of 5 and Gamer #1 has a score of less than 4.

1. The system proclaims Gamer #2 the winner. The system returns to the main menu (Use Case 1, step 4.), or the gamers may play again (go to step 2).

UC 4 Register Player

Pre-condition: First time player

Post-condition: New username registered. Main menu displayed.

Main Scenario

1. Gamer is playing for the first time.
2. System requests the gamer to give a username.
3. Gamer gives a username.
4. System finds the username to be valid. New gamer added to existing list of gamers. System moves Gamer to main menu.

Alternate Scenarios

4.1 System finds that the username already exists.
4.1.1   System notifies gamer that the username is taken. Return to step 2.
4.2 System finds that the username has invalid characters.
4.2.1   System notifies gamer that the username has invalid characters. Return to step 2.

UC 5 Quit Game

Precondition: The game is running.

Postcondition: The game is terminated.

Main scenario

1. Starts when the user wants to quit the game.
2. The system prompts for confirmation.
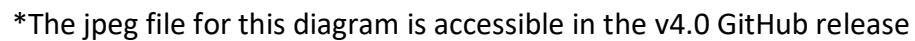3. The user confirms.
4. The system terminates.

Alternative scenarios
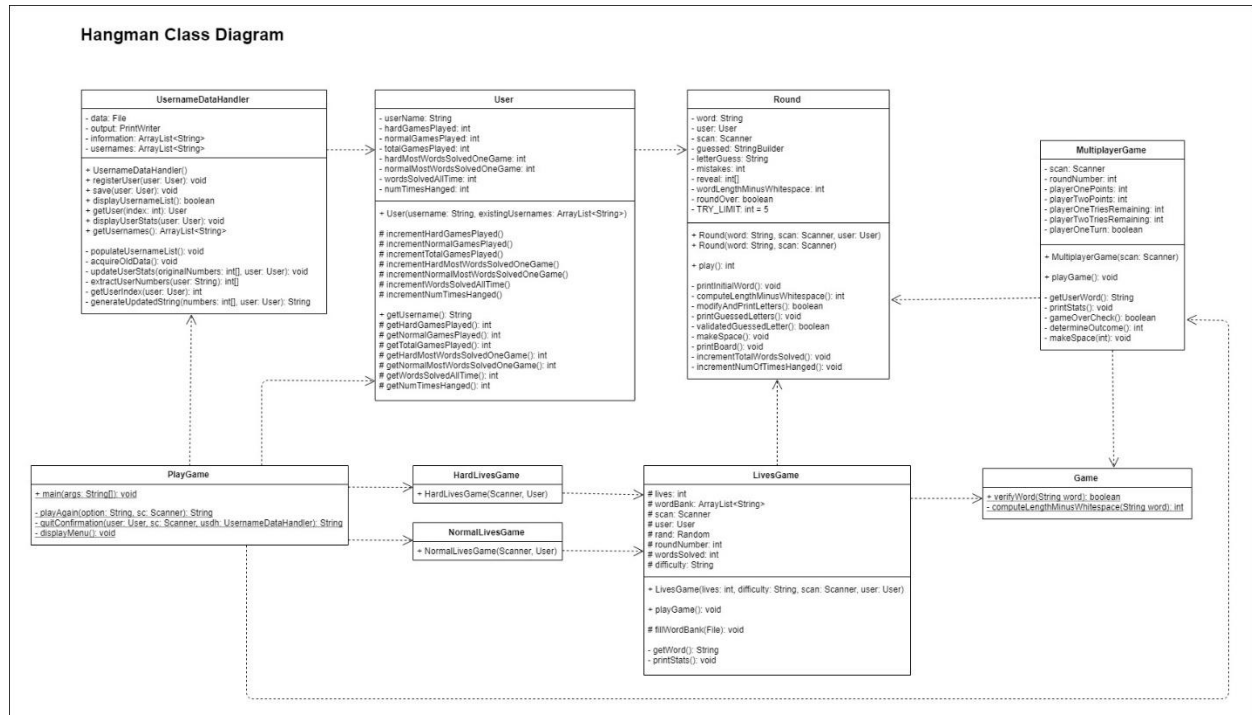
3.1. The user does not confirm

1. The system returns to its previous state

Use Case Diagram

Full State Machine

*The jpeg file for this diagram is accessible in the v4.0 GitHub release
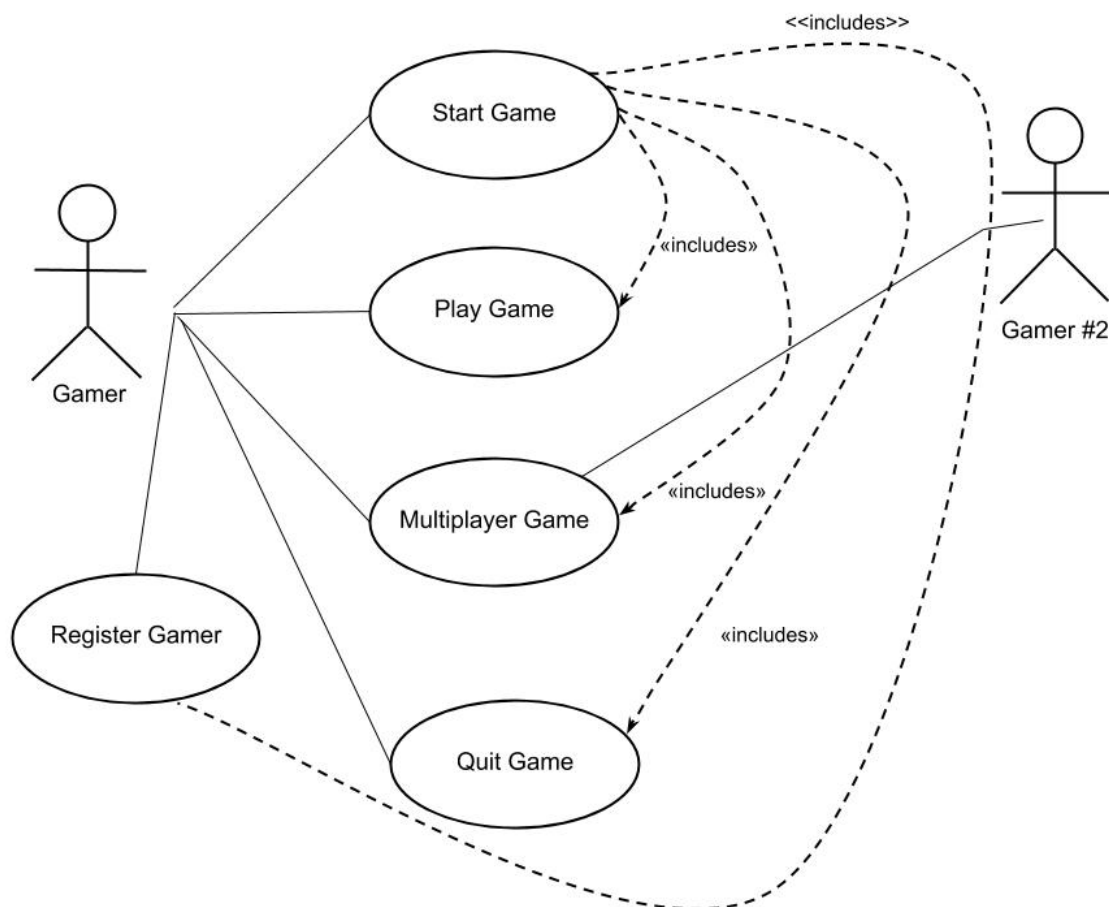
Class Diagram

*The jpeg file for this diagram is accessible in the v4.0 GitHub release