

Software Design Specification

Roshambo Release 1

Revision 1.1

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Revision History

Version	Name	Reason For Changes	Date
1.0	Joe DeLuca	Initial Revision	02/09/14
1.1	Joe DeLuca	Add details that were discussed from feedback	02/23/14

Approved By

Approvals should be obtained for project manager, and all developers working on the project.

Name	Signature	Department	Date

1. Introduction

1.1 Purpose

The goal of this design is to detail the implementation of Roshambo fulfilling the Software Requirements Specification.

1.2 System Overview

This project is a game called Roshambo which is a “Rock, Paper, Scissors ” game. It is a single player game where a user plays against the computer.

Roshambo is played as a best 2 out of 3 rounds wins.

Each round winner is determined by 3 basic rules:

- Rock beats scissors.
- Paper beats rock
- Scissors beats paper

The main menu will have 4 basic buttons: play, rules, history, and exit. Play starts the game. Rules explains the game. History shows a record of all the games played. Exit closes the applicatio

1.3 Design Map

1.4 Definitions

Gesture – A gesture represents Rock, Paper, or Scissors.

Game play – Game play is once the user has chosen the option to play the game. Starts at round 1 and ends at round 3.

System – Player 2 or the python application.

User – The person interacting with the system

Player 1 – The user.

2. Design Considerations

There are no issues which need to be addressed or resolved before attempting a design solution. The design solution is this way because I am trying to keep the design and implementation simple as possible.

2.1 Assumptions

The product will run on all systems that have the most current (python 3.3.3) python interpreter installed. All systems running a python interpreter will have enough resources to execute Roshambo with excellent performance. The game will not run without the python interpreter.

The resolution of the computer screen is higher than 1280x750. The games canvas area is based on 1280x750 window size.

2.2 General Constraints

Python must be installed on the computer running Roshambo. Roshambo is programmed with the python programming language version 3.3.3 which requires the python interpreter to run.

The system does not have any designated hardware or rely on any software to run other than the python interpreter. If the python interpreter is installed on the operating system, then Roshambo will be able to run.

The display resolution of the monitor needs to be on a machine with resolution set higher than 1280x750.

2.3 Goals and Guidelines

The main goal of the design is to be as simple as possible. The design should follow the KISS principle ("Keep is simple stupid!"). The user should know exactly what to do next without the need to read any instructions. Any on screen instructions or prompt text should be as intuitive and simple as possible without being so simple it is cryptic. The design of the application should follow the same principle and be very logical.

2.4 Risks and Volatile Areas

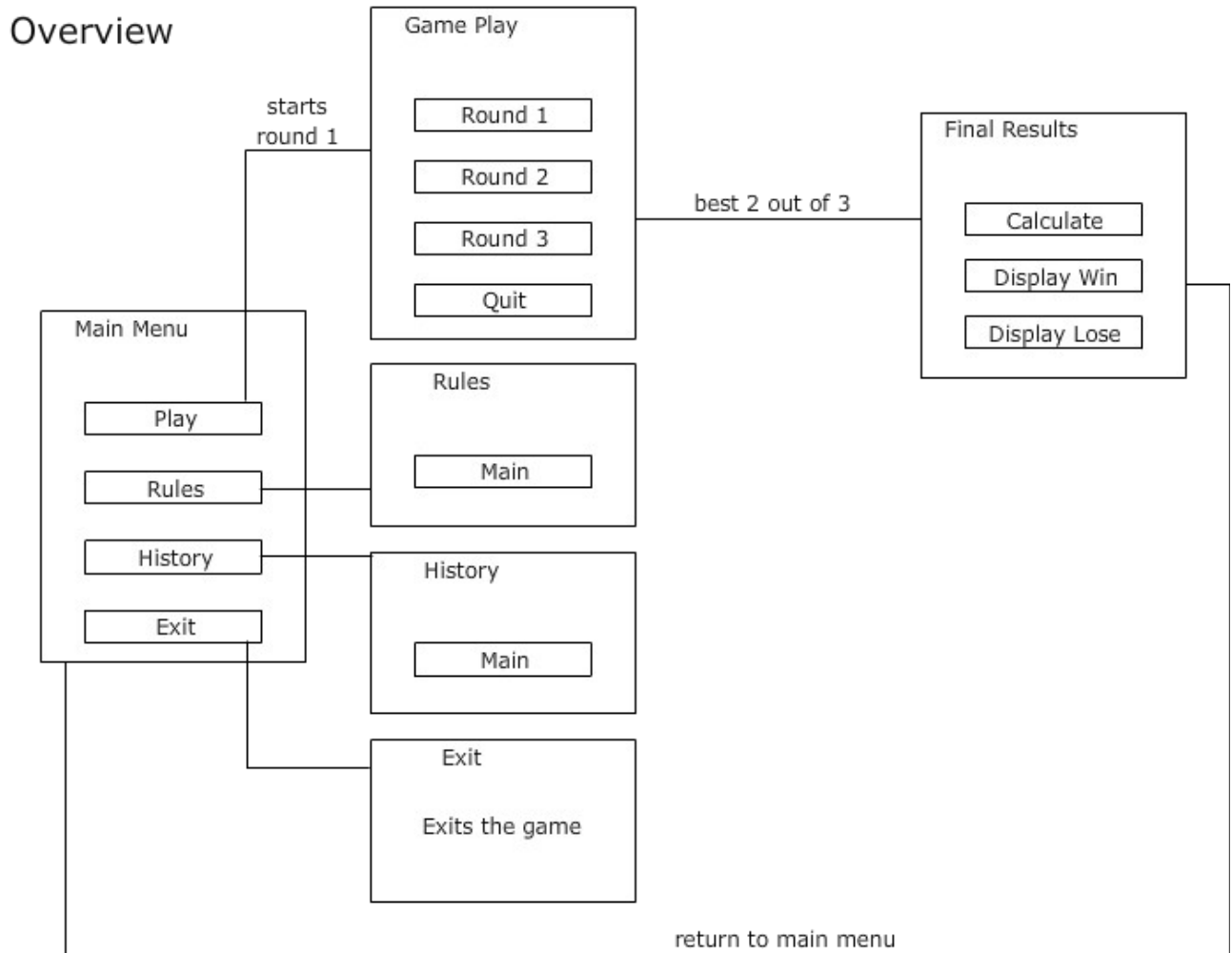
None have been identified.

3. Architectural Strategies

The system is designed with simplicity in mind. Roshambo should be as intuitive to the player as possible. Although there are game instructions, the player should be able start a game and intuitively know what to do next and how the winner was decided.

- The python programming language version 3.3.3 was chosen as the language for Roshambo. It was chosen because of the requirements outlined in Assignment #3 in MSIT 660 Software Development.
- There are no future plans for extending, updating, or enhancing this game after the completion of Assignment #3.
- There are no external databases to this application. All data will reside in memory and will be erased upon exiting the system.

3.1 Overview



The system starts at a main menu screen that has 4 options: Play, Rules, History, and Exit. The exit option exits the game.

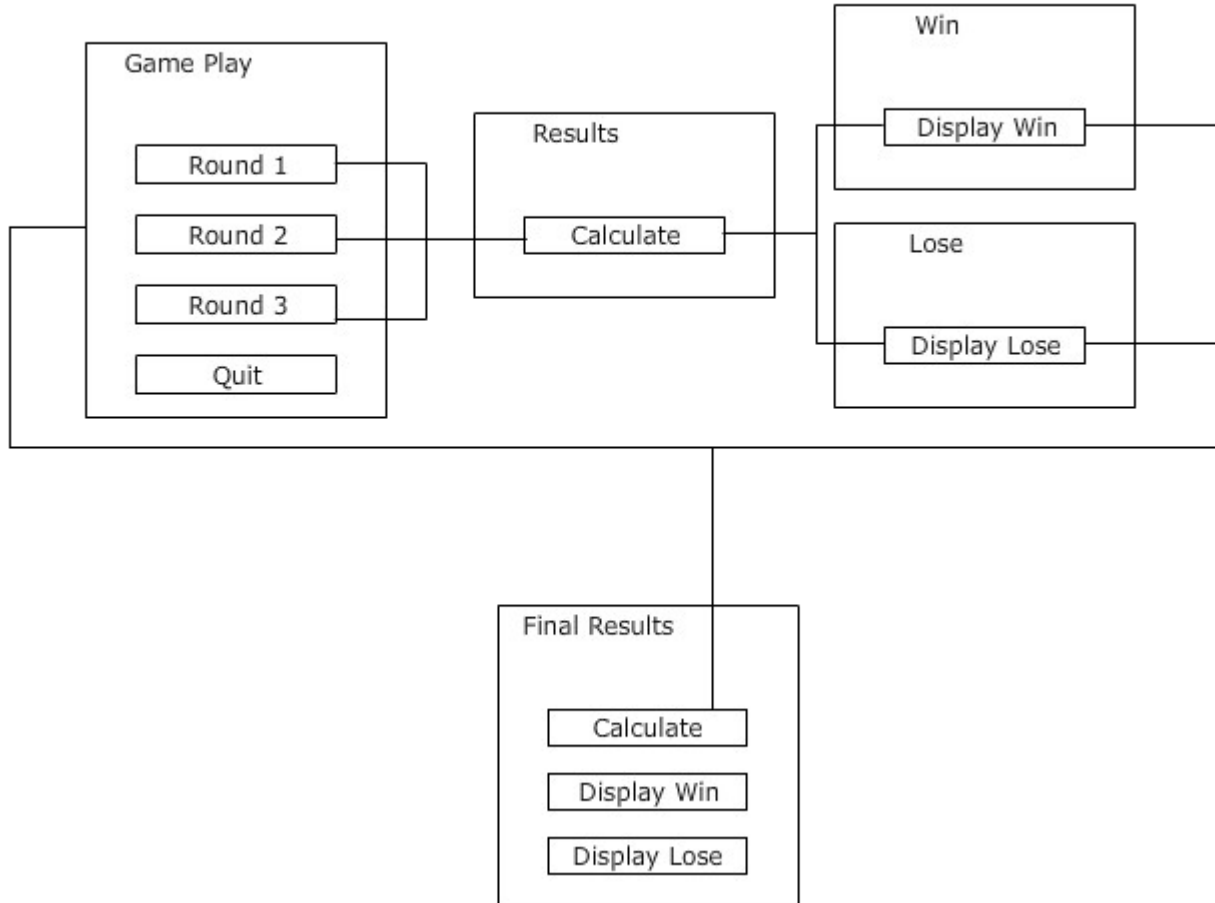
The rules option takes the user to the rules screen which displays the rules of the game.

The history option takes the user to the history screen which displays the game history since the application was started.

The game play option consists of 3 rounds. On completion of the best 2 out of 3 rounds, the final results are displayed and the user is returned to the main menu. During game play, the user may choose to quit to return back to the main menu.

3.2 Play

Play



The game starts at Round 1. On completion of each round, the results are calculated and either a win or lose screen is displayed.

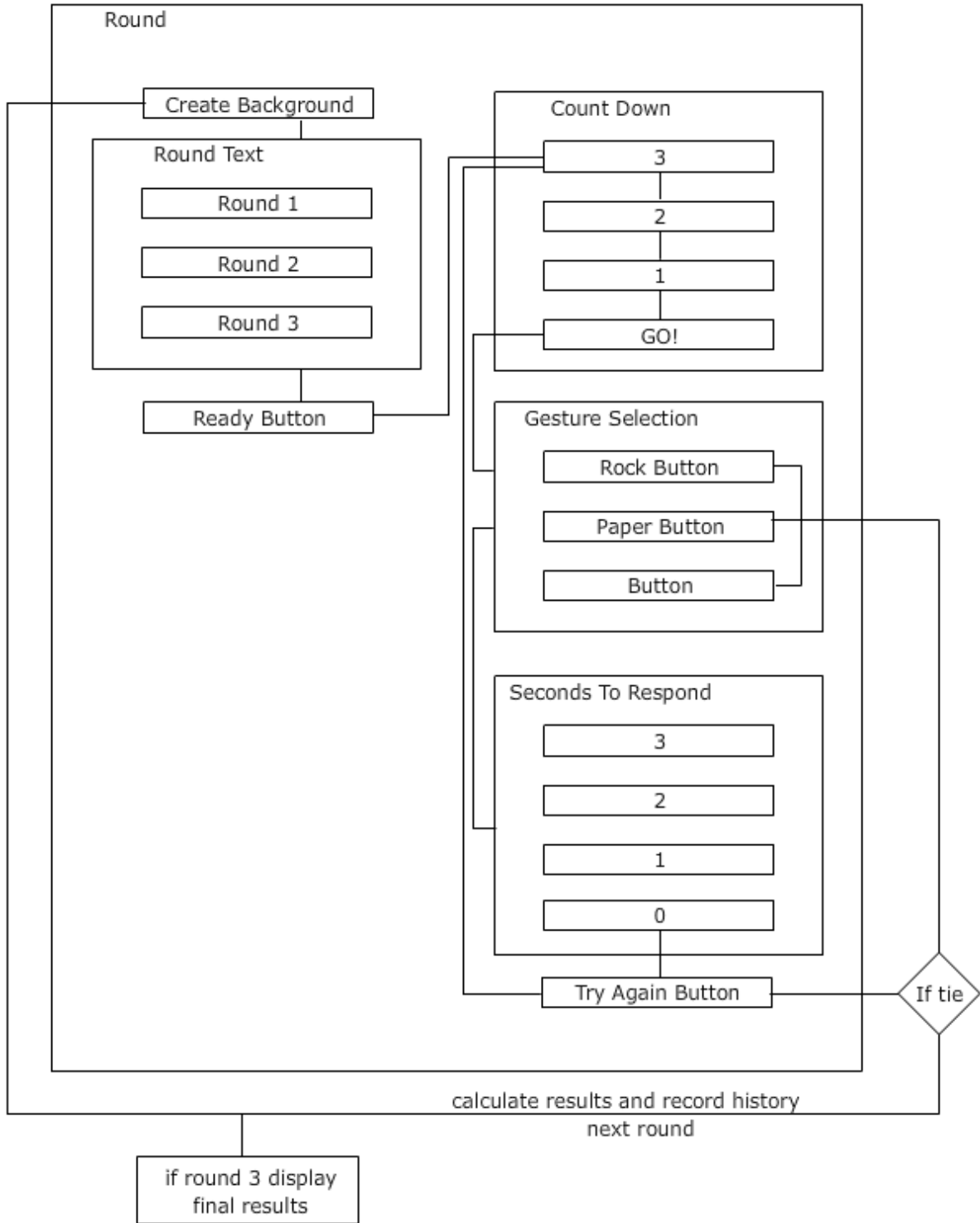
The results display for 4 seconds and then next round begins. On completion of round 2, if there is 2 wins or 2 losses then display calculate final results. If not, the third round starts.

The final results calculate and either display win or display lose.

At anytime during the round, the user can choose to quit which takes them to the main menu.

3.2.1 Rounds

Rounds



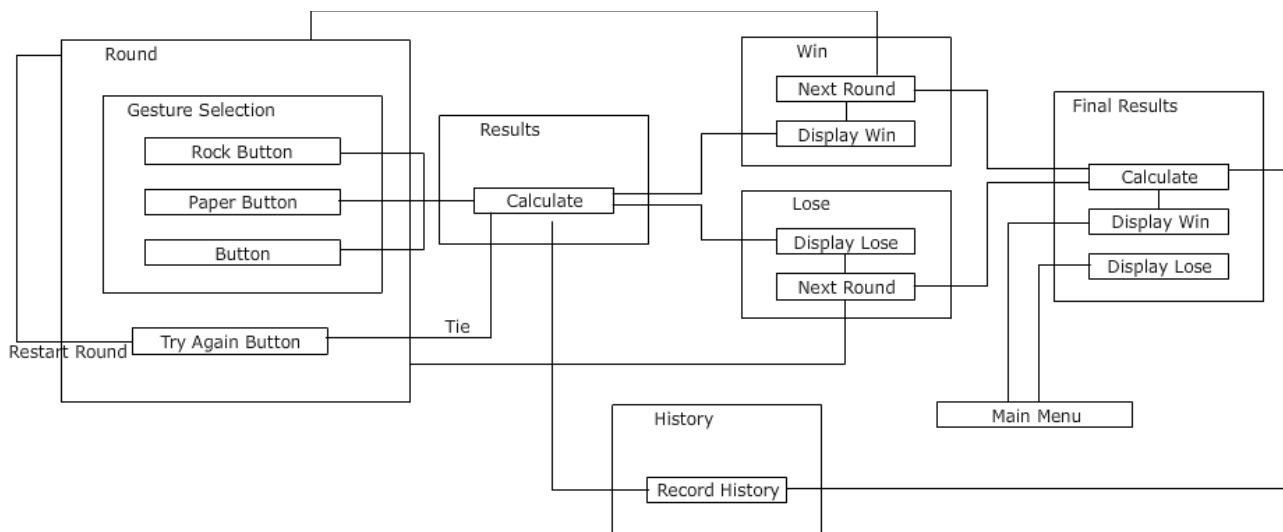
Each round begins with creating the background, the round number text, and the ready button. When the user presses the ready button, a countdown is displayed.

The countdown counts from “3”, “2”, “1”, and then displays “GO!”. Each takes a second to display. A second after “GO!” is displayed, the gesture selection is shown.

The gesture selection consists of 3 buttons: Rock, Paper, and Scissors. The player has 3 seconds to respond before they have to try again.

If the time expires then the try again button is shown. Pressing the try again button restarts the round count down.

3.2.2 Results and Final Results



When a choice is made then the system calculates results and records the history.

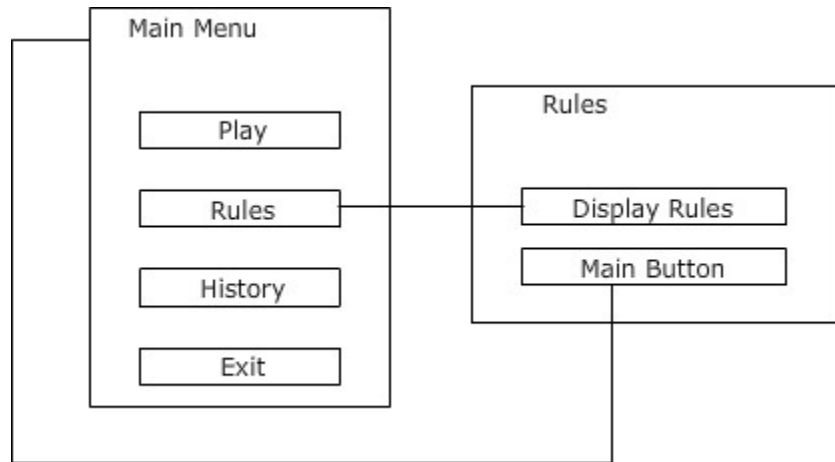
If there is a tie, then the try again button is displayed. Pressing the try again button restarts the round count down. No history is recorded. There must be a win or lose to advance to the next round.

If player wins based on rules, then the system displays the win screen for several seconds. If there are not 2 wins then start the next round. If there are 2 wins then calculate final results and record history.

If player loses based on rules, then the system displays the lose screen for several seconds . If there are not 2 losses then start the next round. If there are 2 losses then calculate final results and record history.

Once the final results are calculated, the system displays a win or lose screen for several seconds. The system then returns to the main menu.

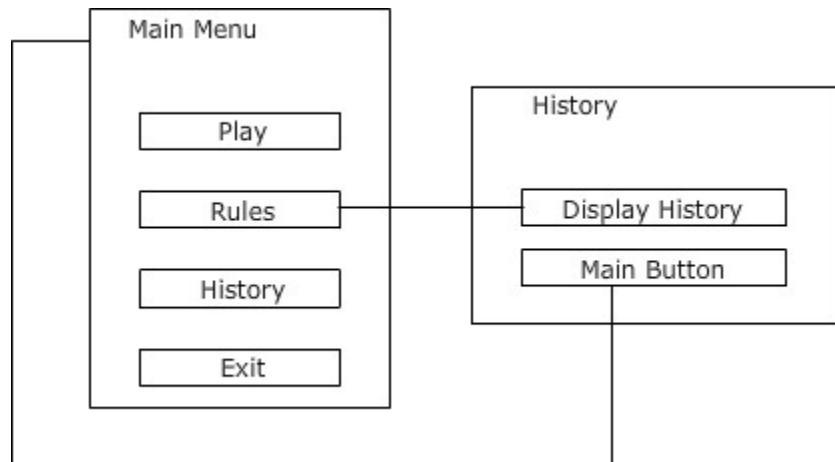
3.3 Rules



When the user presses the rules button, the rules screen is displayed. The rules are displayed as an illustration.

There is a main button on the rules screen. When the user presses the main button, the system will display the main menu.

3.4 History



When the user presses the history button, the history screen is displayed. The history is displayed in a scrollable text box.

There is a main button on the history screen. When the user presses the main button, the system will display the main menu.

4. Low Level Design

4.1 MainScreen

Displays the main screen. The main menu

4.1.1 createMainScreen

Creates the background and the buttons.

4.1.2 hide

Hides all.

4.1.3 createBackground

Puts the mainScreenBackground.gif on the screen.

4.1.4 createButtons

Creates all the buttons.

4.1.5 createBtnPlay

Creates all the button states and binds the event listeners.

4.1.6 createBtnRules

Creates all the button states and binds the event listeners.

4.1.7 createBtnHistory

Creates all the button states and binds the event listeners.

4.1.8 createBtnExit

Creates all the button states and binds the event listeners.

4.2 gameScreen

Displays the game screen and handles all the round logic.

4.2.1 startRound1

Creates everything needed for starting round 1.

4.2.2 currentRoundText

Displays the round text depending on what round it is.

4.2.3 hideRoundText

Hides the round text depending on what round it is.

4.2.4 createbackground

Puts the GameScreenBackground.gif on the screen.

4.2.5 createbuttons

Creates all the buttons.

4.2.6 createBtnReady

Creates all the button states and binds event listeners.

4.2.7 getGestureSelection

Displays the gesture selection and starts the seconds left to respond timer.

4.2.8 hideGameScreen

Hides the game screen.

4.2.9 tryAgain

Hides the gesture selection and shows the try again text and button

4.2.10 createBtnTryAgain

Creates all the button states and binds event listeners.

4.2.11 createYouDidntRespondInTime

Puts the youDidn'tRespondInTime.gif on the screen

4.2.12 startRound2

Creates everything needed for starting round 2.

4.2.13 startRound3

Creates everything needed for starting round 3.

4.2.14 incrementRound

Increments the current round.

4.2.15 createThereWasATie

Puts the ThereWasATie.gif on the screen.

4.2.16 createBtnQuit

Creates all the button states and bind event listeners.

4.2.17 Countdown

Displays the count down. 3, 2, 1, then Go!

4.2.17.1 startCountDown

Displays the count down. 3, 2, 1, then Go!

4.2.17.2 countTo2

Hides 3 and shows 2 if it is active.

4.2.17.3 countTo1

Hides 2 and shows 1 if it is active.

4.2.17.4 countToGO

Hides 1 and shows GO! if it is active.

4.2.17.5 createCountDown3

Puts the countDown3.gif on the screen.

4.2.17.6 createCountDown2

Puts the countDown2.gif on the screen.

4.2.17.7 createCountDown1

Puts the countDown1.gif on the screen.

4.2.17.8 createCountDownGO

Puts the countDownGO.gif on the screen.

4.2.18 Rounds

Displays the round text.

4.2.18.1 CreateRound1

Puts the round1.gif on the screen.

4.2.18.2 CreateRound2

Puts the round2.gif on the screen.

4.2.18.3 CreateRound3

Puts the round3.gif on the screen.

4.2.19 Gesture Selection

Displays and handles the gesture selections

4.2.19.1 chooseYourGesture

Creates everything needed to display the gesture selections

4.2.19.2 createChooseGesture

Puts the chooseGesture.gif on the screen.

4.2.19.3 createBtnRock

Creates all the button states and bind event listeners.

4.2.19.4 createBtnPaper

Creates all the button states and bind event listeners.

4.2.19.5 createBtnScissors

Creates all the button states and bind event listeners.

4.2.19.6 hideGestureSelection

Hides the gesture selection.

4.2.20 SecondsToRespond

Displays the number of seconds to respond to gesture selection.

4.2.20.1 startSecondsToRespond

Starts the count down at 3

4.2.20.2 showTwo

Hides 3 and displays 2 if the gesture selection is active.

4.2.20.3 showOne

Hides 2 and displays 1 if the gesture selection is active.

4.2.20.4 showZero

Hides 1 and displays try again if the gesture selection is active.

4.2.20.5 createSecondsToRespond3

Puts the secondsToRespond3.gif on the screen.

4.2.20.6 createSecondsToRespond2

Puts the secondsToRespond2.gif on the screen.

4.2.20.7 createSecondsToRespond1

Puts the secondsToRespond1.gif on the screen.

4.2.20.8 createSecondsToRespond0

Puts the secondsToRespond0.gif on the screen.

4.2.21 Results

Calculates the results of player 1 and provide player 2 selection.

4.2.21.1 makePlayer2GestureSelection

Makes the player 2 selection.

4.2.21.2 calculate

Calculates the results of the round

4.2.21.3 showTryAgain

Shows try again.

4.2.21.4 calculateResults

Calls to make the player 2 gesture selection and calculate the results.

4.2.22 Win

Displays the Win Screen.

4.2.22.1 createbackground

Puts the WinBackground.gif on the screen.

4.2.22.2 createWinPlayer1Rock

Puts the WinPlayer1Rock.gif on the screen.

4.2.22.3 createWinPlayer1Paper

Puts the WinPlayer1Paper.gif on the screen.

4.2.22.4 createWinPlayer1Scissors

Puts the WinPlayer1Scissors.gif on the screen.

4.2.22.5 createWinPlayer2Rock

Puts the WinPlayer2Rock.gif on the screen.

4.2.22.6 createWinPlayer2Paper

Puts the WinPlayer2Paper.gif on the screen.

4.2.22.7 createWinPlayer2Scissors

Puts the WinPlayer1Scissors.gif on the screen.

4.2.22.8 createWinWordCuts

Puts the WinWordCuts.gif on the screen.

4.2.22.9 createWinWordWraps

Puts the WinWordWraps.gif on the screen.

4.2.22.10 createWinRound1

Puts the WinRound1.gif on the screen.

4.2.22.11 createWinRound2

Puts the WinRound2.gif on the screen.

4.2.22.12 createWinRound3

Puts the WinRound3.gif on the screen.

4.2.22.13 currentRoundText

Displays the current round text

4.2.22.14 hideRoundText

Hides the current round text

4.2.22.15 winResult1

Creates everything needed to display the win result 1. Hides after 4 seconds.

4.2.22.16 winResult2

Creates everything needed to display the win result 2. Hides after 4 seconds.

4.2.22.17 winResult3

Creates everything needed to display the win result 3. Hides after 4 seconds.

4.2.22.18 hideWinResult1

Hides win result 1.

4.2.22.19 hideWinResult2

Hides win result 2.

4.2.22.20 hideWinResult3

Hides win result 2.

4.2.22.21 nextRound

Increments the round and sends the user to the next round or final results.

4.2.23 Lose

Displays the Lose Screen.

4.2.23.1 createbackground

Puts the LoseBackground.gif on the screen.

4.2.23.2 createLosePlayer1Rock

Puts the LosePlayer1Rock.gif on the screen.

4.2.23.3 createLosePlayer1Paper

Puts the LosePlayer1Paper.gif on the screen.

4.2.23.4 createLosePlayer1Scissors

Puts the LosePlayer1Scissors.gif on the screen.

4.2.23.5 createLosePlayer2Rock

Puts the LosePlayer2Rock.gif on the screen.

4.2.23.6 createLosePlayer2Paper

Puts the LosePlayer2Paper.gif on the screen.

4.2.23.7 createLosePlayer2Scissors

Puts the LosePlayer1Scissors.gif on the screen.

4.2.23.8 createLoseWordCuts

Puts the LoseWordCuts.gif on the screen.

4.2.23.9 createLoseWordWraps

Puts the LoseWordWraps.gif on the screen.

4.2.23.10 createLoseRound1

Puts the LoseRound1.gif on the screen.

4.2.23.11 createLoseRound2

Puts the LoseRound2.gif on the screen.

4.2.23.12 createLoseRound3

Puts the LoseRound3.gif on the screen.

4.2.23.13 currentRoundText

Displays the current round text

4.2.23.14 hideLoseText

Hides the current round text

4.2.23.15 loseResult1

Creates everything needed to display the lose result 1. Hides after 4 seconds.

4.2.23.16 loseResult2

Creates everything needed to display the lose result 2. Hides after 4 seconds.

4.2.23.17 loseResult3

Creates everything needed to display the lose result 3. Hides after 4 seconds.

4.2.23.18 hideLoseResult1

Hides lose result 1.

4.2.23.19 hideLoseResult2

Hides lose result 2.

4.2.23.20 hideLoseResult3

Hides lose result 2.

4.2.23.21 nextRound

Increments the round and sends the user to the next round or final results.

4.2.23.21.1 FinalResults

Displays the final results.

4.2.23.21.1.1 calculate

Calculates the final results, displays final results, and records history.

4.2.23.21.1.2 mainScreen

Displays the main screen.

4.2.23.21.1.3 CreateFinalWinBackground

Puts the FinalWinBackground.gif on the screen.

4.2.23.21.1.4 CreateFinalLoseBackground

Puts the FinalLoseBackground.gif on the screen.

4.3 History

Displays the history screen and records the history.

4.3.1 createbackground

Puts the HistoryBackground.gif on the screen.

4.3.2 createHistoryList

Creates the history list for storing a list of strings.

4.3.3 printHistory

Displays the history screen by creating the background, main button, and the textbox.

4.3.4 createTextBox

Creates the textbox and scrollbar.

4.3.5 createBtnMain

Creates all the button states and bind event listeners.

4.3.6 hide

Hides all.

4.4 Rules

Displays the rules screen.

4.4.1 createbackground

Puts the RulesBackground.gif on the screen.

4.4.2 createRules

Creates the background and the buttons

4.4.3 createBtnMain

Creates all the button states and bind event listeners.

4.4.4 hide

Hides all.

5. User Interface Design

The user interface is the python console and Roshambo uses the canvas and buttons for user interaction.

5.1 Main Menu

The menu has 4 options: Play, Rules, History and Exit

5.2 Gesture Selection

The gesture selection has 3 options: Rock, Paper Scissors.