

YAHTZEE

SOFTWARE DESIGN DOCUMENT

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INTRODUCTION

The tests are designed in order to meet the functional requirements of the system.

SYSTEM OVERVIEW

Creating a desktop application of the game of Yahtzee.

FEATURES TO BE TESTED

Testing Requirement	System Requirement(s)	Short Description
1	F1	The function to start game
2	F2a N4	The function to roll dice
3	F2b N4	The function to save dice
4	F2c N4	The function to unsave dice
5	F2d F4 N3 N4	The function to calculate score
6	F2d F2e F4 N3 N4	The function to choose a category and score (this is included calculating score)
7	F9 N4	The function to end turn
8	F3 N4	The function to surrender
9	F8 N2	The function to change language from English to Spanish
10	F6 F7 N1	Change the volume of the music

TEST ENVIRONMENT

Any computer with Unity.

TEST CASES

TEST CASE 1

COMPONENT UNDER TEST

The component is in the Game class, the function we are testing is begin the game

FEATURE(S) TO BE TESTED

F1

INITIAL CONDITIONS

The game is at create player scene

EXPECTED BEHAVIOR

After hit start, the game will load the game scene with players name.

INPUT

Fill in all desire players' names and click begin button

OUTPUT

The game will turn to the game scene and display number of players and names

TEST CASE 2

COMPONENT UNDER TEST

The component is in the Game class, the function we are testing is rolling dice one time

FEATURE(S) TO BE TESTED

F2a N4

INITIAL CONDITIONS

The game object is initiated with an amount of players and the state is at one player's turn.

EXPECTED BEHAVIOR

When player click roll dice, the game return a list of dice value.

INPUT

Click the button roll dice

OUTPUT

A list called dice of random five integer

TEST CASE 3

COMPONENT UNDER TEST

The component is in the Game class, the function we are testing is rolling dice

FEATURE(S) TO BE TESTED

F2a N4 r

INITIAL CONDITIONS

The game object is initiated with an amount of players and the state is at one player's turn.

EXPECTED BEHAVIOR

The dice value change three time, and button cannot be click again.

INPUT

Click the button roll dice three time

OUTPUT

A list dice of six random integer at each time

TEST CASE 4:

COMPONENT UNDER TEST

The component is in the Game class, the function we are testing is saving one dice

FEATURE(S) TO BE TESTED

F2b N4

INITIAL CONDITIONS

The state is at one player's turn and after that player rolls his/her dice

EXPECTED BEHAVIOR

The list dice saver will have the element of that dice and the list dice rolled will remove that dice from it

INPUT

Click on the first dice of the list of dice rolled before

OUTPUT

The list dice saver will have the element of that dice and the list dice rolled will remove that dice from it

TEST CASE 5:

COMPONENT UNDER TEST

The component is in the Game class, the function we are testing is saving all dice

FEATURE(S) TO BE TESTED

F2b N4

INITIAL CONDITIONS

The state is at one player's turn and after that player rolls his/her dice

EXPECTED BEHAVIOR

The dice saver list will have all rolled dice list's elements and rolled dice list will be empty

INPUT

Click on all dices to save

OUTPUT

The dice saver list will have all rolled dice list's elements and rolled dice list will be empty

TEST CASE 6:

COMPONENT UNDER TEST

The component is in the game object and we are testing the function to unsave dice

FEATURE(S) TO BE TESTED

F2c, N4

INITIAL CONDITIONS

The state is at a player's turn, after the player saves an amount of dice.

EXPECTED BEHAVIOR

When unsave dice, the dice that is saved before is available for re-roll.

INPUT

Value of the dice to un-save

OUTPUT

List of new save dices.

TEST CASE 7:

COMPONENT UNDER TEST

The component is in the Game class, the function to be test is calculating the score with dice and a category of upper section

FEATURE(S) TO BE TESTED

F2d F4 N3 N4

INITIAL CONDITIONS

It is at a player's turn, after rolling dice

EXPECTED BEHAVIOR

When having the value of 5 dices and a specific category, a score can be calculated. The calculated score should match Yahtzee rule.

INPUT

Score {1, 2, 3, 3, 1} into THREE

OUTPUT

The score of 6

TEST CASE 8:

COMPONENT UNDER TEST

The component is in the Game class, the function to be test is calculating the score with dice and a category of lower section

FEATURE(S) TO BE TESTED

F2d F4 N3 N4

INITIAL CONDITIONS

It is at a player's turn, after rolling dice.

EXPECTED BEHAVIOR

When having the value of 5 dices and a specific category, a score can be calculated. The calculated score should match Yahtzee rule.

INPUT

Score {6, 6, 5, 5, 6} into SMALL_STRAIGHT

OUTPUT

The score of 0

TEST CASE 9:

COMPONENT UNDER TEST

The component is in the Game class, the function to be test is choosing category and displaying a corresponding score

FEATURE(S) TO BE TESTED

F2d F2e F4 N3 N4

INITIAL CONDITIONS

It is at a player's turn, after rolling, saving and re-rolling dice.

EXPECTED BEHAVIOR

The score of the category in the scoresheet is filled. The summary score is also updated.

INPUT

Score {1, 1, 1, 1, 2} into FOUR_A_KIND

OUTPUT

The score of 6

TEST CASE 10:

COMPONENT UNDER TEST

The component is in Game class, the function to be tested is ending a player's turn

FEATURE(S) TO BE TESTED

F9 N4

INITIAL CONDITIONS

The state is at a player's turn, after that player knowing his/her score

EXPECTED BEHAVIOR

End a player's turn and move to the next player.

INPUT

Click end turn button

OUTPUT

Go to the next player's turn

TEST CASE 11:

COMPONENT UNDER TEST

The component is in Game class, the function to be tested is surrendering at a player's turn

FEATURE(S) TO BE TESTED

F3 N4

INITIAL CONDITIONS

The state is at a player's turn

EXPECTED BEHAVIOR

End player turn, move to next player. The surrendering player no longer gets a turn.

INPUT

Click the surrender button

OUTPUT

Remove that player from the game and go to the next player's turn

TEST CASE 12:

COMPONENT UNDER TEST

The component is in Game class, the function to be tested is surrendering at the last player in the game's turn

FEATURE(S) TO BE TESTED

F3 N4

INITIAL CONDITIONS

The state is at the last player in the game's turn

EXPECTED BEHAVIOR

When the last player gives up the game, the game ends.

INPUT

Click the surrender button

OUTPUT

throw EndGameException

TEST CASE 13:

COMPONENT UNDER TEST

The component is in setting class, the function to be tested is changing language of the game

FEATURE(S) TO BE TESTED
F8 N2

INITIAL CONDITIONS

Any state of the application

EXPECTED BEHAVIOR

INPUT

Click the Spanish button

OUTPUT

Whole language of the game changes to Spanish

TEST CASE 14:

COMPONENT UNDER TEST

The component is in Setting class, the function to be tested is to change the volume of the game music

FEATURE(S) TO BE TESTED
F6 F7 N1

INITIAL CONDITIONS

Any state of the game

EXPECTED BEHAVIOR

INPUT

Slide the music button to the right

OUTPUT

The music volume increases

TEST CASE 15:

COMPONENT UNDER TEST

The component is button to roll dice in UI.

FEATURE(S) TO BE TESTED

F2a N4

INITIAL CONDITIONS

The state is at the begin of one player's turn.

EXPECTED BEHAVIOR

Click "RollDice" button to roll dice and new dice values appear.

INPUT

Click on "RollDice" button

OUTPUT

New dice value shown.

TEST CASE 16:

COMPONENT UNDER TEST

The component is button to save dice in UI.

FEATURE(S) TO BE TESTED

F2a N4

INITIAL CONDITIONS

The state is at the begin of one player's turn.

EXPECTED BEHAVIOR

Click "RollDice" button three times. Each time, new dice values appear. After three times, the button is disabled.

INPUT

Click on “RollDice” button three times.

OUTPUT

New dice value shown three times. “RollDice” button is disabled.

TEST CASE 17:

COMPONENT UNDER TEST

The component is button to save all dices in UI.

FEATURE(S) TO BE TESTED

F2b N4

INITIAL CONDITIONS

The state is at one player’s turn and after that player rolls his/her dice

EXPECTED BEHAVIOR

Click a dice to save it will disable the button. The value of the dice does not change in the future roll.

INPUT

Click on a dice to save it. Then player roll dice again.

OUTPUT

The dice button clicked is disabled. The value of the dice does not change after rolling again.

TEST CASE 18:

COMPONENT UNDER TEST

The component is button to save all dices in UI.

FEATURE(S) TO BE TESTED

F2b N4

INITIAL CONDITIONS

The state is at one player's turn and after that player rolls his/her dice

EXPECTED BEHAVIOR

Click a dice to save it will disable the button. The value of the dices do not change in the future roll.

INPUT

Click on all dices to save them. Then player roll dice again.

OUTPUT

The dice buttons are disabled. The value of the dices do not change after rolling again.

TEST CASE 19:

COMPONENT UNDER TEST

The component is button to unsave some dices in UI.

FEATURE(S) TO BE TESTED

F2c N4

INITIAL CONDITIONS

The state is at one player's turn and after the player save some dices.

EXPECTED BEHAVIOR

The player pick some saved dice to unsave it. These dice values change when roll again.

INPUT

NA

OUTPUT

NA

TEST CASE 20:

COMPONENT UNDER TEST

The component is the button on the score sheet.

FEATURE(S) TO BE TESTED

F2d F2e F4 N3 N4

INITIAL CONDITIONS

The game is at the beginning a player's turn.

EXPECTED BEHAVIOR

At the beginning of a turn, all buttons are disabled. After player rolls, all will be enabled.

INPUT

Click "RollDice"

OUTPUT

At the beginning of a turn, all buttons are disabled. After player rolls, all will be enabled.

TEST CASE 21:

COMPONENT UNDER TEST

The component is in the ScoreCategory, in the save (and calculate) score.

FEATURE(S) TO BE TESTED

F2d F2e F4 N3 N4

INITIAL CONDITIONS

The game is at a player's turn, after the player rolls dices.

EXPECTED BEHAVIOR

When a button on the scoresheet is clicked, the score in the corresponding field shows up. It also update Upper score, and total score accordingly. The button is not clickable anymore.

INPUT

Click on ACE button. Roll dice again, click on SIX button.

OUTPUT

Ace field score is updated, then Six field score is updated. Upper score and total score is also updated. Button Six and Ace is not clickable.

TEST CASE 22:

COMPONENT UNDER TEST

The component is in the ScoreCategory, in the save (and calculate) score.

FEATURE(S) TO BE TESTED

F2d F2e F4 N3 N4

INITIAL CONDITIONS

The game is at a player's turn, after the player rolls dices.

EXPECTED BEHAVIOR

When a button on the scoresheet is clicked, the score in the corresponding field shows up. It also update Upper/Lower score, and total score accordingly. The button is not clickable anymore.

INPUT

Click on CHANCE button. Roll dice again, click on THREE button.

OUTPUT

Chancefield score is updated, then Threefield score is updated. Upper score/lower score and total score is also updated. Button Chance and Three is not clickable.