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Gonzaga Men's Basketball Yahtzee
Test Plan

For clarity purposes, "user" refers to the people playing this game and "player" refers to a Gonzaga Men's Basketball Player.

I. Start a new game:

At the start of the game, the leaderboard (top 3 highest scores in game history) is displayed. The instructions of how to play will be displayed, including the GU Men's Basketball Roster, as this is key to scoring for the rest of the game. The user will then be prompted to input the number of users for this game. Then, the user will be asked to input each user's name. Following, their empty scorecard will be printed. The user will then see which user's turn it is.

Requirement ID	Requirement	Verified By
1.0	Start a new game	Test Case 1
1.1	Leaderboard displayed (by click)	Test Case 1 Step D
1.2	Instructions displayed (by click)	Test Case 1 Step E
1.3	Enter number of users	Test Case 1 Step F
1.4	Enter user's name(s)	Test Case 1 Step G
1.5	Print empty scorecards	Test Case 1 Step H
1.6	Display who's turn it is	Test Case 1 Step I

II. Roll a hand:

To roll a new hand the first step is to roll all five dice, random generating five Gonzaga basketball players. After each roll, the game will tell the user how many rerolls they still have during their turn. Then the game will prompt the user to select which players to keep in their hand and which to reroll. The dice that are not kept will be rerolled. At this point, the turn will proceed to scoring if one of two conditions are met: either all of the dice have been kept, or all available rolls have been used.

Requirement ID	Requirement	Verified By
2.0	Roll a hand	Test Case 2
2.1	Roll all the dice by clicking the ball to roll	Test Case 2 Step A
2.2	Display the pictures of the five Gonzaga basketball players rolled	Test Case 2 Step B
2.3	Display number of rerolls remaining	Test Case 2 Step C
2.4	User clicks the players they want to keep	Test Case 2 Step D
2.5	Appropriate rerolls are made	Test Case 2 Step E
2.6	Proceed to scoring if either all the dice have been kept or all rolls have been used, else continue rerolling	Test Case 2 Step F

III. Score a hand:

After each turn the available lines for scoring are displayed, as well as their corresponding values eligible for scoring. The user is asked to select a scorecard line to choose. To score the hand, the program only allows the user to choose from unused lines. After each scoring, the scoreboard is displayed.

Requirement ID	Requirement	Verified By
3.0	Score a hand	Test Case 3
3.1	Display available lines to score (all lines unused) as well as the points they are eligible to score on each	Test Case 3 Step A
3.2	User selects scoreline to score (in addition, attempt the case when the user makes a bad selection)	Test Case 3 Step B
3.3	Scoreboard displayed	Test Case 3 Step C
3.4	Option to exit early	Test Case 3 Step D
3.5	User has/does not have more turns remaining	Test Case 3 Step E
3.6	Case to switch to the next user or case to transition to finishing a game	Test Case 3 Step F

IV. Finishing game:

To finish the game, the first step is to determine if any lines of the scorecard are empty. If none are empty, the user has utilized all of their turns. The game then compares the user's score(s) and the winner is declared. If the user(s) qualifies/qualify for the leaderboard, the leaderboard will be updated and displayed along with a congratulations message. The user(s) will be asked if they wish to play again.

Requirement ID	Finishing game	Verified By
4.0	Finishing a game	Test Case 4
4.1	Determine if any lines of the scorecard are empty	Test Case 4 Step A
4.2	Display each user's final scorecard	Test Case 4 Step B
4.3	Game winner displayed	Test Case 4 Step C
4.4	Update leaderboard if applicable (If applicable, display scoreboard and congratulations message)	Test Case 4 Step D
4.5	Ask user whether to play again or close game	Test Case 4 Step E

Test Cases:

We will test the game through four test cases that reflect the four main stages of the game: new game, rolling a hand, scoring a hand, and finishing a game.

1. Test Case 1: New Game
   A. Launch game
   B. Display main menu
   C. Provide options for Play, Leaderboard, Instructions
   D. Display the Leaderboard when the user clicks "Leaderboard"
      i. Return to the Main Menu by clicking "Main Menu"
   E. Display the Instructions when the user clicks "Instructions"
      i. Return to the Main Menu by clicking "Main Menu"
   F. User clicks desired number of users (1-4)
   G. Enter user's name(s)
   H. Print empty scorecards
   I. Display who's turn it is
2. Test Case 2: Rolling a Hand
   A. Roll all the dice by clicking the ball to roll
   B. Display the pictures of the five Gonzaga basketball players rolled
   C. Display number of rerolls remaining
   D. User clicks the players they want to keep
      i. User makes a selection of keeps and rerolls
      ii. User decides to keep all of the dice
   E. Appropriate rerolls are made
   F. Proceed to scoring if either all the dice have been kept or all rolls have been used, else continue rerolling
3. Test Case 3: Scoring a hand
   A. Display available lines to score (all lines unused) as well as the points they are eligible to score on each
   B. User selects scoreline to score
      i. Error message displayed and retry prompted if the user chooses an inappropriate line
   C. Scoreboard displayed
   D. Option to exit early
      i. User continues playing
      ii. User terminates the game
   E. Determine number of turns remaining
      i. If user has more turns remaining, return to Test Case 2 Step A
      ii. If user has no turns remaining, continue...
   F. Determine how many users still need to play the game
      i. If more users still need to play, return to Test Case 2 Step A
      ii. If no users still need to play, continue...
4. Test Case 4: Finishing a game
   A. Determine if all the scorelines have been filled
   B. Display all scorecards
   C. Display winner
   D. Update leaderboard if applicable

       i.   If the leaderboard is updated, display the leaderboard as well as a congratulations message
      ii.   If the leaderboard is not updated, proceed to the next step

E.   Ask the user to play again or not
       i.   If yes, initiate new game
      ii.   If no, close program