Yahtzee

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History

Yahtzee is a dice game that originates from a Canadian couple who creatively called it "The Yacht Game" because they would play it on their yacht with friends. In 1956, Polish toy maker and entrepreneur, Edwin S. Lowe, introduced this game into the market and it was later purchased by Milton Bradley in 1973. This game combines strategy, probability, and luck to achieve the highest score.

Rules

The round starts with the player rolling 5 dice. The player then decides which dice they wish to keep or re-roll for up to 3 rolls. Once the turn is over, a score is recorded on the scorecard for one of the categories based on the available points in the last roll. The scorecard is broken up into an upper and lower section. The upper section consists of basic points focused on counting only multiples of a specific number on the dice. If the upper section of the score card exceeds 63, then an additional 35 points is awarded. The lower section consists of more creative combinations where you need to get 3 of a kind, 4 of a kind, a full house (3 of a kind + 2 of a kind), a small straight (4 consecutive numbers), a large straight (5 consecutive numbers), yahtzee (5 of the same number), and chance(summation of all dice). The player can only score once per round and all scores are final. The game ends once all 13 categories are filled in.

Scorecard

UPPER		
Category	**Points**	**Score**
Aces = 1	Count and Add Only 1s	
Twos = 2	Count and Add Only 2s	
Threes = 3	Count and Add Only 3s	
Fours = 4	Count and Add Only 4s	
Fives = 5	Count and Add Only 5s	
Sixes = 6	Count and Add Only 6s	
Bonus	35 *If Upper Score > 63*	
Total Upper		
LOWER		
Category	**Points**	
3 of a Kind	Add Total of All Dice	
4 of a Kind	Add Total of All Dice	
Full House	25	
Sm. Straight	30	
Lg. Straight	40	
YAHTZEE	50 *up to 3 times*	
Chance	Add Total of All Dice	
Total Lower		
Grand Total		

Strategy

As mentioned earlier, Yahtzee incorporates strategy. One strategy is to complete the upper section first at the beginning of the game with the goal of reaching 63 upper points to claim the additional 35 bonus points, while another is to continually prioritize the YAHTZEE because it gives the most points and can be achieved 3 times per game and the failed trails can still be counted towards the upper section.

Upcoming Work

I have outlined what the game is, and mentioned 2 strategies I plan to test. Up next, I will code the game of Yahtzee and execute multiple runs and visualize the results between the 2 strategies to see how they compare to each other. My hypothesis is prioritizing the upper

section first will result in a higher average score, and continually prioritizing YAHTZEE will result in forcing a lot of 0-point scores.