

# Project 1

## **<Console-based Yahtzee>**

Created By: Chad Bonnett  
CSC-5-42409  
4/10/19

## Introduction

Yahtzee is a dice game where the objective is to score points by rolling 5 dice to make certain combinations. The game consists of 13 rounds and in each round, each player takes turns rolling the dice up to 3 times to try to make various scoring combinations. After each turn, the player chooses which scoring category is to be used for that round. Once a category has been used in the game, it cannot be used again. The following are the scoring categories:

Categories	Descriptions	Scores
Ones	Any combination	The sum of dice with the number 1
Twos	Any combination	The sum of dice with the number 1
Threes	Any combination	The sum of dice with the number 1
Fours	Any combination	The sum of dice with the number 1
Fives	Any combination	The sum of dice with the number 1
Sixes	Any combination	The sum of dice with the number 1
Three of a Kind	At least three dice the same	Sum of all dice
Four of a Kind	At least four dice the same	Sum of all dice
Full House	Three of one number and two of another	25
Small Straight	Four sequential dice	30
Large Straight	Five sequential dice	40
Yahtzee	All five the same	50
Chance	Any combination	Sum of all dice

## Summary:

This project contains about 475 lines of code, and includes all the major constructs that we have learned in the class. It also includes advanced concepts which we haven't learned in class yet, such as arrays and sorting functions. I have been studying ahead in the books as well as teaching myself these advanced concepts because I could not code to the logic and make it work without the arrays, functions and sorting. This I did not take into consideration when choosing Yahtzee for my project, just how complex the random dice moves would become. But once I started with the project, nothing was going to stand in my way of making it functional. This project took me 12 days to complete, and I estimate I put in about 50 hours building this project.

Game Screenshots

CONTROLS		P1	P2
(q) quit game	Ones (1)		
(s) start game	Twos (2)		
	Threes (3)		
	Fours (4)		
	Fives (5)		
	Sixes (6)		
	Sum		
	Bonus		
	Three of a kind (7)		
	Four of a kind (8)		
	Full House (9)		
+++++	Small straight (10)		
+ D1 + D2 + D3 + D4 + D5 +	Large straight (11)		
+++++	Chance (12)		
+ + + + +	YAHTZEE (13)		
+++++			
	TOTAL SCORE		
:: █			

Figure 1. Main screen of the game.

The following screenshots show a single turn of Player 1.

CONTROLS		P1	P2
(q) quit game	Ones (1) Twos (2) Threes (3) Fours (4) Fives (5) Sixes (6)		
	Sum Bonus		
	Three of a kind (7) Four of a kind (8) Full House (9) Small straight (10) Large straight (11) Chance (12) YAHTZEE (13)		
+++++ + D1 + D2 + D3 + D4 + D5 + +++++ + 2 + 5 + 4 + 2 + 6 + +++++	TOTAL SCORE		
[[ (Round 1) (Player 1) (Roll 1) ]]			
Re-roll (y/n)? : y			
How many dice/die to roll? : 2			
Which die to re-roll? : 2			
Which die to re-roll? : 3			

Figure 2. Player 1 re-roll the dice and selected dice' D2 and D3 to re-roll.

CONTROLS		P1	P2
(q) quit game	Ones (1)		
	Twos (2)		
	Threes (3)		
	Fours (4)		
	Fives (5)		
	Sixes (6)		
	Sum		
	Bonus		
	Three of a kind (7)		
	Four of a kind (8)		
	Full House (9)		
+++++	Small straight (10)		
+ D1 + D2 + D3 + D4 + D5 +	Large straight (11)		
+++++	Chance (12)		
+ 2 + 2 + 5 + 2 + 6 +	YAHTZEE (13)		
+++++			
	TOTAL SCORE		
[[ (Round 1) (Player 1) (Roll 2) ]]			
Re-roll (y/n)? : <input type="checkbox"/>			

Figure 3. Result of the 2<sup>nd</sup> roll. It then asks the Player if he/she still wants to re-roll.

CONTROLS		P1	P2
(q) quit game	Ones (1)		
	Twos (2)		
	Threes (3)		
	Fours (4)		
	Fives (5)		
	Sixes (6)		
	Sum		
	Bonus		
	Three of a kind (7)		
	Four of a kind (8)		
	Full House (9)		
+++++	Small straight (10)		
+ D1 + D2 + D3 + D4 + D5 +	Large straight (11)		
+++++	Chance (12)		
+ 2 + 2 + 5 + 2 + 6 +	YAHTZEE (13)		
+++++			
	TOTAL SCORE		
[[ (Round 1) (Player 1) (Roll 2) ]]			
Re-roll (y/n)? : n			
Which score card row to score? (1-13) : 2			

Figure 4. Player 1 didn't re-roll and selected the Twos (2) scoring combination to score.



## References:

Here I have included some books and sites that helped me really bring this project together:

~Textbook: Starting out with C++ (Gaddis)

~<https://cardgames.io/yahtzee/>