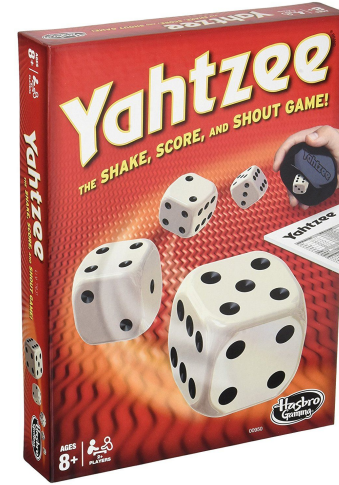


Yahtzee!!!



By:
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Project Overview

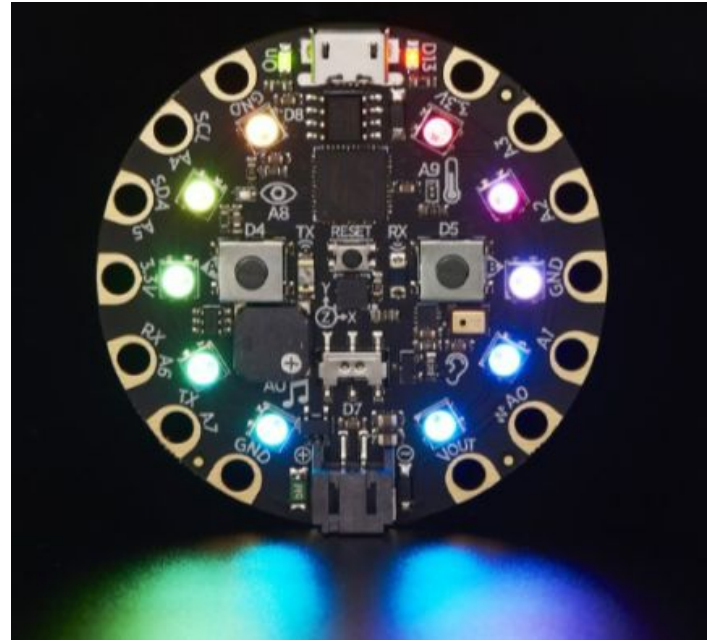
- ❑ Use Arduino CPX board
- ❑ Yahtzee Game
 - ❑ Enforces and provides game rules
 - ❑ Does all calculations
 - ❑ Easily understandable directions for players
- ❑ Two players
- ❑ We chose to create Yahtzee since it is an older game not many people own that requires little explanation to begin play

Strategy

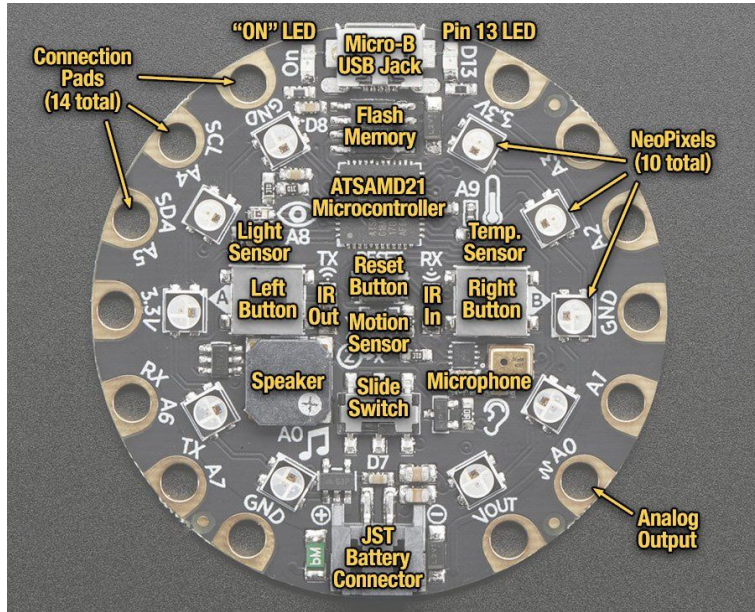
Initial research was done on similar projects.

We then divided our work into sections:

- ❑ Game Setup
- ❑ User Interface
- ❑ Rolling and Scoring Functions
- ❑ Dice Roll Combinations
- ❑ Determining a Winner
- ❑ Interfacing with Hardware



Challenges









- ❑ Limited in- and outputs
 - ❑ 16 buttons
 - ❑ Lights and chiptune
- ❑ User clarity
 - ❑ Lots of information
- ❑ Synchronized coding among the group
 - ❑ Each member has individual ideas

Solution

- ❑ Use CPX and laptop
- ❑ Programmed for two players
- ❑ Tracks scorecards
- ❑ Embedded rules
- ❑ Functions keep track of dice rolls/combinations

Yahtzee

Name _____

| UPPER SECTION | HOW TO SCORE | GAME #1 | GAME #2 | GAME #3 | GAME #4 | GAME #5 | GAME #6 |
|--|---------------------------|---------|---------|---------|---------|---------|---------|
| Aces  = 1 | Count and Add Only Aces | | | | | | |
| Twos  = 2 | Count and Add Only Twos | | | | | | |
| Threes  = 3 | Count and Add Only Threes | | | | | | |
| Fours  = 4 | Count and Add Only Fours | | | | | | |
| Fives  = 5 | Count and Add Only Fives | | | | | | |
| Sixes  = 6 | Count and Add Only Sixes | | | | | | |
| TOTAL SCORE | → | | | | | | |
| BONUS If total score is 63 or over | SCORE 35 | | | | | | |
| TOTAL Of Upper Section | → | | | | | | |
| LOWER SECTION | | | | | | | |
| 3 of a kind | Add Total Of All Dice | | | | | | |
| 4 of a kind | Add Total Of All Dice | | | | | | |
| Full House | SCORE 25 | | | | | | |
| Sm. Straight Sequence of 4 | SCORE 30 | | | | | | |
| Lg. Straight Sequence of 5 | SCORE 40 | | | | | | |
| YAHTZEE 5 of a kind | SCORE 50 | | | | | | |
| Chance | Score Total Of All 5 Dice | | | | | | |
| YAHTZEE BONUS | 1 FOR EACH BONUS | | | | | | |
| | SCORE 100 PER 1 | | | | | | |
| TOTAL Of Lower Section | → | | | | | | |
| TOTAL Of Upper Section | → | | | | | | |
| GRAND TOTAL | → | | | | | | |

Code Snippet of Rules

```
9      int yahtzee_menu (void)
10  {
11      int option = 0, play_game = 0;
12
13      printf("Welcome to Yahtzee!\n\n");
14
15      do
16      {
17          do
18          {
19              printf("Select an option by inputting the number:\n1. See rules\n2. New Game\n3. Exit\n");
20              scanf("%d", &option);
21          }
22          while ((option != 1) && (option != 2) && (option != 3));
23
24          switch (option)
25          {
26              case 1: //print game rules
27                  system("cls");
28
29                  printf("\nGame rules:\n");
30                  printf("The objective of YAHITZEE is to get as many points as possible by rolling\n");
31                  printf("five dice and getting certain combinations of dice.\n\n");
32                  printf("Gameplay:\n");
33                  printf("In each turn a player may roll the dice up to three times. A player doesn't have to roll all\n");
34                  printf("five dice on the second and third throw of a round, they may put as many dice as they want to the\n");
35                  printf("side and only throw the ones that don't have the numbers they are trying to get. For example, a player\n");
36                  printf("throws and gets 1,3,3,4,6. They decide they want to try for the large straight, 1,2,3,4,5. So, they put\n");
37                  printf("1,3,4 to the side and only throw dice 3 and 6 again, hoping to get 2 and 5. In this game you select\n");
38                  printf("the dice you want to keep. They will be moved down and will not be thrown the next time you roll.\n");
39                  printf("If you decide after the second throw in a turn that you don't want to keep the same dice\n");
40                  printf("before the third throw then you can select them again and they will be thrown in the third throw.\n");
41
42                  break;
43              case 2:
```

Code Snippet for Dice Combo

```
7  int chance(int die[5], int c_combo[13], int points[13])
8  {
9      int result = 0;
10     int sum = 0;
11
12     if(c_combo[12] == 0)
13     {
14
15         c_combo[12] = 1;
16         result = 1;
17
18         sum = die[0] + die[1] + die[2] + die[3] + die[4];
19
20         points[12] = sum;
21
22     }
23
24     return result;
25 }
```

Friday 12/3/21 Status

- ❏ Project Proposal - Completed
- ❏ Pseudo-code - Completed
- ❏ Coding - Work in Progress
- ❏ Hardware- Work in Progress
- ❏ Final Presentation- Completed

Demonstration Time!

[361FinalProject/yahtzee at main · cagroff/361FinalProject \(github.com\)](#)

Any Questions?



References

Images:

Hart, M. J. (2021, August 29). *Printable yahtzee scorecards*. Yahtzee Score Sheets Printable. Retrieved December 3, 2021, from <https://printableyathzee.com/printable-yahtzee-scorecards/>.

Hasbro Yahtzee Dice Game. Yahtzee Dice Game - SCHOOL SPECIALTY MARKETPLACE. (n.d.). Retrieved December 1, 2021, from https://store.schoolspecialty.com/OA_HTML/ibeCCtpltmDspRte.jsp?minisite=10206&item=477565.

Mortensen, E. (2019, May 23). *Showdown yahtzee AKA challenge yahtzee dice game review and rules*. Geeky Hobbies. Retrieved December 3, 2021, from <https://www.geekyhobbies.com/showdown-yahtzee-aka-challenge-yahtzee-dice-game-review-and-rules/>.