

# Project 1

## *Blackjack*

Christian Villanueva  
CSC 17A - 49213  
25 October 2020

## **Introduction:**

I have created a program that runs a simple version of the card game Blackjack from scratch. This version of Blackjack is the card aspect only. I have not yet implemented a chip system for betting, nor have I included the ability to split when a pair is drawn. These will come in the next iteration of the program. Blackjack is my favorite card game, and it seemed fitting to make, given the requirements for the project, and my prerequisite knowledge of the game's rules. The entire program was created from the ground up, and no reference code was used throughout the entirety of the project.

The player is dealt two cards and one of the dealer cards is shown. The player is then given the choice to "hit" or "stay". If the player chooses to hit, then the player is given another card. If the player's card total (each card is given a number value, and is added up to find the total) hits or exceeds 21, they automatically stay. The dealer then reveals their second card. After the dealer reveals their second card, if their total is less than or equal to sixteen, they draw until their total exceeds sixteen. The card total of the dealer and the player are compared, and whichever total is closer to 21 wins, given that the total does not exceed 21 (if the player or dealer exceeds a total of 21, they lose the game). If the difference from 21 is the same or if both the dealer and player exceed 21 or "bust" then the game results in a draw. If the player chooses to stay, then their total remains, and the dealer continues the same as previously described.

## **Summary:**

Total Lines: 468

Blank Lines/Comments Only: 68

Lines of Code/Code With Comments: 373

Header File Lines: 27

Number of Structures: 2

Number of Variables: 28

The project took me the two weeks to complete. Roughly 30 hours were put into the project as a whole including the documentation. The most challenging aspect of the project was implementing all of the required concepts into the program. The game alone form was roughly 330 lines of code before revision to include the concepts. The most difficult concept to add was binary file operation. This took up the last 5 days of the project along with other minor improvements to the code for enhanced readability, and reduction of the main function size.

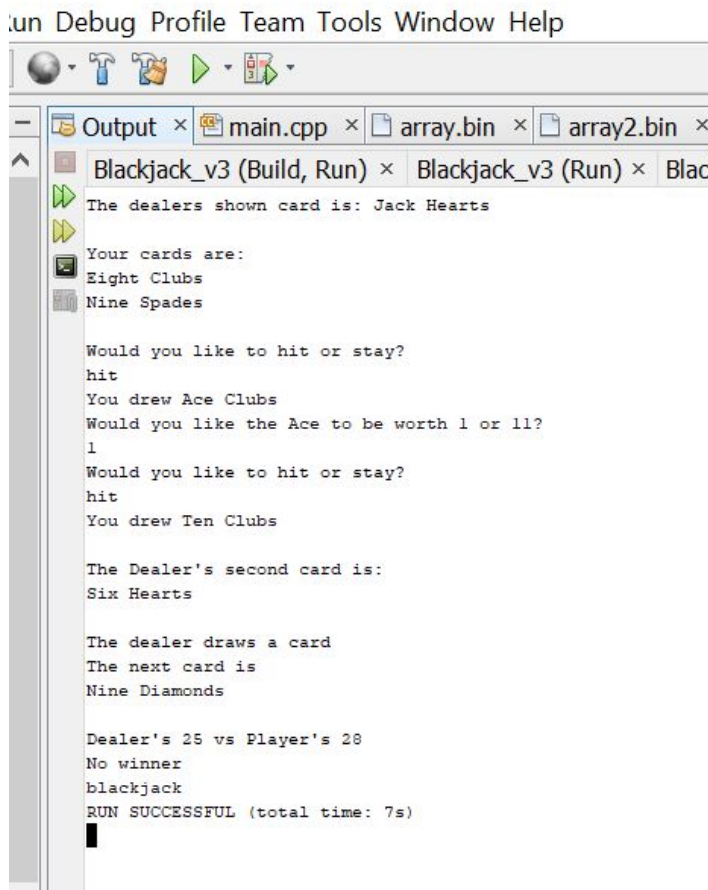
## Description:

The game initially started as just a program that drew cards and output them.

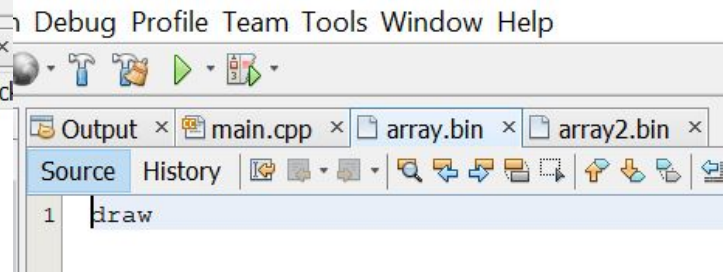
The card values and the ability to total them were then added, as well as the conditions for winning the game. Next came checks to ensure that repeat cards did not show up.

After this came the rest of the concepts from the class up until this point such as pointers and binary files.

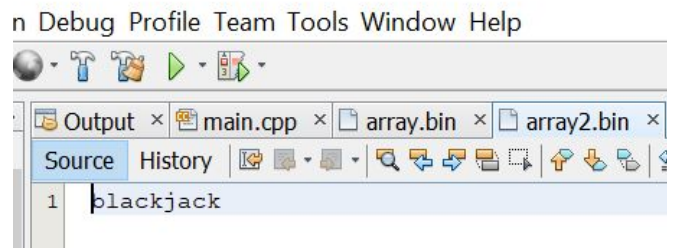
## Sample output:



```
Run Debug Profile Team Tools Window Help
Output x main.cpp x array.bin x array2.bin x
Blackjack_v3 (Build, Run) x Blackjack_v3 (Run) x Black
The dealers shown card is: Jack Hearts
Your cards are:
Eight Clubs
Nine Spades
Would you like to hit or stay?
hit
You drew Ace Clubs
Would you like the Ace to be worth 1 or 11?
1
Would you like to hit or stay?
hit
You drew Ten Clubs
The Dealer's second card is:
Six Hearts
The dealer draws a card
The next card is
Nine Diamonds
Dealer's 25 vs Player's 28
No winner
blackjack
RUN SUCCESSFUL (total time: 7s)
```



```
Run Debug Profile Team Tools Window Help
Output x main.cpp x array.bin x array2.bin x
Source History
1 draw
```

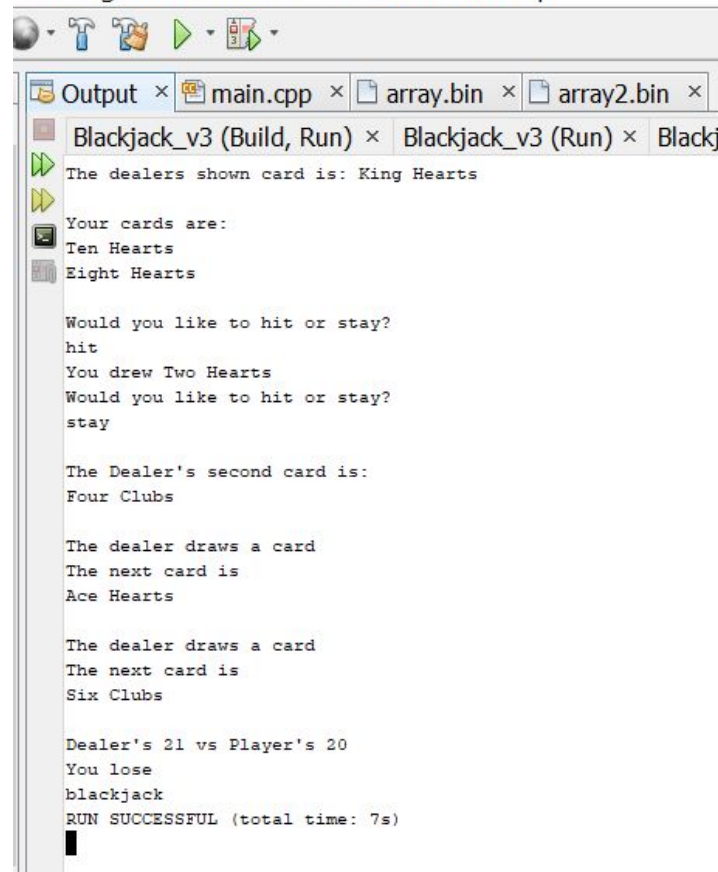


```
Run Debug Profile Team Tools Window Help
Output x main.cpp x array.bin x array2.bin x
Source History
1 blackjack
```

## Player Input:

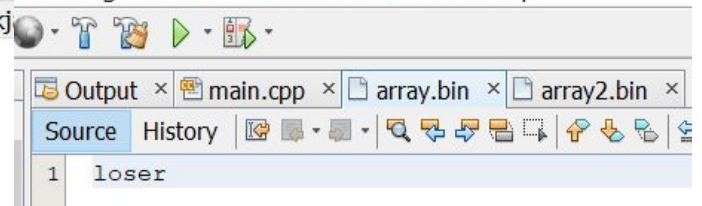
“hit”, “1”, “hit”,

Debug Profile Team Tools Window Help



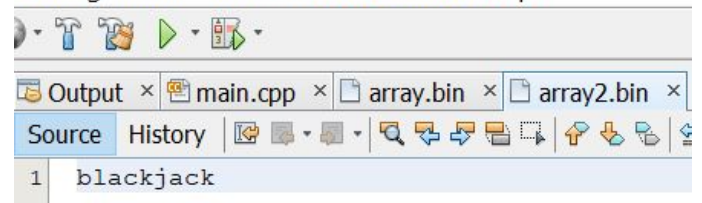
```
Output x main.cpp x array.bin x array2.bin x
Blackjack_v3 (Build, Run) x Blackjack_v3 (Run) x Blackj...
The dealers shown card is: King Hearts
Your cards are:
Ten Hearts
Eight Hearts
Would you like to hit or stay?
hit
You drew Two Hearts
Would you like to hit or stay?
stay
The Dealer's second card is:
Four Clubs
The dealer draws a card
The next card is
Ace Hearts
The dealer draws a card
The next card is
Six Clubs
Dealer's 21 vs Player's 20
You lose
blackjack
RUN SUCCESSFUL (total time: 7s)
```

Debug Profile Team Tools Window Help



```
Source History
1 loser
```

Debug Profile Team Tools Window Help



```
Source History
1 blackjack
```

Player Input:

“hit”, “stay”