SOFT 10101: Computer Science Programming

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Programming Project in C++

Blackjack Game of 31

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Project Report

1.1 Specification

My project is a Greek Version card game Blackjack 31.

The works as follow:

The blackjack “31” game it is play with 52 cards and 2 to 6 players (Dealer and Players). The goal of each player is to get as close to 31 (“blackjack”) without going over, which is called “busting.” Winner is the player with the higher number in total closest or equal to 31. If a player and dealer have the same value of cards the game is draw. If the players sum is less than the dealer, he loses.

The cards 1 through 10 count as their face value. King, Queen or Jack a count as 10 points.

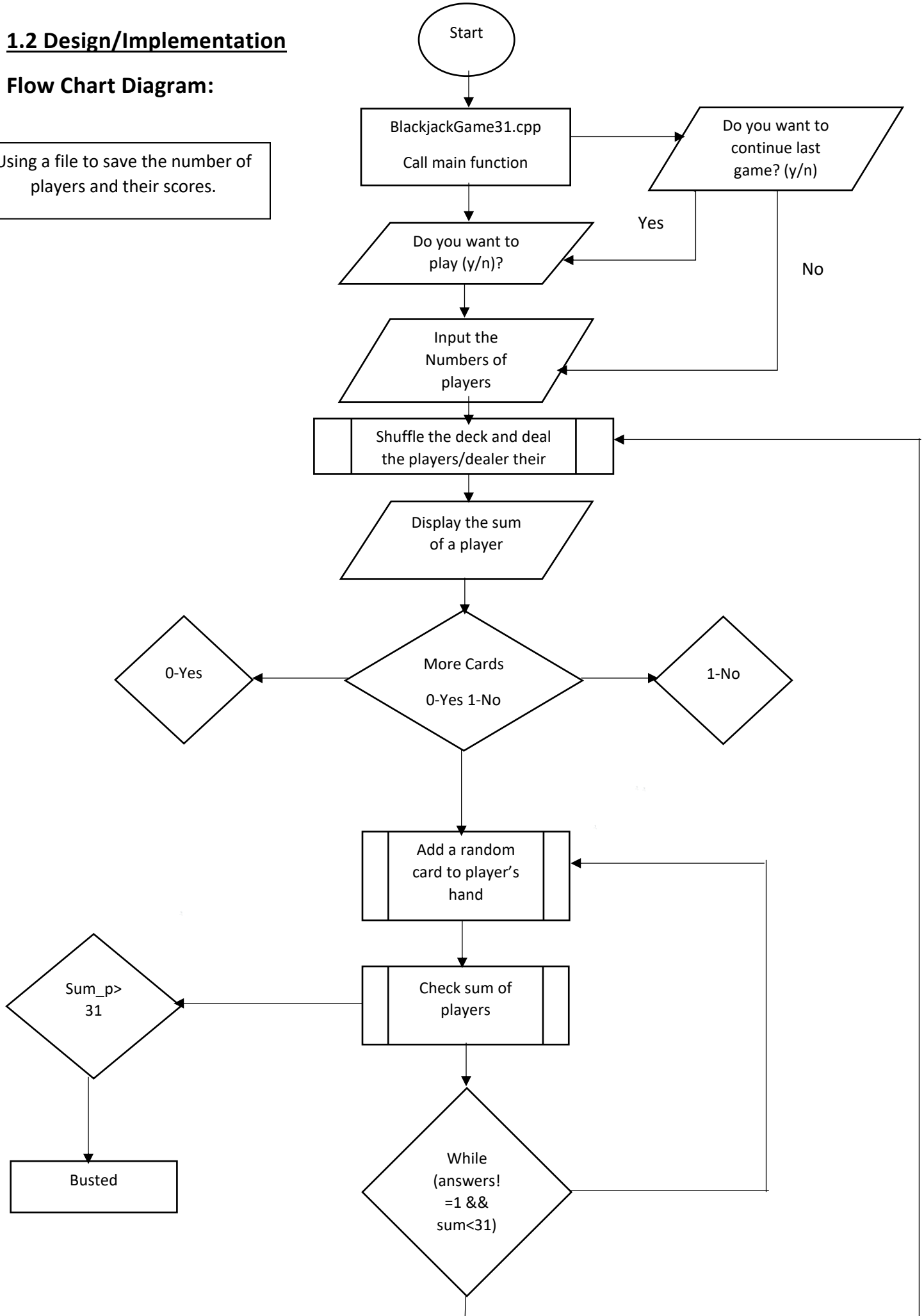
At the beginning of every game the deck is shuffled, and all players (including the dealer) are dealt 2 cards.

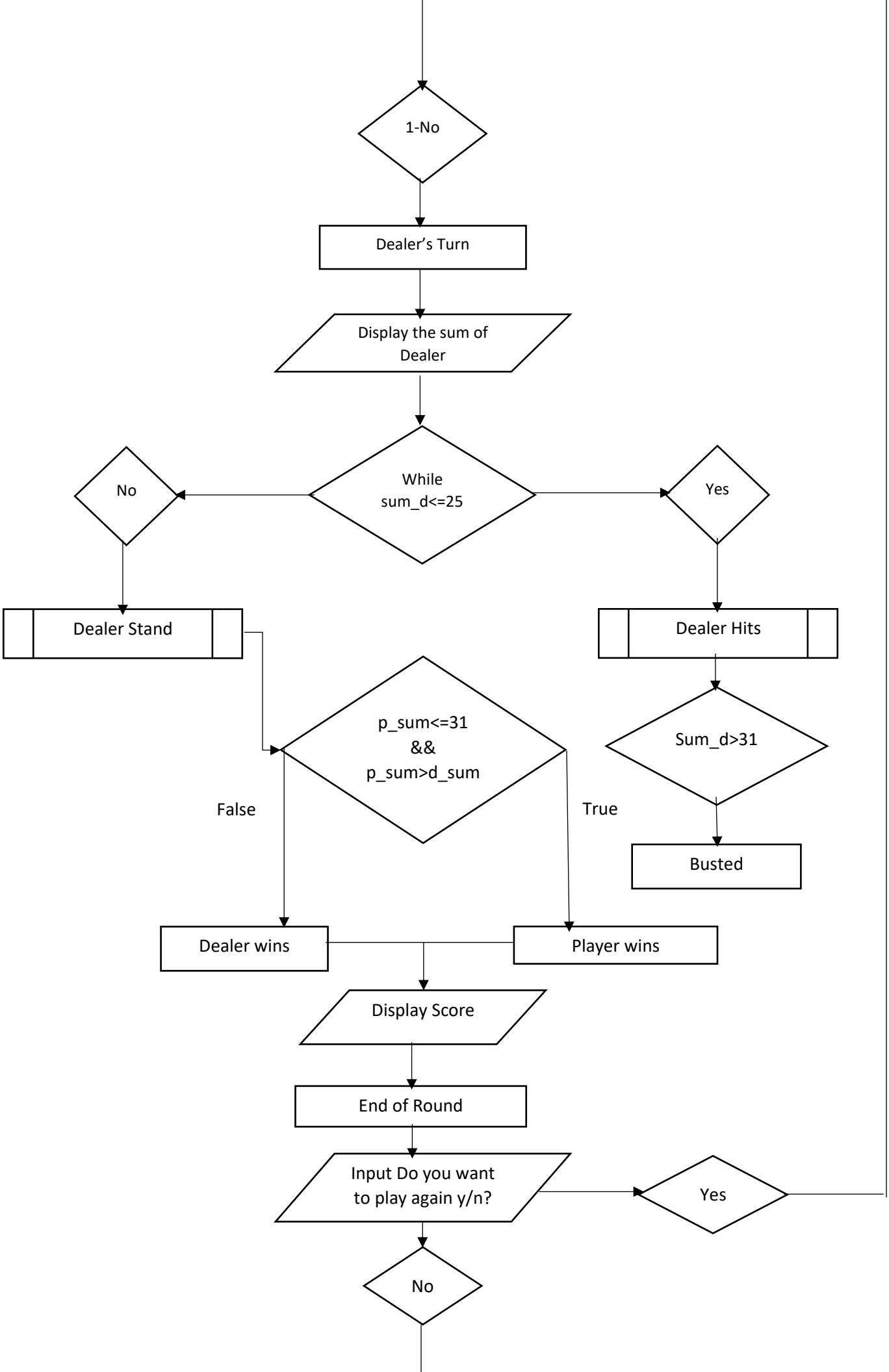
Next each player takes the option one or more additional cards at a time for as long as he/she likes. If a player’s sum exceeds 31 the player is busted(loses). This continues until all players are completed. The dealers must collect cards until the sum of the cards is less than 25.

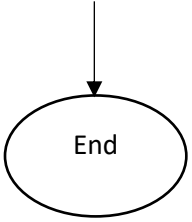
1.2 Design/Implementation

Flow Chart Diagram:

Using a file to save the number of players and their scores.

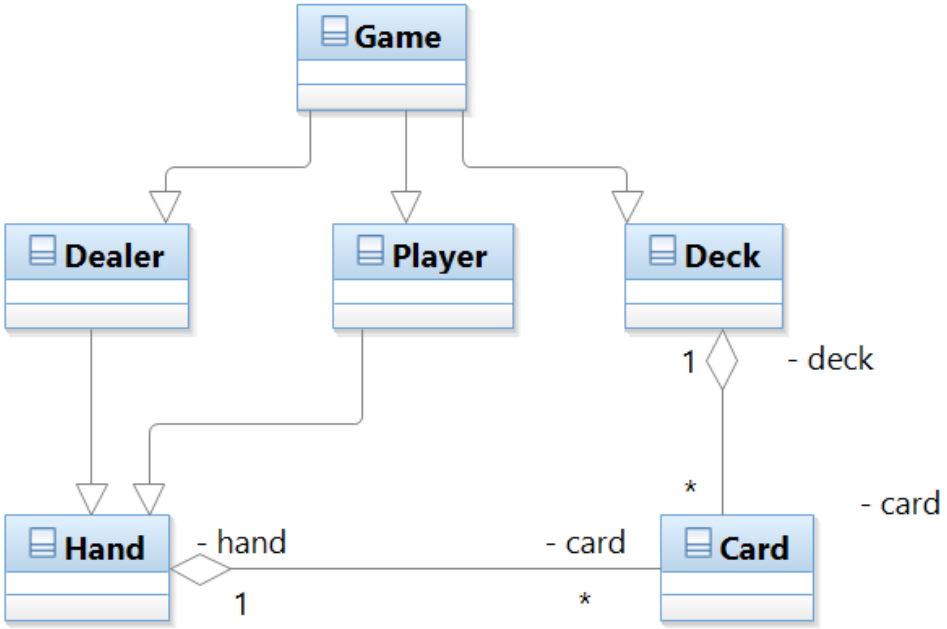



1-No
Dealer's Turn
Display the sum of Dealer
While sum_d<=25
No
Yes
Dealer Stand
Dealer Hits
p_sum<=31 && p_sum>d_sum
Sum_d>31
False
True
Busted
Dealer wins
Player wins
Display Score
End of Round
Input Do you want to play again y/n?
Yes
No



Class Description and UML Diagram:

Classes	Base Class	Description
Game	None	A Blackjack Game 31
Deck	Hand	A Blackjack Deck. Functionality, shuffling and dealing
Dealer	Player	A Dealer Player.
Player	Player	A Blackjack player
Card	None	A Blackjack gaming card
Hand	None	A Blackjack hand, Number of Blackjack cards



1.3 Demo Testing

The outcome below it demonstrates and confirms that the software I designed it performs according to the specifications of my report.

```
C:\Users\ADMIN\Desktop\programming c++\BlackJackGame31\Debug\BlackJackGame31.exe
|A D| |2 D| |3 D| |4 D| |5 D| |6 D| |7 D| |8 D| |9 D| |10 D| |J D| |Q D| |K D|
|A H| |2 H| |3 H| |4 H| |5 H| |6 H| |7 H| |8 H| |9 H| |10 H| |J H| |Q H| |K H|
|A C| |2 C| |3 C| |4 C| |5 C| |6 C| |7 C| |8 C| |9 C| |10 C| |J C| |Q C| |K C|
|A S| |2 S| |3 S| |4 S| |5 S| |6 S| |7 S| |8 S| |9 S| |10 S| |J S| |Q S| |K S|

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| A card game of 31 |
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Would you like to continue last game? (0-Yes1-No): 1
Number of players? 2


Do you want to play (y/n)? y

Shufled Deck:
|2 C| |Q C| |9 C| |7 H| |6 D| |8 S| |2 H| |4 S| |K C| |J C| |7 C| |5 C| |8 C|
|8 H| |7 D| |9 H| |4 H| |K S| |9 S| |10 S| |2 S| |J S| |3 H| |Q H| |6 S| |3 D|
|K D| |7 S| |9 D| |8 D| |J H| |10 C| |6 H| |5 D| |Q S| |3 C| |4 C| |2 D| |A S|
|A H| |J D| |3 S| |6 C| |K H| |5 H| |10 H| |5 S| |A C| |A D| |Q D| |4 D| |10 D|


--------> Player 1' s turn <---------
Player Hand:
|2 C|
|Q C|

-->Card Values: 12

Do you want more cards (0-yes 1-no)0
Player Hand:
|2 C|
|Q C|
|6 D|
-->Card Values: 18
Do you want more cards (0-yes 1-no)0
Player Hand:
|2 C|
|Q C|
|6 D|
|8 S|
-->Card Values: 26
Do you want more cards (0-yes 1-no)0
Player Hand:
|2 C|
|Q C|
|6 D|
|8 S|
|2 H|
-->Card Values: 28
Do you want more cards (0-yes 1-no)0
Player Hand:
|2 C|
|Q C|
|6 D|
|8 S|
|2 H|
|4 S|
-->Card Values: 32
* Player Busted with sum 32!!
```

```
--------->  Player 2' s turn  <---------
Player Hand:
|9 C|
|7 H|

-->Card Values: 16

Do you want more cards (0-yes 1-no)0
Player Hand:
|9 C|
|7 H|
|K C|
-->Card Values: 26
Do you want more cards (0-yes 1-no)1

--------> Dealer' s turn <--------
Dealer Hand:

|6 D|
|8 S|

--> Card Values: 14


Dealer Hand:
|6 D|
|8 S|
|J C|

--> Card Values: 24


Dealer Hand:
|6 D|
|8 S|
|J C|
|7 C|

--> Card Values: 31

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-     Result      -
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Player  1 | Player  2 |
    0     |     0     |


---->End of Round <----




Do you want to play (y/n)?
```

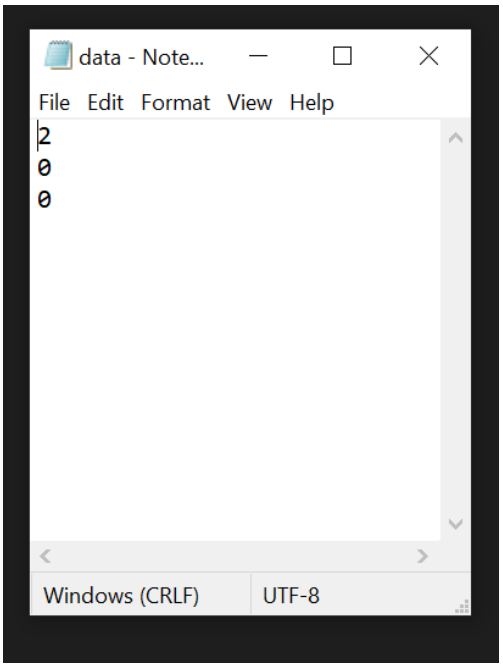

1.4 Functional Testing

After the program runs BlackJackGame31.cpp you can choose if you want to play or not, and how many players to participate.

If choose not to play the program ends.

If choose to play, then the deck is shuffle and give each player the 2 cards. Then is the player 1 turn to play, the program asks the player if he/she wants another card. Every time you pick another card it updates the sum, if you do not want a new card, you just stay in the same sum. Then the game continues with the rest of the players until dealer's turn come that is the last player. Dealer's getting cards if his/her score is less than 26.

The result is shown in the screen and save with the all the players in a text file.

In the end you can choose if you want to play again or to end the program.