Project 2

<Blackjack>

CSC-17A-48668
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Date: December 12, 2021

Introduction

Game: Blackjack

Blackjack is a card game where the goal of the game is to get the cards to add up to 21. Players can either stand (don't draw a card) or hit (draw a card) they can hit as many times as the player demands but if their total goes over 21 they bust (lose). The game starts with each player and dealer getting 2 cards but the dealer only reveals one. The player is asked if they want to hit or stand then after all players are done getting their cards the dealer will flip over their second card. If the dealer has a hand whose total is less than 17 then the dealer will draw until their hand is equal to or over 17. Players will compare hands with the dealer and if their hand is over 21 they lose but if it's not they compare who has the biggest hand between them and the dealer.

Summary

Project size: 1000+ lines (final version + comment documentation)

This project is a follow-up of project 1 except uses classes. That is the main purpose of this rework is to include classes and some exception handling but that is it. There won't be much in terms of development considering the logic is all the same except for 1 new feature added this time I made it.

When I was developing this I started to understand OOP more and understand why it's the main focus of all companies and how encapsulation can keep everything clean. I think classes are a huge step forward in my learning of programming because I now need to keep in mind how to keep my classes in a way that makes them more "expandable" and keeps them free-flowing.

Development

This will be shorter than my other development process but considering that all the logic for Blackjack is there, there won't be much development to talk about except the expansion of classes.

Creating_Deck_Class_V1

Started with just making a card class and printing from there.

```
Card card(0);
Card card1(1);
Card card2(2);
Card card3(3);
Card card4(4);
Card card5(5);
Card card6(6);
Card card7(7);
Card card8(8);
Card card9(9);
Card card10(10);
Card card11(11);
Card card12(12);
Card card13(13);
```

Creating_Deck_Class_V2

I automated the card class here and used an array of class object.

```
//Declare Variable Data Types and Constants
Card card[52];
//Initialize Variables
for (int i = 0; i < 52; i++) {
    card[i].iniCard(i);
}
```

Creating_Deck_Class_V3

I created the deck class now.

```
//Declare Variable Data Types and Constants
Deck deck;
int random = rand()%52;
//Initialize Variables

//Process or map Inputs to Outputs
cout << deck.deal(random);
//Display Outputs
```

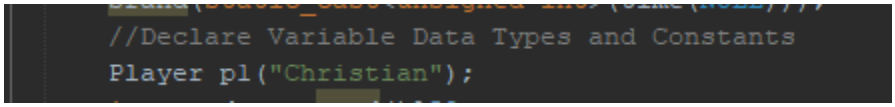
Creating_Deck_Class_V4

Added a dealer deck.

```
//Declare Variable Da
Deck deck,
     dealDek;
```

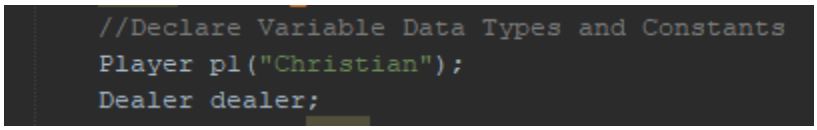
Creating_Player_Class_V1

Created a player along with an abstract player so it will always have an outline



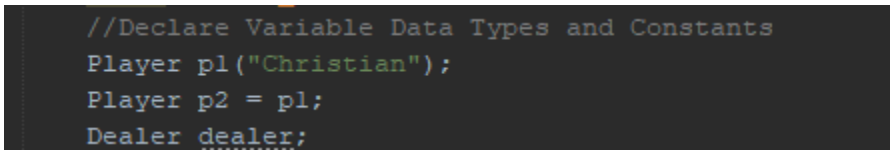
Creating_Player_Class_V2

With the abstract player class I created a dealer class.



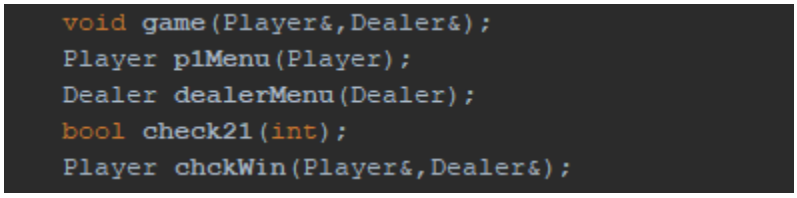
Creating_Player_Class_V3

The final version of the player class and here I added operator overloading to the player class and added a copy constructor to the player class.



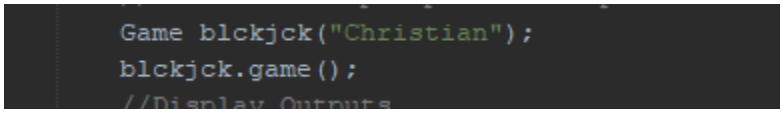
Blackjack_V1

This was simply Blackjack from the last project and its in function form, so no game class yet or menu.



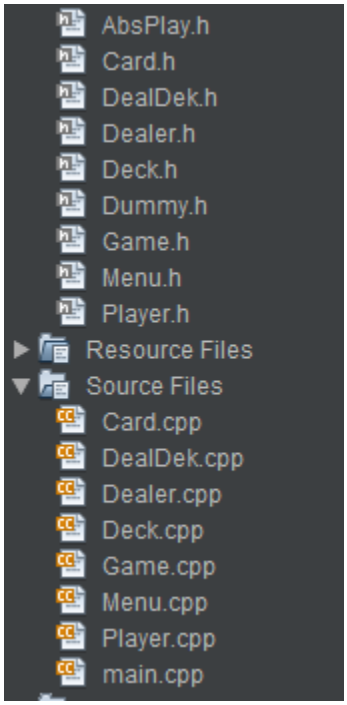
Blackjack_V2

This version of Blackjack simply put everything into a Game object to keep main.cpp cleaner.



Blackjack_V3

This is the final version of Blackjack I implemented and cleaned up all the code in all files. I added a menu object which contains the Game object. I added a little admin mode playground for users to mess around with player dummies. Along with full documentation in code.



Psuedo Code

Initilize deck and deck2
Read and write from binary file for deck2

Display welcome message and send deck 2

If menu equals 2
    Display the rules

If menu equals 3
    Print all the cards from deck 2

If menu equals 4
    Exit program

If menu equals 1

    Begin the game
    Draw 2 cards for player

Draw 2 cards for Dealer
Reveal first card for dealer

If either people have 21
    Announce winner
    end game
else if player wants to hit
    draw another card until done
else
    dealer draws until hand is 17 or more

compare each other's hand
    if player won
        print winner message, add 1 to total wins
    else if player lost
        print loser message, add 1 total losses
    else if push
        print push message, add 1 to draw

ask player if they wish to play again and loop beginning with menu

FlowChart

Please check file “flowchartproject1.drawio.pdf” in the BlackjackProject1.zip to find the flowchart.

Check-off Sheet

Please check file “checkoffsheet.pdf” to find the Check-off sheet.

Github Link