Project 1

<Casino Game>

CIS 5
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February 6, 2023

Introduction

Title: Casino Game

A Casino is a facility that is comprised of many games where people can gamble. Some popular games are Roulette, Number Guessing, Poker, BlackJack, and so on.

In my Casino Game, I incorporated Number Guessing and BlackJack.

In Number Guessing, a Player must place a bidding bet on a random number from 1-10, and if their guess stands correct, they receive a balance ten times of how much they bid. Otherwise, they lose the money they had bid on the number.

In BlackJack, the player will go against the Dealer. Both the player and the dealer start off with a deck of two cards. The player is given the option to “Hit” or “Stay.” If the player decides “Hit” they receive another card. Whereas, if the player decides “Stay”, their turn is over. The goal of the game is to have a deck of cards that add up to strictly 21, no more, no less. Whoever has a deck that adds up to 21, wins.

There is also going to be a free game that the user can play at the end once their Casino Balance reaches $0. This game is going to be the 2048 board game which is going to utilize arrays and functions.

Summary:

Project size: 400+ lines
Number of Variables: 16

This project includes many concepts that I have learned in Dr. Lehr's CIS 5 course, as well as the class textbook.

For example, I programmed two games in a Casino, where I utilized the switch case function to allow the User to play whichever game they would like.

This took around 4 and a half days. Though, my project is not complete, it still utilizes class concepts and is fun to play.

I faced challenges such as sticking to one algorithm and implementing features that go beyond a Game Project. For example, in my Project, I attempted to implement the User's Casino Balance for them to keep track of their money. If they are to run out of money, in Project 2, I am planning to incorporate a free game that the User can play.

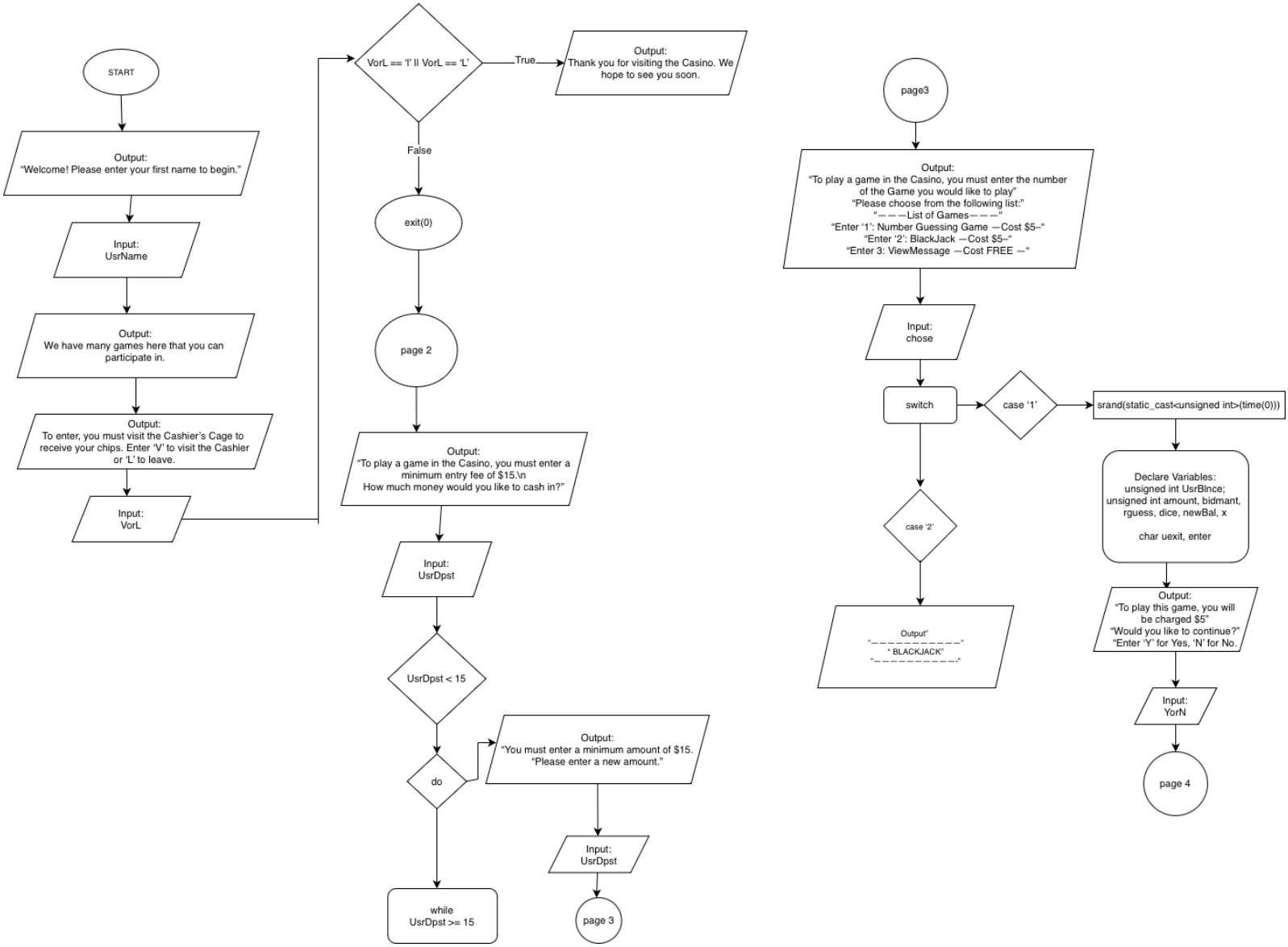
I also struggled with utilizing the <fstream> library.

Description

The objective of this program is to allow the User to be able to play a Casino Game of their choice, at the same time, keeping their balance.

FlowChart

Flowchart


START
Output:
“Welcome! Please enter your first name to begin.”
Input:
UsrName
Output:
We have many games here that you can participate in.
Output:
To enter, you must visit the Cashier’s Cage to receive your chips. Enter ‘V’ to visit the Cashier or ‘L’ to leave.
Input:
VorL
VorL == ‘I’ II VorL == ‘L’
True
Output:
Thank you for visiting the Casino. We hope to see you soon.
False
exit(0)
page 2
Output:
“To play a game in the Casino, you must enter a minimum entry fee of $15.\n
How much money would you like to cash in?”
Input:
UsrDpst
UsrDpst < 15
do
Output:
“You must enter a minimum amount of $15.
“Please enter a new amount.”
Input:
UsrDpst
page 3
while
UsrDpst >= 15
page3
Output:
“To play a game in the Casino, you must enter the number of the Game you would like to play”
“Please choose from the following list:”
“———List of Games———“
“Enter ‘1’: Number Guessing Game —Cost $5–“
“Enter ‘2’: BlackJack —Cost $5–“
“Enter 3: ViewMessage —Cost FREE —“
Input:
chose
switch
case ‘1’
srand(static_cast<unsigned int>(time(0)))
Declare Variables:
unsigned int UsrBInce;
unsigned int amount, bidmant, rguess, dice, newBal, x
char uexit, enter
Output:
“To play this game, you will be charged $5”
“Would you like to continue?”
“Enter ‘Y’ for Yes, ‘N’ for No.
Input:
YorN
page 4
case ‘2’
Output“
“_ _ _ _ _ _ _ _ _ _ _ _ _ _ _“
“ BLACKJACK“
“_ _ _ _ _ _ _ _ _ _ _ _ _ _ _“

Pseudo Code

Initialize

The enter the Casino, the User must place a deposit

If the User's Deposit is > 15
They are allowed in the Casino

Else
They are required to enter a minimum entry fee of $15

If User wants to play a game in the Casino
They will be given an option to choose which game

If the User picks game 'n' they are allowed in and are able to play the game

If the User does not have a minimum of $5
They are required to leave

Else
They must enter a Deposit greater than or equal to $5

If the Deposit is valid
The User is allowed to play any game of their choice

Major Variables

Type	Variable Name	Description	Location
string	UsrName	Allow the User to enter their name	Line 30
string	Message	Message to User, using fstream	Line 36
fstream	in, out	Input/Ouput File	Line 31
float	UsrDpst	The min deposit User has to make to enter Casino	Line 32
char	VorL	Visit or Leave	Line 33
char	YorN	Yes or No	Line 33
unsigned int	UsrBlnc	User Balance Through Each Game	Line 35
int	plyrsum=0	Player sum	Line 330
int	dealrsm=0	Dealer sum	Line 330
int	card	Card	Line 331
bool	pturn=true	Player Turn	Line 333
bool	dturn=false	Dealer Turn	Line 333
bool	pbust=false	Player Bust	Line 334
bool	dbust=false	Dealer Bust	Line 334
char	HorS	Hit or Stay	Line 336
char	again	If the Player wants to play Again	Line 336

Reference

1. Dr Lehr’s Lectures
2. Class Textbook
3. Google — Learn algorithm of each game

Sample Pictures of Output

Welcome Screen

```
Welcome! Please enter your first name to begin.
Mehak

                        Hi, Mehak!
                       Welcome to the

   CCCCC      A        SSSSSSSS    IIIIIIII   N     N     OOOOOO

  CC          A  A     SS             II      N N   N    O      O

 CC          A    A    SSSSSSSS       II      N  N  N    O      O

  CC        AAAAAAAA          S       II      N   N N    O      O

   CCCCC  A        A   SSSSSSSS    IIIIIIII   N     N     OOOOOO
```

Options to Pick Desired Casino Game

```
To play a game in the Casino, you must enter the number of the Game
you would like to play.
Please choose from the following list:

------List of Games-------

Enter '1': Number Guessing Game -- Cost $ 5 --
Enter '2': BlackJack            -- Cost $ 5 --
Enter '3': ViewMessage          -- Cost FREE --
1

To play this game, you will be charged $ 5.

Would you like to continue?
Enter 'Y' for Yes, 'N' for No.
y

----------------------------------------
    Your new Casino Balance is $ 95
----------------------------------------
```

Switch Case '2': BlackJack

```
Your card value is: 11

Your total is: 14

Do you want to hit or stay? (h/s)
h


Your card value is: 8

Your total is: 22
Sorry, you busted!
Better luck next time!
RUN FINISHED; exit value 0; real time
```

Program

```
/*
 * File:   main.cpp
 * Author: Mehak Lohchan
 * Created on February 2nd, 2023, 3:36 PM
 * Purpose: Project 1: Casino Game
 *           VERSION 5
 */

// System Libraries
#include <iostream>  // Input Output Library
#include <iomanip>   //Format Library
#include <cstring>   //String Object
#include <cstdlib>   //Random number generator
#include <ctime>
#include <fstream>

using namespace std;

//User Libraries

//Global Constants not Variables
//Science, Math, Conversions, Dimensions

//Function Prototypes

//Execution begins here at main
int main(int argc, char** argv) {

    //Declare Variables
    string UsrName;            //Allow User to enter their name
    fstream in, out;           //Input/Output File
    float UsrDpst;             //The min deposit User has to
make to enter Casino
    char VorL, YorN;           //Visit or Leave   /   Yes or Nof
    char chose;
    unsigned int UsrBlnc;     //User Balance Through Each Game
    string Message;            //Message to User (file)

    //Initialize Variables

    //Ask User to input their Player (first) Name
    cout<<"Welcome! Please enter your first name to begin.\n";
    cin>>UsrName;
```

```
    //Introduce Player to Casino and Rules
    cout<<"\n                              Hi, "<<UsrName<<
            "! \n                            Welcome to the\n";

    cout<<"\n    CCCCC      A        SSSSSSSS    IIIIIIII   N
N     OOOOOO   ";
    cout<<"\n  CC          A  A      SS             II      N N
N    O      O  ";
    cout<<"\n CC          A    A     SSSSSSSS       II      N  N
N    O      O  ";
    cout<<"\n  CC        AAAAAAAA           S       II      N
N N    O      O  ";
    cout<<"\n    CCCCC  A        A   SSSSSSSS    IIIIIIII   N
N     OOOOOO   \n";

    cout<<"\n\nWe have many games here that you can participate
in.";

    //Allow User to make a deposit
    cout<<"\nTo enter, you must visit the Cashier's Cage to
receive your chips.\n"<<
            "\nEnter 'V' to visit the Cashier or 'L' to leave.
\n";
    cin>>VorL;

    //If User wants to leave the Casino, Display goodbye message
and exit
    if (VorL == 'l' || VorL == 'L'){
        cout<<"Thank you for visiting the Casino. We hope to see
you soon!";
        exit(0);
    }

    //Allow User to Pick which Game they want to play

    cout<<"\nTo play a game in the Casino, you must enter a
minimum "
            "entry fee of $15.\n";
    cout<<"\nHow much money would you like to cash in?\n";
    cin>>UsrDpst;


    //While User Deposit is < $15, allow User to re-enter amount
until min/higher than 15
    if (UsrDpst < 15){
```

```
        do {
            cout<<"\nYou must enter a minimum amount of
$15."<<endl;
            cout<<"\nPlease enter a new amount.\n";
            cin>>UsrDpst;
            }
        while (UsrDpst < 15);
    }

    //User must enter a minimum entry fee amount of $15
    if (UsrDpst >= 15){

        //If the User's Deposit is >= $15, they may enter the
Casino
        cout<<"\nGreat! You may now enter the Casino.\n\n";

        cout<<"\nTo play a game in the Casino, you must enter
the "
                "number of the Game \nyou would like to
play."<<endl;
        cout<<"Please choose from the following list:"<<endl;
        cout<<"\n------List of Games-------\n";
        cout<<"\nEnter '1': Number Guessing Game -- Cost $ 5 --
"<<endl;
        cout<<"Enter '2': BlackJack            -- Cost $ 5 --
"<<endl;
        cout<<"Enter '3': ViewMessage          -- Cost FREE --
"<<endl;
        cin>>chose;



    // -- GAME 1 -- //
    switch (chose){
        case '1':{

            /* GAME 1: Number Guessing Game - Cost $5

             Allow User to guess a random number and if this
random number matches the
             winning number, then User wins x money.

             */

            //Set Random Number Seed
```

```
            srand(static_cast<unsigned int>(time(0)));

            unsigned int UsrBlnc;     //User Balance Through
Each Game


            //Declare Variables
            unsigned int amount, bidamnt,    //Amount, Bid
Amount
                         rguess,             //Random Guess
(Utilizing random num seed)
                         dice,
                         newBal,
                           x;               //Var used to
calculate equations

            char uexit,                       //User Exits
                 enter;                       //Allow user to
Enter to Continue Game


            //Initialize Variables
            cout<<"\nTo play this game, you will be charged $
5.\n";
            cout<<"\nWould you like to continue?";
            cout<<"\nEnter 'Y' for Yes, 'N' for No.\n";
            cin>>YorN;


            if (YorN == 'y' || YorN == 'Y'){
                //Note: User must have a Casino Balance of at
least $15
                if (UsrDpst >= 15){

                    //In this case, get the User Deposit

                    //Subtract cost of game from User's Casino
Balance, then output
                    x = UsrDpst - 5;

cout<<"\n----------------------------------------";
                    cout<<"\n    Your new Casino Balance is $
"<<x;

cout<<"\n----------------------------------------\n";
                    }
```

```
            }

            //Map/Process the inputs -> Outputs

            //If User enters N, provide an option to exit
            if (YorN == 'n' || YorN == 'N' ){
                cout<<"Would you like to exit?";
                cout<<"\nEnter 'Y' for Yes, 'N' for No.\n";
                cin>>YorN;

                if (uexit == 'y' || uexit == 'Y'){
                        exit(0);

                }
            }

            if (UsrBlnc > 0){
                //Checks to see if the User wants to Visit the
Casino
                if (VorL == 'v' || VorL == 'V' || UsrDpst >= 15)
{
                    cout<<"\n\nHi, "<<UsrName<<"! Welcome to the
"
                            "Number Guessing Game!";

                    cout<<"\nMy name is John.\n";
                }

                //Checks to see if the User wants to leave the
Casino
                    else if (VorL == 'l' || VorL == 'L'){
                        cout<<"\nWe're sorry to see you go.\n"
                              "Please come again!\n";
                }


            //User must have $5 or more in their Balance to play
this game
            if (UsrDpst > 5){
                //Display rules of Game 1
                cout<<"\n
------------------------------------------------------------
-------------\n";
                cout<<"  The rules of this game are as follows:
\n"
```

```
                        "\n   1. The player must deposit an
initial amount to start playing the game.\n"
                        "\n   2. The player is allowed to guess
a number between [1,10].\n"
                        "\n   3. From there, the player must
enter a betting amount on the number chosen.\n"
                        "\n   4. If the player's bid on the
chosen number is correct,\n"
                             "      the player wins 10 times of
money that they bet.\n"
                        "\n   5. If the player's bid on the
chosen number is incorrect,\n"
                             "      the player will lose all of
their betting amount.\n";
                cout<<"\n
---------------------------------------------------------------
-------------\n";


                //Allow User to enter an Initial and Bid Amount
                do {

                    //If User Balance is < 5, display message of
minimum entry fee
                    if (UsrDpst < 5){
                        cout<<"\nSorry, you must enter a minimum
of $5 to be "
                                "eligible to play this game \n"
                                "or have an Account Balance of
$5.\n";

                        //Allow User to try again
                        cout<<"\nPlease enter the minimum entry
fee.\n";
                        cin>>UsrDpst;

                    if (UsrDpst == 0 || UsrDpst < 5){
                        cout<<"\nSorry, you are not eligible to
play this game.\n";
                    }
                }

                }
                while (UsrDpst < 5);
```

```
            //Map/Process the inputs -> Outputs

                /* If User enters a bid amount > than amount
deposited
                   Have them re-enter amount until valid*/
                do {
                    cout<<"\nPlease enter your Bidding Amount.
\n";
                    cin>>bidamnt;
                    cout<<"\n";

                    /* If User's bidding amount is greater than
what they deposit
                     Display error message*/

                    if (bidamnt > UsrDpst){
                        cout<<"\nSorry, you are not allowed to
bid more than "
                                "your Casino Balance.\n"
                                "\nPlease re-enter amount.\n";
                        cin>>bidamnt;
                    }
                }
                while (bidamnt > UsrDpst);

               //Allow the User to Pick a number [1, 10]
                do {
                    cout<<"Guess a Number Between 1 to 10\n";
                    cin>>rguess;

                    /* If the User's Random Guess if <= 0 or >
10,
                       then display an error message*/
                    if (rguess <= 0 || rguess > 10){
                        cout<<"Oops! The Number should be
Between 1, 10\n"
                                "Please Try Again.\n";
                    }
                }
                //User's Guess has to be <= 0 but less than 10
for it to be valid
                while (rguess <= 0 || rguess > 10);


                //If the dice number IS equal to the User's
random guess..
```

```
                if (dice == rguess){
                    amount = bidamnt * 10;
                    UsrBlnce = x + amount;
                    cout<<"Congratulations! You Won "<<"$
"<<amount;
                }

                //If the dice number IS NOT equal to User's
random guess..
                else if (dice != rguess) {
                    UsrBlnce = x - bidamnt;
                    cout<<"\nSorry, You Lost "<<"$ "<<bidamnt<<
                            "\nBetter Luck Next Time!\n";
                }

                //Display the winning number from dice
                cout<<"\nThe Winning Number Was: "<<dice<<"\n";

                //Calculate new User Balance by adding the
newBal + UserBlnce

                //Output User's New Casino Balance
                cout<<"\n"<<UsrName<<", Your New Casino Balance
is now $"
                        <<UsrBlnc;

                    }
                }
            }


    }

    }

        switch (chose){
            case '2': {

            /* GAME 2: BlackJack - Cost $5
            Allow User to guess a random number and if this
random number matches the
            winning number, then User wins x money.
            */

                //User Introduction
```

```
                cout<<"\n          Hi, "<<UsrName<<"! \n
Welcome To \n";
                    cout<<" ---------------------------------";
                    cout<<"             \n    B  L  A  C  K  J
A  C  K\n";
                    cout<<" ---------------------------------";

                    //Introduce Dealer and Rules
                    cout<<"\n\nMy name is Josh and I will"
                            " be the Dealer today.\n";
                    cout<<"The rules of this game are as
follows:\n";



                //Display rules of Game 2
                cout<<"\n
-----------------------------------------------------------------
-----\n"

                        "\n   1. The Player will go against the
Dealer.\n"
                        "\n   2. You will be giving a randomized
card, as well as the Dealer.\n"
                        "\n   3. From there, you will have the
option to Hit or Stay.\n"
                        "\n   4. If you choose Hit, you will
receive another card,\n"
                             "      or if you choose Stay, you
will end your turn.\n"
                        "\n   5. The goal of this game is to
have a deck of cards that,\n"
                             "      add up to 21.\n"
                        "\n   6. Whoever reaches 21 first, wins.
If you go above 21,\n "
                             "      the Player/Dealer Busts.\n";

                cout<<"\n
-----------------------------------------------------------------
-----\n";


                //Set Random Number Seed
                srand(static_cast<unsigned int>(time(0)));

                //Declare Variables
```

```
                int plyrsum = 0, dealrsm = 0,       //Player
Sum, Dealer Sum
                        card;

                bool pturn = true, dturn = false,
                        pbust = false, dbust = false;

                char HorS, again;                   /*Hit or
Stay,
                                                    If Player
wants to play Again*/


                for (again = true; again == true;) {

                    //Player's Turn
                    while (pturn) {

                        //Randomize card number, then add that
to the Player's Sum
                        card = rand() % 11 + 1;
                        plyrsum += card;

                        cout<<"\n\nYour card value is:
"<<card<<endl;
                        cout<<"\nYour total is:
"<<plyrsum<<endl;

                        //If the Player's Sum is > 21, The
Player Busts
                        if (plyrsum > 21) {
                            pbust = true;
                            cout<<"Sorry, you busted!\nBetter
luck next time!";
                            exit(0);
                        }

                        //Ask Player if they want to Hit or Stay
                        cout<<"\nDo you want to hit or stay? (h/
s)\n";;
                        cin>>HorS;
                        if (HorS == 's') {
                            pturn = false;
                            dturn = true;
                        }
                    }
```

```
                    //Dealer's Turn
                    while (dturn) {

                        //Randomize card number, then add that
to the Dealer's Sum
                        card = rand() % 11 + 1;
                        dealrsm += card;

                        cout<<"\nThe Dealer's card value is:
\n"<<card<<endl;
                        cout<<"\nThe Dealer's total is:
\n"<<dealrsm<<endl;

                        //If the Dealer's Sum is > 21, Dealer
Busts, then exit game
                        if (dealrsm > 21) {
                            dbust = true;
                            cout<<"\nDealer busted!\n"<<endl;
                            exit(0);
                        }

                        //If the Dealer Sum is >= 17, then the
Dealer takes another turn
                        if (dealrsm >= 17) {
                            dturn = false;
                        }
                    }


                    //Determine the Winner

                    //If the Player Busts
                    if (pbust) {
                        cout<<"\nThe Dealer wins!"<<endl;
                    }

                    //If the Dealer Busts, Player Wins
                    else if (dbust) {
                        cout<<"--------------------------";
                        cout<<"     CONGRATULATIONS          ";
                        cout<<"--------------------------";
                        cout<<UsrName<<"You win!"<<endl;
                    }
```

```
                    else {

                        if (plyrsum > dealrsm) {
                            cout<<"You win!"<<endl;
                        }

                        else if (dealrsm > plyrsum) {
                            cout<<"Dealer wins!"<<endl;
                        }

                        else {
                            cout<<"The Dealer and the Player
have\n"
                                    "reached a Tie."<<endl;
                        }
                    }

                    //If the Player wants to play again
                    cout<<"Would you like to play again?
('Y'/'N)\n";
                    cin>>again;

                    if (again == 'n' || again == 'N') {
                        again = false;
                    }
                    else {
                        //Reset the Game for Attempt 'n'
                        plyrsum = 0, dealrsm = 0;
                        pturn = true, dturn = false;
                        pbust = false, dbust = false;
                    }
                }
            }
        }

        switch(chose){
            case '3':{
                cout<<"This is not a game, but a thank you\n"
                        "from the Casino.\n";
                cout<<"Would you like to view the Message the\n"
                        "the Casino has for you?\n";
                cin>>YorN;

                if(YorN == 'y' || YorN == 'Y'){

                    //Input/Output Files
```

```
                    in.open("input.dat", ios::in);
                    in>>Message;
                    out.open("output.dat", ios::out);

out<<setw(3)<<Message<<fixed<<setprecision(2)<<showpoint;
                }
            }
        }




    return 0;

}
```