Project #1

BlackJack!

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**Title: Blackjack!**

Game: The objective is to get as close to or score 21 points without going over. Going over is known as a bust and results in an automatic lost. The player is first dealt 2 cards and the sum of the two cards is the amount of points the player has. The player is then given the option to receive another card which is added up to the 2 initial cards the player received. If the player decides to stay, the house reveals its cards and whoever is closest to 21 wins. If the house and the player score the same points, the game results in a draw. For the player, all face cards have the value of 10, Ace cards have the value of 1 or 11, and any card with a number show its respective value. For the house, according to blackjack rules, if the first two cards have added value less than 16, they have to automatically pull another card and this continues until they go over 16.

**Summary**

Number of lines: ~173-245 depending on if you count comments and brackets as lines of code.

Number of variables: ~17

The hardest part about writing this program was using the do-while loop for the decision of the player to pull another card or stay. For some reason, if the value of the amount of points the player has goes over 21, the program stalls or goes into an infinite loop. I manage to fix this issue in V4 with a while loop instead of a do while loop. Also, I decided to make this program work as if you were playing with multiple cards. I couldn’t figure how to use a single deck of cards without reusing that same exact card.

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|  | **Cross Reference for Project 1** | | | |
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|  |  |  |  |  |
|  |  |  |  |  |
|  | \*\*\*\*\*\* Not required to show |  |  |  |

BlackJack Program

/\*

\* File: main.cpp

\* Author: Joshua Duque

\* Created on 7/20/17

\* Purpose: Blackjack!

\*/

//System Libraries

#include <cstdlib>//Random function srand

#include <iostream>//Standard input/output

#include <ctime>//time for random and program

#include <cstdlib> //srand

#include <string>// string

using namespace std;

//Function Prototypes

void deal(int&, int&, int&);// deal player function

void dealh(int&, int&, int&); //deal house function

//Execution Starts Here

int main(int argc, char\*\* argv) {

//Random Seed and Variable Declaration

srand(static\_cast<unsigned int>(time(0)));

//Declare all variables here

char choice;//choice for menu

string enter;//enter program

cout<<"Type 'enter' to begin or type 'leave' to exit" <<endl;

cin>>enter;

while (enter != "leave" ){

// Menu

cin.get();

cout<<"---------------------------------------------------------"<<endl;

cout<<"BlackJack! Select an option"<<endl;

cout<<"1: Rules and How to"<<endl;

cout<<"2: Start!"<<endl;

cout<<"3: End Game"<<endl;

cout<<"---------------------------------------------------------"<<endl;

//Input your choice

cin>>choice;

//Solve the problem chosen

switch(choice){

//summery

case '1':

cout<<"Rules and How to play"<<endl;

cout<<"The objective is to score 21 points."<<endl;

cout<<"Cards 2-10 show its worth values."<<endl;

cout<<"Face cards are all worth 10."<<endl;

cout<<"Aces are worth 1 or 11."<<endl;

cout<<"Your initially dealt two cards and asked to";

cout<<" Hit or Sit."<<endl;

cout<<"If you choose to hit, you will be given ";

cout <<"another card."<<endl;

cout<<"If you choose to sit, you will stay with ";

cout<<"the current cards you have"<<endl;

cout<<"The closest one to 21 without going over ";

cout<< "wins."<<endl;

cout<<"Going Over 21 is known as a bust";

cout<<" and will result in a lost"<<endl;

cout<<"If a draw is to occur, no one wins"<<endl;

cout<<"Press Enter to continue"<<endl;

cin.get();

break;

case '2':

//play the game

{

int card1,card2,value, suit, pT, total, hT; //card1

//card2, value to pass to by reference, suit , player total

//points, total to pass by reference, house total

char yn; //yes or no

bool stay=true; //leave menu true or false

//initialize accumulator for running total

pT=0;// player total

hT=0;//house total

//Player's Initial Hand

cout<<"You have been dealt the following cards: ";

deal(card1, suit, total);// call fuction

cout<<" and ";

deal(card2, suit, total);// call deal fuction

pT=card1+card2;// add initial cards

cout<<"Your score is now: ";

cout<<pT<<endl;//display initial score

cout<<"Would you like another card?"<<endl;

cout<<"Enter '1' for yes and '0' for no: ";

cin>>stay;

//Allow Player to Hit or Sit

while (stay && pT<21)

{

cout<<"You have been dealt a ";

deal(value, suit, total); // deal player function call

pT+=value; //accumulate total player

cout<<"Your score is now: ";

cout<<pT;

cout<<" "<<endl;

cout<<"Would you like another card?"<<endl;

cout<<"Enter '1' for yes and '0' for no: ";

cin>>stay;

}

//House's Hand

cout<<" "<<endl;

cout<<"The house has been dealt: ";

dealh(value, suit, total);

hT+=value;

do{

cout<<" and ";

dealh(value, suit, total);

hT+=value;

//if points are less than 16 house continues to deal

}while(hT<16);

cout<<" The house's score is: ";

cout<<hT;

cout<<" "<<endl;

//Outcome of game

if(pT==21 && (pT!=hT))// if player gets 21 and is not tied

cout<<"BlackJack! You win!"<<endl;

if(pT>hT&&pT<21)

{

cout<<"You win"<<endl;

}

else if(hT>21&&pT<=21)//if house goes over 21 and player

{ //is below 21

cout<<"House went over 21. You win"<<endl;

}

else if(pT>21)//if player gets over 21

{

cout<<"Bust! You went over 21!"<<endl;

}

else if(pT<hT&&hT<=21)//if house gets closer to 21 but

{ //below 21

cout<<"House Wins "<<endl;

}

else if(pT==hT)//draw if player and house gets the same

{ //score

cout<<"Draw!"<<endl;

}

cout<<" "<<endl;

cout<<"Press enter to continue"<<endl;

cin.get();//pause so its easier to see interface

break;

}

case '3':

cout<<"Goodbye!"<<endl;

exit(0);//exit menu and program

break;

default: cout<<"Please pick the given options"<<endl;

//input valididation using loop and default

}

}

cout<<"Goodbye"<<endl;

return 0;//exit

}

//Function Definition (Card Dealing Function)

//Pass by reference so we can change original argument and accumulate

void deal(int& crdV, int& crdS, int& Total){ //deal player

//Randomly selects card values

crdV=rand()%14+1;

if ((crdV<=10) && (crdV>=2)){//number card

cout<<crdV;

cout<<" of ";

}

if (crdV==11){//jack

cout<<" Jack of ";

crdV=10;

}

if (crdV==12){//queen

cout<<" Queen of ";

crdV=10;

}

if (crdV==13){//king

cout<<" King of ";

crdV=10;

}

if (crdV==1){ //Ace plus the option to pick if its 11 or 1

cout<<" You got an Ace, ";

int ace;

cout<<"would you like the value to equal 1 or 11: ";

cin>>ace;

if (ace==1){

crdV=1;

}else

crdV=11;

}

crdS=rand()%4+1; // Random suit given

if(crdS==1){

cout<<"Clubs ";

}

if(crdS==2){

cout<<"Diamonds ";

}

if(crdS==3){

cout<<"Spades ";

}

if (crdS==4){

cout<<"Hearts ";

}

}

void dealh (int& crdV, int& crdS, int& Total){ //deal house

//Randomly selects card values

crdV=rand()%14+1;

if (crdV<=10&&crdV>=2){

cout<<crdV;

cout<<" of ";

}

if (crdV==11){

cout<<" Jack of ";

crdV=10;

}

if (crdV==12){

cout<<" Queen of ";

crdV=10;

}

if (crdV==13){

cout<<" King of ";

crdV=10;

}

if (crdV==14||crdV==1){

cout<<" Ace of ";

if (Total<10){// Ace card value =11 if total house points is less than

crdV=11; //10

}else

crdV=1;//if total is less than 10 the value of ace is 1

}

crdS=rand()%4+1; // Suits

if(crdS==1){

cout<<"Clubs ";

}

if(crdS==2){

cout<<"Diamonds ";

}

if(crdS==3){

cout<<"Spades ";

}

if (crdS==4){

cout<<"Hearts ";

}

}