Project 2
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Table of Contents

Introduction

Blackjack is a simple card game that is played in many casinos. The object of the game is to reach a total of 21 from the cards handed to you, without going over. However if you play too cautiously and go under the dealer, then you lose as well. It's a game of luck and chance. In this program, the player starts off with the choice to play the game or terminate immediately. If they choose to play, they will get two values between one and ten. They can also see one of the computer's cards, as in a regular blackjack game. After, another menu will display and the player must decide to raise, get another card, or stand, meaning they take the cards they were originally dealt. If they choose the first option, then another card will be given to them and they can choose again whether they want to raise or stand. If the stand option is chosen in either scenario, then the program adds the players' cards and determines who wins based on a series of if statements. Once the game is over, the player has the option to play again or quit.

Design Details

I. This is an upgrade from the first project with the inclusion of more menus and if statements to check the cards. However one problem persists as with the other one. I was unable to include the deck of 52 cards in an array from which the program can choose from. It is still very likely that five or more of one card value can show up in one game.

II. In this model, I have also included functions which make the code much neater without blocks of words in the middle. They are at the end and are called when they are needed, often multiple times since the statement "You Win" or "I win" comes up in any path that is taken. This way, it takes away that repetitive sentence and simply calls the function that contains that part of the code.

Variable list

1. Letters a-h: these are the different variables chosen for the different numbers generated from the random number seed. As variables cannot have same names, they are single letters.
2. choice2: this is the choice for the do while loop menu, whether the player wants to play again or terminate it.
3. choice: this is the variable name chosen for the choice the player makes on whether or not to take another card.
4. Seed: this is the random number generator with the limits of higher than zero, but less than 11.

Topics Covered

- Data types: int, short
    - line 24
- System Level Libraries: cstdlib, fstream, iostream, iomanip, cmath
    - lines 8-12
- Operators: &&, ||, >=, <=, !=, ==
    - lines 117-196
- Conditionals: if/else, switch statements
    - lines 57, 77-196
    - lines 50 and 71
- Menu: allow the user to choose an option
    - lines 39, 47, and 69
- Function: call lines of code later in the program
    - lines 20, 36, 216

- Do/while loop: runs the program again if the player chooses
    - line 37

FlowChart

This is stored within the Project_2 folder as a jpeg image so that it would not be distorted when added to the word document.

Code

```
/*
 * File:   main.cpp
 * Author: Aimee Orozco-Perez
 * Created on July 26, 2014, 10:50 AM
 * Purpose: Project 2 Game
 */

#include <cstdlib>
#include <fstream>              //for writing and reading from a file
#include <iostream>
#include <cmath>                //for random seed
#include <iomanip>
using namespace std;

//User Libraries

//Global Constants

//Function Prototypes
void mssg();
//Execution Begins Here
```

```
int main(int argc, char** argv) {
    unsigned short a, b, c, d, e, f, g, h;  //1-10 the cards of face value
    unsigned int choice=0, choice2=0; //yes or no variable
    unsigned seed=time(0);                  //random seed
    srand(seed);
    a=1+rand()%9+1;
    b=1+rand()%9+1;
    c=1+rand()%9+1;
    d=1+rand()%9+1;
    e=1+rand()%9+1;
    f=1+rand()%9+1;
    g=1+rand()%9+1;
    h=1+rand()%9+1;
    mssg();
    do
    {
    cout<<"1. Play Game\n"
    <<"2. Quit Game\n";
    cin>>choice2;
    switch (choice2)
    {
```

```
case 1:
{
cout<<"Computer Cards: "<<a<<endl;
cout<<"Player Cards: "<<c<<" "<<d<<endl;
cout<<"Hit? \n 1.Yes \n 2.No"<<endl;
cin>>choice;
   switch (choice)
   {
      case 1:
      {
         cout<<"Player cards: "<<c
         <<" "<<d<<" "<<e<<endl;
         cout<<"Computer Cards: "<<a<<endl;
         if (c+d+e>21)
         {
            cout<<"You went over 21. You lose.\n";
         return 0;
         }
      else if (c+d+e<21 && a+b<c+d+e)
      {
        cout<<"Congratulations you won!"<<endl;
      }
```

```
else
{
cout<<"Player Cards: "<<c<<" "<<d<<" "<<e<<endl;
cout<<"Hit? \n 1.Yes \n 2.No"<<endl;
cin>>choice;
   switch (choice)
   {
      case 1:
      {
         cout<<"Player cards: \n"<<c
         <<" "<<d<<" "<<e<<" "<<h<<endl;
         if (c+d+e+h>21)
         {
            cout<<"You went over 21. You lose.\n";
         }
         else if (c+d+e+h>a+b && c+d+e+h<22)
         {
            cout<<"You Win!\n";
         }
         else if (a+b>c+d+e+h && a+b<22)
         {
            cout<<"I win\n";
```

```
            }
            break;
        }
        default:
        {
            cout<<"player cards: \n"<<c
            <<" "<<d<<" "<<e<<endl;
            break;
        }
      }
    }
    break;
  }
  case 2:
  {
    cout<<"player cards: \n"<<c
    <<" "<<d<<endl;
    break;
  }
```

```
if (a+b<=15)
```

```
    {
        a+b+f;
        if (a+b+f<=15)
        {
            a+b+f+g;


if (a+b==21)
{
    cout<<"Computer cards: "<<a<<" "<<b<<endl;
    cout<<"I win."<<endl;
}
else if (a+b+f==21)
{
    cout<<"Computer cards: "<<a<<" "<<b<<" "<<f<<endl;
    cout<<"I win."<<endl;
}
else if (a+b+f+g==21)
{
    cout<<"Computer cards: "<<a<<" "<<b<<" "<<f<<" "<<g<<endl;
    cout<<"I win."<<endl;
}
```

```
else if(c+d==21 || c+d+e==21)
{
   cout<<"Computer cards: "<<a<<" "<<b<<endl;
   cout<<"You Win."<<endl;
}
else if (c+d>a+b+f && c+d<=21)//
{
   cout<<"Computer cards: "<<a<<" "<<b<<" "<<f<<endl;
   cout<<"You win"<<endl;
}
else if (c+d>a+b+f+g && c+d<=21)
{
   cout<<"Computer cards: "<<a<<" "<<b<<" "<<f<<endl;
   cout<<"You win"<<endl;
}
else if (c+d<a+b && a+b<=21)//duplicated
{
   cout<<"Computer cards: "<<a<<" "<<b<<endl;
   cout<<"I win"<<endl;
}
else if (a+b+f>c+d && a+b+f<=21)
{
```

```
    cout<<"Computer cards: "<<a<<" "<<b<<" "<<f<<endl;
    cout<<"I win"<<endl;
}
else if (a+b+f+g>c+d && a+b+f+g<=21)
{
    cout<<"Computer cards: "<<a<<" "<<b<<" "<<f<<" "<<g<<endl;
    cout<<"I win"<<endl;
}
else if (c+d>a+b && c+d<=21)//duplicated
{
    cout<<"Computer cards: "<<a<<" "<<b<<endl;
    cout<<"You win"<<endl;
}
else if (c+d+e>a+b && c+d+e<=21)//duplicated
{
    cout<<"Computer cards: "<<a<<" "<<b<<endl;
    cout<<"You Win"<<endl;
}
else if (c+d+e>a+b+f+g && c+d+e<=21)
{
    cout<<"Computer cards: "<<a<<" "<<b<<" "<<f<<" "<<g<<endl;
    cout<<"You Win"<<endl;
```

```
}
else if (c+d+e>a+b+f && c+d+e<=21)
{
   cout<<"Computer cards: "<<a<<" "<<b<<" "<<f<<endl;
   cout<<"You Win"<<endl;
}
else if (c+d+e>21)
{
   cout<<"You scored higher than 21. You lose."<<endl;
}
else if (a+b==c+d+e || a+b==c+d)//duplicate
{
   cout<<"Computer cards: "<<a<<" "<<b<<endl;
   cout<<"It's a draw."<<endl;
}
else if (a+b+f==c+d+e || a+b+f==c+d)
{
   cout<<"Computer cards: "<<a<<" "<<b<<" "<<f<<endl;
   cout<<"It's a draw."<<endl;
}
else if (a+b+f+g==c+d+e || a+b+f+g==c+d)
{
```

```
        cout<<"Computer cards: "<<a<<" "<<b<<" "<<f<<" "<<g<<endl;
        cout<<"It's a draw."<<endl;
    }
   }
  }
}
        break;
    }
        case 2:
        {
            cout<<"Thank you for playing!\n";
            break;
        }
    }

        }while (choice2==1);
    return 0;
}
void mssg()
{
    cout<<"Welcome to Blackjack!\nThe rules "
            <<"of the game are simple.\n"
```

```
        <<"Try to get to 21 without going over,\n"
        <<"and without going under the dealer "
        <<"(that's me!) Ready? Let's Go!\n";
}
```