Project 1

<Black Jack>

CIS-5 42375
Name: Torres, Izeth
Date: 4/22/18

Introduction:

Title: Blackjack

This is a card game in which the player plays against the dealer. The goal is to get your cards to add up to the number 21 without going over it, while at the same time scoring more than the dealer.

In this game a regular card deck is used with the jokers omitted. The Ace card has a value of 1 or 11, depending on your choice. The cards from 2-10 are are valued as their face amount. Jacks, Queens and Kings are all valued at 10.

Both the player and the dealer begin with two cards. The player can only see one of the dealers cards. The player then has the option to request another card if they feel they need more to add up to 21. If the player goes over 21 they automatically loose.

Summary:

Project size: Around 116 lines
Number of variables: 15

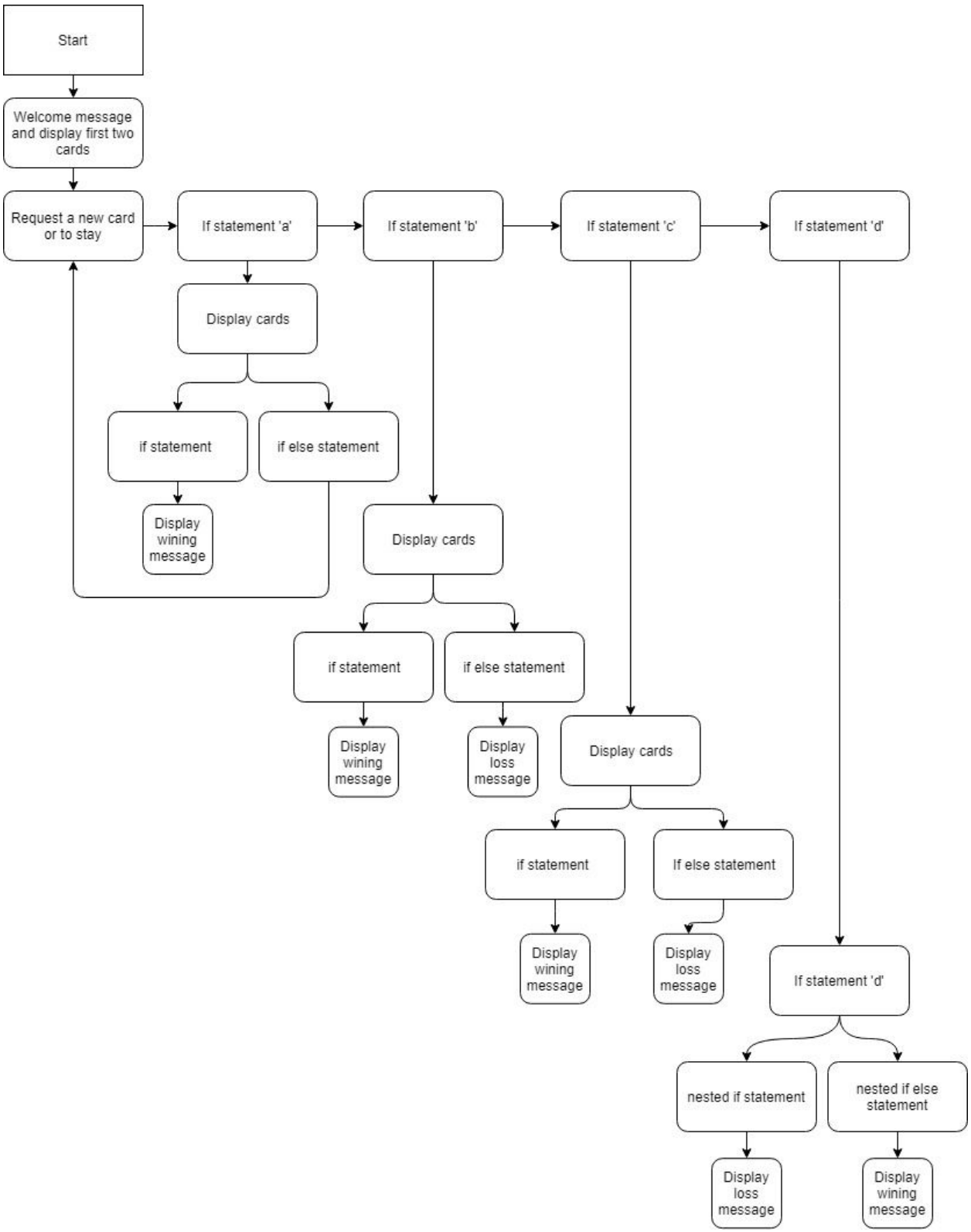
This game is suppose to run on a deck of cards but since we have not learned that yet I set a random number generator that would generate up to the maximum value of a card which is 11.
I was able to make it so the player would be able to choose if they wanted to draw another card or not.
This game could could definitely be built on by adding a deck of cards and making the options of cards drawn more accurate.

This program too me about 20 hours to write. I started off with nested switch statements and then tried one switch statement but I was unable to create a loop that would run the switch statement more than once accurately. That is when I decided to just keep it simple and create nested if/else statements. I created this program the current knowledge learned in this class. I tried to add some new concepts but it complicated the code further. I would have liked to use a loop but was unable to make one function so that it would repeat effectively every time the user requested a card.

Description:

I made it so that the user would be able to use a set of commands in order to choose whether they wanted a new card or not.

Flow Chart


Start
Welcome message and display first two cards
Request a new card or to stay
If statement 'a'
If statement 'b'
If statement 'c'
If statement 'd'
Display cards
if statement
if else statement
Display wining message
Display cards
if statement
if else statement
Display wining message
Display loss message
Display cards
if statement
If else statement
Display wining message
Display loss message
If statement 'd'
nested if statement
nested if else statement
Display loss message
Display wining message

Pseudo code

Initialize

Display welcome message, players cards and dealers cards.
Request if user wants new card

If player agrees to third card
Display new cards
If player loses
display loss message
Else if player under 21
Request new card
Read request
If player denies new card
Display player cards and dealer cards
If player scored lower than dealer
display loss message
Else if player score higher than dealer
display win message
If player agrees to fourth card
If display new cards and dealer cards
If player receives more than 21
display loss message
Else if player scores below 21 and higher than dealer
display win message
If player refused fourth card
Display all player cards and dealer cards
If player scores below 21 and higher than dealer
display win message
Else if player goes over 21 or scores lower than dealer
display win message

Cross Reference

Chapter	Section	Topic	Where lines #'s
2	2	cout	43, 50, 51, 54, 61, 65, 69, 76, 77, 81, 85, 91, 92, 96, 100, 106, 107,111, 115
	3	libraries	14, 15, 16, 17
	6	Integers	25, 26, 27, 28, 31, 32, 37, 38, 39, 40
	7	Characters	35, 36
	10	Bools	25, 26, 27, 28, 31, 32, 37, 38, 39, 40
	15	Comments 20% +	Throughout
3	7	Formatting output	Throughout
4	2	if	58, 73, 88, 103
	4	if-else	63, 79, 94, 109
	5	Nesting	58, 73, 88, 103
	8	Logical operators	98, 109, 113
	11	Validating user input	55, 70
	13	Conditional operator	63, 67, 79, 83, 94, 98, 109, 113
5	1	Increment/Decrement	
	2	While	
	3	Do-while	
	6	For loop	
	11	Files input/output	

References

1. Starting out with c++ textbook
2. cplusplus.com

Program

```
#include <iostream>
#include <cstdlib>
#include <ctime>
#include <cmath>

using namespace std;

main ()
{
   //Assign random cards to player
   srand((unsigned)time(0));
   int pcard_1 = rand() % 11 + 1;
   int pcard_2 = rand() % 11 + 1;
   int pcard_3 = rand() % 11 + 1;
   int pcard_4 = rand() % 11 + 1;

   //Assign random card to dealer
   int dcard_1 = rand() % 11 + 1;
   int dcard_2 = rand() % 11 + 1;

   //Assign other variables
   char a, b, c, d;           //Request input of yes or no for new card
   char deal;                 //Will hold yes or no value when card is requested
   int playTl_1 = (pcard_1 + pcard_2);            //Player initial total
   int playTl_2 = (pcard_1 + pcard_2 + pcard_3);  //Player total after 3 cards
   int playTl_3 = (pcard_1 + pcard_2 + pcard_3);  //Player total after 4 cards
   int dealTl = (dcard_1 + dcard_2);              //Dealers cards total

   //Welcome message
   cout << "Welcome to Blackjack\n"
        "---------------------------------------------------\n"
        "Try to beat the dealer by scoring higher than them, \n"
        "but not scoring higher than 21\n"
        "---------------------------------------------------\n";

   //Show players first two cards and one of dealers cards
   cout << "Your cards are " << pcard_1 << " and " << pcard_2 << " for a total of " <<
playTl_1 << endl;
```

```
   cout << "Dealer has a card of " << dcard_1 << " and a hidden card.\n";

   //Request input from player weather they want another card
   cout << "Would you like another card? Type 'a' for yes or 'b' for no.\n";
   cin >> deal;


   if (deal == 'a') //If player chooses to take third card
   {
      //Display players three cards
      cout << "Your cards are " << pcard_1 << ", " << pcard_2 << " and " << pcard_3 <<
" for a total of " << playTl_2 << endl;

         if (playTl_2 > 21) //Player losses, display loss message
         {
            cout << "You loose, you went over 21.\n";
         }
         else if (playTl_2 < 21) //Player still under 21, request new card
         {
            cout << "Would you like another card? Type 'c' for yes and 'd' for no.\n";
            cin >> deal;    //Requesting if player wants fourth card
         }
   }
   if (deal == 'b') //If player denies third card
   {
      //Reveal dealers cards display players three cards
      cout << "Dealer has " << dcard_1 << " and " << dcard_2 << " for a total of " <<
dealTl << endl;
      cout << "You have a total of " << playTl_1 << endl;

         if (dealTl > playTl_1) //If player looses, display error message
         {
            cout << "Sorry, you loose. Dealer scored higher than you.\n";
         }
         else if (dealTl < playTl_1);//If player wins, displays win message
         {
            cout << "Congratulations, you win! You scored higher than the dealer.\n";
         }
   }
```

```
   if (deal == 'c') //If player requests fourth card
   {
      //Display players four cards and reveal dealers cards
      cout << "Your cards are " << pcard_1 << ", " << pcard_2 << ", "  << pcard_3 << "
and " << pcard_4 <<" for a total of " << playTl_3 << endl;
      cout << "Dealer has " << dcard_1 << " and " << dcard_2 << " for a total of " <<
dealTl << endl;

         if (playTl_3 > 21) //If player goes over 21, display loss message
         {
            cout << "You went over 21, you loose\n";
         }
         else if ((playTl_3 < 21) || (dealTl < playTl_3)) //If player score higher than dealer,
display win message
         {
            cout << "Congratulations! you win.\n";
         }
   }
   if (deal == 'd') //If player denies third card
   {
      //Display players cards and reveal dealers cards
      cout << "Your cards are " << pcard_1 << ", " << pcard_2 << " and " << pcard_3 <<
" for a total of " << playTl_2 << endl;
      cout << "Dealer has " << dcard_1 << " and " << dcard_2 << " for a total of " <<
dealTl << endl;

         if ((playTl_2 < 21) || ( playTl_2 > dealTl)) //If player scores higher than dealer,
display win message
         {
            cout << "Congratulations! You win.\n";
         }
         else if ((playTl_2 < 21) || (playTl_2 < dealTl)) //If dealer scores higher, display
loss message
         {
            cout << "Dealer scored higher, you loose.\n";
         }
   }
         return 0;
}
```