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CSC - 5

Project #2 Write-up

**Description:**

Have a user play Roulette, allow the user in input their budget and how much money they would like to bet and whether they would like to bet on a specific number, odd number, even number, black number, or red number. Once they decide and have won or lost output whether they won or lost and display how much they lost or won while also showing how much money they have lost from his or hers budget.

**Roulette Rules:**

Roulette is essentially a trivially simple game to play. For each turn, once all bets have been placed using coloured chips to distinguish each player, the croupier halts betting, spins the wheel, and rolls the ball in the opposite direction. When the ball comes to a halt in one of the slots, the croupier announces the result, collects all losing bets and pays out the winner's profits.

**Pseudocode:**

*Initialize*

*Welcome to Roulette*

*What is your budget to play Roulette?*

*User input bud*

*loop:*

*How much money would you like to gamble?*

*User input bet*

*Are you betting on a specific number (N), odd numbers(O), even numbers(E), black number(B), or red numbers (R)?*

*User input N, O, E, B, or R*

*If gametype is N*

*What number would you like to bet on?*

*User input number*

*The ball landed on #*

*If won output how much they won multiplied by 35.*

*Else output how much they loss*

*If gametype is E*

*The ball landed on #*

*If won output how much they won*

*Else output how much they loss*

*If gametype is O*

*The ball landed on #*

*If won output how much they won*

*Else output how much they loss*

*If gametype is B*

*Prompt User to choose a number from the list given*

*The ball landed on #*

*If won output how much they won*

*Else output how much they loss*

*If gametype is R*

*Prompt User to choose a number from the list given*

*The ball landed on #*

*If won output how much they won*

*Else output how much they loss*

*If budget is greater than 0*

*Ask user if they want to keep playing? (Y/N)*

*If User input is equal to Y or y*

*Go to Loop*

*If wins is less than bet*

*You lost a total of $*

*Else*

*You won a total of $*

*If budget is less than bet*

*Your updated budget is $ bud-wins*

*Else*

*Your updated budget is $ bud+wins*

*ofstream roulRes Roulette Results.txt*

*If roulRes is open*

*Your currently updated budget is $ bud+wins*

*, Your currently updated total amount of dollars won/lost*

*is $ wins*

*roulRes.close*

*Return*

**Code:**

/\*

\* File: main.cpp

\* Author: Chad Bellinger

\* Created on November 30, 2017, 11:28 AM

\* Purpose: Project #2 - Roulette

\*/

//System Libraries

#include <iostream> //Input/Output Stream Library

#include <cstdlib> //Library set random number seed

#include <ctime> //Libary to seed the random number generator

#include <iomanip> //Format Library

#include <string.h> //String Library

#include <cmath> //Math Library

#include <fstream> //File Library

using namespace std; //Standard Name-space under which System Libraries reside

//User Libraries

//Global Constants - Not variables only Math/Science/Conversion constants

int const MIN\_NUM=1, MAX\_NUM=36; //Maximum and minimum numbers

//allowed in roulette

//Function Prototypes

bool isEven(int n)

{

if (n%2==0)

return true;

else

return false;

}

//Arrays

//Red numbers in Roulette

int red[18]={1, 3, 5, 7, 9, 12, 14, 16, 18, 19,

21, 23, 25, 27, 30, 32, 34, 36};

//Black numbers in Roulette

int blk[18]={2, 4, 6, 8, 10, 11, 13, 15, 17, 20,

22, 24, 26, 28, 29, 31, 33, 35};

//Execution Begins Here!

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

//Declare Variables

int num; //Number the User bets on

int rng; //Random number generation

float bud=0; //The Users Budget

float bet; //The Users bet

float wins=0; //The amount of monet the User receives for winning

char agn; //Prompt User if they want to play again

char gameT[2]; //Game selection between a specific number, odd number,

//even number, black number, or red number

char evenodd[2]; //Even and odd numbers

char blackred[2];//Black and red numbers

//Input Data/Variables

cout<<"Welcome to Roulette"<<endl;

cout<<"What is your current budget for Roulette?"<<endl;

cin>>bud;

if (bud<=0)

{

cout<<"The budget you entered is invalid, "

"please enter a valid number: "<<endl;

cin>>bud;

}

//Start of the User Loop

loop:

cout<<"How much money would you like to gamble?"<<endl;

cin>>bet;

if(bet>bud)

{

cout<<"Insufficient funds to place bet."<<endl;

cout<<"How much money would you like to gamble?"<<endl;

cin>>bet;

}

cout<<fixed<<setprecision(2)<<showpoint;

cout<<"Are you betting on a specific number (N)?"<<endl;

cout<<"Are you betting on an even numbers (E)? "<<endl;

cout<<"Are you betting on an odd numbers (O)?"<<endl;

cout<<"Are you betting on a black number (B)? "<<endl;

cout<<"Are you betting on a red number (R)? "<<endl;

cin>>gameT;

//User selects a specific number

if(!strcmp(gameT,"N")||(!strcmp(gameT,"n")))

{

cout<<"What number would you like to bet on? "<<endl;

cin>>num;

if ((num<=0)||(num>=37))

{

cout<<"The number you entered is invalid, "

"please enter a valid number: "<<endl;

cin>>num;

}

srand(time(NULL));

rng=rand()%(MAX\_NUM-MIN\_NUM+1)+MIN\_NUM;

cout<<"The ball landed on "<<rng<<endl;

//Loss

if (num!=rng)

{

cout<<"You lose $" <<bet<<endl;

wins-=bet;

}

//Win

else

{

cout<<"You win $"<<35\*bet<<endl;

wins+=35\*bet;

}

}

//User selects an Even number

if((!strcmp(gameT,"E")||(!strcmp(gameT,"e"))))

{

srand(time(NULL));

rng=rand()%(MAX\_NUM-MIN\_NUM+1)+MIN\_NUM;

cout<<"The ball landed on "<<rng<<endl;

if (gameT=="E"||"e")

//Even wins

if(isEven(rng))

{

cout<<"You win $"<<bet<<endl;

wins+=bet;

}

//Even loss

else

{

cout<<"You lose $"<<bet<<endl;

wins-=bet;

}

}

//User selects an Odd number

if((!strcmp(gameT,"O")||(!strcmp(gameT,"o"))))

{

srand(time(NULL));

rng=rand()%(MAX\_NUM-MIN\_NUM+1)+MIN\_NUM;

cout<<"The ball landed on "<<rng<<endl;

if (gameT=="O"||"o")

{

//Odd win

if(isEven(rng))

{

cout<<"You lost $"<<bet<<endl;

wins-=bet;

}

//Odd loss

else

{

cout<<"You win $"<<bet<<endl;

wins+=bet;

}

}

}

//User select a Black number

if(!strcmp(gameT,"B")||(!strcmp(gameT,"b")))

{

cout<<"What number black would you like to bet on? "<<endl;

cout<<"Your choices are: 2, 4, 6, 8, 10, 11, 13, 15, 17, 20, "

"22, 24, 26, 28, 29, 31, 33, and 35"<<endl;

cin>>num;

if (num!=2, 4, 6, 8, 10, 11, 13, 15, 17, 20,

22, 24, 26, 28, 29, 31, 33, 35)

{

cout<<"The number you entered is invalid, "

"please enter a valid number: "<<endl;

cin>>num;

}

srand(time(NULL));

rng=rand()%(MAX\_NUM-MIN\_NUM+1)+MIN\_NUM;

cout<<"The ball landed on "<<rng<<endl;

//Loss

if (num!=rng)

{

cout<<"You lose $"<<bet<<endl;

wins-=bet;

}

//Win

else

{

cout<<"You win $"<<bet<<endl;

wins+=bet;

}

}

//User select a Red number

if(!strcmp(gameT,"R")||(!strcmp(gameT,"r")))

{

cout<<"What number red would you like to bet on? "<<endl;

cout<<"Your choices are: 1, 3, 5, 7, 9, 12, 14, 16, 18, 19, "

"21, 23, 25, 27, 30, 32, 34, and 36"<<endl;

cin>>num;

if (num!=1, 3, 5, 7, 9, 12, 14, 16, 18, 19,

21, 23, 25, 27, 30, 32, 34, 36)

{

cout<<"The number you entered is invalid, "

"please enter a valid number: "<<endl;

cin>>num;

}

srand(time(NULL));

rng=rand()%(MAX\_NUM-MIN\_NUM+1)+MIN\_NUM;

cout<<"The ball landed on "<<rng<<endl;

//Loss

if (num!=rng)

{

cout<<"You lose $"<<bet<<endl;

wins-=bet;

}

//Win

else

{

cout<<"You win $"<<bet<<endl;

wins+=bet;

}

}

//Prompt User to play again

if (bud>0)

{

cout << "Keep playing? (Y/N)"<<endl;

cin>>agn;

if ((agn=='Y')||(agn=='y'))

{

goto loop;

}

}

//Display/Output all pertinent variables

if (wins<bet)

{

cout<<"You lost a total of $"<<abs(wins)<<endl;

}

else

cout<<"You won a total of $"<<wins<<endl;

if (bud<bet)

{

cout<<"Your updated budget is currently $"<<bud-abs(wins)<<endl;

}

else

cout<<"Your updated budget is currently $"<<bud+wins<<endl;

//Exporting to a Notepad

ofstream roulRes ("Roulette Results.txt");

if (roulRes.is\_open())

{

roulRes<<"Your currently updated budget is $"<<bud+wins<<endl;

roulRes<<", Your currently updated total amount of dollars won/lost "

"is $"<<wins<<endl;

//Close the File

roulRes.close();

}

//Exit the program

return 0;

}