Project 1

Chump Change

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**Introduction:**

This game is based a coin flip game that I played with my friends in elementary school. The game was simple you would bring your loose change, quarters, dimes, nickels and sometimes pennies to school , then at recess everyone who is playing would huddle up and bet their change against each other. There would be a master coin or, game coin that would be the deciding flip. Whatever that coin landed on was the winning side. You were able to call heads or tails. You were also able to call the same side of the coin (ex. Both of the players called heads).The real pull of the game was that we would bet coins against each other and whomever one would get the coin. We would keep going until we ran out of change or recess ended.

For my program, I slightly modified it. For one, there is no betting of money and I gave the option to call a draw (it acts as a third face of a coin).

Purpose:

The point of the game is to play against the A.I I called “THE CHUMP”.

**Rules:**

* You can choose from three options (so does the A.I)
  + Heads
  + Tails
  + Draw
* It win be tested against a master coin its options being the same
* Winning and Losing
  + If you guess correct you and THE CHUMP does not ,you win.
  + If you and THE CHUMP both guess right you draw
    - Same if you both guess wrong
  + If the chump guesses correctly and you do not you lose
  + The first one to guess wrong 3 times loses

Program Summary:

About 190 lines

About 60 comments

I imagine this playable on a mobile devices.

It’s quick and easy.

Would like to add the betting money option

-Once you would lose all your money you lose instead of 3 wrong guesses.

**Pseudo code:**

//System Libraries

//Input - Output Library

//String Library

//Rand and Srand library

//Time library

//Formating library

// File library

//Name-space under which system libraries exist

//User Libraries

//Global Constants

//Max value

//Min value

// Convert to a percent

//Function prototypes

//Execution begins here

//Variables

//Number of flips/max number of games

//The user's pick

// Change the input to correct format

//Decides who wins

//Keeps track of wins, losses, and draws of the match

// Keep track of wins and loses

//Keep track of what the users picks

//Keeps tracks of what THE CHUMP picks

//Used to determine heads, tails, or draw

//File name out

//Execute opening files

//Welcome the user

//Ask the user for input

//start of a do-while loop

//End of nested if

//Makes sure input is valid

//For loop

//Set the time to always get different numbers

//Generate a random number

//Generate the Test case

//Creation of the Chump A.I

//Implement a switch to determine THE CHUMPS's picks

//End of switch

//Determines the winners

// Both guessed correctly.

// User guessed correctly.

//Nobody guessed correctly

// THE CHUMP guessed correctly

// End of do while

//Display the results.

//Equation to get total picks for user.

//equation to get total picks for THE CHUMP.

//Player breakdown User

//Player breakdown THE CHUMP

//Output to file

//Close files/exit program

//Converts the right input regardless of spelling

//If first letter not capitalized

//Lower case all other letters

**Program:**

//System Libraries

#include <iostream> //Input - Output Library

#include <string> //String Library

#include <cstdlib> //Rand and Srand library

#include <ctime> //Time library

#include <iomanip> //Formating library

#include <fstream> // File library

using namespace std; //Name-space under which system libraries exist

//User Libraries

//Global Constants

const int MAXVAL = 30; //Max value

const int MINVAL = 1; //Min value

const float PERCENT=100.0f;// Convert to a percent

//Function prototypes

void convert(string &);

//Execution begins here

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

//Variables

int nFlips=0, nGames=0; //Number of flips/max number of games

string g1; //The user's pick

convert(g1); // Change the input to correct format

char winFlip, cChoice; //Decides who wins

int win=0,lose=0,draw=0;//Keeps track of wins, losses, and draws of the match

int cWins=0,cLose=0; // Keep track of wins and loses

int uHeads=0,uTails=0,uDraw=0;//Keep track of what the users picks

int cheads=0,ctails=0,cdraw=0; //Keeps tracks of what THE CHUMP picks

string winFip,cPick;//Used to determine heads,tails,or draw

string oFname; //File name out

ifstream in;

ofstream out;

//Execute opening files

oFname="ChumpChangeTheGame.Stats";

out.open(oFname);

//Welcome the user

cout<<"Welcome to Chump Change!\n";

cout<<"You must battle THE CHUMP in a coin flip guessing game."

"The first one to guess wrong 3 times losses. Enjoy!\n";

//Ask the user for input

do//start of a do-while loop

{

{

cout<<"Enter your guess you can choose Heads, Tails or Draw.\n";

cin>>g1;

convert(g1);

nFlips++;

{

if(g1=="Heads"){

uHeads++;

}

else if (g1=="Tails"){

uTails++;

}

else if (g1=="Draw"){

uDraw++;

}

} //End of nested if

//Make sure input is valid

if (!(g1=="Heads"||g1=="Tails"||g1=="Draw")){

cout<<"Invalid input try again"<<endl;

cout<<"Enter your guess you can choose Heads, Tails or Draw.\n";

cin>>g1;

convert(g1);

}

//For loop

for (int c=1;c<=nFlips;c++)

if (c>=nFlips){

cout<<"Round "<<c<<"."<<endl<<endl;}

else{

}

//Set the time

unsigned seed =time(0);

//Generate a random number

srand (seed);

//Generate the Test case

winFlip = (rand() % (MAXVAL - MINVAL + 1))+ MINVAL;

if (winFlip >=10){

winFip="Heads";

}

else if (winFlip<=11&&winFlip>=20){

winFip="Tails";

}

else {

winFip="Draw";

}

//Creation of the Chump A.I

cChoice = (rand () % (100-1 + 1))+ 1;

//Implement a switch to determine THE CHUMPS's picks

switch(cChoice){

case '<=33': cPick="Heads";

cheads++;

break;

case '<=34&&>=66)':cPick="Tails";

ctails++;

break;

default: cPick="Draw";

cdraw++;

} //End of switch

//Determines the winners

{ if (g1 == winFip && cPick==winFip){ // Both guessed correctly.

draw++;

cout<<"You and THE CHUMP had a Draw.\n";

cout<<"You have "<<lose<<" losses and "<<win<<" wins."<<endl;

cout<<"There has been "<<draw<<" draws."<<endl<<endl;

}

else if (g1==winFip||cPick!=winFip){ // User guessed correctly.

win++;

cLose++;

cout<<"You Beat THE CHUMP!"<<endl;

cout<<"You have "<<lose<<" losses and "<<win<<" wins."<<endl;

cout<<"There has been "<<draw<<" draws."<<endl<<endl;

}

else if ( !(g1==winFip||cPick==winFip)){ //Nobody guessed correctly

draw++;

cout<<"You and THE CHUMP had a draw.";

cout<<"You have "<<lose<<" losses and "<<win<<" wins."<<endl;

cout<<"There has been "<<draw<<" draws."<<endl<<endl;

}

else if (g1!=winFip && cPick==winFip){ // THE CHUMP guessed correctly

cWins++;

lose++;

cout<<"The CHUMP won!";

cout<<"You have "<<lose<<" losses and "<<win<<" wins."<<endl;

cout<<"There has been "<<draw<<" draws."<<endl<<endl;;

}

}

}

}while (lose<=3 && cLose<=3);// End of do while

if (cLose==4)

cout<<"Congrats you beat THE CHUMP.\n";

else if (lose==4)

cout<<"THE CHUMP beat you.\n";

//Display the results.

float uTpicks =(uHeads+uTails+uDraw);//Total picks for user.

float cTpicks = (cheads+ctails+cdraw);//Total picks for THE CHUMP.

cout<<"GAME SUMMARY\n";

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

cout<<setprecision(2)<<fixed;

cout<<"THE CHUMP had "<<cWins<< " wins and "<<cLose<<" loses."<<endl;

cout<<"You had "<<win<<" wins and "<<lose<<" loses."<<endl;

cout<<"The total number of rounds played: "<<nFlips<<endl;

cout<<"Total number of times heads was chosen: "<<uHeads+cheads<<endl;

cout<<"Total number of time tails was chosen: "<<uTails+ctails<<endl;

cout<<"Total number of times a draw was chosen: "<<uDraw+cdraw<<endl;

//Player breakdown User

cout<<"PLAYER BREAKDOWN (YOU)\n";

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

cout<<"Times heads was chosen: "<<uHeads<<" "<<(static\_cast<float>(uHeads)/uTpicks)\*PERCENT<<"%"<<endl;

cout<<"Times tails was chosen: "<<uTails<<" "<<(static\_cast<float>(uTails)/uTpicks)\*PERCENT<<"%"<<endl;

cout<<"Times draw was chosen: "<<uDraw<<" "<<(static\_cast<float>(uDraw)/uTpicks)\*PERCENT<<"%"<<endl;

//Player breakdown THE CHUMP

cout<<"PLAYER BREAKDOWN (THE CHUMP)\n";

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

cout<<"Times heads was chosen: "<<cheads<<" "<<(static\_cast<float>(cheads)/cTpicks)\*PERCENT<<"%"<<endl;

cout<<"Times tails was chosen: "<<ctails<<" "<<(static\_cast<float>(ctails)/cTpicks)\*PERCENT<<"%"<<endl;

cout<<"Times draw was chosen: "<<cdraw<<" "<<(static\_cast<float>(cdraw)/cTpicks)\*PERCENT<<"%"<<endl;

//Output to file

out<<setprecision(2)<<fixed;

out<<"THE CHUMP had "<<cWins<< " wins and "<<cLose<<" loses."<<endl;

out<<"You had "<<win<<" wins and "<<lose<<" loses."<<endl;

out<<"The total number of rounds played: "<<nFlips<<endl;

out<<"Total number of times heads was chosen: "<<uHeads+cheads<<endl;

out<<"Total number of time tails was chosen: "<<uTails+ctails<<endl;

out<<"Total number of times a draw was chosen: "<<uDraw+cdraw<<endl;

//Close files

out.close();

return 0;

}

//Converts the right input regardless of spelling

void convert(string &guess){

if(guess[0]>=97)guess[0]-=32;//If first letter not capitalized

for(int cnt=1;cnt<guess.length();cnt++){

if(guess[cnt]<97)guess[cnt]+=32;//Lower case all other letters

}

}