Project 1

<Soccer: Penalty Kick Simulator>

CSC-5 46023
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Introduction:

The name of this simulator is World Cup Soccer: Penalty Kick and like its title simulates the most popular game in the world Soccer. In the event in which soccer games are tied (or a major penalty is assesed) the two opposoing team choose 1 player to make this important shot which puts the fate of their team on his or her shoulders. The simulator I created puts in you in the moment of this very entertaining moment and explains some of the logic that goes into guessing where(location) to shoot the ball or where to defend your opponents shot.

Summary:

I. 300+ lines
II. used two scenarios (Goal Scorer, Goal Keeper)
III. Implented 3 Functions
IV. 2 Arrays 1 & 2 Dimensional
V. 2 Random Generators

Personally I have a great interest in sports in general so when the project of creating a game came about my first thoughts were to simulate some sort of sporting event. Coincidently 2014 was the year of the soccer FIFA World Cup Championships and so of course my mind drifted towrd those scenarios. Their was enough logic to create a C++ program which simulated the options Goalscorers and Goal Keepers experienced when stepping into the Goalie Box. Each player(no matter what position) when chosen for this important opportunity before ever taking a shot in their mind set up a location to shoot for, execute it, then hope the Goal Keeper did not guess that location of choice. The Goalkeeper before the kick is made must make up his mind which location the ball will be kicked because when kicked a soccer ball can travel up to 132 mile per hour so a decision must be made before hand.

More specific shot locations can be implemented to refine program and multiple shots with a point system were something I wanted to include but my time restrictions did not allow for such implementation. A Incremented Shot Value is not necessarily part of the original scanrio of soccer but it was planned from the beginning to make it a game in which a certain amount of goals are needed to win the game.

Description:

You will be asked some basic user information such as name and county for input. You are given the option to represent your country as a Goal Keeper of Goal Scorer or both. When selection is chosen you are asked to choose from 3 basic locations left,center or right. The Computer will randomly generate its location an the rest is up to you. Good Luck! Your Country is depending on You! Less than a 40% percent chance of choosing right but when you do its the best feeling in the world.

Pseudo Code

```
//System Libraries
iostream
string
ctime
cstdlib
include<fstream
using namespace std

User Libraries

Global Constants

Function Prototypes
void intro
int userLocation
void print

Execution Starts Here!

//Declare Variables & Initialize Entries
//Inputs
//User First Name Variable
//User Country Initials

//Display Introduction of Game

//Prompt User for Name

//Enter 3 Character Nation  EX:(usa)

//Set Random Seed Country Generator

 //Random Country Generator Display Any of 5 Country's

//String Array of 5 Country's With Professional Soccer Teams

//Variable To Display Random Country Name

 //Beginning Of Game Boolean Loop
```

```
//For Loop for Number of Rounds To Be Played

 //Do-While Loop For Both Scenario Implementation* (GAME LENGTH)

  //Display Output of Random Opponent

 //Display Option To Play as Keeper or Scorer

          //Read the choice

          //Choose Either Keeper/Scorer VS. Computer


          //Play as Keeper; First Simulation


             //Instruct User About Scenario


             //Declare Variables & Initialize Entries
             //Inputs
               //Variables of Scorer or Keeper
                //1 point for win

             //Set Random Seed For Shot Generator


             //Set Computer Shot Location to Random

             //Use Function for User Location


             //Set Up Parameters of Goal or No Goal

             //If User=Left & Comp=Left "You Win"

                    //Read From A File For Simple Graphic

                    //Open & Close This Specific Graphic File

                    //Set Win=1


                 //If User=Left & Comp=Center "You Lose"

                    //Read From A File For Simple Graphic
```

```
        //Open & Close This Specific Graphic File
        //Set Loss=0
    //Else User=Left & Comp=Right "You Lose"
        //Open & Close This Specific Graphic File
        //Set Loss=0
  //Else If User=Center & Comp=Left "You Lose"
        //Read From A File For Simple Graphic
        //Open & Close This Specific Graphic File
        //Set Loss=0
     //Else If User=Center & Comp=Center "You Win"
        //Read From A File For Simple Graphic
        //Open & Close This Specific Graphic File
        //Set Win=1
     //Else If User=Center & Comp=Right "You Win"
        //Read From A File For Simple Graphic
        //Open & Close This Specific Graphic File
        //Set Win=1
        wins=1;
  //Else If User=Right & Comp=Left "You Lose"
        //Read From A File For Simple Graphic
        //Open & Close This Specific Graphic File
        //Set Loss=0
     //Else If User=Right & Comp=Center "You Lose"
        //Read From A File For Simple Graphic
        //Open & Close This Specific Graphic File
```

```
            //Set Loss=0

          //Else If User=Right & Comp=Right "You Win"


            //Read From A File For Simple Graphic

            //Open & Close This Specific Graphic File
            //Set Win=1

          //Display Output Of Winner For Each Round

case'2':{
    /Set Random Seed For Shot Generator


    //Set Computer Shot Location to Random

    //Use Function for User Location


    //Set Up Parameters of Goal or No Goal

    //If User=Left & Comp=Left "You Win"

            //Read From A File For Simple Graphic

            //Open & Close This Specific Graphic File

            //Set Win=1


          //If User=Left & Comp=Center "You Lose"

            //Read From A File For Simple Graphic

            //Open & Close This Specific Graphic File

            //Set Loss=0

        //Else User=Left & Comp=Right "You Lose"

            //Open & Close This Specific Graphic File

            //Set Loss=0

    //Else If User=Center & Comp=Left "You Lose"
```

```
        //Read From A File For Simple Graphic

        //Open & Close This Specific Graphic File

        //Set Loss=0

    //Else If User=Center & Comp=Center "You Win"

        //Read From A File For Simple Graphic

        //Open & Close This Specific Graphic File

        //Set Win=1

    //Else If User=Center & Comp=Right "You Win"

        //Read From A File For Simple Graphic

        //Open & Close This Specific Graphic File

        //Set Win=1
        wins=1;

//Else If User=Right & Comp=Left "You Lose"

        //Read From A File For Simple Graphic

        //Open & Close This Specific Graphic File

        //Set Loss=0

    //Else If User=Right & Comp=Center "You Lose"

        //Read From A File For Simple Graphic

        //Open & Close This Specific Graphic File

        //Set Loss=0

    //Else If User=Right & Comp=Right "You Win"


        //Read From A File For Simple Graphic

        //Open & Close This Specific Graphic File
        //Set Win=1

    //Display Output Of Winner For Each Round
```

```
            //Exit   Loop

      //Execute Upper do-while

   //Display Format For 2 Dimensional Array

   //2 Dimensional Array For Top Scores

   //Call Print Array Function

   //Display Ranked Player Names


//Introduction Function
//Displays Rules & General Game Information by Reference

//User Location Function Passed By Value
//pos= Left, Center, Right (Location Choices)

//Top Ranking Players 2 Dimensional Array Passed Through Function
//2 columns = Rank & # Rounds
//5 Rows of Ranked Players
```

C++ Code

```
//System Libraries
#include <iostream>
#include <string>
#include<ctime>
#include<cstdlib>
#include<fstream>

using namespace std;

//User Libraries

//Global Constants

//Function Prototypes
void intro ();
int userLocation ();
void print(int the[5][2],int sizeRow,int sizeCol);

//Execution Starts Here!
int main(int argc, char** argv){

   //Declare Variables & Initialize Entries
   //Inputs
   string name;    //User First Name Variable
   char count[3];  //User Country Initials
```

```
//Display Introduction of Game
intro();
cout<<endl;

//Prompt User for Name
cout<<"what is Your First Name:  ";
cin>>name;

//Enter 3 Character Nation  EX:(usa)
cout<<"what is Your Country of Nationalization?: (XXX)  ";
cin>>count;
cout<<endl;

//Set Random Seed Country Generator
srand(time(0));

//Random Country Generator Display Any of 5 Country's
short choose = rand()%5;

//String Array of 5 Country's With Professional Soccer Teams
string List[5]={"Mexico","Canada","Italy","Germany","Spain"};

//Variable To Display Random Country Name
string word = List[choose];

//Beginning Of Game Boolean Loop
bool loop=true;

//For Loop for Number of Rounds To Be Played
for (int win =0;win<5;win++)
{
   //Do-While Loop For Both Scenario Implementation* (GAME LENGTH)
   do{

      //Display Output of Random Opponent
      cout<<count<<"'VS'"<<word<<endl;
      cout<<endl;
      //Display Option To Play as Keeper or Scorer
      cout<<"Type 1 to Play as Goal Keeper: "<<endl;
      cout<<"Type 2 to Play as  Goal Scorer: "<<endl;

      //Read the choice
      char choice;
      cin>>choice;
      cout<<endl;
      //Choose Either Keeper/Scorer VS. Computer
      switch(choice){

      //Play as Keeper; First Simulation
      case'1':{

         //Instruct User About Scenario
         cout<<"Block Your Opponent's Shot "<<endl;
         cout<<"_____"<<endl;

         //Declare Variables & Initialize Entries
         //Inputs
         unsigned short keep,shot;        //Variables of Scorer or Keeper
         short wins;                      //1 point for win

         //Set Random Seed For Shot Generator
         srand(static_cast<unsigned int>(time(0)));

         //Set Computer Shot Location to Random
         //keep=rand()%3+1;
         keep=1;
         //Use Function for User Location
         shot=userLocation();

         //Set Up Parameters of Goal or No Goal

         //If User=Left & Comp=Left "You Win"
         if (shot==1)
         {
            if(keep==1)
            {
               //Read From A File For Simple Graphic
               fstream leftLeft;
               leftLeft.open("leftLeft.txt");
               //Open & Close This Specific Graphic File
               if (leftLeft.is_open())
               {
                  string temp;
                  while(getline(leftLeft,temp))
                  cout<<temp<<endl;
                  cout<<endl;
                  cout<<"You Blocked The Shot!"<<endl;
                  cout<<count<<":Gets Point"<<endl;
                  cout<<endl;
               }
               leftLeft.close();
               //Set Win=1
               wins=1;
            }
            //If User=Left & Comp=Center "You Lose"
            else if (keep==2)
            {
```

```
        //Read From A File For Simple Graphic
        fstream leftCenter;
        leftCenter.open("leftCenter.txt");
        //Open & Close This Specific Graphic File
        if (leftCenter.is_open())
        {
           string temp;
           while(getline(leftCenter,temp))
           cout<<temp<<endl;
           cout<<endl;
           cout<<"They Scored A Goal..."<<endl;
           cout<<word<<":Gets Point"<<endl;
           cout<<endl;
        }
        leftCenter.close();
        //Set Loss=0
        wins=0;
     }
     //Else User=Left & Comp=Right "You Lose"
     else
     {
        //Read From A File For Simple Graphic
        fstream leftRight;
        leftRight.open("leftRight.txt");
        //Open & Close This Specific Graphic File
        if (leftRight.is_open())
        {
           string temp;
           while(getline(leftRight,temp))
           cout<<temp<<endl;
           cout<<endl;
           cout<<"They Scored A Goal..."<<endl;
           cout<<word<<":Gets Point"<<endl;
           cout<<endl;
        }
        leftRight.close();
        //Set Loss=0
        wins=0;
     }
  }
  //Else If User=Center & Comp=Left "You Lose"
  else if (shot==2)
  {
     if (keep==1)
     {
        //Read From A File For Simple Graphic
        fstream centerLeft;
        centerLeft.open("centerLeft.txt");
        //Open & Close This Specific Graphic File
        if (centerLeft.is_open())
        {
           string temp;
           while(getline(centerLeft,temp))
           cout<<temp<<endl;
           cout<<endl;
           cout<<"They Scored A Goal..."<<endl;
           cout<<word<<":Gets Point"<<endl;
           cout<<endl;
        }
        centerLeft.close();
        //Set Loss=0
        wins=0;
     }
     //Else If User=Center & Comp=Center "You Win"
     else if(keep==2)
     {
        //Read From A File For Simple Graphic
        fstream centerCenter;
        centerCenter.open("centerCenter.txt");
        //Open & Close This Specific Graphic File
        if (centerCenter.is_open())
        {
           string temp;
           while(getline(centerCenter,temp))
           cout<<temp<<endl;
           cout<<endl;
           cout<<"You Blocked The Shot!"<<endl;
           cout<<count<<":Gets Point"<<endl;
           cout<<endl;
        }
        centerCenter.close();
        //Set Win=1
        wins=1;
     }
     //Else If User=Center & Comp=Right "You Win"
     else
     {
        //Read From A File For Simple Graphic
        fstream centerRight;
        centerRight.open("centerRight.txt");
        //Open & Close This Specific Graphic File
        if (centerRight.is_open())
        {
           string temp;
           while(getline(centerRight,temp))
           cout<<temp<<endl;
           cout<<endl;
           cout<<"They Scored A Goal..."<<endl;
```

```
            cout<<word<<":Gets Point"<<endl;
            cout<<endl;
         }
         centerRight.close();
         //Set Win=1
         wins=1;
      }
   }
   //Else If User=Right & Comp=Left "You Lose"
   else if (shot==3)
      if (keep==1)
      {
         //Read From A File For Simple Graphic
         fstream rightLeft;
         rightLeft.open("rightLeft.txt");
         //Open & Close This Specific Graphic File
         if (rightLeft.is_open())
         {
            string temp;
            while(getline(rightLeft,temp))
            cout<<temp<<endl;
            cout<<endl;
            cout<<"They Scored A Goal..."<<endl;
            cout<<word<<":Gets Point"<<endl;
            cout<<endl;
         }
         rightLeft.close();
         //Set Loss=0
         wins=0;
      }
      //Else If User=Right & Comp=Center "You Lose"
      else if (keep==2)
      {
         fstream rightCenter;
         rightCenter.open("rightCenter.txt");
         if (rightCenter.is_open())
         {
            string temp;
            while(getline(rightCenter,temp))
            cout<<temp<<endl;
            cout<<endl;
            cout<<"They Scored A Goal..."<<endl;
            cout<<word<<":Gets Point"<<endl;
            cout<<endl;
         }
         rightCenter.close();
         //Set Loss=0
         wins=0;
      }
      //Else If User=Right & Comp=Right "You Win"
      else
      {
         fstream rightRight;
         rightRight.open("rightRight.txt");
         if (rightRight.is_open())
         {
            string temp;
            while(getline(rightRight,temp))
            cout<<temp<<endl;
            cout<<endl;
            cout<<"You Blocked The Shot!"<<endl;
            cout<<count<<":Gets Point"<<endl;
            cout<<endl;

         }
         rightRight.close();
         //Set Win=1
         wins=1;
      }
      //Display Output Of Winner For Each Round
      if (wins==1)
      {
         cout<<"You Win Round"<<endl;
      }
      else if (wins==0)
      {
         cout<<"You Lose Round"<<endl;
      }
         cout<<"You Have: "<<wins<<endl;
         cout<<endl;
}
case'2':{
   //Instruct User About Scenario
   cout<<"It's Time To Shoot A Goal For Your Country! "<<endl;
   cout<<"_____"<<endl;
   cout<<endl;

   //Declare Variables & Initialize Entries
   //Inputs
   unsigned short keep,shot;       //Variables of Scorer or Keeper
   short wins;                     //1 point for win

   //Set Random Seed For Shot Generator
   srand(static_cast<unsigned int>(time(0)));

   //Set Computer Shot Location to Random
   keep=rand()%3+1;
   keep=1;
```

```
//Use Function for User Location
shot=userLocation();

//Set Up Parameters of Goal or No Goal

//If User=Left & Comp=Left "You Win"
if (shot==1)
{
   if(keep==1)
   {
      //Read From A File For Simple Graphic
     fstream leftLeft;
      leftLeft.open("leftLeft.txt");
      //Open & Close This Specific Graphic File
      if (leftLeft.is_open())
      {
         string temp;
         while(getline(leftLeft,temp))
         cout<<temp<<endl;
         cout<<endl;
         cout<<"They Blocked Your Shot!"<<endl;
         cout<<word<<":Gets Point"<<endl;
         cout<<endl;
      }
      leftLeft.close();
      //Set Win=1
      wins=1;
   }
   //If User=Left & Comp=Center "You Lose"
   else if (keep==2)
   {
      //Read From A File For Simple Graphic
      fstream leftCenter;
      leftCenter.open("leftCenter.txt");
      //Open & Close This Specific Graphic File
      if (leftCenter.is_open())
      {
         string temp;
         while(getline(leftCenter,temp))
         cout<<temp<<endl;
         cout<<endl;
         cout<<"You Scored A Goal For:"<<count<<"!"<<endl;
         cout<<count<<":Gets Point"<<endl;
         cout<<endl;
      }
      leftCenter.close();
      //Set Loss=0
      wins=0;
   }
   //Else User=Left & Comp=Right "You Lose"
   else
   {
      //Read From A File For Simple Graphic
      fstream leftRight;
      leftRight.open("leftRight.txt");
      //Open & Close This Specific Graphic File
      if (leftRight.is_open())
      {
         string temp;
         while(getline(leftRight,temp))
         cout<<temp<<endl;
         cout<<"You Scored A Goal For:"<<count<<"!"<<endl;
         cout<<count<<":Gets Point"<<endl;
         cout<<endl;
      }
      leftRight.close();
      //Set Loss=0
      wins=0;
   }
}
//Else If User=Center & Comp=Left "You Lose"
else if (shot==2)
{
   if (keep==1)
   {
      //Read From A File For Simple Graphic
      fstream centerLeft;
      centerLeft.open("centerLeft.txt");
      //Open & Close This Specific Graphic File
      if (centerLeft.is_open())
      {
         string temp;
         while(getline(centerLeft,temp))
         cout<<temp<<endl;
         cout<<"You Scored A Goal For:"<<count<<"!"<<endl;
         cout<<count<<":Gets Point"<<endl;
         cout<<endl;
      }
      centerLeft.close();
      //Set Loss=0
      wins=0;
   }
   //Else If User=Center & Comp=Center "You Win"
   else if(keep==2)
   {
      //Read From A File For Simple Graphic
      fstream centerCenter;
      centerCenter.open("centerCenter.txt");
```

```
        //Open & Close This Specific Graphic File
        if (centerCenter.is_open())
        {
            string temp;
            while(getline(centerCenter,temp))
            cout<<temp<<endl;
            cout<<endl;
            cout<<"They Blocked Your Shot!"<<endl;
            cout<<word<<":Gets Point"<<endl;
            cout<<endl;
        }
        centerCenter.close();
        //Set Win=1
        wins=1;
    }
    //Else If User=Center & Comp=Right "You Win"
    else
    {
        //Read From A File For Simple Graphic
        fstream centerRight;
        centerRight.open("centerRight.txt");
        //Open & Close This Specific Graphic File
        if (centerRight.is_open())
        {
            string temp;
            while(getline(centerRight,temp))
            cout<<temp<<endl;
            cout<<"You Scored A Goal For:"<<count<<"!"<<endl;
            cout<<count<<":Gets Point"<<endl;
            cout<<endl;
        }
        centerRight.close();
        //Set Win=1
        wins=1;
    }
}
//Else If User=Right & Comp=Left "You Lose"
else if (shot==3)
    if (keep==1)
    {
        //Read From A File For Simple Graphic
        fstream rightLeft;
        rightLeft.open("rightLeft.txt");
        //Open & Close This Specific Graphic File
        if (rightLeft.is_open())
        {
            string temp;
            while(getline(rightLeft,temp))
            cout<<temp<<endl;
            cout<<"You Scored A Goal For:"<<count<<"!"<<endl;
            cout<<count<<":Gets Point"<<endl;
            cout<<endl;
        }
        rightLeft.close();
        //Set Loss=0
        wins=0;
    }
    //Else If User=Right & Comp=Center "You Lose"
    else if (keep==2)
    {
        fstream rightCenter;
        rightCenter.open("rightCenter.txt");
        if (rightCenter.is_open())
        {
            string temp;
            while(getline(rightCenter,temp))
            cout<<temp<<endl;
            cout<<"You Scored A Goal For:"<<count<<"!"<<endl;
            cout<<count<<":Gets Point"<<endl;
            cout<<endl;
        }
        rightCenter.close();
        //Set Loss=0
        wins=0;
    }
    //Else If User=Right & Comp=Right "You Win"
    else
    {
        fstream rightRight;
        rightRight.open("rightRight.txt");
        if (rightRight.is_open())
        {
            string temp;
            while(getline(rightRight,temp))
            cout<<temp<<endl;
            cout<<endl;
            cout<<"They Blocked Your Shot!"<<endl;
            cout<<word<<":Gets Point"<<endl;
            cout<<endl;
        }
        rightRight.close();
        //Set Win=1
        wins=1;
    }
    //Display Output Of Winner For Each Round
    if (wins==1)
    {
        cout<<"You Win Round"<<endl;
```

```
                }
                else if (wins==0)
                {
                    cout<<"You Lose Round"<<endl;
                }
                    cout<<"You Have: "<<wins<<endl;
                    cout<<endl;
            }
            default:{
            //Exit Loop
            loop=false;
            break;
            }
        };
    }while(loop);//Upper do-while
  }
  //Display Format For 2 Dimensional Array
  cout<<"          Rank # / Rounds Won"<<endl;
  cout<<"________________________________"<<endl;

  //2 Dimensional Array For Top Scores
  int myarray [5][2]={{1,5},
                      {2,5},
                      {3,4},
                      {4,4},
                      {5,3}};
  //Call Print Array Function
  print(myarray,5,2);
  //Display Ranked Player Names
  cout<<"Top Players Names"<<endl;
  cout<<"________________________ "<<endl;
  cout<<"Rank # 1 = (Tony)"<<endl
     <<"Rank # 2 = (Mary)"<<endl
     <<"Rank # 3 = (Martha)"<<endl
     <<"Rank # 4 = (Eva)"<<endl
     <<"Rank # 5 = (Valerie)"<<endl;

return 0;
}
//Introduction Function
//Displays Rules & General Game Information by Reference
void intro(){
cout<<"Welcome to World Cup Fever: Penalty Shoot Out!... "
<<"To Play this game some specific information will be asked about "
<<"who you are...You will be asked to select the position "
<<"of either GoalKeeper or GoalScorer...The Computer will Randomly "
<<"Generate a Shot Location or   Guess Your Shot Location... "
<<"You Must Decide To Either Defend or Score Goals...."
<<"Can You Out Smart your Opponent!"
<<"                                      "<<endl
<<"           ________________________              "<<endl
<<"          |                    |          "<<endl
<<"          |                    |          "<<endl
<<"          |   1      2      3  |          "<<endl
<<"          |                    |          "<<endl
<<"                                      "<<endl;

}
//User Location Function Passed By Value
//pos= Left, Center, Right (Location Choices)
int userLocation (){
//User Location Variable
int pos;
//Do While Loop For User Location Input
do{
  cout<<"Choose A Shot Location From The Following: "<<endl
     <<"[1] Position: Left  "<<endl
     <<"[2] Position: Center "<<endl
     <<"[3] Position: Right  "<<endl;
  cout<<"Enter A Position:  ";
  cin>>pos;
}while (pos>3||pos<1);
//Return User Entry
return pos;
}
//Top Ranking Players 2 Dimensional Array Passed Through Function
//2 columns = Rank & # Rounds
//5 Rows of Ranked Players
void print(int the[5][2],int sizeRow,int sizeCol)
{
  //For Loop For Array Rows
  for(int row=0;row<sizeRow;row++)
  {
     //For Loop For Array Columns
     for(int col=0;col<sizeCol;col++)
     {
        cout<<"           "<<the[row][col];
     }
     cout<<endl;
  }
  cout<<endl;
}
```

Topics Checklist

Primitive Data Types
short= line 56
Bool = line 31
int = line 207
unsigned short = line 53

System Level Libraries
iostream
string
ctime
cstdlib
fstream

Operators
++ = line 88
% = line 51
< line 63

Conditionals
do while = line 66
if = line 114
else if = 129
else = 150
for = line 63

Menu = Switch
Functions = line 583
Arrays 1d= line 54
2d= line 543

FlowChart

Refer to Jpg File

References

1.cplusplus
http://www.cplusplus.com/doc/tutorial/