Project 1
NBA ALL-STARS

Created By: Ryan DeLeon
February 1, 2016
Dr. Mark Lehr
CSC 5- C++

Introduction

      Instead of coding one of my favorite games that has already been made, I have created my own original game centered around my favorite sport. The title of my game is NBA All-Stars and the premise of the game is to allow the player to play in a one on one pickup up game against their choice of four of the best basketball players in the world. The first player to score two points wins. Along with the choice of the opponent, the user also get to choose the arena where the game will take place. The game consists of a maximum of three possessions in which either the user or the opponent will score a point. Each possession, the player is given a set of instructions on how to score and if the player fails, then the opponent scores. I attempted to make each possession different in order to keep the user engaged throughout the entire game. The results of the game including the player's name, the opponent, the location, and whether they won or loss will be output to a file in the project folder.

Variables

Variable Name	Data Type	Purpose
player	string	The user's name
opponent	string	The opponents name
crtName	string	The name of the court
selOp	unsigned short	Users number input for opponent selection
court	unsigned short	Users number input for opponent selection
guesTyp	unsigned short	Users choice of shot type
ranTyp	unsigned short	Random shot ype
selFor	unsigned character	Users choice of shot type
ready	unsigned character	Getting the user ready for next possession
shoot	unsigned character	User input to shoot
plyAgn	unsigned character	User input to play again or not
force	boolean	Determines if user chose left or right
ppts	unsigned short	Players total points
oppts	unsigned short	Opponents total points
begTime	unsigned integer	Beginning time for timed possession
endTime	unsigned integer	Ending time for timed possession
totTime	unsigned integer	Total time for timed possession
reDsply	boolean	Determines whether to replay game

Pseudocode

Display Header

Declare Variables

Open File to store game results

Welcome user

Ask to enter the users name

read in as string

Ask to select opponent

read in as short

Set name of opponent equal to string using if else

    if number inputted equals 1 set opponent equal to Lebron James

    else if number inputted equals 2 set opponent equal to Lebron James

    else if number inputted equals 3 set opponent equal to Kobe Bryant

    else if number inputted equals 4 set opponent equal to James Harden

Do this while the user does not enter a valid input

Ask to select arena

Use switch to set court equal to a string

    Case 1 is staples center

    Case 2 is Madison Square Garden

    Case 3 is Pauley Pavilion

    Case 4 is Rucker Park

Start game

Instruct user to force player left or right

If user chose steph curry the player loses and opponent score

else if user chose kobe bryant or lebron james

      Use ternary operator to display the user won if the user chose left and add a point

      or display a loss if the user chose right and add a point to opponent

else if user chose James Harden

      Use ternary operator to display the user won if the user chose right and add a point

      or display a loss if the user chose left and add a point to opponent

Second Possession

Give player instructions for this possession

Ask to input character when ready

Ask to quickly press 's' to shoot

begin timer before input and end after input

if the total time it took is longer than 5 seconds display loss message and add point to opponent

else display win message and add point to player

if the score is tied

      Final Possession

      Display final possession instructions

      Ask user to input what type of shot they predict opponent to take

      read in as int

      generate a random number using rand%3

      do this while the random number equals a 1

      if random number and player guess are equal display win message and add point to

user

      else add point to opponent and display loose message

if the player has 2 points then tell them they won the game

else they lost the game

close the file

ask to play again

if yes, restart the game

else end program

Source Code

```cpp
/*
 * File:   main.cpp
 * Author: Ryan DeLeon
 * Created on January 27, 2016, 10:04 AM
 */

//User Libraries
#include <cstdlib>
#include <iostream>
#include <string>
#include <ctime>
#include <fstream>
#include <iomanip>
using namespace std;

//System Libraries
//Global Constants
//Function Prototypes
//Execution Begins Here

int main(){

  //Redisplay
  bool reDsply=true;
  do{

 //Header
  cout<<endl;
  cout<<"*****************************************************************"<<endl;
  cout<<"**             BASKETBALL ALL STARS              **"<<endl;
  cout<<"**              Created By:  Ryan DeLeon          **"<<endl;
  cout<<"*****************************************************************"<<endl;

 //Set random seed
  srand(static_cast<unsigned int>(time(0)));

 //Declare Variables
  string player, oponent, crtNam;
  unsigned short selOp, court, guesTyp, ranTyp;
  unsigned char selFor, CselFor, ready, shoot, plyAgn;
```

```cpp
    bool force=true;
    unsigned short ppts=0, opts=0; //Players and opponents points
    unsigned int begTime, endTime, totTime=5, n;

//Open a file for game summary
    ofstream out;
    out.open("Game Summary.dat");

//Player input
    cout<<"WELCOME TO BASKETBALL ALLSTARS"<<endl;
    cout<<"Please enter the name of your player."<<endl;
    getline(cin, player);

//Picking opponent
    cout<<endl<<"Cool, so you're "<<player<<". "<<endl;
    cout<<"Which NBA ALL-STAR would you like to go up against?"<<endl;
    do{
    cout<<"Enter the number of the opponent you choose."<<endl;
    cout<<"1. Lebron James"<<endl;
    cout<<"2. Kobe Bryant"<<endl;
    cout<<"3. Steph curry"<<endl;
    cout<<"4. James Harden"<<endl<<endl;
    cin>>selOp;
    if(selOp==1){
        cout<<endl<<"You chose to face the King, Good Luck."<<endl<<endl;
        oponent="Lebron";
    }
    else if(selOp==2){
        cout<<endl<<"They dont call Kobe the Black Mamba for nothing, Good
Luck!"<<endl<<endl;
        oponent="Kobe";
    }
    else if(selOp==3){
        cout<<endl<<"Dont let the babyface fool you, Steph is an assasin, Good
Luck!"<<endl<<endl;
        oponent="Steph";
    }
    else if(selOp==4){
        cout<<endl<<"Fear the beard, Good Luck!"<<endl<<endl;
        oponent="James";
    }
    else if(selOp<1 || selOp>4){
        cout<<"Sorry, I know you're scared but you gotta pick one"<<endl<<endl;
```

```cpp
    }
    }while (selOp<1 || selOp>4);

//Selecting arena
    cout<<"One last thing, pick the arena you would like to play in."<<endl;
    cout<<"1. Staples Center"<<endl;
    cout<<"2. Madison Square Garden"<<endl;
    cout<<"3. Pauley Pavilion"<<endl;
    cout<<"4. Rucker Park"<<endl;
    cout<<"Enter the number next to the court you want."<<endl<<endl;
    cin>>court;
    switch(court){
        case 1:{
            cout<<endl<<"Welcome to Staples Center. Home of the LA Lakers."<<endl;
            crtNam="Staples Center";
            break;
        }
        case 2:{
            cout<<endl<<"Welcome to Madison Square Garden. Home of the NY Knicks."<<endl;
            crtNam="Madison Square Garden";
            break;
        }
        case 3:{
            cout<<endl<<"Welcome to Pauley Pavilion. Home of the UCLA Bruins."<<endl;
            crtNam="Pauley Pavilion";
            break;
        }
        case 4:{
            cout<<endl<<"Welcome to Rucker Park. Streetball Central."<<endl;
            crtNam="Rucker Park";
            break;
        }
        default:{
            cout<<"Please select a court."<<endl;
            break;
        }
    }
    cout<<endl<<endl;
    cout<<"Ok now lets start the game. First player to score 2 points wins."<<endl;
    cout<<"Each possession will have a different set of instructions and you"<<endl
        <<"may need to react quickly so pay attention. BEGIN!"<<endl<<endl;

//First posession
```

```cpp
cout<<"First Possession."<<endl<<endl;
cout<<"You check the ball to "<<oponent<<". Now since you're on defense"<<endl
    <<"you have to force him to his off hand."<<endl;
cout<<"Enter 'L' to force "<<oponent<<" left. Or 'R' to force him right"<<endl;
cin>>selFor;
CselFor=toupper(selFor);

//Using ternary operator / And "For loop" for quick spacing
if (CselFor=='L')
    force=false;
if (oponent=="Steph"){
    cout<<endl<<"Sorry, unfortunately you chose to play the best ball handler"<<endl
        <<"in the world so he has no off hand. You got crossed up and scored on. Your
ball"<<endl;
    opts++;
    cout<<"The score is "<<ppts<<" - "<<opts<<endl;
    for(unsigned short i=0;i<=5;i++){
        cout<<endl;
    }
}else if (oponent=="Kobe"){
    if (CselFor=='R')
        opts++;
    else ppts++;
    cout<<(force?"Wrong move, Kobe is right handed and you get dunked on. Your ball":
        "Nice move, forcing him left caused a turnover and an easy lay up for you. Your
ball")<<endl;
    cout<<"The score is "<<ppts<<" - "<<opts<<endl;
    for(unsigned short i=0;i<=5;i++){
        cout<<endl;
    }
}else if (oponent=="Lebron"){
    if (CselFor=='R')
        opts++;
    else ppts++;
    cout<<(force?"Wrong move, Lebron is right handed and you get dunked on. Your ball":
        "Nice move, forcing him left caused a turnover and an easy lay up for you. Your
ball")<<endl;
    cout<<"The score is "<<ppts<<" - "<<opts<<endl;
    for(unsigned short i=0;i<=5;i++){
        cout<<endl;
    }
}else if (oponent=="James"){
    if (CselFor=='L')
```

```cpp
            opts++;
        else ppts++;
        cout<<(!force?"Wrong move, James is left handed and you get dunked on":
            "Nice move, forcing him right caused a turnover and an easy lay up for you. Your
ball")<<endl;
        cout<<"The score is "<<ppts<<" - "<<opts<<endl;
        for(unsigned short i=0;i<=5;i++){
            cout<<endl;
        }
    }


    //Second Possession, use while loop for quick spacing this time
    cout<<"Second Possession."<<endl<<endl;
    cout<<"Ok now its your turn to show what you got. This possession requires"<<endl
        <<"some quick reflexes so enter any character when ready."<<endl<<endl;
    cin>>ready;
    if (oponent=="Steph"){
        begTime=static_cast<unsigned int>(time(0));
        cout<<endl<<"You were able to back down the smaller Curry, "<<endl
            <<"quick, press 'S' to shoot."<<endl;
        cin>>shoot;
        endTime=static_cast<unsigned int>(time(0));
        if (totTime<=endTime-begTime){
            opts++;
            cout<<endl<<"You were to slow and the shot got blocked, causing an easy"<<endl
                <<"bucket for "<<oponent<<"."<<endl;
            cout<<"The score is "<<ppts<<" - "<<opts<<endl;
            while(n<5){
                cout<<endl;
                n++;
            }
        }else if(totTime>endTime-begTime) {
            ppts++;
            cout<<endl<<"Awesome! Your quick reactions paid off. Swish!"<<endl;
            cout<<"The score is "<<ppts<<" - "<<opts<<endl;
            while(n<5){
                cout<<endl;
                n++;
            }
        }
    }else if (oponent=="Kobe"){
        begTime=static_cast<unsigned int>(time(0));
        cout<<endl<<"You were able to create space against the much older Bryant, "<<endl
```

```cpp
            <<"quick, press 'S' to shoot."<<endl;
        cin>>shoot;
        endTime=static_cast<unsigned int>(time(0));
        if (totTime<=endTime-begTime){
            opts++;
            cout<<endl<<"You were to slow and the shot got blocked, causing an easy"<<endl
                <<"bucket for "<<oponent<<"."<<endl;
            cout<<"The score is "<<ppts<<" - "<<opts<<endl;
             while(n<5){
                cout<<endl;
                n++;
            }
        }else if(totTime>endTime-begTime) {
            ppts++;
            cout<<endl<<"Awesome! Your quick reactions paid off. Swish!"<<endl;
            cout<<"The score is "<<ppts<<" - "<<opts<<endl;
             while(n<5){
                cout<<endl;
                n++;
            }
        }
    }else if (oponent=="Lebron"){
        begTime=static_cast<unsigned int>(time(0));
        cout<<endl<<"You were able to run away form the slow giant Lebron, "<<endl
            <<"quick, press 'S' to shoot."<<endl;
        cin>>shoot;
        endTime=static_cast<unsigned int>(time(0));
        if (totTime<=endTime-begTime){
            opts++;
            cout<<endl<<"You were to slow and the shot got blocked, causing an easy"<<endl
                <<"bucket for "<<oponent<<"."<<endl;
            cout<<"The score is "<<ppts<<" - "<<opts<<endl;
             while(n<5){
                cout<<endl;
                n++;
            }
        }else if(totTime>endTime-begTime) {
            ppts++;
            cout<<endl<<"Awesome! Your quick reactions paid off. Swish!"<<endl;
            cout<<"The score is "<<ppts<<" - "<<opts<<endl;
             while(n<5){
                cout<<endl;
                n++;
```

```cpp
            }
        }
    }else if (oponent=="James"){
        begTime=static_cast<unsigned int>(time(0));
        cout<<"You were able to grab James' Beard and distract him., "<<endl
            <<"quick, press 'S' to shoot."<<endl;
        cin>>shoot;
        endTime=static_cast<unsigned int>(time(0));
        if (totTime<=endTime-begTime){
            opts++;
            cout<<endl<<"You were to slow and the shot got blocked, causing an easy"<<endl
                <<"bucket for "<<oponent<<"."<<endl;
            cout<<"The score is "<<ppts<<" - "<<opts<<endl;
             while(n<5){
                cout<<endl;
                n++;
            }
        }else if(totTime>endTime-begTime) {
            ppts++;
            cout<<endl<<"Awesome! Your quick reactions paid off. Swish!"<<endl;
            cout<<"The score is "<<ppts<<" - "<<opts<<endl;
             while(n<5){
                cout<<endl;
                n++;
            }
        }
    }
    //Third Possession
    if (ppts==1&&opts==1){
        cout<<"Final Possession. Next score wins!"<<endl<<endl;
        cout<<"For this possession you have to guess what type of shot"<<endl
            <<"you think "<<oponent<<" is going to take."<<endl;
        cout<<"Enter 2 if you think he will take a two pointer."<<endl;
        cout<<"Enter 3 if you think he will take a three pointer."<<endl;
        cin>>guesTyp;
        //Randomly generate a 2 or 3
        do{
        ranTyp=rand()%3+1;
        }while(ranTyp==1);
        if (guesTyp==ranTyp){
            ppts++;
            cout<<endl<<"You guessed right and blocked the shot! Then scored the final
Basket!"<<endl;
```

```cpp
        }else if (guesTyp==2 && ranTyp==3){
            opts++;
            cout<<endl<<"Oh No! You guessed wrong and started backing up expecting a
drive"<<endl;
            cout<<"but "<<oponent<<" shot it from outside and scored."<<endl<<endl;
            cout<<"The score is "<<ppts<<" - "<<opts<<endl;
        }else if (guesTyp==3 && ranTyp==2){
            opts++;
            cout<<endl<<"Oh No! You guessed wrong and jumped expecting a shot"<<endl;
            cout<<"but "<<oponent<<" pump faked and scored an easy layup."<<endl<<endl;
            cout<<"The score is "<<ppts<<" - "<<opts<<endl;
        }
    }

    //Outputting to a file
    out<<endl<<"Your player name was "<<player<<"."<<endl;
    out<<"You played against "<<oponent<<"."<<endl;
    out<<"The game took place at "<<crtNam<<"."<<endl;

    if (ppts==2){
        cout<<endl<<"Congratulations "<<player<<" you beat "<<oponent<<" in a 1v1"<<endl
        <<"pickup game!! The game summary will be output to a file. Thank you"<<endl;
        out<<"You won the game. 2-1"<<endl;
    }else if (opts==2){
        cout<<endl<<"Im sorry "<<player<<" you lost to "<<oponent<<" in a 1v1"<<endl
        <<"pickup game!! The game summary will be output to a file."<<endl;
        out<<"You lost the game. 1-2"<<endl;
    }
    //Ask to play again
    cout<<"Would you like to play again? 'Y' or 'N'? "<<endl;
    cin>>plyAgn;
    plyAgn=toupper(plyAgn);
    if(plyAgn!='Y') reDsply=false;

    //Close file
    out.close();
    }while(reDsply);

    //Say goodbye
    cout<<endl<<"Thank you for playing NBA ALLSTARS!"<<endl;
return (0);
}
```