(1) Student and Computing Information

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- Advance Programming Principles and Assignment 4.

- Completed on a MacBook Pro running macOS Monterey version 12.1. The compiler used was visual studios.

(2) Purpose statement: The purpose of this assignment is for students to become familiar with strings, c-string, arrays, structure data, and conditional statements. For this assignment, we used structured data to hold data types of each of the six players (name, number, and points). Then, the program will loop through a for loop asking the user to input the name, number, and points scored by each of the six players. Once each player's data is recorded, all the information will be presented in a table. Once the table is printed out, the program will then add up all the player's points to find the total points by the team using a for a loop. Lastly, the program will then find the player who scored the highest amount of points using a for loop and if statement. This information will then be printed out displaying the player's name and number.

(3) C++ Code

```
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through a for loop asking the user to input the name, number, and points

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*/


#include <iostream>

#include <iomanip>

#include <string>

#include <stdio.h>




using namespace std;


const int SIZE = 100;

const int VOLLEYBALL_PLAYERS = 2; //Number of players on the volleyball team.


struct Players

{

      char name[SIZE];//Player's Name

      int number;//Player's Number

      int points;//Points Scored

};


int main () {


   Players *players = new Players[VOLLEYBALL_PLAYERS]; //Array of structures
```
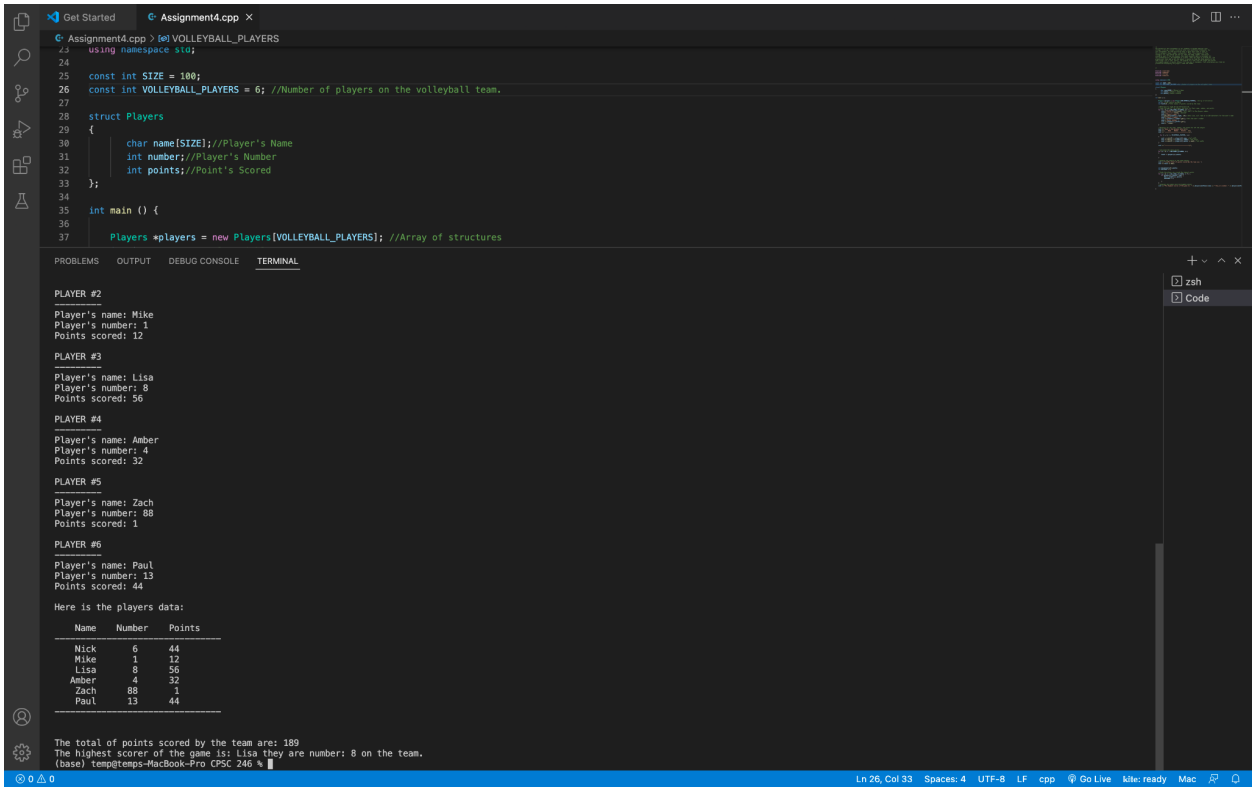

```
   int i; //Loop Control Variable

   int total=0; //Total number of points scored by the team.



   //Reference to slide 49 and 50 lecture 10

   //Loops through all the players and asks for their name, number, and points

   for (i = 0; i < VOLLEYBALL_PLAYERS; i++ ) {

       cout<<"PLAYER #"<<i+1<<endl; //Will add 1 to the players number.

       cout<<"---------"<<endl; //Divider

       cout<<"Player's name: ";

        cin.getline(players[i].name, 100);//Gets line, will read un to 100 characters
for the user's name

       cout<<"Player's number: ";

       (cin >> players[i].number).get();//Gets the user's number.

       cout<<"Points scored: ";

       (cin >> players[i].points).get();

       cout<<" "<<endl;

   }



   //Displays for the name, number, and points for all the players

   cout << "Here is the players data:\n\n";

   cout << "    Name    Number    Points   \n";

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



     for (i = 0; i < VOLLEYBALL_PLAYERS; i++)

   {

       cout << setw(8) << players[i].name; //set width

       cout << setw(8) << players[i].number; //set width

       cout << setw(8) << players[i].points << endl; //set width
```

```
}


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




//Calculate the total points

for (i = 0; i < VOLLEYBALL_PLAYERS; i++)

{

    total += players[i].points;


}


//Display the results of the total points.

cout << "\n\nThe total of points scored by the team are: ";

cout << total << endl;




int max=players[0].points;

int maxIndex = 0;


//Finds the player who scored the highest points

for (i = 0; i < VOLLEYBALL_PLAYERS; i ++) {

    if (players[i].points > max) {

        max = players[i].points;

        maxIndex = i;


    }

}
```

```
   //Displays the player with the highest points

    cout << "The highest scorer of the game is: " << players[maxIndex].name << " they
are number: " << players[maxIndex].number <<" on the team."<<endl;



}
```

(4) Output from the code.

This is the output of the code ran correctly.



This is the output when the user enters the wrong data type. The program will stop running and will calculate any of the data it was entered in prior.