

QUESTION

Given the following incomplete C++ program (**Program 9**). The program using **array of structured data type** is developed to calculate the individuals' point in soccer and to determine the best player. Goals are worth two points and assists are worth one point. The players' information is stored in an array named **stats**. The program has a value returning function named **calcPoints()** that calculate the total point for each player and determine the best player. The function should use the array of players' information and the number of players as function parameters. Function prototype for this function already given in the program. The function should not display any output. The task to display the output must be done in the **main()** function.

You are required to complete the **Program 9** by defining the **main()** and **calcPoints()** function. Read the data from the input text file named **input.txt**.

Note:

- i) Please make sure that the program will only continue reading the file if it is successfully opened, otherwise print the error message and exit the program. The example of data in the input file is shown in **Figure 3**.
- ii) Let's assume that you don't know the number of data in the input file.

The program should produce the output as in **Figure 4**. Write your answer (ONLY **main()** and **calcPoints()** function definition) in the answer booklet. **Note:** Please use proper output formatting.

```
1 //Program 9
2 #include <iostream>
3 #include <fstream>
4 #include <cstdlib>
5 #include <iomanip>
6 #define SIZE 20      //Maximum number of players/ characters
7 using namespace std;
8
9 struct player
10 {
11     char name[SIZE]; //Player name
12     char team[SIZE]; //Player team
13     int goal;        //Number of goals
14     int assist;      //Number of assists
15     int point;       //Total point
16 };
17
18 //Function prototype
19 int calcPoints (player [], int); //Function to calculate
20                                     //players' point and to
21                                     //determine the best player
```

22	
23	//Complete the program start from here
24	
25	

Bernardo Silva,Manchester City, 5 2
Youri Tielemans,Leicester City, 3 3
Sergio Aguero,Manchester City, 9 2
Sadio Mane,Liverpool, 7 2
James Maddison,Leicester City, 4 2
Raheem Sterling,Manchester City, 7 1
Marcus Rashford,Manchester United, 6 3
Jamie Vardy,Leicester City, 11 2
Mohamed Salah,Liverpool, 6 3
Christian Pulisic,Chelsea, 5 2
Daniel James,Manchester United, 3 2
Tammy Abraham,Chelsea, 10 2
Anthony Martial,Manchester United, 3 3
Mason Mount,Chelsea, 4 1
Roberto Firmino,Liverpool, 3 0

Figure 3: Data in the input file “*input.txt*”

:: LIST OF PLAYERS ::
Bernardo Silva Manchester City 5 2 12
Youri Tielemans Leicester City 3 3 9
Sergio Aguero Manchester City 9 2 20
Sadio Mane Liverpool 7 2 16
James Maddison Leicester City 4 2 10
Raheem Sterling Manchester City 7 1 15
Marcus Rashford Manchester United 6 3 15
Jamie Vardy Leicester City 11 2 24
Mohamed Salah Liverpool 6 3 15
Christian Pulisic Chelsea 5 2 12
Daniel James Manchester United 3 2 8
Tammy Abraham Chelsea 10 2 22
Anthony Martial Manchester United 3 3 9
Mason Mount Chelsea 4 1 9
Roberto Firmino Liverpool 3 0 6

Best player: Jamie Vardy with 24 points from Leicester City

Figure 4: Sample output