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INSTITUTE OF TECHNOLOGY

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DEPARTMENT OF COMPUTER ENGINEERING

Subject : Competitive Programming Lab

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Batch : T2

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Expt. No. :04

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Title : Contest Scoreboard

Remark

Signature

Language: C++

```
#include <iostream> // 32 Mohammed Meraj T2
using namespace std;
```

```
int main() {
    int entry;
    cout << "----- CONTEST SCOREBOARD -----\\n";
    cout << "Enter total number of entries: ";
    cin >> entry;
```

```
    int contestid[entry];
    int probid[entry];
    int time[entry];
    char res[entry];
```

```
    for (int i = 0; i < entry; i++) {
        cout << "\\nFor Entry No: " << i + 1 << endl;
        cout << "Contestant Id: ";
        cin >> contestid[i];
        cout << "Problem Id: ";
        cin >> probid[i];
        cout << "Time: ";
        cin >> time[i];
        cout << "Result (C, I, R, U, E): ";
```

```

    cin >> res[i];
}

int maxContestant = 101;

int problemsSolved[maxContestant] = {0};
int penaltyTime[maxContestant] = {0};
int incorrectAttempts[maxContestant][10] = {0};

for (int i = 0; i < entry; i++) {
    int cId = contestid[i];
    int pId = probid[i];

    int t = time[i];
    char result = res[i];

    if (result == 'C') {

        if (incorrectAttempts[cId][pId] != -1) {
            problemsSolved[cId]++;

            penaltyTime[cId] += t + (incorrectAttempts[cId][pId] * 20);
            incorrectAttempts[cId][pId] = -1;
        }
    } else if (result == 'I') {

        if (incorrectAttempts[cId][pId] != -1) {
            incorrectAttempts[cId][pId]++;
        }
    }
}

for (int i = 1; i < maxContestant; i++) {
    for (int j = i + 1; j < maxContestant; j++) {
        if ((problemsSolved[j] > problemsSolved[i]) ||
            (problemsSolved[j] == problemsSolved[i] && penaltyTime[j] < penaltyTime[i]) ||
            (problemsSolved[j] == problemsSolved[i] && penaltyTime[j] == penaltyTime[i]
            && j < i)) {

            int temp = problemsSolved[i];

```

```

        problemsSolved[i] = problemsSolved[j];
        problemsSolved[j] = temp;

        temp = penaltyTime[i];
        penaltyTime[i] = penaltyTime[j];
        penaltyTime[j] = temp;
    }
}
}
cout << "\nFinal Scoreboard:\n";

for (int i = 1; i < maxContestant; i++) {
    if (problemsSolved[i] > 0 || penaltyTime[i] > 0) {

        cout << i << " " << problemsSolved[i] << " " << penaltyTime[i] << endl;
    }
}
return 0;
}

```

Output :

The screenshot shows a C++ program running in a Windows environment. The program is titled "32_Contest Scoreboard_mohammed_meraj.cpp" and is located in the directory "D:\CPL competitive programming\Lab 4\32_Contest Scoreboard_mohammed_meraj.exe". The program prompts the user to enter the total number of entries (5). It then processes 5 entries, each consisting of a contestant ID, problem ID, and time. The results are displayed as follows:

```

----- CONTEST SCOREBOARD -----
Enter total number of entries: 5

For Entry No: 1
Contestant Id: 1
Problem Id: 2
Time: 10
Result (C, I, R, U, E): I

For Entry No: 2
Contestant Id: 3
Problem Id: 1
Time: 11
Result (C, I, R, U, E): C

For Entry No: 3
Contestant Id: 1
Problem Id: 2
Time: 19
Result (C, I, R, U, E): R

For Entry No: 4
Contestant Id: 1
Problem Id: 2
Time: 21
Result (C, I, R, U, E): C

For Entry No: 5
Contestant Id: 1
Problem Id: 1
Time: 25
Result (C, I, R, U, E): C

Final Scoreboard:
1 2 66
2 1 11

Process returned 0 (0x0)   execution time : 53.160 s
Press any key to continue.

```

The program's source code is visible in the background, showing the input section and the final scoreboard calculation. The output is displayed in the console window, showing the results for each entry and the final scoreboard.