Experiment1.1

Student Name: Virat Samdarshi **UID: 22BCS12648**
Branch: B.E(CSE) **Section/Group: IOT_627-B**
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Subject Name: AP LAB 1 **Subject Code: 22CSP-314**

1. **Aim:** Given an array of integers, find the sum of its elements.

2. **Objective:** The objective is to calculate and return the sum of all elements in a given array of integers.

3. **Implementation/Code :-**

```
#include <bits/stdc++.h>

using namespace std;

string ltrim(const string &);
string rtrim(const string &);
vector<string> split(const string &);

/*
 * Complete the 'simpleArraySum' function below.
 *
 * The function is expected to return an INTEGER.
 * The function accepts INTEGER_ARRAY ar as parameter.
 */

int simpleArraySum(vector<int> ar) {
 int sum = 0;
    for(int i=0;i<ar.size();i++){
        sum+=ar[i];
    }
    return sum;
}
```

```
int main()
{
    ofstream fout(getenv("OUTPUT_PATH"));

    string ar_count_temp;
    getline(cin, ar_count_temp);

    int ar_count = stoi(ltrim(rtrim(ar_count_temp)));

    string ar_temp_temp;
    getline(cin, ar_temp_temp);

    vector<string> ar_temp = split(rtrim(ar_temp_temp));

    vector<int> ar(ar_count);

    for (int i = 0; i < ar_count; i++) {
        int ar_item = stoi(ar_temp[i]);

        ar[i] = ar_item;
    }
```

```
vector<string> split(const string &str) {
    vector<string> tokens;

    string::size_type start = 0;
    string::size_type end = 0;

    while ((end = str.find(" ", start)) != string::npos) {
        tokens.push_back(str.substr(start, end - start));

        start = end + 1;
    }

    tokens.push_back(str.substr(start));

    return tokens;
}
```

4. Output :-

5. Time Complexity:- O(n)

PROBLEM 2

1. Aim: Alice and Bob each created one problem for HackerRank. A reviewer rates the two challenges, awarding points on a scale from 1 to 100 for three categories: problem clarity, originality, and difficulty.

The rating for Alice's challenge is the triplet a = (a[0], a[1], a[2]), and the rating for Bob's challenge is the triplet b = (b[0], b[1], b[2]).

The task is to find their comparison points by comparing a[0] with b[0], a[1] with b[1], and a[2] with b[2].

If a[i] > b[i], then Alice is awarded 1 point.

If a[i] < b[i], then Bob is awarded 1 point.

If a[i] = b[i], then neither person receives a point.

Comparison points is the total points a person earned.

Given a and b, determine their respective comparison points.

2.Objective : The objective is to compare the ratings of Alice and Bob in three categories and determine the total points each earns based on who has higher ratings in each category. The result is a pair of integers representing their respective scores.

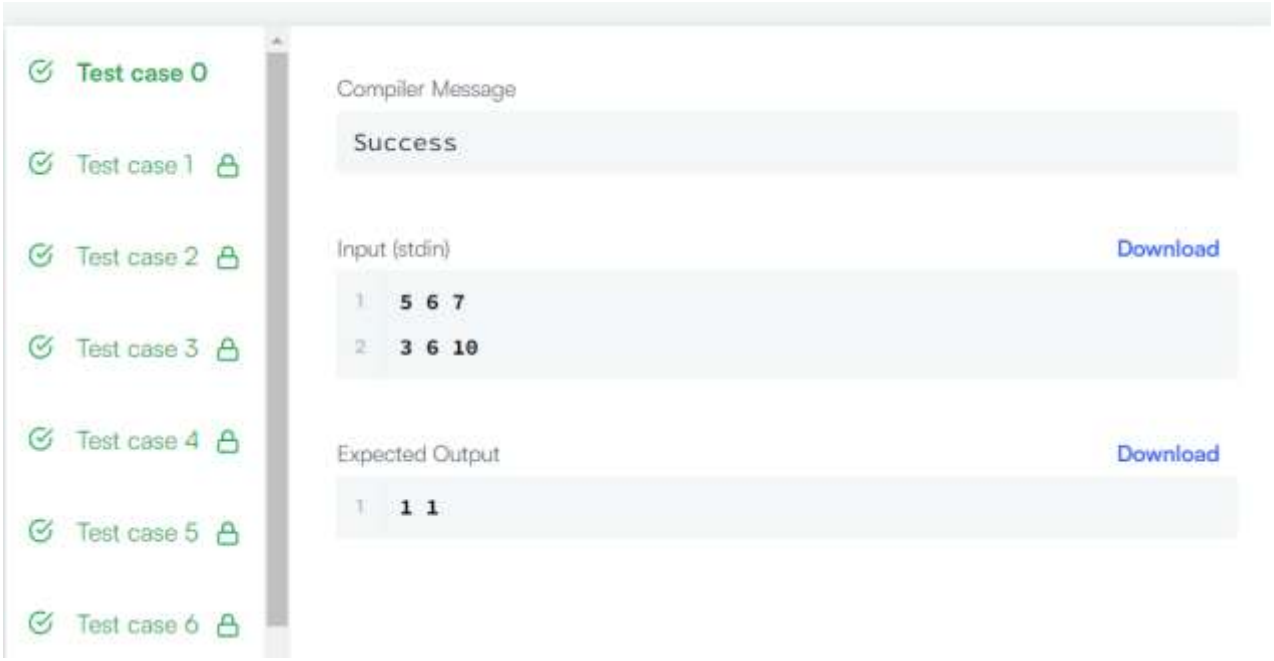
3.Implementation/Code :-

```
#include <bits/stdc++.h>
using namespace std;
string ltrim(const string &);
string rtrim(const string &);
vector<string> split(const string &);
vector<int> compareTriplets(vector<int> a, vector<int> b) {
vector<int> result;
    int aliceScore = 0;
    int bobScore = 0;
    for(int i=0;i<a.size();i++){
        if(a[i] > b[i])
            aliceScore ++;
        else if(b[i] > a[i])
            bobScore++;
        }
        result.push_back(aliceScore);
        result.push_back(bobScore);
    return result;
}

int main()
{
    ofstream fout(getenv("OUTPUT_PATH"));
    string a_temp_temp;
    getline(cin, a_temp_temp);
    vector<string> a_temp = split(rtrim(a_temp_temp));
    vector<int> a(3);
    for (int i = 0; i < 3; i++) {
        int a_item = stoi(a_temp[i]);

        a[i] = a_item;
    }
    string b_temp_temp;
    getline(cin, b_temp_temp);
    vector<string> b_temp = split(rtrim(b_temp_temp));
    vector<int> b(3);
    for (int i = 0; i < 3; i++) {
        int b_item = stoi(b_temp[i]);
        b[i] = b_item;
```

3. Output :-



4. Time Complexity:- O(n)