

Experiment:1.1

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**Batch/Sec: 616- A
Coding**

Subject: Competitive

BRANCH :- CSE

Q1)

Aim: Arrays: To implement the concept of Dynamic

Array. Objective: -

To learn about Array Data Structure

To learn different approaches to reverse the elements in

Array. Problem statement:

Example

Print 4 3 2 1. Each integer is separated by one space.

Input Format

The first line contains an integer (the size of our array).

The second line contains space-separated integers that describe array 's elements.

Output Format

Print the elements of array in reverse order as a single line of space-separated numbers.

Sample Input

4

1 4 3 2

Sample Output

2 3 4 1

CODE:

```
#include <iostream>
```

```
using namespace std; int main(){
    int n;
    cin>>n;           int a[n]; for(int
i=0;i<=n;i++){ cin>>a[i];
}for(int i=n- 1;i>=0;i--){
cout<<a[i]<<" ";
}
}
```

Output:

The screenshot shows a web browser window with the HackerRank interface. The title bar says "Simple Array Sum | HackerRank". The address bar shows the URL "hackerrank.com/challenges/simple-array-sum/problem?isFullScreen=true". The page content is for the "Simple Array Sum" problem in the "Algorithms > Warmup" section.

Problem (Left sidebar):

- Given an array of integers, find the sum of its elements.
- For example, if the array $ar = [1, 2, 3]$, $1 + 2 + 3 = 6$, so return 6.
- Function Description**
- Complete the simpleArraySum function in the editor below. It must return the sum of the array elements as an integer.
- simpleArraySum** has the following parameter(s):
 - ar : an array of integers
- Input Format**
- The first line contains an integer, n , denoting the size of the array.
- The second line contains n space-separated integers representing the array's elements.
- Constraints**
- $0 < n, ar[i] \leq 1000$
- Output Format**
- Print the sum of the array's elements as a single integer.

Code Editor (Right sidebar):

```
1 #include<bits/stdc++.h>
2 using namespace std;
3
4
5 int main() {
6
7     unsigned long long int N, Sum = 0, i, Num;
8     //Sarthak Gupta
9     //20BCS4854
10    cin>>N;
11
12    for (i = 1 ; i <= N ; i++)
13    {
14        cin>> Num;
15        Sum += Num;
16    }
17
18    cout<<Sum<<endl;
```

Line: 9 Col: 16

Buttons at the bottom right: Upload Code as File, Test against custom input, Run Code, Submit Code.

The screenshot shows a computer screen with a browser window open to the HackerRank challenge for Day 7: Arrays. The challenge title is "30 Days of Code: Day 7: Arrays". On the left, there's a sidebar with tabs for "Problem", "Submissions", and "Leaderboard". The "Problem" tab is active, displaying the challenge details. The "Task" section says: "Given an array A of N integers, print A 's elements in reverse order as a single line of space-separated numbers." An "Example" shows the input $A = [1, 2, 3, 4]$ and the output $4 \ 3 \ 2 \ 1$. The "Input Format" and "Constraints" sections provide further details. The main area shows a "Sample Test case 0" with input 4 and output $4 \ 3 \ 2$. Below it, the "Your Output (stdout)" field contains $2 \ 3 \ 4 \ 1$, and the "Expected Output" field also contains $2 \ 3 \ 4 \ 1$. A "Congratulations!" message at the top right indicates success. The status bar at the bottom shows the date and time as 8/24/2022 8:36 PM.

This screenshot shows the same challenge interface after a successful submission. The "Problem" sidebar is still visible. The main area now displays a green "Congratulations" banner with the message "You solved this challenge. Would you like to challenge your friends?". It includes social sharing icons for Facebook, Twitter, and LinkedIn, and a "Next Challenge" button. Below this, a "Compiler Message" shows "Success". A "Hidden Test Case" section is shown with the message "Unlock this testcase for 5 hackos." and a "Hack" button. The status bar at the bottom shows the date and time as 8/24/2022 8:35 PM.

Q2)

Given an array of integers, find the sum of its

elements. For example, if the array $[1, 2, 3, 4]$, so return 10 .

Function Description

Complete the *simpleArraySum* function in the editor below. It must return the sum of the array elements as an integer.

simpleArraySum has the following parameter(s):

- *ar*: an array of

integers Input Format

The first line contains an integer, , denoting the size of the array.

The second line contains space-separated integers representing the array's elements.

Constraints

Output Format

Print the sum of the array's elements as a single integer.

Sample Input

6

1 2 3 4 10 11

Sample Output

31

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;
    }
}

```

```

int result = simpleArraySum(ar); fout <<
result << "\n"; fout.close();

return 0;
}

string ltrim(const string &str) { string s(str);

s.erase(
    s.begin(),
    find_if(s.begin(), s.end(), not1(ptr_fun<int, int>(isspace)))
);

return s;
}

string rtrim(const string &str) { string s(str);

s.erase(
    find_if(s.rbegin(), s.rend(), not1(ptr_fun<int, int>(isspace)))
.base(),
    s.end()
);

return s;
}

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;  
    }  
}
```

OUTPUT:

The screenshot shows the HackerRank challenge interface for the 'Simple Array Sum' problem. On the left, the challenge details are visible, including constraints ($0 < n, ar[i] \leq 1000$), output format (sum of array elements as a single integer), sample input (6 1 2 3 4 10 11), and sample output (31). The right side shows a code editor with the following C++ code:

```
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;  
}
```

Below the code editor are 'Run Code' and 'Submit Code' buttons. The status bar indicates the code has 21 lines and 15 columns. At the bottom, there's a terminal window showing the command `g++ -std=c++11 simplearraysum.cpp &> simplearraysum.out`. The results section shows 'Test case 0' as Success, 'Test case 1' as Success, and 'Test case 2' as Success, with the expected output being 31.

Learning Outcomes:

- 1) Learn about C++.
 - 2) Learn about Array and how to Reverse Array.
 - 3) Learn About elements of array.
 - 4) How to sum elements of array.
- Learn about functions and vector

