Lab assignments - 4

**VECTORS**

1. Do the following as explained

Create a structure

BTech { semester;

Core;

Electives;

}

b. Define an array :

Create an object using the data type given above(Hint : use tuple) and Initialize with following values

|  |  |  |
| --- | --- | --- |
| Semester | Core | Electives |
| 1 | 5 | 5 |
| 2 | 6 | 4 |
| 3 | 7 | 2 |
| 4 | 4 | 4 |
| 5 | 5 | 3 |
| 6 | 6 | 6 |
| 7 | 7 | 3 |
| 8 | 4 | 4 |

c. Print the following for each semester

Semester %d has total % courses.

d. Replace this with vectors and do the same example.

<https://www.hackerrank.com/challenges/vector-sort/problem>

You are given integers. Sort the integers and print the sorted order.  
Store the integers in a vector.

* Declaration:
* vector<int>v; (creates an empty vector of integers)
* Size:
* int size=v.size();
* Pushing an integer into a vector:
* v.push\_back(x);(where x is an integer.The size increases by 1 after this.)
* Popping the last element from the vector:
* v.pop\_back(); (After this the size decreases by 1)
* Sorting a vector:
* sort(v.begin(),v.end()); (Will sort all the elements in the vector)

To know more about vectors, [Click Here](http://www.cplusplus.com/reference/vector/vector/)

**Input Format**

The first line of the input contains

where is the number of integers. The next line contains integers.  
**Constraints**  
  
, where is the

integer in the vector.

**Output Format**

Print the integers in the sorted order one by one in a single line followed by a space.

**Sample Input**

5

1 6 10 8 4

**Sample Output**

1 4 6 8 10

#include <cmath>

#include <cstdio>

#include <vector>

#include <iostream>

#include <algorithm>

using namespace std;

int main() {

    /\* Enter your code here. Read input from STDIN. Print output to STDOUT \*/

    return 0;

}

1. <https://www.hackerrank.com/challenges/vector-erase/problem>

You are provided with a vector of integers. Then, you are given queries. For the first query, you are provided with integer, which denotes a position in the vector. The value at this position in the vector needs to be erased. The next query consists of integers denoting a range of the positions in the vector. The elements which fall under that range should be removed. The second query is performed on the updated vector which we get after performing the first query.  
The following are some useful vector functions:

* *erase(int position):*
* Removes the element present at position.
* Ex: v.erase(v.begin()+4); (erases the fifth element of the vector v)
* *erase(int start,int end):*
* Removes the elements in the range from start to end inclusive of the start and exclusive of the end.
* Ex:v.erase(v.begin()+2,v.begin()+5);(erases all the elements from the third element to the fifth element.)

**Input Format**

The first line of the input contains an integer

.The next line contains space separated integers(1-based index).The third line contains a single integer ,denoting the position of an element that should be removed from the vector.The fourth line contains two integers and

denoting the range that should be erased from the vector inclusive of a and exclusive of b.

**Constraints**

**Output Format**

Print the size of the vector in the first line and the elements of the vector after the two erase operations in the second line separated by space.

**Sample Input**

6

1 4 6 2 8 9

2

2 4

**Sample Output**

3

1 8 9

**Explanation**

The first query is to erase the 2nd element in the vector, which is 4. Then, modified vector is {1 6 2 8 9}, we want to remove the range of 2~4, which means the 2nd and 3rd elements should be removed. Then 6 and 2 in the modified vector are removed and we finally get {1 8 9}

#include <cmath>

#include <cstdio>

#include <vector>

#include <iostream>

#include <algorithm>

using namespace std;

int main() {

    /\* Enter your code here. Read input from STDIN. Print output to STDOUT \*/

    return 0;

}