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# Question: Write a C++ program to implement the greedy algorithm for ...

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#### Please assist

Write a C++ program to implement the greedy algorithm for making change. Your program should accept a list of coin denominations, the amount of change to make, and outputs the minimum number of coins needed to make that amount of change.

#### Input

The first line of input is N, the number of coin denominations. N denominations follow, each separated by a space. You may assume that the denominations are sorted in ascending order. The next line begins with the integer M, the number of test cases to follow. M integers  $K_1, \ldots K_M$  follow, each separated by a space.

#### Output

For each test case i, output the minimum number of coins needed to make change for amount  $K_i$ . For each test case, output the answer on its own line.

### Evample Input-Output Paire

Example input-Output Fa	11.5
Sample Input #1	Sample Input #2
7 1 2 5 10 20 50 100	3 1 2 5
3 21 83 60	2 25 1001
Sample Output #1	Sample Output #2
2	5
5	201
2	

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**■** 

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## **Expert Answer** ①



Anonymous answered this 203 answers

C++ CODF-

#include<bits/stdc++.h> using namespace std;

int main(){ // n will store the number of denominations

cin >> n;

// array of size n for storing denominations int deno[n]; for(int i = 0; i < n; i++){

cin >> deno[i];

// number of test cases

cin >> t;

// for each test case find min number of coins while(t--){

// total amount we have int amount; cin >> amount;

 $\/\!/$  variable for storing the number of coins int coins = 0;

// since the array is already sorted in ascending order // traverse the denominations array in reverse direction

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```
// subtract deno[i] from amount
amount = amount - deno[i];
// increment the coins by 1
coins++;
}

// print the number of coins
cout << coins << endl;
}
return 0;</pre>
```

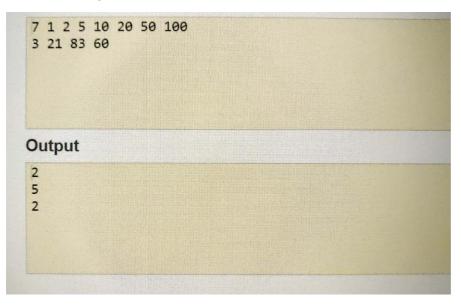
Please refer to the image of code for proper indentation-

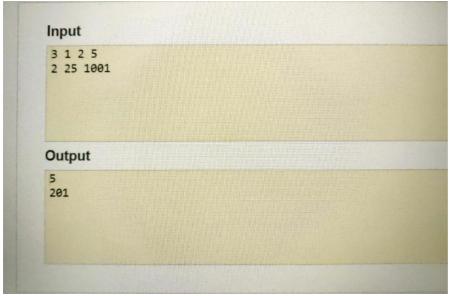
```
#include<bits/stdc++.h>
     using namespace std;
      int main(){
 4
         // n will store the number of denominations
 5
 6
         int n;
         cin >> n;
 8
 9
         // array of size n for storing denominations
         int deno[n];
10
         for(int i = 0; i < n; i++){
11
              cin >> deno[i];
12
13
14
15
         // number of test cases
16
         int t;
         cin >> t;
17
18
19
         // for each test case find min number of coins
20
         while(t--){
             // total amount we have
21
             int amount;
22
23
             cin >> amount;
24
25
             // variable for storing the number of coins
26
27
```

```
for each test case find min number of coins
          while(t--){
               // total amount we have
              int amount;
              cin >> amount;
              // variable for storing the number of coins
              int coins = 0;
              // since the array is already sorted in ascending order
              // traverse the denominations array in reverse direction
29
              for(int i = n - 1; i >= 0; i--){
30
                  // while amount left is greater than or equal to deno[i]
31
32
                  while (amount >= deno[i]) {
33
                      // subtract deno[i] from amount
34
                      amount = amount - deno[i];
35
                      // increment the coins by 1
36
                      coins++;
37
                  }
38
39
40
              // print the number of coins
             cout << coins << endl;</pre>
41
42
          return 0;
43
44
```

Screenshot of sample input and output-







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