

Coding Challenge

[Leaderboard](#)[Refer a friend](#)[Questions](#)[News](#)[How to](#)

Counting Change

James has recently started working in a currency exchange office at the airport. As many people are buying different types of currencies before they go on holiday, he ends up working with various types of coins. James would like to find all possible ways of making change for a desired amount using different coins.

For example, if James has 3 different types of coins, and the value of each is given as 15, 31 and 9, an amount of 63 can be made in two ways: {9, 9, 15, 15, 15} and {9, 9, 9, 9, 9, 9, 9}.

Create a `countNumberOfWays` function which returns an integer denoting the number of possible ways to give change.

Input format

The first line:

- `n`: an integer, is the desired amount.
- `m`: an integer, is the number of different coin types.

The second line:

- `coins`: space-separated distinct integers describing the respective values of each coin.

Output format

An integer denoting the number of possible ways to make change for the desired amount.

Examples

Example 1

Input

```
12 4
2 3 4 5
```

Output

```
10
```

i.e. There are 10 ways to change $n = 12$ using coins with values 2, 3, 4 and 5.

1. {2, 2, 2, 2, 2, 2}
2. {2, 2, 2, 2, 4}
3. {2, 2, 2, 3, 3}
4. {2, 2, 4, 4}
5. {2, 2, 5, 3}
6. {2, 3, 3, 4}
7. {3, 3, 3, 3}
8. {2, 5, 5}
9. {3, 4, 5}
10. {4, 4, 4}

Thus, we print 10 as our answer.

Example 2

Input

```
206 4
2 20 9 30
```

Output

214



Reset



Undo



Run



Submit



Dark Mode






C++



enter

```
1 #include <bits/stdc++.h>
2
3 using namespace std;
4
5 long long int countNumberOfWays(int n, int C, vector<int> c) {
6
7     long long int dp[n+1]={0};
8     dp[0]=1;
9     for(int i=0;i<C;i++)
10    {
11        for(int j=c[i];j<=n;j++)
12            {dp[j]+=dp[j-c[i]]};
13    }
14 }
15 }
16 return dp[n];
17 }
18 }
19
20 vector<string> split(const string& str, char delim) {
21     vector<string> strings;
22     size_t start;
23     size_t end = 0;
24     while ((start = str.find_first_not_of(delim, end)) != string::npos) {
```

Your submission History for Question 8

	Timestamp	Commit ID	Language	# Tests Passed	# Tests Failed	# Tests Timed out	Build Status
+	10/20/2020, 1:32:36 AM	d1884dd	CPLUSPLUS	90	0	0	 Perfect
+	10/20/2020, 1:31:37 AM	1a429df	CPLUSPLUS	75	15	0	 Passed
+	10/20/2020, 1:30:36 AM	c187b79	CPLUSPLUS	78	12	0	 Passed



Copyright 1997 - 2020 CREDIT SUISSE GROUP AG and/or its affiliates. All rights reserved.

[Terms and Conditions](#) | [Accessibility](#)