All Occurence!

You are given an integer array of size N. Your aim is to find all the occurrences (indices) of a given element.

Input format:

Vector V and integer k (to find) are passed as parameters.

Output parameter:

Return a vector of integers containing all the indices in sorted manner.

Sample Input:

3

1 2 5 3 1 2 3 8 6 3 6 7 9

Sample Output:

3 6 9

Solution: allOcc.cpp

Print Increasing Numbers

Given an integer N. Your task is to return an integer vector containing numbers from 1 to N in increasing order.

Sample Input

5

Sample Output

1 2 3 4 5

Solution: increasingNumbers.cpp

Tiling Problem!

You are given N tiles of size 1 x M, There is a floor of size N x M which you have to cover with tiles. Find the number of ways the floor can be completely covered if you can place the tiles in both horizontal and vertical manner.

Input Format:

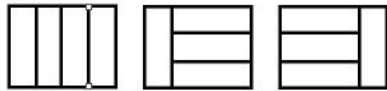In the function, two integers N and M are passed.

Output Format:

Return a single integer denoting the number of ways.

Sample Input:

4 3

Sample Output:

3

Solution: tiling.cpp

Binary Strings!

You are given an integer N. Your task is to print all binary strings of size N without consecutive ones.

Constraints:

N<=12

Input Format

In the given function an integer N is passed as parameter.

Output Format

Return a vector of strings, with all possible strings in a sorted order.

Sample Input

3

Sample Output

```
000001010100101
```

Solution: binaryStrings.cpp

Friends' Party!

Given n friends, each one can remain single or can be paired up with some other friend. Each friend can be paired only once. Find out the total number of ways in which friends can remain single or can be paired up.

Input Format

In the function an integer N is passed as parameter.

Output Format

Return an integer representing the total no. of ways

Sample Input

3

Sample Output

4

Explanation

{1}, {2}, {3} : all single
{1}, {2,3} : 2 and 3 paired but 1 is single.
{1,2}, {3} : 1 and 2 are paired but 3 is single.
{1,3}, {2} : 1 and 3 are paired but 2 is single.

Note that {1,2} and {2,1} are considered same.

Solution: friendsParty.cpp

Sorted Permutations

Given a string S of lowercase alphabets, you need to find all 'unique' permutations of the string in a 'sorted' order.

(**Hint:** You can use find all permutations using brute force, and put them in a `set` for the sorting.

Input Format:

Functions contains string S as a parameter.(There are more than 1 testcases).

Output Format:

Return a sorted vector containing all the permutations of string.

Constraints:

1<=S.length()<=10

Sample Testcase:

Input:

acb

Output:

abc

acb

bac

bca

cab

cba

Solution: sortedPermutations.cpp

Game of Coins

Oswald and Henry are playing the game of coins. They have a row of 'n' coins [C1,C2,C3...Cn] with values [V1,V2,V3...Vn] where Ci coin has Vi value. They take turns alternatively. In one turn the player can pick either the first or the last coin of the row. Given both Oswald and Henry are very smart players, you need to find the maximum possible value Oswald can earn if he plays first.

Input Format:

In the function you are given an integer N i.e. the number of coins and a vector V which represents the values of each coin in the row respectively.

Output Format:

Return a single integer which is the maximum possible value as asked in the question.

Constraints:

1<=N<=15

1<=V[i]<=1000

Sample Testcase:

Input:

4

1 2 3 4

Output:

6

Explanation:

Oswald will pick up coin with value 4, Henry will pick coin with value 3, Oswald will pick 2 and Henry will pick 1. Hence 4+2=6.

Solution: gameOfCoins.cpp