

Assignment 14

Q1. Write a function to find the longest common prefix string amongst an array of strings.

If there is no common prefix, return an empty string "".

Example 1:

Input: strs = ["flower", "flow", "flight"]

Output: "fl"

Example 2:

Input: strs = ["dog", "racecar", "car"]

Output: ""

Explanation: There is no common prefix among the input strings.

Q2. Given an array arr[] of distinct integers of size N and a sum value X, the task is to find count of triplets with the sum smaller than the given sum value X.

Example 1:

Input: N = 4, X = 2

arr[] = {-2, 0, 1, 3}

Output: 2

Explanation: Below are triplets with sum less than 2 (-2, 0, 1) and (-2, 0, 3).

Example 2:

Input: N = 5, X = 12

arr[] = {5, 1, 3, 4, 7}

Output: 4

Explanation: Below are triplets with
sum less than 12 (1, 3, 4), (1, 3, 5),
(1, 3, 7) and (1, 4, 5).

Q3. Given an array of integers and another number. Find all the unique quadruple from the given array that sums up to the given number.

Example 1:

Input:

N = 5, K = 3

A[] = {0,0,2,1,1}

Output: 0 0 1 2 \$

Explanation: Sum of 0, 0, 1, 2 is equal
to K.

Example 2:

Input:

N = 7, K = 23

A[] = {10,2,3,4,5,7,8}

Output: 2 3 8 10 \$ 2 4 7 10 \$ 3 5 7 8 \$

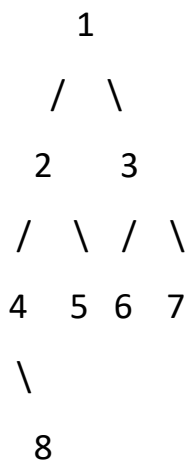
Explanation: Sum of 2, 3, 8, 10 = 23,
sum of 2, 4, 7, 10 = 23 and sum of 3,
5, 7, 8 = 23.

Q4. Given a Binary Tree, print Left view of it.

Left view of a Binary Tree is set of nodes visible when tree is visited from Left side.

The task is to complete the function leftView(), which accepts root of the tree as argument.

Left view of following tree is 1 2 4 8.



Example 1:

Input:

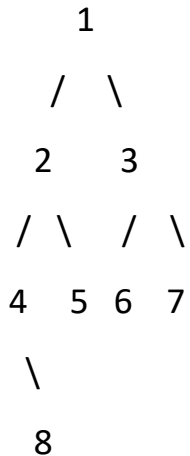


Output: 1 3

Q5. Given a Binary Tree, find Right view of it.

Right view of a Binary Tree is set of nodes visible when tree is viewed from right side.

Right view of following tree is 1 3 7 8.



Example 1:

Input:



Output: 1 2

Q6. You are given a string s of lower case english alphabets.

You can choose any two characters in the string and replace all the occurrences of the first character with the second character

and replace all the occurrences of the second character with the first character.

Your aim is to find the lexicographically smallest string that can be obtained by doing this operation at most once.

Example 1:

Input:

A = "ccad"

Output: "aacd"

Explanation:

In ccad, we choose 'a' and 'c' and after doing the replacement operation once we get, aacd and this is the lexicographically smallest string possible.

Example 2:

Input:

A = "abba"

Output: "abba"

Explanation:

In abba, we can get baab after doing the replacement operation once for 'a' and 'b' but that is not lexicographically smaller than abba. So, the answer is abba.

Q7. String Pair

Problem Description: One person hands over the list of digits to Mr. String, But Mr. String understands only strings. Within strings also he understands only vowels. Mr. String needs your help to find the total number of pairs which add up to a certain digit D. The rules to calculate digit D are as follow :-

Take all digits and convert them into their textual representation.

Next, sum up the number of vowels i.e. {a, e, i, o, u} from all textual representation.

This sum is digit D

Now, once digit D is known find out all unordered pairs of numbers in input whose sum is equal to D. Refer example section for better understanding.

Constraints

$1 \leq N \leq 100$

$1 \leq \text{value of each element in second line of input} \leq 100$

Number 100, if and when it appears in input should be converted to textual representation as hundred and not as one hundred. Hence number of vowels in number 100 should be 2 and not 4

Input

First line contains an integer N which represents number of elements to be processed as input

Second line contains N numbers separated by space

Output

Lower case representation of textual representation of number of pairs in input that sum up to digit D

Note: – (If the count exceeds 100 print “greater 100”)

Examples

Input : 5

1 2 3 4 5

Output : one

Input : 3

7 4 2

Output : zero

Q8. Elections

Problem Description: Elections are going on, and there are two candidates A and B, contesting with each other. There is a queue of voters and in this queue some of them are supporters of A and some of them are supporters of B. Many of them are neutral. The fate of the election will be decided on which side the neutral voters vote. Supporters of A and supporters of B make attempt to win the votes of neutral voters.

The way this can be done is explained below:

1. The voter queue is denoted by three characters, viz {-, A, B}.

The – denotes neutral candidate, A denotes supporter of candidate A and B denotes supporter of candidate B.

2. Supporters of A can only move towards the left side of the queue.

3. Supporters of B can only move towards the right side of the queue.

4. Since time is critical, supporters of both A and B will move simultaneously.

5. They both will try and influence the neutral voters by moving in their direction in the queue. If supporter of A reaches the neutral voter before supporter of B reaches him, then that neutral voter will become a supporter of candidate A.

6. Similarly, if supporter of B reaches the neutral voter before supporter of A reaches him, then that neutral voter will become a supporter of candidate B.

7. Finally, if both reach at the same time, the voter will remain neutral. A neutral vote cannot decide the outcome of the election.

8. If finally, the queue has more votes for candidate A, then A wins the election. If B has more votes, then B wins that election. If both have equal votes, then it will be a coalition government.

Refer Examples section for understanding the dynamics of how the supporters influence the neutral voters.

Your task is to find the outcome of the election.

Note: There are no test cases where all votes are neutral.

Input

First line contains an integer which is length of queue of voters.

Second line contains characters {-, A, B}, in which denotes

· A = voter who is supporter of candidate A

· B = voter who is supporter of candidate B

· - = neutral voter

Output

Print candidate with maximum number of votes. If they have equal number of votes, print "Coalition government".

Examples

Input :14

—AB—AB—A—

Output : A

Input : 4

A—

Output : A