**DAY 1 – PRACTICE PROBLEMS**

1. Given a string which consists of lowercase or uppercase letters, find the length of the longest palindromes that can be built with those letters. Letters are case sensitive.
2. A data structure needs to be implemented in such a way that we have the references i.e. the addresses of the values. None of the addresses are in a continuous memory block. Each time a new value needs to be stored, we need to allocate memory. Write a program to implement the following:
   * + 1. Addition of a new value at a given position
       2. Print all the values in the list
       3. Delete a given value from a a location
3. Characters are sorted in a form of a list (non continuous). We have to check if the list of characters has a given character in it or not.
4. Write a program in c++ to print Common elements in 3 sorted Arrays
5. You are given a linked list that contains N integers. You have performed the following reverse operation on the list:

* Select all the subparts of the list that contain only even integers. For example, if the list is {1,2,8,9,12,16}, then the selected subparts will be {2,8}, {12,16}.
* Reverse the selected subpart such as {8,2} and {16,12}.

Now, you are required to retrieve the original list.

Note: You should use the following definition of the linked list for this problem:

class Node {

Object data;

Node next;

}

**COMPLEX PROBLEMS**

1. You have a matrix S consisting of N rows and M columns. Let u be the maximum element of the matrix and v be the smallest element of the matrix. If any element whose value is equal to u or v are called unsafe elements and they disfigure the complete row and column of the matrix. More formally, if any element is equal to u or v and contains cell number (x, y), that is, S[x][y]=u or S[x][y]=v are unsafe so that they also disfigure all the cells that have row x or column y and also are unsafe.

Your task is to find the number of safe elements.

1. **Problem**

You are given an**n\*m**grid which contains lower case English letters. How many times does the phrase "saba" appear horizontally, vertically, and diagonally in the grid?

**Input format**

First line: Two integer n and m, where n denotes (1 <= n,m <= 100) the number of rows and m denotes the number of columns in the grid

Next n lines: Each line must contain a string of length m which contains lower-case English letters only

**Output format**

Print the number of times the word “saba” appears in the grid.

**Sample Input**

5 5

safer

amjad

babol

aaron

songs

1. **Problem**

You are given a matrix of characters. The matrix has *N* rows and *M* columns. Given a string *s*, you have to tell if it is possible to generate that string from given matrix.  
Rules for generating string from matrix are:

1. You have to pick first character of string from row *1*, second character from row *2* and so on. The (N+1)th character of string is to be picked from row *1*, that is, you can traverse the rows in a cyclic manner (row *1* comes after row *N*).
2. If an occurrence of a character is picked from a row, you cannot pick the same occurrence again from that row.

You have to print **Yes** if given string can be generated from matrix using the given rules, else print **No**.

**Input Format**:

First line consists of *T*, denoting the number of test cases.  
Each test case consists of:  
First line consists of two integers *N* and *M*, denoting the matrix dimensions.  
Following *N* lines consist of *M* characters each.  
Last line consists of a string *s*.

**Output Format**:  
For each test case, print "Yes" if string can be generated else print "No". Answer for each test case should come in a new line.

**Input Constraints**:

Matrix consists of lowercase English characters.  
String *s* consists of lowercase English characters.