

Online (String, 2D array)

Time: 50 min, Marks: 20

Problem 1 (10 marks)

Write a program that will take a string s as input, and construct a string of shortest length which is palindrome and contains s as a prefix.

Sample Input	Sample Output
abcde	abcdedcba
aba	aba
abcb	abcba

Problem 2 (10 marks)

A two dimensional array can be viewed as a matrix, which has diagonals in two directions. We are concerned with the primary diagonals (top left to bottom right).

Write a program that will take an $n \times n$ array as input, and you will have to print sum of all elements along such diagonals. For examples, for the following input 1st output is 3, second output is $2+6=8$, 3rd is $1+5+9=15$, and so on.

Also print the summation of all elements in the matrix by summing the diagonals.

The first line of input is the value of n . Next n^2 numbers constructs the array in row major order.

Sample Input	Sample Output
3	3
1 2 3	8
4 5 6	15
7 8 9	12
	7
	45