Assignment 13

Q1. Given a square matrix, turn it by 90 degrees in a clockwise direction without using any extra space.

Examples:

Input:

1 2 3

4 5 6

7 8 9

Output:

7 4 1

8 5 2

9 6 3

Input:

1 2

3 4

Output:

3 1

4 2

Q2. Given a string S, check if it is palindrome or not.

Example 1:

Input: S = "abba"

Output: 1

Explanation: S is a palindrome

Example 2:

Input: S = "abc"

Output: 0

Explanation: S is not a palindrome

Q3. Given an expression string x. Examine whether the pairs and the orders of “{“,”}”,”(“,”)”,”[“,”]” are correct in exp.

For example, the function should return 'true' for exp = “[()]{}{[()()]()}” and 'false' for exp = “[(])”.

Example 1:

Input:

{([])}

Output:

True

Explanation:

{ ([ ]) }. Same colored brackets can form balaced pairs, with 0 number of unbalanced bracket.

Example 2:

Input:

()

Output:

True

Explanation:

(). Same bracket can form balanced pairs, and here only 1 type of bracket is present and in balanced way.

Example 3:

Input:

([]

Output:

False

Explanation:

([]. Here square bracket is balanced but the small bracket is not balanced and Hence , the output will be unbalanced.

Q4. **Problem Statement:** Selection of MPCS exams include a fitness test which is conducted on ground. There will be a batch of 3 trainees, appearing for running test in track for 3 rounds. You need to record their oxygen level after every round. After the trainees are finished with all rounds, calculate for each trainee his average oxygen level over the 3 rounds and select one with highest oxygen level as the most fit trainee. Thus, if more than one trainee attains the same highest average level, then all need to be selected.

Display the most fit trainee (or trainees) and the highest average oxygen level.

Note:

The oxygen value entered should not be accepted if it is not in the range between 1 and 100.

Moreover, if the calculated maximum average oxygen value of trainees is below 70 then declare the trainees as unfit with meaningful message as “All trainees are unfit”.

Average Oxygen Values should be rounded.

Example 1: INPUT VALUES

95 // Round One (Oxygen Value of Trainee 1)

92 // Round One (Oxygen Value of Trainee 1)

95 // Round One (Oxygen Value of Trainee 1)

92 // Round Two (Oxygen Value of Trainee 1)

90 // Round Two (Oxygen Value of Trainee 1)

92 // Round Two (Oxygen Value of Trainee 1)

90 // Round Three (Oxygen Value of Trainee 1)

92 // Round Three (Oxygen Value of Trainee 1)

90 // Round Three (Oxygen Value of Trainee 1)

OUTPUT VALUES

Trainee Number : 1

Trainee Number : 3