

# DSA Assignment 2

Aug 2, 2023

**Note:** For all the below given problems, write the space and time complexity.

## Problem 1:

Palindrome String Checker

10 Point

A palindrome string has some properties which are mentioned below:

- A palindrome string has a symmetric structure which means that the character in the first half of the string are the same as in the rear half but in reverse order. Any string of length 1 is always a palindrome.

Write a function to check the Palindrome Print Yes or No, write the space and time complexity.

Input : abbcbbba output: Yes

Input: apple output: No

## Problem 2:

10 Point

Given an array `arr[]` of size  $N-1$  with integers in the range of  $[1, N]$ , the task is to find the missing number from the first  $N$  integers.

Note: There are no duplicates in the list.

Input: `arr[] = {1, 2, 4, 6, 3, 7, 8}`,  $N = 8$

Output: 5

Explanation: The missing number between 1 to 8 is 5

## Problem 3:

10 point

Pooja would like to withdraw  $X$  \$US from an ATM. The cash machine will only accept the transaction if  $X$  is a multiple of 5, and Pooja's account balance has enough cash to perform the withdrawal transaction (including bank charges). For each successful withdrawal the bank charges 0.50 \$US. Calculate Pooja's account balance after an attempted transaction.

Input:

1. Positive integer  $0 < x \leq 2000$  - the amount of cash which Pooja wishes to withdraw.
2. Non-negative number  $0 \leq y \leq 2000$  - Pooja's initial account balance.

Output: Output the account balance after the attempted transaction, given as a number. If there is not enough money in the account to complete the transaction, output the current bank balance.