Problemset - Gamma

Topics - String, Array

String

Task - 01: Write a Java program that will take one string input from the user. Then check and print whether it is a palindrome.

Sample Input	Output
Java	Not a palindrome
madam	Palindrome

Task - 02: Write a Java program that takes a string input in small letters from the user and prints the previous alphabet in sequence for each alphabet found in the input.

Sample Input	Output
wxyz	vwxy
thecow	sgdbnv
abcd	zabc

Task - 03: Write a Java program that will ask the user to input a string (containing exactly one word). Then your job is to print subsequent substring of the input string.

Sample Input	Output
BANGLA	B BA BAN BANG BANGL BANGLA
DREAM	D DR DRE DREA DREAM

Task - 04: Write a Java program that will ask the user to input a word in small letters where each of its alphabets is unique and has not been entered before by the user. If the user does input a word that consists of duplicate alphabets, the program should reject the user's input and ask for another word.

Sample Input	Output
fahim	You entered fahim.
farah akbor	"a" has been counted 2 times in the word "farah". Please enter another word. You entered akbor.
alanna ronan john	"a" has been counted 3 times in the word "alanna". "n" has been counted 2 times in the word "alanna". "n" has been counted 2 times in the

	word “ronan”. Please enter another word. You entered john.

Task - 05: Write a Java program that takes TWO string inputs (containing exactly one word in each string) from the user. Concatenate those two strings with a single space in between them. Generate a number which is the sum of all the letters in that concatenated string where A = 65, Z = 90, a = 97, and z = 122. Your task is to print that concatenated string and the number generated from that string.

Sample Input	Output
Hello123 Wo%%rld	Hello123 Wo%%rld 1020
Ja12-va CHOWD+ HURY	Ja12-va CHOWD+ HURY 1087

Task - 06: Given a string, create and print a new string with all the consecutive duplicates removed.

Sample Input	Output
ABBCCCCCBBAB	ABCBAB
AAABBBBCDDBBECE	ABCDBECE

Array

Task - 01: Write a Java program that will take an integer number N from the user and create an integer array by taking N numbers from the user. Then take another number from the user and create a new array by removing that number from the input array. Finally, print the new array.

Sample Input	Sample Output
N = 5 23 100 0 56 -34 Remove Element = 100	Input array: 23 100 0 56 -34 New array: 23 0 56 -34
N = 4 -5 10 2 -7 Remove Element = 43	Input array: -5 10 2 -7 Element not found

Task - 02: Write a program that reads 5 numbers into an array and prints the smallest and largest number and their location in the array.

Sample Input	Sample Output
7 13 2 10 6	The largest number 13 was found at location 1. The smallest number 2 was found at location 2.
2 4 -5 12 3	The largest number 12 was found at location 3. The smallest number -5 was found at location 2.

Task - 03: Write a Java program that asks the user for the length of an array and then creates an integer array of that length by taking inputs from the user. Then, reverse the **original array without** creating any new array and print it. **[In-place reverse]**

Sample Input	Sample Output
Enter the length of the array: 5 7 -31 344 97 100	100 97 344 -31 7

Task - 04: Write a Java program that will take an integer number N from the user and create an integer array by taking N numbers from the user. Print how many times each number appears in the array.

Sample Input	Sample Output
N = 5 6 15 14 15 6	6 - 2 times 15 - 2 times 14 - 1 times
N = 6 -5 10 14 10 -7 10	-5 - 1 times 10 - 3 times 14 - 1 times -7 - 1 times

Task - 05: Write a Java program that asks the user the length of an array (N) then takes N number of integers as elements for the array as input. First, remove the consecutive duplicate elements from the original array to form a new array. Then print the number of elements removed from the original array.

Sample Input	Sample Output
N = 8 Please enter the elements of the	New Array : 5 2 1 2 3 Removed elements : 3

array: 5 2 1 1 2 3 3 3	

Task - 06: Write a program that asks the user how many numbers to take. Then takes that many numbers in an array and prints the median value.
[How to Find the Median Value: http://www.mathsisfun.com/median.html]

Sample Input	Sample Output
5 10 50 40 20 30	The median is 30. **Explanation:** 30 falls in middle 10, 20, 30, 40, 50
4 30 10 40 20	The median is 25. **Explanation:** (20+30)/2=25 (average of two middle values from 10, 20, 30, 40.