

Faculty of Engineering & Technology, Haridwar

Department of Computer Science & Engineering

Java Programming (BCE-C501)

Assignment 2

1. Write a JAVA program which asks the user to supply an alphabet in upper case from the key board. Then convert the alphabet in lower case.
2. Write a JAVA program to display the names of the Months of the year, depending upon the number entered by the user using: (i) if – else (ii) switch – case
3. Read a positive integer value, and compute the following sequence: If the number is even, halve it; if it's odd, multiply by 3 and add 1. Repeat this process until the value is 1, printing out each value. Finally print out how many of these operations you performed. Write a JAVA Program.
4. Write a JAVA program to find the sum of the following series using
 - I. $\text{Sum} = 1 + 5 + 10 + 15 + \dots + n$
 - II. $\text{Sum} = 1^2 + 2^2 + 3^2 + \dots + n^2$
5. Write a JAVA program to simulate a calculator where the user enters two integer numbers and an operator (+, -, *, /, %). The program then carries out the specified operation and displays the result. Write using if statement as well as switch statement.
6. Write a JAVA program to display the table of a given number.
7. Write a JAVA program to check for palindromes for Integers as well as string using(For example *1221*, *57866875* and *avon sees nova* are some palindromes):
 - (i) if – else (ii) switch – case
8. Ten numbers are entered from the keyboard into an array. The number to be searched is entered through the keyboard by the user. Write a program to find if the number to be searched is present in the array and if it is present, display the number of times it appears in the array.
9. Ten numbers are entered from the keyboard into an array. Write a program to find out how many of them are positive, how many are negative, how many are even and how many are odd.
10. Write a program to copy the contents of one array into another in the reverse order. The program should take double type values from the keyboard.
11. WAP for 5×5 matrix (a) entered through the keyboard (b) initialized in the program and stored in a 2-dimensional array `mat[5][5]`. Write a program to obtain the Determinant values of this matrix.

12. Given two matrices A and B find its product using JAVA where A and B are *Cartan* matrices.
A *Cartan* matrix is a square integer matrix whose elements ($A_{i,j}$) satisfy the following conditions.
- $A_{i,j}$ is an integer, one of which belongs to $\{-3, -2, -1, 0, 2\}$.
 - $A_{i,i} = 2$ the diagonal entries are all 2.
 - $A_{i,j} \leq 0$ off of the diagonal.
 - $A_{i,j} = 0$ iff $A_{j,i} = 0$.

More about *Cartan* matrix can be found in
<http://mathworld.wolfram.com/CartanMatrix.html>

13. WAP to check whether given matrix is Upper Triangular or not.
14. WAP to find the maximum element of a given matrix.
15. Write and test the function that rotate 90 and 180 degrees clockwise a two dimensional square array of integers.