B.Tech Second Year (2015-19 CS)
JWT Lab
Lab Assignment #4

Theory:

Q1. Discuss Arrays in java.

Q2. Explain basic class Array functions in java with suitable examples.

1. Given an array of size n, find all elements in array that appear more than n/k times. For example, if the input array is {3, 1, 2, 2, 1, 2, 3, 3} and k is 4, then the output should be [2, 3]. Note that size of array is 8 (or n = 8), so we need to find all elements that appear more than 2 (or 8/4) times. There are two elements that appear more than two times, 2 and 3.
2. Given an array of random numbers, push all the zeroes of a given array to the end of the array. For example, if the given arrays is {1, 9, 8, 4, 0, 0, 2, 7, 0, 6, 0}, it should be changed to {1, 9, 8, 4, 2, 7, 6, 0, 0, 0, 0}. The order of all other elements should be same.
3. Given an array of integers. Find a peak element in it. An array element is peak if it is NOT smaller than its neighbours. For corner elements, we need to consider only one neighbour. For example, for input array {5, 10, 20, 15}, 20 is the only peak element. For input array {10, 20, 15, 2, 23, 90, 67}, there are two peak elements: 20 and 90. Note that we need to return any one peak element.
4. Implement a simple menu driven calculator in java to implement add, sub, multiplication, division, sqrt, power, mean, variance using command line argument.
5. WAP that declares two arrays named ‘even’ and ‘odd’. Accept numbers from the user and move them to respective arrays depending on whether they are even/odd.
6. Class diagram

Employee
- empId: int empId=empCount+1; empCount=1000 - empTelephoneNo[] : int
+ getEmployeeId():int + getEmployeeTelephoneNo(): int[]

7. Find maximum and minimum number using recursion in an array.
8. Perform various matrix operations such as addition, subtraction, multiplication and transpose .Try to return matrix.
9. Define a class called Student with the following attributes
    1. Roll No
    2. Name
    3. Date of Birth
    4. Weight
    5. Height
    6. Marks

    Write a suitable constructor and a method to display the details of a Student objects and display roll no and the name of the students who are 19 years old are more with weight above 90.5 KG but height less than 175.0 cm Choose the sample data set in such a way that among the 10 students there are some students of the above category.
10. Write a program for various array functions (in built) using Array Class in Java.