Java practical Question list

- *Examples of chapter 1, 2 and 3 from ivor horton's book.*
- *"Try it out" from chapter 1,2 and 3 from ivor horton's book.*
- *Exercises of chapter 1,2 and 3 from ivor horton's book.*

Assignment -1

1) *Write a program to print the following pattern :*

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2) *Write a program that reads a distance in kilometers from the keyboard and output the distance as miles.*
3) *Write an application that generates the first 15 numbers in the Fibonacci series and first 15 prime numbers.*
4) *Write and run a Java program to calculate factorial and the cube of the given integer number. Also find the sum and multiplication of its digits. Also check whether the no entered is palindrome or not.*
5) *write a Java program to calculate the minimum of three integer numbers:*
6) *WAP in JAVA that calculates the VAT on an amount of sale. The program takes amount of sales and VAT rate as input and outputs the total amount*
   inclusive of VAT.

7) *Use While loop to generate random numbers and maintain a running sum of these values. Terminate when the sum exceeds 20.*

(Note: use Math. random() method to obtain numbers.)

8) *Write an application that counts the total number of characters in all of its command-line arguments.*
9) *Write a java program to calculate Simple Interest using Command Line Arguments. (Hint use Wrapper classes)*

Assignment -2

1) *Write application that creates an array of double, to provide following functionality.*
   - *display the length of the array and its elements.*
   - *Display an array. (Use for each version of loop for display).*
   - *compute the sume of the squares of these numbers.*
   - *Determine Mean and Median of an array.*
   - *Sort an array – Ascending and Descending. Use any two sorting algorithm. User can also select the sorting method.*
   - *Search an element from the array, i.e. returns the location of the element of an **array** that matches an indicated value.*
   - *Copy of an array.*
   - *Reverse of an array.*

2) *Write a program in Java to create variable size **array**. Data can be numeric.*
   - *Flush an array*
   - *add a number at a specified location in an anay.*
   - *display the array*

3) *Program in Java to find A+B, A-B, A*B and transpose of A, where A is a matrix of 3*3 and B is a matrix of 3*4. Take the values in matrixes A and B from the user.*

4) *Write and run a JAVA program that reads a string from the user and perform the following.*
   - ❖ *counts number of occurance of a given character (for example, " a") in a* ***string****.*
   - ❖ *searches the last occurance of a character in a* ***string****.*
   - ❖ *removes the unneccessary spaces from a* ***string*** *: leading and trailing spaces.*
   - ❖ *displays the substring formed by the last ten characters of a string*

5) *WAP that inputs a line of text, tokenizes the line with StringTokenizer and outputs the tokens in reverse order.*

6) *Create a StringBuffer and illustrate how to append character. Display capacity, length of the StringBuffer.*

7) *Write an application that reads and processes strings from the console. Perform the following functions based on the menu choice selected by the user..*
   - *Reverse the sequence of strings and then display it.*
   - *Reverse the sequence of characters in each string and then display it.*
   - *rearrange the strings according to the length of the string.*
   - *Sorting*
   - *Concatenation*
   - *Change them to uppercase, lowercase depending on user's choice.*

Assignment -3

1. *Write a class called Statistics, which has a static method called average, which takes a onedimensional array for double type, as parameter, and prints the average for the values in the array.*
   a. *Now write a class with the main method, which creates a two-*

dimensional array for the four weeks of a month, containing minimum temperatures for the days of the week(an array of 4 by 7), and uses the average method of the Statistics class to compute and print the average temperatures for the four weeks.

2. *develop the following application in given steps.*
    a. *Step-1 :*
        i. *Define a class called Cartesian Point, which has two instance variables, x and y. Provide the following methods*
            1. *get X() and get Y() to return the values of the x and y values respectively.*
            2. *move() which would take two integers as parameters and change the values of x and y respectively,*
            3. *a method called display() which would display the current values of x and y.*
        ii. *Now overload the method move() to work with single parameter, which would set both x and y to the same values, .*
        iii. *Provide constructors with two parameters and overload to work with one parameter as well.*
        iv. *Now define a class called Test Cartesian Point, with the main method to test the various methods in the Cartesian Point class.*
    b. *Step-2 :*
        i. *Define a class called Triangle, which has constructor with three parameters, which are of type Cartesian Point.*
        ii. *Provide methods*
            1. *to find the area and the perimeter of the Triangle,*
            2. *a method display() to display the three Cartesian Points separated by ':' character,*
            3. *a method move() to move the first Cartesian Point*

to the specified x, y location, the move should take care of relatively moving the other points as well,

4. *a method called rotate, which takes two arguments, one is the Cartesian Point and other is the angle in clockwise direction.*
5. *Overload the move method to work with Cartesian Point as a parameter.*

iii. *Now define a class called Test Triangle to test the various methods defined in the Triangle class.*

c. *Step-3 :*

i. *Similarly also define a class called Rectangle which has four Cartesian Point.*

3. *Create three packages—PersonPack, FlatPack and PFPack.*
   a. *Package PersonPack must contain a class called Person with the following attributes: PIDNumber, name, etc.*
      i. *It must have a reference variable of the type Flat.*
      ii. *It should have a static method displayOwnershipInfo() that takes as an input parameter a variable of PIDNumber and returns void. This method must display the information about the classes Person and Flat.*
   b. *Package FlatPack must contain the class F with following attributes: apartmentName, flatNo and noOfBedrooms*
      i. *It should have method dispFlatInfo() that displays information of the attributes of the class Flat.*
   c. *Package PFPack must contain a class called PFDemo that has a main method .*
      i. *create objects of the classes Person and Flat and*
      ii. *invoke the displayOwnershipInfo() method*

Assignment -4

1. *Define an Employee class with Employee code , name , date of birth , and date of appointment . The Employee code must have a format of year-designation-number. The year will be two digit code .*

The designation is single letter code M for Manager , A for Administrative , T for Technical Staff , E for Executive Staff . The number is a three digit number. For Eg.

87-M-123 (year is 1987 , Designation is Manager and number is 123)

91-T-126

Write a java program to read the employee code , name , date of birth , and date of appointment and validate the employee code. If the employee code is incorrect a suitable user defined exception must be thrown . If the date of birth is after date of appointment then throw another user defined exception.

If all the details are correct then only create the employee object and display detail of employees and number of years of experience.

Assignment -5

1. *Write a program to read employee detail and store the employee object in linkedlist. Sort the list based on salary.*
    a. *Create class- Employee (Attributes- empid, name , dob , salary : Methods: setDetails, getDetails and constructures)*
    b. *Employee class must implement comparable interface*
    c. *Create another class TestEmployee, here create the linkedlist of employees and sort the list.*

Assignment -6

1. *Create three threads with different sleep-times from the main thread with following capabilities.*
    - *One thread generates prime numbers in an infinite loop. Supply the sleep time of main thread and the sleep time of prime thread from the command line.*
    - *Two more threads T1 and T2 doing any other work also execute simultaneously with suitable display information.*
    - *When prime thread prints 13, after that T1 goes into wait*

mode. T1 resumes back when prime thread prints 79.

- *Threads T1 and T2 should stop executing when the keys '1' and '2' are pressed respectively. Prime thread should stop after the 'ENTER' key is pressed. Exit of each thread must be displayed on the console.*

2. *Implement three classes: Storage, Counter, and Printer.*
    - *The Storage class should store an integer.*
    - *The Counter class should create a thread that starts counting from 0 (0, 1, 2, 3 ...) and stores each value in the Storage class.*
    - *The Printer class should create a thread that keeps reading the value in the Storage class and printing it.*
    - *Write a program that creates an instance of the Storage class and sets up a Counter and a Printer object to operate on it. Ensure that each number is printed exactly once, by adding suitable synchronization.*

- *Simple GUI program. (Which makes simple Jframe)*
- *GUI program with event handling.*