Day 1 Assignments

1. Identify the classes, attributes, methods and the relationships between the classes for the below use case. You can show the relationship by using class diagrams.

- Xyz Hospital wants to store the details of their rooms, patients and doctors.
    - There are two types of patients In-patients and out-patients. Both the patients have some common properties like patient id, patient name, age, patient complaint.
    - For in-patients, the application should store additional details like date of joining, room no and date of discharge.
    - For out-patients, it should store additional details like date of visit, and doctor name.
    - Application also maintains details of all the doctors like doctor id, name, age, specialization.
    - Each room in the hospital is uniquely identified by room no, room name, capacity of the room and doctor in charge.

2. Write a method which accepts empno, name, age and country as parameters from the user and returns a string by adding all the details separated by ";". Call this method from the main method and display the output. E.g. If the input is 12345, Naveen, 25 and India then method should return 12345;Naveen;25;India

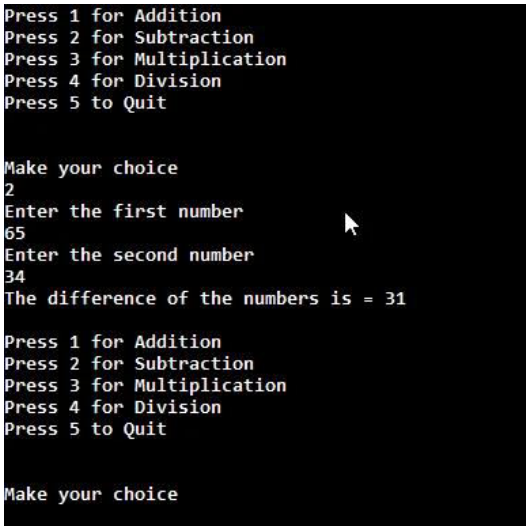
3. Write a method that accepts 3 numbers as parameters and returns the sum of biggest and smallest numbers. E.g. if the input is 1 9 3, then method should return 10 (1+9) if the input is 2 9 2, then method should return 11(2+9). If the input is 9 9 9, then method should return 18(9+9)

4. Write a program that accepts a string from user using Scanner and displays the length of the string. Also display the string into uppercase and check whether it is a palindrome or not.

5. Write a program that asks the user to enter a word. The program will then repeat word for as many times as it has characters: Eg, if user enters hello, hello should be repeated 5 times, since hello's length = 5

6. Write a method which accepts a string as parameter and returns the number of words in it.

7. Calculator Menu Driven Program: WAP a menu driven program that performs basic math calculations. The console must look something like this:



8. Write a class Product with the following attributes

- productId of type integer
- productName of type String
- description of type String
- price of type float
- maxDiscountAllowed of type float (it is in percentage)
- monthOfManufacture of type integer
- yearOfManufacture of type integer
- imported of type boolean (if true it means product is imported from other countries)

- Write all the setter/getter for all the attributes along with the below methods
- getDiscountedPrice() it should return the price minus the discount amount
- getTotalPriceForItems(int count) it should return the price multiplied by number of items.
- getDiscountedPriceForItems(int count) it should return discounted price multiplied by number of items.

Create another class TestMain with the main method to perform the below actions

- Create an object of the above Product class
- Populate the attributes of objects by calling setter methods

- Print the product name, price, and price after discount in a single line; If the value of the imported is true then print “Product is imported” otherwise print “Product is a local product”

Note: For the following assignments create an exclusive class called Tester which contains the main method. Create objects of other classes, make calls to the methods, and test your code using this Tester class’s main method.

9. Write a class PrimeNos that has a method which accepts two integers - n1 & n2 and displays the prime numbers between n1 and n2
   E.g. if n1 = 5 and n2 = 10, then the method should display 5 and 7

10. Write a class PrintTable that has a method that accepts an integer as parameter and displays its multiplication table using for loop, as shown below. Implement 2 other methods which perform the same action but using a while and do-while loop respectively. E.g. if the input parameter is 2, then these methods must output the multiplication table as follows:
    2 x 1 = 2
    2 x 2 = 4
    ...
    2 x 10 = 20

11. Write a class Largest that has a method that accepts a 5 digit number N as parameter and returns the largest number possible by rearranging its digits.
    E.g. If N is 41459 then the method should output 95441

12. Write a class Power that has a method which accepts a number n as a parameter and prints n^0 to n^{10} as shown below using for loop. Hint: Use Math.pow(x,y) method which returns x^y in Java.
    E.g. For parameter 2, it should print
    2 power 0 = 1
    2 power 1 = 2
    ...
    2 power 10 = 1024