**Assignment – Core Java Functions**

**1.**   XYZ Technologies is in the process of increment the salary of the employees. This increment is done based on their salary and their performance appraisal rating.

 a.                     If the appraisal rating is between 1 and 4, the increment is 10% of the salary.

b.                    If the appraisal rating is between 4.1 and 7, the increment is 25% of the salary.

c.                       If the appraisal rating is between 7.1 and 10, the increment is 30% of the salary.

Help them to do this, by writing a program that displays the incremented salary.

(**Use separate function to calculate the increment**)

**Note   :** If either the salary is 0 or negative (or) if the appraisal rating is not in the range 1 to 10 (inclusive), then the output should be “Invalid Input”.

**Sample Input 1 :**

Enter the salary 80000

Enter the appraisal rating 3

**Sample Output 1 :**

88000

**Sample Input 2 :**

Enter the salary 75000

Enter the Performance appraisal rating 4.3

**Sample Output 2 :**

93750

**2.**   XYZ college wants to recognize the department which has succeeded in getting the maximum number of placements for this academic year. The departments that have participated in the recruitment drive are CS, EC, ME. Help the college to find the department getting maximum placements. Check for all the possible output given in the sample snapshot.

Note: If any input is negative, the output should be "Input is invalid". If all departments have equal number of placements, the output should be "None of the department has got the highest placement".

(**Use separate function to check the maximum placements**)

**Sample Input 1:**

Enter the no of students placed in CS:90 Enter the no of students placed in EC:45 Enter the no of students placed in ME:70

**Sample Output 1:**

Highest placement CS

**Sample Input 2:**

Enter the no of students placed in CS:55 Enter the no of students placed in EC:85 Enter the no of students placed in ME:85

**Sample Output 2:**

Highest placement EC

ME

**Sample Input 3:**

Enter the no of students placed in CS:0 Enter the no of students placed in EC:0 Enter the no of students placed in ME:0

**Sample Output 3:**

None of the department has got the highest placement

**Sample Input 4:**

Enter the no of students placed in CS:10 Enter the no of students placed in EC: -50 Enter the no of students placed in ME:40

**Sample Output 4:**

Input is Invalid

**3.**   To speed up his composition of generating unpredictable rhythms, Aniruth wants the list of prime numbers available in a range of numbers. Can you help him out? Write a java program to print all prime numbers in the interval [x,y] (x and y, both inclusive).

**(**Use separate function to print all prime numbers in the given interval)

**Sample Input 1:**

2

15

**Sample Output 1:**

2 3 5 7 11 13

**Sample Input 2:**

8

5

**Sample Output 2:**

Provide valid input

**Sample Input 3:**

1

10

**Sample Output 3:** 2 3 5 7

**4.**   Write a java program to find the sums of the running odd numbers and even numbers from a given lowerbound to an upperbound. Also compute their absolute difference.

(**Use separate function to find the sum of odd and even numbers from lowerbound to upperbound**)

**Sample Input and Output**

The sum of odd numbers from 1 to 1000 is: 250000 The sum of even numbers from 1 to 1000 is: 250500 The absolute difference between the two sums is: 500