WIX1002 Fundamentals of Programming
Lab Report 2

1. Write a Java method that checks whether a number is a perfect number or not. A perfect number is a number that is equal to the sum of all its divisor (excluding itself). For example, 6 is a perfect number because 1+2+3=6. Then, write a Java program to use the method to display the first 5 perfect number.

2. Write a java method that accepts two arrays of 10 bits. The methods will take each bit from the same index and perform XOR operation and return the result in decimal.

Sample Input	Sample Output
Enter first 10 bits: 1111111111 Enter second 10 bits: 1111100000	XOR result: 31
Enter first 10 bits: 0101010101 Enter second 10 bits: 1111100011	XOR result: 694

3. Write a method that accepts two parameters namely N and R. The method should check whether the number R is the summation of N subsequent number (any number). Write a Java program that accept input N and R from the user and check using the method. If there is a summation of N subsequent number, print out R = x + (x+1) + (x+2) + … else, print out "No summation of subsequent number"

Sample Input	Sample Output
Enter N: 3 Enter R: 522	522 = 173 + 174 + 175
Enter N: 4 Enter R: 11	No summation of subsequent numbers

4. Write a program that generate 4 non-duplicate random numbers (0-9) and store in an array. Then, create a method that accepts an array of 4 non-duplicate digit (0-9). The method will perform permutation on all digits in the array to produce all possible number.

   Sample Output

   The random numbers are 4 0 2 1

   All possible numbers are
   4021
   4012

4102
1402
…

124
142
…

Lab Report

Prepare a report to solve the above problems. The report should contain all the sections as below for each question:

No	Section	Description
1	Problem	Description on the problem
2	Solution	Explanation on how to solve the above problems
3	Sample Input & Output	A few sets of input and output (snapshot)
4	Source Code	Java Source Code

Requirements

1. Group Assignment (4-5 students per group)
2. Cover page that includes all student matric number and full name.
3. Font: Times New Roman 12, Line Spacing: 1 ½ Spacing
4. Due Date: 24/12/2020
5. The method of submission is based on your group lecturer.