**EXPERIMENT NO: 06** Programs using Exception handling

1. Differentiate Assertions and Exceptions in Java.
2. Write a Java program to create a method that takes an integer as a parameter and throws an exception if the number is odd.
3. Write a Java program that reads a list of integers from the user and throws an exception if any numbers are duplicates.
4. The eight queen’s problem is the problem of placing eight queens on an 8×8 chessboard such that none of them attack one another (no two are in the same row, column, or diagonal). Write a program to solve this and use exceptions as required.
5. Write a program to solve this problem: Tower of Hanoi is a mathematical puzzle where we have three rods (A, B, and C) and N disks. Initially, all the disks are stacked in decreasing value of diameter i.e., the smallest disk is placed on the top and they are on rod A. The objective of the puzzle is to move the entire stack to another rod (here considered C), obeying the following simple rules:
   * Only one disk can be moved at a time.
   * Each move consists of taking the upper disk from one of the stacks and placing it on top of another stack i.e. a disk can only be moved if it is the uppermost disk on a stack.
   * No disk may be placed on top of a smaller disk.
6. Define an exception called “NoMatchException” that is thrown when a string is not equal to “India”. Write a concrete class that uses this exception.
7. Design a Java interface for ADT Stack. Implement this interface using array. Provide necessary exception handling in both the implementations
8. Create user defined exception for the given problem statement: Create an Email Account that has User name, password, age, address and mobile number. Write appropriate methods that simulates the inbox method which displays the account content and Compose method that add the content to the specified account. Raise the exception for the following conditions.

a) Should throw an exception whenever the user enters the weak password. The strong password is the one that has minimum 8 characters in length and one uppercase letter.

b) Should throw an exception if account name already exists.

1. For a Patient monitoring system, the normal blood pressure value is 120/80. Create an exception that is raised whenever the blood pressure of the patient is normal, increases or decreases. (Use throw, multiple catch statements)
2. Solve the following problem using Simplex method:

Maximize z = 4x1 + 7x2;

Subject to the following constraints:

4x1 +3x2 <=12;

2x1 +4x2 <=12;

x1>=0;

x2>=0;

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