# Lab 02 – Stack

1. **Parenthesis Expression Check:** Write a JAVA program to check if the given parenthesized expression has properly matching open and closing parenthesis.

2. **Decimal to Binary:** Convert a decimal number to binary using stack.

3. **Palindrome Check:** Determine if a given string is a palindrome using stack.

4. Given an array with **n** elements and a number **k**, k<n. The task is to delete k elements which are smaller than the next element i.e., delete arr[i] if arr[i] < arr[i+1].

   I/P:= [20, 10, 25, 30, 40] ; k=2 O/P:= [25, 30, 40]

5. **Next Greater Element:** Given an array, print the NGE for every element using a stack. The NGE for an element **x** is the **first greater element** on the **right side of x** in array. If no such element exists, then print -1.

   I/P:= [13, 7, 6 , 12] O/P:= [-1, 12, 12, 12, -1]

6. **N stacks in a single array**: Implement multiple stacks (say 'n') in a single array. The following methods are used:

   a. ADD(i,X):= adds key 'X' onto the $i^{th}$ stack, where 1<=i<=n

   b. DELETE(i):= pops an element from the $i^{th}$ stack, where 1<=i<=n