DSC Practical – 4

Stack Operations and Applications.

1. Write a program to implement stack operations using array.

2. Write a program to Evalution of postfix expression.

3. Write a program to for infix to postfix conversion.

4. Write a program for infix to prefix conversion.

5. Write a program to sort a stack using a temporary stack.

   input: [34, 3, 31, 98, 92, 23]

   Element taken out: 23
   input: [34, 3, 31, 98, 92]
   tmpStack: [23]

   Element taken out: 92
   input: [34, 3, 31, 98]
   tmpStack: [23, 92]

   Element taken out: 98
   input: [34, 3, 31]
   tmpStack: [23, 92, 98]

   Element taken out: 31
   input: [34, 3, 98, 92]
   tmpStack: [23, 31]

   Element taken out: 92
   input: [34, 3, 98]
   tmpStack: [23, 31, 92]

   Element taken out: 98
   input: [34, 3]
   tmpStack: [23, 31, 92, 98]

   Element taken out: 3
   input: [34, 98, 92, 31, 23]
   tmpStack: [3]

   Element taken out: 23

input: [34, 98, 92, 31]
tmpStack: [3, 23]

Element taken out: 31
input: [34, 98, 92]
tmpStack: [3, 23, 31]

Element taken out: 92
input: [34, 98]
tmpStack: [3, 23, 31, 92]

Element taken out: 98
input: [34]
tmpStack: [3, 23, 31, 92, 98]

Element taken out: 34
input: [98, 92]
tmpStack: [3, 23, 31, 34]

Element taken out: 92
input: [98]
tmpStack: [3, 23, 31, 34, 92]

Element taken out: 98
input: []
tmpStack: [3, 23, 31, 34, 92, 98]

final sorted list: [3, 23, 31, 34, 92, 98]

6. Write a program to sort a stack using recursion (Use of any loop constructs like while, for etc. is not allowed.)

Output:
Stack elements before sorting:
-3 14 18 -5 30

Stack elements after sorting:
30 18 14 -3 -5

7. Write a program to print the characters of the string in sorted order using stack.

Input: str = "hello3569world12478"
Output: 123456789dehlllloorw

8. Write a program to reverse a stack using recursion. (You are not allowed to use loop constructs like while, for..etc,)
   Use function mentioned below.
   isEmpty(S)
   push(S)
   pop(S)