

## Data Structures and Algorithms Lab

### Assignment-3

- ✓1. Write a program to implement a stack data structure using an array.
- ✓2. Implement a system that can handle more than one stack (n stacks).
- ✓3. Print the data from a file of integers in reverse order using a stack.
- ✓4. Write a Boolean function to return true if two stacks are equal.
- ✓5. Write a program for dynamic implementation (using a link list) of stacks (n stacks).
- ✓6. Using a stack, write a program to convert an infix expression into its equivalent postfix expression.
- ✓7. Write a program to evaluate postfix expression using a stack.
- ✓8. Write a program to check balanced brackets of an expression using stack.
9. Write a program to implement queue data structure using an array.
10. Implement a system that can handle multiple queues (n queues).
11. Append a queue x at the end of a queue y.
12. A Boolean function to return true if two  $eq(q1, q2)$  are equal.
13. Reverse a queue.
14. Procedure ***replace***(p, e, x) to replace every occurrence of element e in queue p with the value of x.
15. Write a program for dynamic implementation (using a link list) of a queue of the above.
16. Implement a circular queue using an array.
17. Implement a Deque using a doubly linked list.
18. Implement a priority queue using
  - a. A single array.
  - b. A single linked list.
  - c. A 2D array.
  - d. Multiple single linked lists.