

# Practical Assignment

## Data Structures and Algorithms Lab (CS 253)

September 14, 2022

# Lab Assignment V

Write a C++ program to:

- I. Implement two stacks in a single array in memory efficient way
- II. To implement stack using linked list.
- III. Check for balanced parenthesis in the given expression
- IV. Convert an infix expression into a postfix
- V. To evaluate a given postfix expression (sequence of numeric operands and arithmetic operators)
- VI. To implement circular queue using array and list
- VII. To implement stack using queue

# Test Cases

Check your code by entering following expressions as input:

- Question III
  - $[()]\{\}\{[()()]()\}$
  - $([]\{\})$
  - $]\{\}\{[[]()]\}$
- Question IV
  - $A + B - C * D + (E^F) * G / H / I * J + K$
  - $A + B * C / D - F + A ^ E$
- Question V
  - $8 \ 2 \ 3 \ * \ + \ 7 \ / \ 1 \ -$
  - $2 \ 5 \ 3 \ 6 \ + \ * \ * \ 5 \ / \ 2 \ -$