



## ACADEMY OF TECHNOLOGY

### Lab Assignment (Day 7)

Paper name: Data Structure and Algorithm

Code: PCC-CS391

Discipline: CSE

Semester: 3<sup>rd</sup>

Time: 1 Hour

*Date: September 28, 2020*

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1. Write the definition for a class called ***Stack*** that has an array of integers size MAX and ***top*** as integer. The class has the following member functions:  
***void push(int)*** to add an item in the stack. ***int pop()*** to removes an item from the stack. ***int peek()*** to return top element of stack. ***int isFull()*** returns **1** if stack is full, else **0**. ***int isEmpty()*** returns **1** if stack is empty, else **0**.
  1. Write the definitions for each of the above member functions.
  2. Write main function (menu driven) to show all the member functions works properly..
2. Given an array of integers, reverse it using stack. For example **{10, 20, 30, 40, 50, 60}** should be converted to **{60, 50, 40, 30, 20, 10}**.

**Note:** *Use the Stack class that you have defined in the first problem as the header file.*

3. Create a data structure ***TwoStacks*** that represents two stacks. Implementation of ***TwoStacks*** should use only one array, i.e., both stacks should use the same array for storing elements. Write a program to store even numbers in the first stack and odd numbers in the second stack.
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