CC4– DATA STRUCTURES AND ALGORITHMS

Laboratory Exercise #3

STACKS & QUEUES

Name: Date:

Code/Schedule: Terminal #:

Topic(s) Covered: Stacks and Queues Operations

Estimated Completion Time:2 weeks

Objectives:

1. Simulate insertion algorithm for stacks and queues
2. Simulate deletion algorithm for stacks and queues
3. Display actual contents every after insertion or deletion

Discussion:

Stacks or Queues have two major components, the container and the objects inside of it. There are two operations that can be performed on both namely, inserting an object or removing an object. Both are commonly used in real life applications and it is imperative that students should be able to create a computer program to simulate the two operations. Most problem requires a systematic and organized way of accepting data, processing of input, storing of processed data, and displaying output. One way to achieve these is through the principles of stacks and queues operations.

Activity**:**

Part I : STACKS (Individually)

* Accept input from the user
* Perform PUSH() and POP() operations
* Display the contents of the STACK
* Repeat while not terminated by user

Part II : QUEUES (Individually)

* Accept input from the user
* Perform ENQUEUE() and DEQUEUE() operations
* Display the contents of the QUEUE
* Repeat while not terminated by user

Laboratory Exercise Score Sheet

Criteria (Part I: STACKS) Score

1. Accept Input from the user 10
2. Perform PUSH() and POP() operations 45
3. Display the correct index and elements of the STACK 45

Criteria (Part II: QUEUES) Score

1. Accept Input from the user 10
2. Perform ENQUEUE() and DEQUEUE() operations 45
3. Display the correct index and elements of the QUEUE 45