ITCS231 Data Structures & Algorithm Analysis
Lab Exercise 2

Faculty of ICT, Mahidol University
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Objective

- This lab exercise covers **TWO** lectures: Array, Stack, and Queues.

- The purpose of the exercise is to have you familiar with different data structures and algorithms.

Introduction

ⓘ **Info:** There are **Seven** tasks in this lab exercise to complete. You have to create **Seven** Java file entitled with lab02TaskX.java, where 'X' is name of the task and follow the instruction.

1 Stack

You are given **StackX.class** (stack.java) written by Robert Lafore. Create a Java file named lab02Task1.java and write a code to do the following:

- Create a new object of the StackX class using 50 parameter for constructor.

- Pushes 5, 15, 25, and 30 into the stack.

- Pops the stack and show the popped element on the screen (until the stack is empty).

2 Reversing a String

You are given **Reverser.class** (Reverser.java) written by Robert Lafore. Create a Java file named lab02Task2.java and write a code to do the following:

- Creates a new object of Reverser class using "ComputerScience" as parameter for constructor.

- Calls a method that reverses a string and shows the output on the screen.

3 Delimiter Matching

You are given **BracketChecker.class**(brackets.java) written by Robert Lafore. Create a Java file named lab02Task3.java and write a code to do the following:

- Creates a new object of BracketChecker class using $f(x) = 2x(8 + x \sin(2x - 6))$
  as parameter for constructor.

- Calls a method that checks for delimiter matching and shows the output on the screen.

4   Convert Infix to Postfix

You are given **InToPost.class**(infix.java) written by Robert Lafore. Create a Java file named lab02Task4.java and write a code to do the following:

- Creates a new object of InToPost class using $f(x) = 2 + ((2 + 3) * (7 - 1)))$
  as parameter for constructor.

- Calls a method that converts infix to postfix and shows the output on the screen.

5   Evaluate Postfix

You are given **ParsePost.class**(postfix.java) written by Robert Lafore. Create a Java file named lab02Task5.java and write a code to do the following:

- Creates a new object of ParsePost class using $23 + 75 * *$
  as parameter for constructor.

- Calls a method that evaluates postfix and shows the output on the screen.

6   Queue

You are given **Queue.class** (queue.java) written by Robert Lafore. Create a Java file named lab02Task6.java and write a code to do the following:

- Create a new object of the Queue class using 50 parameter for constructor.

- Enqueues 5, 15, 25, and 30 into the stack.

- Dequeues the queue and show all element on the screen (until the stack is empty).

7   Priority Queue

You are given **PriorityQ.class** (priority.java) written by Robert Lafore. Create a Java file named lab02Task7.java and write a code to do the following:

- Create a new object of the PriorityQ class using 50 parameter for constructor.

- Enqueues 5, 15, 25, and 30 into the stack.

- Dequeues the queue and show all element on the screen (until the stack is empty).