

## Lab Assignment 1

UEC613

Data Structures and Algorithms

Note: Use C/C++ or JAVA programming language.

Q1. Write a program that

- i. computes and returns the sum of all the integers between "first" and "last" inclusive.
- ii. computes and returns the smallest positive integer  $n$  for which  $1+2+3+\dots+n$  equals or exceeds the value of "goal".
- iii. computes and returns the greatest common divisor (g.c.d.) of the arguments passed to it.
- iv. Determines whether an integer is prime.
- v. Prints the English name of an integer from 1 to 9.
- vi. Reverses the order of the objects in an array.
- vii. Finds the index of the largest number in an array.
- viii. Shifts the contents of array cells one cell to the right, with the last cell's contents moved to the left end.
- ix. Examines an array of integers and eliminates all duplication of values. The distinct integers are all moved to the left part of the array.
- x. Copies numbers from two arrays into a third array. The numbers from the second array are placed to the right of the numbers copied from the first array.

Q2. Write a program to find sum of all elements of an array; write a program to find maximum of elements of an array; write a program for linear search of an array.

Q3. Write a program for adding and subtracting Matrices using 2D Arrays.

Q4. Write a program to Multiply Matrices of 10X10.

Q5. Write a program for Linear Search using Functions.

Q6. Write a class for a rectangle. Create objects for this class and call the member functions to find the area and perimeter of the rectangle.