ISLAMIC UNIVERSITY OF TECHNOLOGY (IUT)
ORGANISATION OF ISLAMIC COOPERATION (OIC)
Department of Computer Science and Engineering (CSE)

CSE 4404: Algorithms Lab
Lab 1

Objectives:

- **Implementing 1D, 2D peak finding; Bubble Sort & Insertion Sort**
- **Compare the running time of different approaches of these algorithms**

Tasks:

1. **Implementation of peak finding algorithm**
   a) **1D peak finding**
      i. **Linear Approach**
      ii. **Divide and Conquer Approach**
      iii. **Find the running time and compare each of the implementation with problem size n = 10^3, 10^4, 10^5, 10^6, 10^7 by plotting them in a line graph.**

   b) **2D peak finding**
      i. **Brute Force Approach**
      ii. **Greedy Approach**
      iii. **Dive and Conquer Approach**
      iv. **Find the running time and compare each of the implementation with problem size n = 10, 100, 1000, 5000 and m = 10, 100, 1000, 5000 by plotting them in a line graph.**
2. **Sorting Algorithms**
   a) **Bubble Sort**
   b) **Insertion Sort**
   c) **Find the running time and compare each of the implementation with problem size n = 10^3, 10^4, 10^5, 10^6 by plotting them in a line graph.**