OBJECT ORIENTED PROGRAMMING LAB
EXERCISE SET 3

1. Design and implement a Box class with data members modelling the dimensions of a 3D cuboid and methods to compute volume and surface area and comparing two boxes with respect to volume, surface area and dimensions. Also implement a parameterized constructor for the Box class.

2. Design and implement a stack class in Java that captures the behaviour of Stack ADT.

3. Design and implement a queue class in Java that captures the behaviour of Queue ADT.

4. Design and implement a vector class which models a two-dimensional vector with the following methods to manipulate the vector:
    a. sum
    b. difference
    c. norm
    d. dot product
    e. perpendicular
    f. parallel

Use the vector class defined above to implement the following two classes:
    a. Triangle
    b. Rectangle

5. Design and implement a merge sort class.