ISTD 50.001

Cohort questions for Week-5 Session-1

Question 1. Comparable interface

Given the following Octagon class:

```
class Octagon {

      private double side;

      public Octagon(double side){
            this.side = side;
      }


      public double getSide() {
            return side;
      }

}
```

Assume that all eight sides of the Octagon are of equal size.
Modify Octagon class to implement the Comparable<Octagon> interface to allow sorting of Octagon objects based on their perimeters.

Implement the code to sort an ArrayList of Octagon in ascending order of perimeter using Collections.sort(). Print the ArrayList before and after sorting.

Discuss how to implement the code to sort an ArrayList of Octagon in descending order of perimeter.

Question 2. Repeat Question 1 with defining a new class OctagonComparator that implements Comparator<Octagon>, without modifying class Octagon.

Implement the code to sort an ArrayList of Octagon in ascending order of perimeter using Collections.sort(). Print the ArrayList before and after sorting.

Discuss how to implement the code to sort an ArrayList of Octagon in descending order of perimeter.

Question 3. Implement a new class StringLengthComparator that implements Comparator<String> to allow sorting of input Strings in order of decreasing length of the strings using Collections.sort(). For example:

```
ArrayList<String> l2 = new ArrayList<String>();
l2.add("e");
l2.add("bcd");
l2.add("cfghij");

Collections.sort(l2, new StringLengthComparator());
```

Output:

```
cfghij
bcd
e
```