**Assignment 9:**

**Write a program implement the comparable interface and compare to methods display the results.**

**Source Code:** *(Black colour in background is due to dark mode of IDE)*

1. Comparable Interface

import java.util.ArrayList;

import java.util.Collections;

public class ComparatorSort implements Comparable<ComparatorSort>{

    String name;

    int rollNo;

    public ComparatorSort(int rollNo, String name) {

        this.rollNo = rollNo;

        this.name = name;

    }

    public int compareTo(ComparatorSort o){

        if(this.name.compareTo(o.name) > 0)

            return 1;

        else if(this.name.compareTo(o.name) ==  0)

            return 0;

        else

            return -1;

    }

    public static void main(String[] args) {

        ArrayList<ComparatorSort> students = new ArrayList<>();

        students.add(new ComparatorSort(001, "Montek"));

        students.add(new ComparatorSort(002, "Kamal"));

        students.add(new ComparatorSort(003, "Akshit"));

        students.add(new ComparatorSort(004, "Amisha"));

        students.add(new ComparatorSort(005, "Bhupinder"));

        students.add(new ComparatorSort(006, "Manpreet"));

        // Sorting ArrayList using Comparator

        Collections.sort(students);

        System.out.println("Sorted ArrayList using Comparator according to their Names");

        for(ComparatorSort student : students){

            System.out.println(student.rollNo + " " + student.name);

        }

    }

}

**Output:**

3 Akshit

4 Amisha

5 Bhupinder

2 Kamal

6 Manpreet

1 Montek

1. Comparator Interface

import java.util.\*;

public class Compare implements Comparator<Compare> {

    String name;

    String city;

    public Compare() {}

    public Compare(String name, String city) {

        this.name = name;

        this.city = city;

    }

    public int compare(Compare a, Compare b){

        if(a.city.compareTo(b.city) >= 0)

            return 1;

        return -1;

    }

    public static void main(String[] args) {

        ArrayList<Compare> arr = new ArrayList<>();

        arr.add( new Compare("Akshit", "Bathinda"));

        arr.add( new Compare("Monty", "Ludhiana"));

        arr.add( new Compare("Amisha", "Jaunpur"));

        arr.add( new Compare("Kamal", "Malout"));

        arr.add( new Compare("Bhupinder", "Goniana"));

        arr.add( new Compare("Manpreet", "Giddarbaha"));

        System.out.println("---- BEFORE SORTING ----");

        for(Compare a : arr)

            System.out.println(a.name + " - " + a.city);

        Compare obj = new Compare();

        arr.sort(obj);

        System.out.println("---- AFTER SORTING BY THEIR CITY NAMES ----");

        for(Compare student : arr){

            System.out.println(student.name + " - " + student.city);

        }

    }

}

**Output:**

---- **BEFORE** SORTING ----

Akshit - **Bathinda**

Monty - **Ludhiana**

Amisha - **Jaunpur**

Kamal - **Malout**

Bhupinder - **Goniana**

Manpreet - Giddarbaha

---- AFTER SORTING **BY** THEIR **CITY** NAMES ----

Akshit - Bathinda

Manpreet - Giddarbaha

Bhupinder - Goniana

Amisha - Jaunpur

Monty - Ludhiana

Kamal - Malout