**ASSIGNMENTS ON COLLECTION:**

**1.**

**package** Collection\_Assignment;

**import** java.util.Map;

**import** java.util.TreeMap;

**import** Collection\_Assignment.Contact.Gender;

**class** Contact

{

String Name,Email;

**long** PhoneNumber;

**enum** Gender {***Female***,***Male***}

Gender gender;

**public** Contact(String name, String email, **long** phoneNumber, Gender gender) {

**this**.Name = name;

**this**.Email = email;

**this**.PhoneNumber = phoneNumber;

**this**.gender = gender;

}

**public** String getName() {

**return** Name;

}

**public** **void** setName(String name) {

Name = name;

}

**public** String getEmail() {

**return** Email;

}

**public** **void** setEmail(String email) {

Email = email;

}

**public** **long** getPhoneNumber() {

**return** PhoneNumber;

}

**public** **void** setPhoneNumber(**long** phoneNumber) {

PhoneNumber = phoneNumber;

}

**public** Gender getGender() {

**return** gender;

}

**public** **void** setGender(Gender gender) {

**this**.gender = gender;

}

}

**public** **class** First {

**public** **static** **void** main(String[] args)

{

Map<Long,Contact> map= **new** TreeMap<>();

Contact Con1=**new** Contact("Palak" , "palak@gmail.com" ,123456788 ,Gender.***Female***);

Contact Con2=**new** Contact("Viraj" , "viraj@gmail.com" ,198765445 ,Gender.***Male***);

Contact Con3=**new** Contact("Sarika" , "sarika@gmail.com" ,1234677788 ,Gender.***Female***);

Contact Con4=**new** Contact("shourya" , "shourya@gmail.com" ,198790845 ,Gender.***Male***);

Contact Con5=**new** Contact("Ankita" , "ankita@gmail.com" ,1234543998 ,Gender.***Female***);

Contact Con6=**new** Contact("Vipul" , "vipul@gmail.com" ,198876445 ,Gender.***Male***);

map.put((**long**) 123456788, Con1);

map.put((**long**) 198765445, Con2);

map.put((**long**) 1234677788, Con3);

map.put((**long**) 198790845, Con4);

map.put((**long**) 1234543998, Con5);

map.put((**long**) 198876445, Con6);

Map<Long,Contact> mp = **new** TreeMap<>();

mp.putAll(map);

**for**(Map.Entry<Long, Contact> entry:mp.entrySet())

{

Long key=entry.getKey();

Contact con = entry.getValue();

System.***out***.println(key);

System.***out***.println(con.Name+ "," +con.Email+ "," +con.PhoneNumber+"," +con.gender);

}

}

}

**Output:**

123456788

Palak,palak@gmail.com,123456788,Female

198765445

Viraj,viraj@gmail.com,198765445,Male

198790845

shourya,shourya@gmail.com,198790845,Male

198876445

Vipul,vipul@gmail.com,198876445,Male

1234543998

Ankita,ankita@gmail.com,1234543998,Female

1234677788

Sarika,sarika@gmail.com,1234677788,Female

**2.**

**package** Collection\_Assignment;

**import** java.util.TreeSet;

**class** Duplicate **implements** Comparable<Duplicate> {

String Product\_Name;

**int** Product\_ID;

**public** Duplicate(String product\_Name, **int** product\_ID) {

Product\_Name = product\_Name;

Product\_ID = product\_ID;

}

**public** String getProduct\_Name() {

**return** Product\_Name;

}

**public** **int** getProduct\_ID() {

**return** Product\_ID;

}

@Override

**public** String toString() {

**return** "Duplicate [Product\_Name=" + Product\_Name + ", Product\_ID=" + Product\_ID + "]";

}

@Override

**public** **int** compareTo(Duplicate o) {

**if**(Product\_ID == o.getProduct\_ID())

{

**return** 0;

}

**else** **if**(Product\_Name.compareTo(o.getProduct\_Name())<0)

{

**return** -1;

}

**else**

{

**return** -1;

}

}

}

**public** **class** Second {

**public** **static** **void** main(String[] args)

{

TreeSet<Duplicate> tree= **new** TreeSet<>();

tree.add(**new** Duplicate("One Plus" , 1));

tree.add(**new** Duplicate("Samsung" , 2));

tree.add(**new** Duplicate("Vivo" , 3));

tree.add(**new** Duplicate("Oppo" , 4));

tree.add(**new** Duplicate("Iphone" , 1));

tree.add(**new** Duplicate("Oppo" , 7));

tree.add(**new** Duplicate("Oppo" , 7));

**for**(Duplicate o : tree)

{

System.***out***.println(o);

}

}

}

Output :

Duplicate [Product\_Name=Oppo, Product\_ID=7]

Duplicate [Product\_Name=Iphone, Product\_ID=1]

Duplicate [Product\_Name=Oppo, Product\_ID=4]

Duplicate [Product\_Name=Vivo, Product\_ID=3]

Duplicate [Product\_Name=Samsung, Product\_ID=2]

Duplicate [Product\_Name=One Plus, Product\_ID=1]

3.

**package** Collection\_Assignment;

**import** java.util.Comparator;

**import** java.util.Scanner;

**import** java.util.TreeSet;

**class** Employee

{

**int** Emp\_Id;

String Emp\_Name;

String Emp\_Department;

**double** Emp\_Salary;

**public** Employee(**int** emp\_Id, String emp\_Name, String emp\_Department, **double** emp\_Salary) {

Emp\_Id = emp\_Id;

Emp\_Name = emp\_Name;

Emp\_Department = emp\_Department;

Emp\_Salary = emp\_Salary;

}

**public** **int** getEmp\_Id() {

**return** Emp\_Id;

}

**public** String getEmp\_Name() {

**return** Emp\_Name;

}

**public** String getEmp\_Department() {

**return** Emp\_Department;

}

**public** **double** getEmp\_Salary() {

**return** Emp\_Salary;

}

**public** **void** setEmp\_Id(**int** emp\_Id) {

Emp\_Id = emp\_Id;

}

**public** **void** setEmp\_Name(String emp\_Name) {

Emp\_Name = emp\_Name;

}

**public** **void** setEmp\_Department(String emp\_Department) {

Emp\_Department = emp\_Department;

}

**public** **void** setEmp\_Salary(**double** emp\_Salary) {

Emp\_Salary = emp\_Salary;

}

}

**class** Id\_Compare **implements** Comparator<Employee>

{

@Override

**public** **int** compare(Employee o1, Employee o2) {

// **TODO** Auto-generated method stub

**return** o1.getEmp\_Id() - o2.getEmp\_Id();

}

}

**class** Name\_Compare **implements** Comparator<Employee>

{

@Override

**public** **int** compare(Employee o1, Employee o2) {

// **TODO** Auto-generated method stub

**return** o1.getEmp\_Name().compareTo(o2.getEmp\_Name());

}

}

**class** Department\_Compare **implements** Comparator<Employee>

{

@Override

**public** **int** compare(Employee o1, Employee o2) {

// **TODO** Auto-generated method stub

**return** o1.getEmp\_Department().compareTo(o2.getEmp\_Department());

}

}

**class** Salary\_Compare **implements** Comparator<Employee>

{

@Override

**public** **int** compare(Employee o1, Employee o2) {

// **TODO** Auto-generated method stub

**return** (**int**) (o1.getEmp\_Salary() - o2.getEmp\_Salary());

}

}

**public** **class** Third {

**public** **static** **void** main(String[] args)

{

Scanner sc = **new** Scanner(System.***in***);

System.***out***.println("Sort In order of : ");

System.***out***.println(" 1. Employee Id");

System.***out***.println(" 2. Employee Name");

System.***out***.println(" 3. Employee Department");

System.***out***.println(" 4. Employee Salary");

**int** choice = sc.nextInt();

**switch**(choice)

{

**case** 1:

TreeSet<Employee> tree = **new** TreeSet<>(**new** Id\_Compare());

tree.add(**new** Employee (1,"Palak" ,"CSE", 1000.98));

tree.add(**new** Employee (2,"monika" ,"Civil", 2000.98));

tree.add(**new** Employee (3,"sarika" ,"IT", 3460.98));

System.***out***.println("Incresing order with respect to ID : ");

**for**(Employee o : tree)

{

System.***out***.println(o.getEmp\_Id()+ "," +o.getEmp\_Name()+","+o.getEmp\_Department()+","+o.getEmp\_Salary());

System.***out***.println();

}

**break**;

**case** 2:

TreeSet<Employee> tree1 = **new** TreeSet<>(**new** Name\_Compare());

tree1.add(**new** Employee (1,"Palak" ,"CSE", 1000.98));

tree1.add(**new** Employee (2,"monika" ,"Civil", 2000.98));

tree1.add(**new** Employee (3,"sarika" ,"IT", 3460.98));

System.***out***.println("Incresing order with respect to Name : ");

**for**(Employee o : tree1)

{

System.***out***.println(o.getEmp\_Id()+ "," +o.getEmp\_Name()+","+o.getEmp\_Department()+","+o.getEmp\_Salary());

System.***out***.println();

}

**break**;

**case** 3:

TreeSet<Employee> tree2 = **new** TreeSet<>(**new** Department\_Compare());

tree2.add(**new** Employee (1,"Palak" ,"CSE", 1000.98));

tree2.add(**new** Employee (2,"monika" ,"Civil", 2000.98));

tree2.add(**new** Employee (3,"sarika" ,"IT", 3460.98));

System.***out***.println("Incresing order with respect to Department : ");

**for**(Employee o : tree2)

{

System.***out***.println(o.getEmp\_Id()+ "," +o.getEmp\_Name()+","+o.getEmp\_Department()+","+o.getEmp\_Salary());

System.***out***.println();

}

**break**;

**case** 4:

TreeSet<Employee> tree3 = **new** TreeSet<>(**new** Salary\_Compare());

tree3.add(**new** Employee (1,"Palak" ,"CSE", 1000.98));

tree3.add(**new** Employee (2,"monika" ,"Civil", 2000.98));

tree3.add(**new** Employee (3,"sarika" ,"IT", 3460.98));

System.***out***.println("Incresing order with respect to Name : ");

**for**(Employee o : tree3)

{

System.***out***.println(o.getEmp\_Id()+ "," +o.getEmp\_Name()+","+o.getEmp\_Department()+","+o.getEmp\_Salary());

System.***out***.println();

}

**break**;

}

}

}

**Output:**

Sort In order of :

1. Employee Id

2. Employee Name

3. Employee Department

4. Employee Salary

2

Incresing order with respect to Name :

1,Palak,CSE,1000.98

2,monika,Civil,2000.98

3,sarika,IT,3460.98

**4.**