**TASK 12**

**Java Collection & Package**

**Task Description:**

1. **Create a package named "com.example.hr" that includes an Employee class. The Employee class should have the following fields:**

**name - a string that represents the employee's name.**

**id - an integer that represents the employee's ID number.**

**salary - a double that represents the employee's salary.**

**a. The Employee class should also have the following methods:**

**b. public void printName - a method that prints the employee's name to the console.**

**c. public void printSalary - a method that prints the employee's salary to the console.**

**package** com.example.hr;

**public** **class** Employee {

String name;

**int** id;

**double** salary;

**public** Employee(String name, **int** id, **double** salary) {

**super**();

**this**.name = name;

**this**.id = id;

**this**.salary = salary;

}

**public** **void** printName() {

System.***out***.println("Employee Name is :"+name);

}

**public** **void** printSalary() {

System.***out***.println("Employee Salary is :"+salary);

}

@Override

**public** String toString() {

**return** "Employee [name=" + name + ", id=" + id + ", salary=" + salary + "]";

}

}

**d. Create a second package named "com.example.hrtest" that includes a class named "EmployeeTest". The "EmployeeTest" class should include a main method that creates an instance of the "Employee" class, sets the employee's name, ID number, and salary, and calls its methods to print the employee's name andsalary to the console.**

**e. In your main method, use the "import" statement to import the "com.example.hr" package and access the "Employee" class.**

**f. Compile and run your program to verify that it successfully creates an instance of the "Employee" class and calls its methods to print the employee's name and salary to the console.**

**package** com.example.hrtest; //Creating the package with the help ok package keyword

**import** java.util.Scanner;

**import** com.example.hr.Employee; //use the created package with the help of import keyword

**public** **class** EmployeeTest {

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

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

System.***out***.println("Enter the Employee name:");

String name=scan.next();

System.***out***.println("Enter the Employee id:");

**int** id=scan.nextInt();

System.***out***.println("Enter the Employee salary:");

**double** salary=scan.nextDouble();

Employee em=**new** Employee(name, id, salary);

System.***out***.println("Below are the employee detials:");

em.printName();

em.printSalary();

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

scan.close();

}

}

**OUTPUT:**

Enter the Employee name:

Jai

Enter the Employee id:

9215

Enter the Employee salary:

15000

Below are the employee detials:

Employee Name is :Jai

Employee Salary is :15000.0

Employee [name=Jai, id=9215, salary=15000.0]

1. **Write a Java program to create an ArrayList of strings and then remove all the elements from the Array List.**

**package** task12;

**import** java.util.ArrayList;

**import** java.util.Scanner;

**public** **class** ArrayListExample {

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

ArrayList<String> al=**new** ArrayList<String>(); //creating the Array List

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

**int** choice=0;

**boolean** flage=**true**;

**while**(flage) {

System.***out***.println("Enter the option which need to perform in the Array List \n1. Add in list"

+ "\n2. Delete in List \n3. Delete All element in the list \n4. Display the Array List \n"

+ "5. To Conver the Array List to Array \n6. Exit from the Program");

choice=scan.nextInt();

scan.nextLine();

**switch**(choice) {

**case** 1:

System.***out***.println("Enter the String to add in a ArrayList");

al.add(scan.nextLine()); //adding the data in the array list

**break**;

**case** 2:

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

System.***out***.println("Enter the index of the element of Array list to be removed \nNote:index start's with 0");

al.remove(scan.nextInt()); //removing a element based on index

**break**;

**case** 3:

al.removeAll(al);// remove all the data in the array list

System.***out***.println("All the data present in the ArrayList has deleted now...");

**break**;

**case** 4:

System.***out***.println("Below are the data avaliable in the ArrayList");

**for**(String s:al) { //accessing the array list by using for each

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

}

**break**;

**case** 5:

System.***out***.println("Below are the data of an array transfered from ArrayList:");

Object st[]=al.toArray(); // converting the array list into to array of objects

**for**(Object s:st) {

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

}

**break**;

**case** 6:

System.***out***.println("Thank you ...!!!");

flage=**false**;

scan.close();

**break**;

**default**:

System.***out***.println("Please enter the correct option to perfrom the operation...");

**break**;

}

}

}

}

**OUTPUT:**

Enter the option which need to perform in the Array List

1. Add in list

2. Delete in List

3. Delete All element in the list

4. Display the Array List

5. To Conver the Array List to Array

6. Exit from the Program

1

Enter the String to add in a ArrayList

name

Enter the option which need to perform in the Array List

1. Add in list

2. Delete in List

3. Delete All element in the list

4. Display the Array List

5. To Conver the Array List to Array

6. Exit from the Program

1

Enter the String to add in a ArrayList

payment

Enter the option which need to perform in the Array List

1. Add in list

2. Delete in List

3. Delete All element in the list

4. Display the Array List

5. To Conver the Array List to Array

6. Exit from the Program

5

Below are the data of an array transfered from ArrayList:

name

payment

Enter the option which need to perform in the Array List

1. Add in list

2. Delete in List

3. Delete All element in the list

4. Display the Array List

5. To Conver the Array List to Array

6. Exit from the Program

2

[name, payment]

Enter the index of the element of Array list to be removed

Note:index start's with 0

1

Enter the option which need to perform in the Array List

1. Add in list

2. Delete in List

3. Delete All element in the list

4. Display the Array List

5. To Conver the Array List to Array

6. Exit from the Program

4

Below are the data avaliable in the ArrayList

name

Enter the option which need to perform in the Array List

1. Add in list

2. Delete in List

3. Delete All element in the list

4. Display the Array List

5. To Conver the Array List to Array

6. Exit from the Program

6

Thanks you ...!!!

1. **Write a Java program to create a TreeMap of employee IDs and names. Then, print out the names of all the employees in alphabetical order.**

**package** task12;

**import** java.util.Comparator;

**import** java.util.Iterator;

**import** java.util.Map;

**import** java.util.Scanner;

**import** java.util.Set;

**import** java.util.TreeMap;

**public** **class** TreeMapExample {

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

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

TreeMap<Integer, String> tm=**new** TreeMap<Integer, String>();

**int** choice=0,id=0;

**boolean** flage=**true**;

**while**(flage) {

System.***out***.println("Enter the option which need to perform in the Tree Map \n1. Add in data in Map"

+ "\n2. Delete in data in Map \n3. Delete All element in the Map \n4. Display the data in Tree Map as a sorted manner\n"

+ "5. Exit from the Program");

choice=scan.nextInt();

scan.nextLine();

**switch**(choice) {

**case** 1:

System.***out***.println("Enter the Employee name:");

tm.put(id++, scan.nextLine());

**break**;

**case** 2:

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

System.***out***.println("Enter the id to delete employee record");

tm.remove(scan.nextInt());

**break**;

**case** 3:

System.***out***.println("All the data has removed from the from the Map");

tm.clear();

**break**;

**case** 4:

Map sortedMap = *valueSort*(tm);

Set set = sortedMap.entrySet();

// Get an iterator

Iterator i = set.iterator();

**while** (i.hasNext())

{

Map.Entry mp = (Map.Entry)i.next();

System.***out***.print(mp.getKey() + ": ");

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

}

**break**;

**case** 5:

System.***out***.println("Thanks you ...!!!");

flage=**false**;

scan.close();

**break**;

**default**:

System.***out***.println("Please enter the correct option to perfrom the operation...");

**break**;

}

}

}

**public** **static** <K, V **extends** Comparable<V> > Map<K, V>

valueSort(**final** Map<K, V> map) {

Comparator<K> valueComparator = **new** Comparator<K>()

{

**public** **int** compare(K k1, K k2)

{

**int** comp = map.get(k1).compareTo(map.get(k2));

**if** (comp == 0)

**return** 1;

**else**

**return** comp;

}

};

// SortedMap created using the comparator

Map<K, V> sorted = **new** TreeMap<K, V>(valueComparator);

sorted.putAll(map);

**return** sorted;

}

}

**OUTPUT:**

Enter the option which need to perform in the Tree Map

1. Add in data in Map

2. Delete in data in Map

3. Delete All element in the Map

4. Display the data in Tree Map as a sorted manner

5. Exit from the Program

1

Enter the Employee name:

jai

Enter the option which need to perform in the Tree Map

1. Add in data in Map

2. Delete in data in Map

3. Delete All element in the Map

4. Display the data in Tree Map as a sorted manner

5. Exit from the Program

1

Enter the Employee name:

Hari

Enter the option which need to perform in the Tree Map

1. Add in data in Map

2. Delete in data in Map

3. Delete All element in the Map

4. Display the data in Tree Map as a sorted manner

5. Exit from the Program

4

1: Hari

0: jai

Enter the option which need to perform in the Tree Map

1. Add in data in Map

2. Delete in data in Map

3. Delete All element in the Map

4. Display the data in Tree Map as a sorted manner

5. Exit from the Program

2

{0=jai, 1=Hari}

Enter the id to delete employee record

1

Enter the option which need to perform in the Tree Map

1. Add in data in Map

2. Delete in data in Map

3. Delete All element in the Map

4. Display the data in Tree Map as a sorted manner

5. Exit from the Program

4

0: jai

Enter the option which need to perform in the Tree Map

1. Add in data in Map

2. Delete in data in Map

3. Delete All element in the Map

4. Display the data in Tree Map as a sorted manner

5. Exit from the Program

5

Thanks you ...!!!

1. **Write a program to convert List to Array**

**package** task12;

**import** java.util.LinkedList;

**import** java.util.List;

**class** Array {

// Main driver method

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

{

// Creating a LinkedList of string type by

// declaring object of List

List<String> list = **new** LinkedList<String>();

// Adding custom element to LinkedList

// using add() method

list.add("Jai");

list.add("Rajesh");

list.add("Kumar");

list.add("Praveen");

// Storing it inside array of strings

String[] arr = **new** String[list.size()];

// Converting ArrayList to Array

// using get() method

**for** (**int** i = 0; i < list.size(); i++)

arr[i] = list.get(i);

// Printing elements of array on console

**for** (String x : arr)

System.***out***.print(x + " ");

}

}

**OUTPUT:**

Jai Rajesh Kumar Praveen