**PG-DAC AUGUST 24 BATCH**

1)Write a Java program that takes a list of integers as input and returns a list of duplicate integers.

**package** CollectionAssignment;

**import** java.util.List;

**import** java.util.ArrayList;

**import** java.util.Set;

**import** java.util.HashSet;

**public** **class** que1 {

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

List<Integer> l=**new** ArrayList<Integer>();

l.add(10);

l.add(10);

l.add(20);

l.add(50);

l.add(90);

l.add(50);

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

Set<Integer> seen=**new** HashSet<>();

Set<Integer> duplicates=**new** HashSet();

**for**(Integer i:l) {

**if**(!seen.add(i)) {

duplicates.add(i);

}

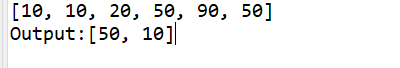
}

List<Integer> list=**new** ArrayList<>(duplicates);

System.***out***.println("Output:"+list);

}

}



2)Create a Person class with attributes name and age. Write a Java program that sorts a list of Person objects first by age and then by name if the ages are equal.

**package** CollectionAssignment;

**import** java.util.List;

**import** java.util.ArrayList;

**import** java.util.Comparator;

**class** Person{

String name;

**int** age;

**public** Person(String name,**int** age){

**this**.name=name;

**this**.age=age;

}

**public** String getName() {

**return** name;

}

**public** **int** getAge() {

**return** age;

}

@Override

**public** String toString() {

**return** "Name:"+name+" "+"Age:"+age;

}

}

**public** **class** que2 {

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

List<Person> p=**new** ArrayList<>();

p.add(**new** Person("Ram",22));

p.add(**new** Person("Shaam",20));

p.add(**new** Person("Govind",22));

p.add(**new** Person("Ramesh",12));

p.sort(**new** Comparator<Person>(){

@Override

**public** **int** compare(Person p1,Person p2) {

**if**(p1.getAge()!=p2.getAge()) {

**return** Integer.*compare*(p1.getAge(), p2.getAge());

}

**else**

**return** p1.getName().compareTo(p2.getName());

}

});

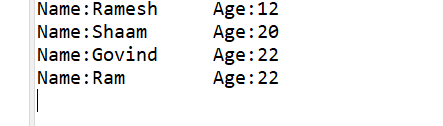
**for**(Person per:p) {

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

}

}

}



3)Write a Java program to find the first non-repeated character in a string using a HashMap.

String input = "aabbccddeffg";

Expected output = 'e';

**package** CollectionAssignment;

**import** java.util.HashMap;

**import** java.util.Scanner;

**public** **class** que3 {

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

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

String s=sc.nextLine();

HashMap<Character,Integer> h=**new** HashMap<>();

**for**(**char** c:s.toCharArray()) {

h.put(c, h.getOrDefault(c, 0)+1);

}

**for**(**char** c:s.toCharArray()) {

**if**(h.get(c)==1) {

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

**return**;

}

}

System.***out***.println("Not found");

}

}



4) Write a Java program that merges two sorted lists of integers into a single sorted list.

**package** CollectionAssignment;

**import** java.util.List;

**import** java.util.ArrayList;

**import** java.util.Collections;

**public** **class** que4 {

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

List<Integer> l1=**new** ArrayList<>();

List<Integer> l2=**new** ArrayList<>();

l1.add(50);

l1.add(30);

l1.add(10);

System.***out***.println("List 1:"+l1);

l2.add(70);

l2.add(80);

l2.add(60);

System.***out***.println("List 2:"+l2);

Collections.*sort*(l1);

Collections.*sort*(l2);

l1.addAll(l2);

System.***out***.println("Merged List:"+l1);

}

}

