Lab Assignment 05

HOMEWORK

Task 1

Design the Company and Employee classes so that the Tester1 class produces the given outputs.
Restriction: Company class can’t have more than 1 array.

Driver Code

```
public class Tester1{
  public static void main(String args[]){
    Employee e1 = new Employee();
    Employee e2 = new Employee("Alif", 34, "Fulltime");
    System.out.println("1-------------");
    Company c1 = new Company();
    c1.details();
    System.out.println("2-------------");
    Employee e3 = new Employee("Akter", 36,"Part-time");
    Employee e4 = new Employee("Ria", 38, "Fulltime");
    System.out.println("3-------------");
    c1.addEmployee(e2);
    c1.addEmployee(e3);
    System.out.println("4-------------");
    c1.details();
    System.out.println("5-------------");
    c1.addEmployee(e4);
    c1.addEmployee(e1);
    System.out.println("6-------------");
    c1.details();
    System.out.println("7-------------");
    c1.removeEmployee(e4);
    System.out.println("6-------------");
    c1.details();
  }
}
```

Output

```
A default employee has been created
1-------------
Company Name: ABC Company
Total Employee: 0
Fulltime Employees:
Part-Time Employees:
2-------------
3-------------
Alif has joined the company
Akter has joined the company
4-------------
Company Name: ABC Company
Total Employee: 2
Fulltime Employees:
Name: Alif, ID: 34
Part-Time Employees:
Name: Akter, ID: 36
5-------------
Ria has joined the company
No more vacancy
6-------------
Company Name: ABC Company
Total Employee: 3
Fulltime Employees:
Name: Alif, ID: 34
Name: Ria, ID: 38
Part-Time Employees:
Name: Akter, ID: 36
7-------------
Ria has left the company
6-------------
Company Name: ABC Company
Total Employee: 2
Fulltime Employees:
Name: Alif, ID: 34
Part-Time Employees:
Name: Akter, ID: 36
```

Task 2

Design the **Student** and **Department** class with the necessary properties so that the provided driver code generates the output given below. For simplicity, assume that a department can add a maximum of 5 students.

Driver Code	Output

public class DepartmentTester {
 public static void main(String[] args) {
  Student s1 = new Student("Akib", 10, 3.29);
  Student s2 = new Student("Reza", 15, 3.45);
  Student s3 = new Student("Kabir", 20,4.0);
  System.out.println("1===========");
  Department cse = new Department("CSE");
  cse.findStudent(-100);
  System.out.println("2===========");
  cse.addStudent(s1, s2, s3);
  System.out.println("3===========");
  cse.details();
  System.out.println("4===========");
  cse.findStudent(15);
  System.out.println("5===========");
  Student s4 = new Student("Nakib", 15,3.22);
  cse.addStudent(s4);
  System.out.println("6===========");
  s4.updateId(25);
  cse.addStudent(s4);
  System.out.println("7===========");
  cse.details();
  System.out.println("8===========");
  Student s5 = new Student("Sakib", 30,2.29);
  cse.addStudent(s5);
  System.out.println("9===========");
  cse.details();
 }
}
	1===========
	Student with this ID doesn't exist, Please give a valid ID
	2===========
	Welcome to CSE department, Akib
	Welcome to CSE department, Reza
	Welcome to CSE department, Kabir
	3===========
	Department Name: CSE
	Number of student:3
	Details of the students:
	Student name: Akib, ID: 10, cgpa: 3.29
	Student name: Reza, ID: 15, cgpa: 3.45
	Student name: Kabir, ID: 20, cgpa: 4.0
	4===========
	Student info:
	Student Name: Reza
	ID: 15
	CGPA: 3.45
	5===========
	Student with the same ID already exists, Please try with another ID
	6===========
	Welcome to CSE department, Nakib
	7===========
	Department Name: CSE
	Number of student:4
	Details of the students:
	Student name: Akib, ID: 10, cgpa: 3.29
	Student name: Reza, ID: 15, cgpa: 3.45
	Student name: Kabir, ID: 20, cgpa: 4.0
	Student name: Nakib, ID: 25, cgpa: 3.22
	8===========
	Welcome to CSE department, Sakib
	9===========
	Department Name: CSE
	Number of student:5
	Details of the students:
	Student name: Akib, ID: 10, cgpa: 3.29
	Student name: Reza, ID: 15, cgpa: 3.45
	Student name: Kabir, ID: 20, cgpa: 4.0
	Student name: Nakib, ID: 25, cgpa: 3.22
	Student name: Sakib, ID: 30, cgpa: 2.29

Task 3

Design the **necessary** classes for the UberEats system with the necessary properties to produce the given output for the provided driver code

Driver code

```java
public class UberEatsAccount{
  public static void main(String[] args){
    System.out.println("===========================");
    UberEatsUser user1 = new UberEatsUser("Peter Parker", "Badda");
    UberEatsUser user2 = new UberEatsUser("Matt Murdock",
"Mohammadpur");
    UberEatsUser user3 = new UberEatsUser("Reed Richards");
    UberEatsUser user4 = new UberEatsUser("Peggy Carter",
"Mirpur");
    Restaurant r1 = new Restaurant("Chillox", "Badda");
    r1.takeOrder(user1);
    r1.takeOrder(user2);
    r1.takeOrder(user3);
    r1.takeOrder(user4);
    r1.completeOrders();
    System.out.println("===========================");
    Restaurant r2 = new Restaurant("Kyoshi", "Gulshan");
    r2.takeOrder(user3);
    user3.updateLocation("Malibagh");
    user3.updateLocation("Bashundhara");
    r2.takeOrder(user3);
    r2.takeOrder(user3);
    r2.completeOrders();
    r2.completeOrders();
    System.out.println("===========================");
    Restaurant r3 = new Restaurant("Cilantro","Banani");
    r3.takeOrder(user1);
    r3.takeOrder(user2);
    r3.takeOrder(user3);
    r3.takeOrder(user4);
  }
}
```

Output

```
===========================
Your order has been added!
Your order has been added!
Location : Unknown. Please update
your location information!
Your order has been added!
Showing Chillox's orders:
Order by Peter Parker at Badda
completed
Order by Matt Murdock at
Mohammadpur completed
Order by Peggy Carter at Mirpur
completed
===========================
Location : Unknown. Please update
your location information!
Update Successful!
We already have your location.
Please place an order!
Your order has been added!
You already have a pending order!
Showing Kyoshi's orders:
Order by Reed Richards at Malibagh
completed
No pending orders at the moment.
===========================
Your order has been added!
Your order has been added!
Your order has been added!
We are really busy right now.
Please order after some time.
Thank you!
```

Task 4

Design the **ConnectFriends** class with the necessary properties so that the provided driver code generates the output given below.

Driver Code

```java
public class ConnectTester{
  public static void main(String[] args) {
    ConnectFriends sanaf = new ConnectFriends("Sanaf");
    System.out.println("=======1=======");
    ConnectFriends mantasha = new ConnectFriends("Mantasha",
3);
    ConnectFriends mostafiz = new ConnectFriends("Mostafiz");
    ConnectFriends matt = new ConnectFriends("Matt", 4);
    System.out.println("=======2=======");
    sanaf.sendFriendRequest(mantasha);
    System.out.println("=======3=======");
    sanaf.sendFriendRequest(mostafiz, matt);
    System.out.println("=======4=======");
    sanaf.showDetails();
    System.out.println("=======5=======");
    sanaf.removeRequest("Mantasha");
    System.out.println("=======6=======");
    sanaf.showDetails();
    System.out.println("=======7=======");
    sanaf.removeRequest("Murdock");
    System.out.println("=======8=======");
    sanaf.removeRequest("Matt");
    sanaf.removeRequest("Mostafiz");
    sanaf.showDetails();
    System.out.println("=======9=======");
    mantasha.showDetails();
  }
}
```

Output

```
Welcome to ConnectFriends, Sanaf
=======1=======
Welcome to ConnectFriends, Mantasha
Welcome to ConnectFriends, Mostafiz
Welcome to ConnectFriends, Matt
=======2=======
Sanaf sent a friend request to Mantasha.
=======3=======
Sanaf sent a friend request to Mostafiz.
Sanaf has reached the friend request
limit!
=======4=======
User Name: Sanaf
Maximum number of Sent Friend Request: 2
Total Friends Request: 2
Sent Friends Request: Mantasha Mostafiz
=======5=======
Reuqest to add Mantasha is removed for
Sanaf.
=======6=======
User Name: Sanaf
Maximum number of Sent Friend Request: 2
Total Friends Request: 1
Sent Friends Request: Mostafiz
=======7=======
Murdock is not in Sanaf's sent request
list.
=======8=======
Matt is not in Sanaf's sent request list.
Reuqest to add Mostafiz is removed for
Sanaf.
User Name: Sanaf
Maximum number of Sent Friend Request: 2
Total Friends Request: 0
Sent Friends Request:
=======9=======
User Name: Mantasha
Maximum number of Sent Friend Request: 3
Total Friends Request: 0
Sent Friends Request:
```

Task 5

```java
public class Trace {
 public int sum, temp;
 public Trace(int sum, int temp){
   this.sum = sum;
   this.temp = temp;
 }
}
class Quiz5{
 public int sum = 11, x = -2, y = 16;
 public Trace trace = null;
 public Quiz5(Trace t){
   trace = t;
   int x = trace.temp + y;
   sum = sum + (t.sum++) + y;
   System.out.println(trace.sum + " " + sum + " " + x);
   sum -= 10;
 }
 public void methodA(int sum, int temp){
   sum = -3 + this.sum - trace.sum;
   x = sum + 13 + y;
   y = trace.temp + temp + sum;
   this.sum = y + methodB(trace.temp, trace) + trace.temp;
   System.out.println(sum + " " + y + " " + this.sum);
 }
 public int methodB(int x, Trace temp){
   int sum = x + temp.sum + this.x;
   temp.temp = sum + this.sum;
   System.out.println(x + " " + temp.temp + " " + sum);
   return sum;
 }
}
```

```java
Trace p = new Trace(3, 4);
Quiz5 q = new Quiz5(p);
q.methodA(4, 8);
q.methodA(5, 10);
```

Output		

Task 6

```java
public class Foo{
  public int bar, buz;
  public Foo(int bar, int buz){
    this.bar = bar;
    this.buz = buz;
  }
}
class Quiz5{
  public int sum = 12, x = 2, y = 6;
  public Foo foo;
  public Quiz5(Foo f){
    foo = f;
    int x = this.foo.buz + y;
    sum = sum + (f.bar--) + y;
    System.out.println(foo.bar + " " + sum + " " + x);
    sum -= 10;
  }
  public void methodA(int bar, int buz){
    bar = 3 + bar - this.foo.bar;
    x = bar + 12 + y;
    y = foo.buz + buz + bar;
    sum = y + methodB(foo.buz, foo) + foo.buz;
    System.out.println(bar + " " + y + " " + sum);
  }
  public int methodB(int bar, Foo buz){
    int sum = bar + buz.bar + x;
    buz.buz = sum + this.sum;
    System.out.println(bar + " " + buz.buz + " " + sum);
    return sum;
  }
}
```

Driver Code	Output		

public class LabTester{
  public static void main(String []args){
    Foo p = new Foo(13, 4);
    Quiz5 q = new Quiz5(p);
    q.methodA(14, 8);
  }
}			