CLASS CONTACT

```java
public class Contact {

    private String name;
    private String number;

    public Contact(String name, String number) {
        this.name = name;
        this.number = number;
    }
    public String getName() {
        return name;
    }
    public void setName(String name) {
        this.name = name;
    }
    public String getNumber() {
        return number;
    }
    public void setNumber(String number) {
        this.number = number;
    }
    public boolean equals(Object obj){
        if(this == obj)
            return true;
        if(obj == null)
            return false;
        Contact temp;
        if(obj instanceof Contact)
            // OR if(this.getClass() == obj.getClass())
            temp = (Contact) obj;
        else
            return false;

        if(this.number.equalsIgnoreCase(temp.number)
                && this.name.equalsIgnoreCase(temp.name))
            return true;
        return false;
    }
    @Override
    public String toString() {
    return "Contact [name=" + name + ", number=" + number + "]";
    }
}
```

CLASS GROUP

```java
import java.util.Arrays;

public class Group {
    private String name;
    private Contact [] contacts;
    private int nbCont;

    public Group(String name, int size){
        this.name = name;
        contacts = new Contact[size];
        nbCont = 0;
    }

    public int getIndexOf(Contact c){
        for(int i = 0; i < nbCont; i++)
            if(contacts[i].equals(c))
                return i;
        return -1;
    }

    public boolean addContact(Contact c){
        if(getIndexOf(c) != -1 || nbCont == contacts.length)
            return false;
        contacts[nbCont++] = c;
        return true;
    }
    public boolean removeContact(Contact c){
        int index = getIndexOf(c);
        if(index == -1)
            return false;
        contacts[index] = contacts[nbCont-1];
        contacts[nbCont-1] = null;
        nbCont--;
        return true;
    }
    public void printContactAt(int pos){
        int index = pos - 1;
        if(index >= 0 & index < nbCont)
            System.out.println(contacts[index]);
        else
            System.out.println("Wrong index");
    }
}
```

```java
    public Contact[] concat(Group g){
        Contact temp[] = new Contact[nbCont + g.nbCont];
        int counter = 0;
        for(int i = 0; i < nbCont; i++)
            temp[counter++] = contacts[i];
        for(int i = 0; i < g.nbCont; i++)
            temp[counter++] = g.contacts[i];
        return temp;
    }
    /*
    @Override
    public String toString() {
        return "Group [name=" + name + ", contacts=" +
Arrays.toString(contacts) + "]";
    }
    */
    public String toString(){
        String temp = "Name: " + name;
        temp += "\nContacts: \n";
        for(int i = 0; i < nbCont; i++)
            temp += contacts[i].toString() + "\n";

        return temp;
    }
}
```

CLASS TEST

```java
public class test {
    public static void main(String[] args) {
        // TODO Auto-generated method stub
        Group g1 = new Group("CSC113", 20);
        Group g2 = new Group("CSC111", 25);
        g1.addContact(new Contact("Ali", "111"));
        g1.addContact(new Contact("Ahmad", "222"));
        g1.addContact(new Contact("Khalid", "333"));
        g1.addContact(new Contact("Omar", "444"));
        g2.addContact(new Contact("Mohammed", "111"));
        g2.addContact(new Contact("Faisal", "222"));

        Contact c = new Contact("Ahmad", "222");
        g1.removeContact(c);

        System.out.println("--------Contact at position 2:------");
        g1.printContactAt(2);

        System.out.println("--------G1 info:---------");
        System.out.println(g1);

        Contact [] temp = g2.concat(g1);
        System.out.println("--------G1 + G2 Contacts:---------");
        for(int i = 0; i < temp.length; i++)
            System.out.println(temp[i]);
    }

}
```