Interface and Inheritance
Workshop 5

In this workshop, you'll learn:

- Inheritance
- Method overriding
- Super keyword
- Abstract class
- Polymorphism

1. We have the design for Phone number:

PhoneNumber
- int area - String number
+ PhoneNumber() + PhoneNumber(int a, String n); + **void display();**

IntPhoneNumber
- String countryCode
+ IntPhoneNumber () +IntPhoneNumber (String cc, int a, String n); + **void display();**

Implement the above classes and make your own main program to test all the above methods.
The output of your program something look like:

```
Enter list of phone numbers
---------------------------------------
Type of phone number ? (1 – local phone, 2 – Inter phone number, 0 -
exit):  1
Enter area code: 111
Enter number: 111111

Type of phone number ? (1 – local phone, 2 – Inter phone number, 0 -
exit):  2
```

```
Enter country code: 22
Enter area code: 222
Enter number: 222222

Type of phone number ? (1 – local phone, 2 – Inter phone number, 0 -
exit):  1
Enter area code: 333
Enter number: 333333
Type of phone number ? (1 – local phone, 2 – Inter phone number, 0 -
exit):  2
Enter country code: 44
Enter area code: 444
Enter number: 444444
Type of phone number ? (1 – local phone, 2 – Inter phone number, 0 -
exit):  0

List of phone number:
---------------------------------------
111 – 111111
22 – 222 – 222222
333 – 333333
44 -  444 – 444444
```

Note: You can use an array of base class PhoneNumber object
PhoneNumber phonelist[] = new PhoneNumber[1000];

2. We have the design for Staff:

Person
- String name
+ Person() + Person(String n) + **void display();** **+ double getSalary();**

Officer
- double bSalary
+ Officer () +Officer (String n, double s) + **void display();** **+ double getSalary();**

Worker
- double hrs - final double RATE = 5.5
+ Worker() +Worker(String n, double hrs) + **void display();** **+ double getSalary();**

- Person. getSalary() is an abstract method
- Worker and Officer are subclasses of Person and Worker.salary = hrs * rate

Implement the above classes and make your own main program to test all the above methods

Add the below code to your main function and run

```
Person [] e = new Person[10];
    int n = 0, c = 0;
    do{
       System.out.println("Worker (1); Officer(2): ");
       Scanner in = new Scanner(System.in);
       c = in.nextInt();
       if(c == 1){
          //accept information of worker
          System.out.print("Enter worker name: ");
          String name = in.next();
          System.out.print("Enter worker working hours: ");
          int hrs = in.nextInt();
          e[n] = new Worker(name, hrs);
```

```
            n++;
        }else if(c == 2){
            //accept information of Officer
            System.out.print("Enter Officer name: ");
            String name = in.next();
            System.out.print("Enter officer salary: ");
            double salary = in.nextDouble();
            e[n] = new Officer(name, salary);
            n++;
        }
    }while(c != 0);
    //print all objects of e
    for(int i = 0; i < n; i++){
//print the instance of Worker only
        if(e[i] instanceof Worker)
            e[i].display();
    }
```