



## **Object Oriented Programming Lab – 01**

**Course Code: CSE215**

Submitted By,

Name: Rashidul Hasan Hridoy

ID: 171 - 15 – 8596

Section: E

Dept. of CSE,

Daffodil International University

Submitted To,

Anup Majumder

Lecturer, Dept. of CSE,

Daffodil International University

**Date of Submission: 24 January, 2018**

## Problem 1: Encapsulation Test 01

Code:

```
package com.example.labreporttwo;

public class EncapTest {
    private String name;
    private String idNumber;
    private int age;
    private String gender;
    private String bloodGroup;
    private String email;
    private int phoneNumber;
    private double cgpa;

    public String getName() {
        return name;
    }
    public String getIdNumber() {
        return idNumber;
    }
    public int getAge() {
        return age;
    }
    public String getGender() {
        return gender;
    }
    public String getBloodGroup() {
        return bloodGroup;
    }
    public String getEmail() {
        return email;
    }
    public int getPhoneNumber() {
        return phoneNumber;
    }
    public double getCgpa() {
        return cgpa;
    }

    public void setName(String nName) {
        name = nName;
    }
    public void setIdNumber(String nIdNumber) {
        idNumber = nIdNumber;
    }
}
```

```

}
public void setAge(int nAge) {
    age = nAge;
}
public void setGender(String nGender) {
    gender = nGender;
}
public void setBloodGroup(String nBloodGroup) {
    bloodGroup = nBloodGroup;
}
public void setEmail(String nEmail) {
    email = nEmail;
}
public void setPhoneNumber(int nPhoneNumber) {
    phoneNumber = nPhoneNumber;
}
public void setCgpa(double nCgpa) {
    cgpa = nCgpa;
}

public static void main(String[] args) {
    // TODO Auto-generated method stub

    EncapTest e1 = new EncapTest();
    EncapTest e2 = new EncapTest();

    e1.setName("Hridoy");
    e1.setIdNumber("171-15-8596");
    e1.setAge(23);
    e1.setGender("Male");
    e1.setBloodGroup("O+ve");
    e1.setEmail("hridoy@mail.com");
    e1.setPhoneNumber(01521305101);
    e1.setCgpa(3.88);

    e2.setName("Angelina");
    e2.setIdNumber("161-15-8596");
    e2.setAge(22);
    e2.setGender("Female");
    e2.setBloodGroup("O-ve");
    e2.setEmail("angelina@mail.com");
    e2.setPhoneNumber(01521010101);
    e2.setCgpa(3.58);

    System.out.println("Name : " + e1.getName());
    System.out.println("ID : " + e1.getIdNumber());

```

```

        System.out.println("Age : " + e1.getAge());
        System.out.println("Gender : " + e1.getGender());
        System.out.println("Blood Group : " + e1.getBloodGroup());
        System.out.println("Email : " + e1.getEmail());
        System.out.println("Phone Number : " + e1.getIdNumber());
        System.out.println("CGPA : " + e1.getCgpa());

        System.out.println("\nName : " + e2.getName());
        System.out.println("ID : " + e2.getIdNumber());
        System.out.println("Age : " + e2.getAge());
        System.out.println("Gender : " + e2.getGender());
        System.out.println("Blood Group : " + e2.getBloodGroup());
        System.out.println("Email : " + e2.getEmail());
        System.out.println("Phone Number : " + e2.getIdNumber());
        System.out.println("CGPA : " + e2.getCgpa());

    }

}

```

## Output:



```

<terminated> EncapTest (1) [Java Application] C:\Program Files\Java\jre1.8.0
Name : Hridoy
ID : 171-15-8596
Age : 23
Gender : Male
Blood Group : O+ve
Email : hridoy@mail.com
Phone Number : 171-15-8596
CGPA : 3.88

Name : Angelina
ID : 161-15-8596
Age : 22
Gender : Female
Blood Group : O-ve
Email : angelina@mail.com
Phone Number : 161-15-8596
CGPA : 3.58

```

## Problem 2: Encapsulation Test 02

Code:

```
package com.example.labreporttwo;

public class EncapTestTwo {
    private String name;
    private String idNumber;
    private int age;
    private String gender;
    private String bloodGroup;
    private String email;
    private int phoneNumber;
    private double cgpa;

    public String getName() {
        return name;
    }

    public void setName(String name) {
        this.name = name;
    }

    public String getIdNumber() {
        return idNumber;
    }

    public void setIdNumber(String idNumber) {
        this.idNumber = idNumber;
    }

    public int getAge() {
        return age;
    }

    public void setAge(int age) {
        this.age = age;
    }

    public String getGender() {
        return gender;
    }
}
```

```

public void setGender(String gender) {
    this.gender = gender;
}

public String getBloodGroup() {
    return bloodGroup;
}

public void setBloodGroup(String bloodGroup) {
    this.bloodGroup = bloodGroup;
}

public String getEmail() {
    return email;
}

public void setEmail(String email) {
    this.email = email;
}

public int getPhoneNumber() {
    return phoneNumber;
}

public void setPhoneNumber(int phoneNumber) {
    this.phoneNumber = phoneNumber;
}

public double getCgpa() {
    return cgpa;
}

public void setCgpa(double cgpa) {
    this.cgpa = cgpa;
}

public static void main(String[] args) {
    // TODO Auto-generated method stub

    EncapTestTwo e1 = new EncapTestTwo();
    EncapTestTwo e2 = new EncapTestTwo();

    e1.setName("Hridoy");
    e1.setIdNumber("171-15-8596");
    e1.setAge(23);
    e1.setGender("Male");
}

```

```
e1.setBloodGroup("O+ve");  
e1.setEmail("hridoy@mail.com");  
e1.setPhoneNumber(01521305101);  
e1.setCgpa(3.88);
```

```
e2.setName("Angelina");  
e2.setIdNumber("161-15-8596");  
e2.setAge(22);  
e2.setGender("Female");  
e2.setBloodGroup("O-ve");  
e2.setEmail("angelina@mail.com");  
e2.setPhoneNumber(01521010101);  
e2.setCgpa(3.58);
```

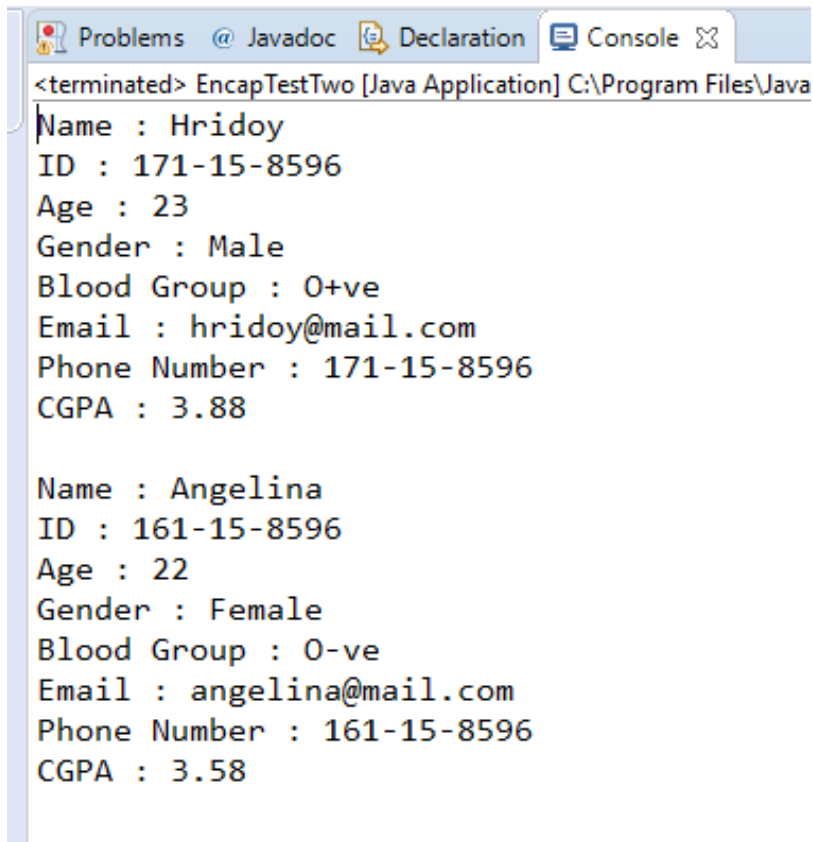
```
System.out.println("Name : " + e1.getName());  
System.out.println("ID : " + e1.getIdNumber());  
System.out.println("Age : " + e1.getAge());  
System.out.println("Gender : " + e1.getGender());  
System.out.println("Blood Group : " + e1.getBloodGroup());  
System.out.println("Email : " + e1.getEmail());  
System.out.println("Phone Number : " + e1.getIdNumber());  
System.out.println("CGPA : " + e1.getCgpa());
```

```
System.out.println("\nName : " + e2.getName());  
System.out.println("ID : " + e2.getIdNumber());  
System.out.println("Age : " + e2.getAge());  
System.out.println("Gender : " + e2.getGender());  
System.out.println("Blood Group : " + e2.getBloodGroup());  
System.out.println("Email : " + e2.getEmail());  
System.out.println("Phone Number : " + e2.getIdNumber());  
System.out.println("CGPA : " + e2.getCgpa());
```

```
}
```

```
}
```

Output:



```
<terminated> EncapTestTwo [Java Application] C:\Program Files\Java
Name : Hridoy
ID : 171-15-8596
Age : 23
Gender : Male
Blood Group : O+ve
Email : hridoy@mail.com
Phone Number : 171-15-8596
CGPA : 3.88

Name : Angelina
ID : 161-15-8596
Age : 22
Gender : Female
Blood Group : O-ve
Email : angelina@mail.com
Phone Number : 161-15-8596
CGPA : 3.58
```

### Problem 3: Inheritance Relation

Code:

Part 1:

```
package com.example.labreporttwo;

public class InheritanceTest {

    public void AddNumbers(double x, double y){
        double z = x + y;
        System.out.println("\nAddition of " + x + " and " + y
+ " is " + z);
    }
}
```



```

        public void MulNumbers(double x, double y) {
            double z = x * y;
            System.out.println("Multiplication of " + x + " and "
+ y + " is " + z);
        }

        public void SubNumbers(double x, double y) {
            double z = x - y;
            System.out.println("Subtraction of " + x + " and " + y
+ " is " + z);
        }
    }

```

## Part 2:

```

package com.example.labreporttwo;

import java.util.Scanner;

public class InheritanceTestRelation extends InheritanceTest {

    public void DivNumbers(double x, double y) {
        double z = x / y;
        System.out.println("Division of " + x + " and " + y + " is "
+ z);
    }

    public static void main(String[] args) {
        // TODO Auto-generated method stub
        System.out.println("Enter two numbers : ");
        Scanner input = new Scanner(System.in);
        double a = input.nextDouble();
        double b = input.nextDouble();

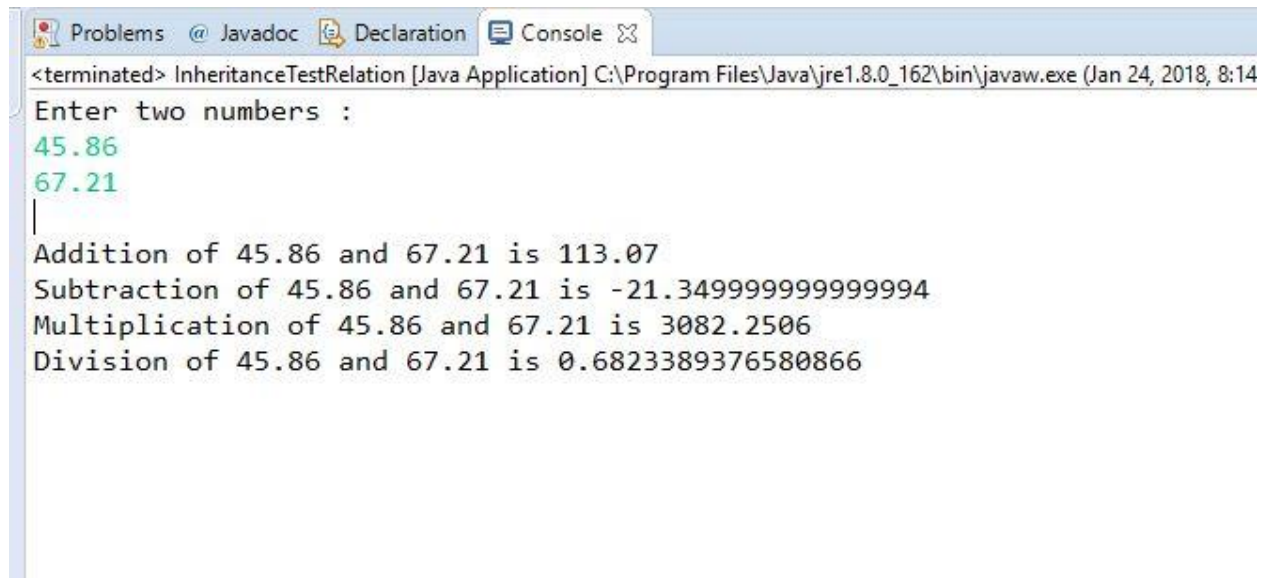
        InheritanceTestRelation i = new InheritanceTestRelation();

        i.AddNumbers(a, b);
        i.SubNumbers(a, b);
        i.MulNumbers(a, b);
        i.DivNumbers(a, b);
    }
}

```

}

### Output:



The screenshot shows a Java IDE window with the 'Console' tab selected. The title bar indicates the application is 'InheritanceTestRelation [Java Application]' running on 'C:\Program Files\Java\jre1.8.0\_162\bin\javaw.exe' at 'Jan 24, 2018, 8:14'. The console output is as follows:

```
<terminated> InheritanceTestRelation [Java Application] C:\Program Files\Java\jre1.8.0_162\bin\javaw.exe (Jan 24, 2018, 8:14)
Enter two numbers :
45.86
67.21
|
Addition of 45.86 and 67.21 is 113.07
Subtraction of 45.86 and 67.21 is -21.349999999999994
Multiplication of 45.86 and 67.21 is 3082.2506
Division of 45.86 and 67.21 is 0.6823389376580866
```