



Object Oriented Programming Lab – 05

Course Code: CSE215

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Problem 1: Inheritance

Part 1:

```
package com.example.hridoy;

public class Base {

    public void addNumbers(double number1, double number2) {
        double addResult = number1 + number2;
        System.out.println("\nSummation of " + number1 + " and " +
number2 + " is " + addResult);
    }

    public void subNumbers(double number1, double number2) {
        double subResult = number1 - number2;
        System.out.println("Subtraction of " + number1 + " and " +
number2 + " is " + subResult);
    }

    public void mulNumbers(double number1, double number2) {
        double mulResult = number1 * number2;
        System.out.println("Summation of " + number1 + " and " +
number2 + " is " + mulResult);
    }

    public void divNumbers(double number1, double number2) {
        double divResult = number1 / number2;
        System.out.println("Summation of " + number1 + " and " +
number2 + " is " + divResult);
    }

}
```

Part 2:

```
package com.example.hridoy;

import java.util.Scanner;

public class Children extends Base {

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

```

// TODO Auto-generated method stub

Children test1 = new Children();

Scanner input = new Scanner(System.in);

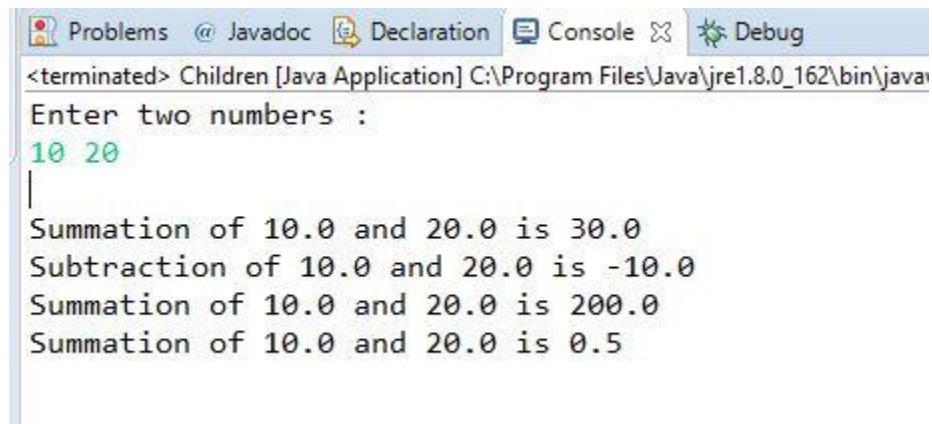
System.out.println("Enter two numbers : ");
double num1 = input.nextDouble();
double num2 = input.nextDouble();

test1.addNumbers(num1, num2);
test1.subNumbers(num1, num2);
test1.mulNumbers(num1, num2);
test1.divNumbers(num1, num2);

    }
}

```

Output:



The screenshot shows a Java IDE console window with the following output:

```

<terminated> Children [Java Application] C:\Program Files\Java\jre1.8.0_162\bin\java
Enter two numbers :
10 20
|
Summation of 10.0 and 20.0 is 30.0
Subtraction of 10.0 and 20.0 is -10.0
Summation of 10.0 and 20.0 is 200.0
Summation of 10.0 and 20.0 is 0.5

```

Problem 2.1: Overloading

Part 1:

```
package com.example.hasan;

public class OverLoad {

    public void demo(int a) {
        System.out.println("a : " + a);
    }

    public void demo(int a, int b) {
        System.out.println("a and b " + a + " : " + b);
    }

    public double demo(double a) {
        System.out.println("a : " + a);
        return a*a;
    }

}
```

Part 2:

```
package com.example.hasan;

public class MethodToOverloading {

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

        OverLoad obj = new OverLoad();
        obj.demo(50);
        obj.demo(50, 60);
        double result = obj.demo(50.78);

        System.out.println("O/P : " + result);

    }

}
```

```
}
```

Output:

A screenshot of an IDE's console window. The title bar shows tabs for 'Problems', 'Javadoc', 'Declaration', and 'Console'. The console text reads: '<terminated> MethodToOverloading [Java Application] C:\Progra', 'a : 50', 'a and b 50 : 60', 'a : 50.78', and 'O/P : 2578.6084'.

```
<terminated> MethodToOverloading [Java Application] C:\Progra
a : 50
a and b 50 : 60
a : 50.78
O/P : 2578.6084
```

Problem 2.2: Overriding

Part 1:

```
package com.example.hasan;

public class Base {

    public void methodToOverride() {
        System.out.println("This is a base class!");
    }

}
```

Part 2:

```
package com.example.hasan;

public class Derived extends Base {

    public void methodToOverride() {
        System.out.println("This is a derivad class!");
    }

}
```

Part 3:

```
package com.example.hasan;

public class Test {

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

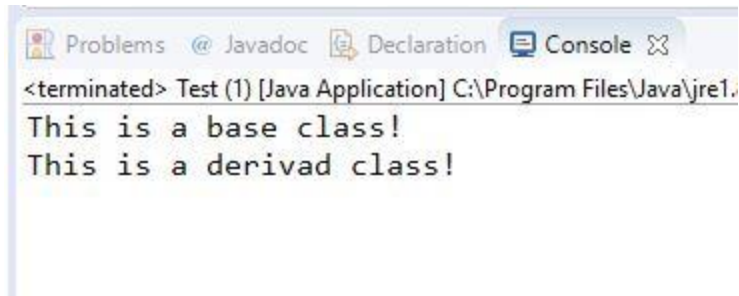
        Base obj1 = new Base();
        Base obj2 = new Derived();

        obj1.methodToOverride();
        obj2.methodToOverride();

    }

}
```

Output:



Problem 3: Association

Part 1:

```
package com.example.hriday;  
  
public class Bank {  
    private String name;  
  
    Bank(String name)  
    {  
        this.name = name;  
    }  
  
    public String getBankName()  
    {  
        return this.name;  
    }  
}
```

Part 2:

```
package com.example.hriday;  
  
public class Employee {  
    private String name;  
  
    Employee(String name)  
    {  
        this.name = name;  
    }  
}
```

```

    }

    public String getEmployeeName()
    {
        return this.name;
    }
}

```

Part 3:

```

package com.example.hridoy;

public class Association {

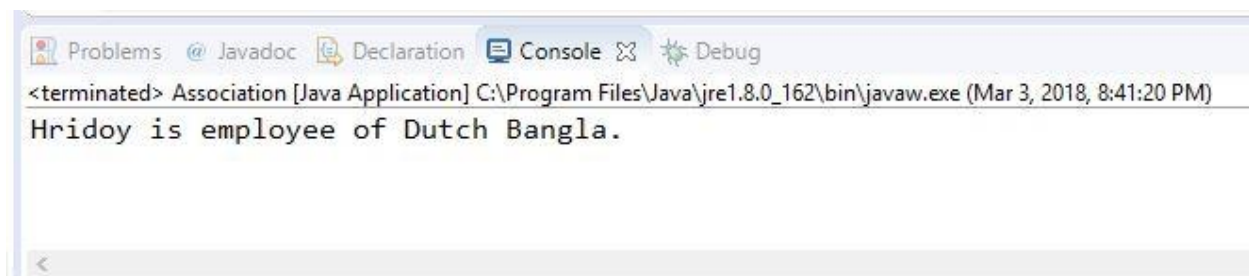
    public static void main(String[] args) {
        // TODO Auto-generated method stub

        Bank bank = new Bank("Dutch Bangla");
        Employee emp = new Employee("Hridoy");

        System.out.println(emp.getEmployeeName() +
            " is employee of " + bank.getBankName() + ".");
    }
}

```

Output:



The screenshot shows an IDE's console window with the following content:

```

<terminated> Association [Java Application] C:\Program Files\Java\jre1.8.0_162\bin\javaw.exe (Mar 3, 2018, 8:41:20 PM)
Hridoy is employee of Dutch Bangla.

```

The console window has tabs for Problems, Javadoc, Declaration, Console (selected), and Debug. A scrollbar is visible at the bottom.