Teknik Pemrogaman- 16TIN2054

Tugas ke-7 – Polymorphism

Disusun oleh :

Fadhil Muhammad – 201524042

1BD4 – Teknik Informatika

Tugas ini dikumpulkan untuk memenuhi sebagtian persyaratan kelulusan

Mata kuliah Teknik Pemrogaman

Program studi D4 Teknik Informatika

Jurusan Teknik Komputer dan Informatika

Politeknik Negeri Bandung

2020/2021

Dynamic Polymorphism

Animal.java

```java
package DynamicPolymorphism;

public class Animal {
    public void sound(){
        System.out.println("Animal is making a sound");
    }
}
```

Horse.java

```java
package DynamicPolymorphism;

public class Horse extends Animal {

    @Override
    public void sound(){
        System.out.println("Neigh");
    }

    public static void main(String args[]){
        Animal obj = new Horse();
        obj.sound();
    }
}
```

RUN

```
<terminated> Horse [Java Application] C:\Program Files\Java\jre1.8.0_291\bin\javaw.exe (May 2, 2021, 5:42:25 AM)
Neigh
```

Cat.java

```java
package DynamicPolymorphism;

public class Cat extends Animal {

    @Override
    public void sound(){
        System.out.println("Meow");
    }

    public static void main(String args[]){
        Animal obj = new Cat();
        obj.sound();
    }

}
```

RUN

```
<terminated> Cat [Java Application] C:\Program Files\Java\jre1.8.0_291\bin\javaw.exe (May 2, 2021, 5:43:33 AM)
Meow
```

Static Polymorphsim

Overload.java

```java
package StaticPolymorphsim;

public class Overload {

    void demo (int a){
        System.out.println("a: "+a);
    }
    void demo (int a, int b){
        System.out.println("a and b: "+a+","+b);
    }
    double demo (double a){
        System.out.println("double a: "+a);
        return a*a;
    }
}
```

MethodOverloading.java

```java
package StaticPolymorphsim;

public class MethodOverloading {

    public static void main(String args[]){
        Overload obj = new Overload();
        double result;
        obj.demo(10);
        obj.demo(10, 20);
        result = obj.demo(5.5);
        System.out.println("O/P: "+result);
    }
}
```

RUN

```
<terminated> MethodOverloading [Java Application] C:\Program Files\Java\jre1.8.0_291\bin\javaw.exe (May 2, 2021, 5:44:07 AM)
a: 10
a and b: 10,20
double a: 5.5
O/P: 30.25
```

Another Type of Employee

Staff.java

```
package AnotherTypeofEmployee;

/**
 * Staff.java
 * @author Lewis/Loftus
 * Represents the personnel staff of a particular business.
 */

public class Staff {
    StaffMember[] staffList;

    // menetapkan daftar staff
    public Staff(){
        staffList = new StaffMember[8];

        staffList[0]= new Executive ("Sam","123 Main Line", "555-0469","123-45-6789",2437.07);

        staffList[1]= new Employee ("Carla","456 Off Line","555-0101","987-65-4321",1246.23);
        staffList[2]= new Employee ("Woody","789 Off Rocker","555-0000","010-20-3040",1169.23);

        staffList[3]= new Hourly ("Diane","678 Fith Ave.","555-0690","958-47-3625",10.55);

        staffList[4]= new Volunteer ("Norm","987 Suds Blvd.","555-8374");
        staffList[5]= new Volunteer ("Cliff","321 Duds Lane","555-7282");

        staffList[6]= new Commission("Chongyun","112 Liyue st.","555-1240","123-21-4020",6.25,0.2);
        staffList[7]= new Commission("Kaeya","152 mondo st.","555-2312","124-53-3124",9.75,0.15);

        ((Executive)staffList[0]).awardBonus(500.00);

        ((Hourly)staffList[3]).addHours(40);

        ((Hourly)staffList[6]).addHours(35);
        ((Commission)staffList[6]).addSales(400);

        ((Hourly)staffList[7]).addHours(40);
        ((Commission)staffList[7]).addSales(950);
    }

    public void payday(){
        double amount;
        for (int count=0;count<staffList.length;count++){
            System.out.println(staffList[count]);

            amount = staffList[count].pay();
```

```

            if(amount == 0.0)
                System.out.println("Thanks!");
            else
                System.out.println("Paid: "+amount);

            System.out.println("-----------------------------------");
        }
    }
}
```

StaffMember.java

```java
package AnotherTypeofEmployee;

abstract public class StaffMember {
    protected String name;
    protected String address;
    protected String phone;

    public StaffMember(String eName, String eAddress, String ePhone){
        name = eName;
        address = eAddress;
        phone = ePhone;
    }

    public String toString(){
        String result = "Name: "+name+"\n";

        result+="Address: "+address+"\n";
        result+="Phone: "+phone;

        return result;
    }

    public abstract double pay();
}
```

Volunteer.java

```java
package AnotherTypeofEmployee;

public class Volunteer extends StaffMember {
    public Volunteer (String eName, String eAddress, String ePhone){
        super (eName, eAddress, ePhone);
    }

    public double pay(){
        return 0.0;
    }
}
```

Hourly.java

```java
package AnotherTypeofEmployee;

public class Hourly extends Employee {
    private int hoursWorked;

    public Hourly (String eName, String eAddress, String ePhone, String socSecNumber, double rate){
        super (eName, eAddress, ePhone, socSecNumber, rate);

        hoursWorked = 0;
    }

    public void addHours(int moreHours){
        hoursWorked+=moreHours;
    }

    public double pay(){
        double payment = payRate*hoursWorked;

        hoursWorked = 0;

        return payment;
    }

    public String toString(){
        String result = super.toString();

        result+="\nCurrent hours: "+hoursWorked;

        return result;
    }

}
```

Firm.java

```java
package AnotherTypeofEmployee;

public class Firm {

    public static void main(String[] args) {
        Staff personnel = new Staff();

        personnel.payday();

    }
}
```

Executive.java

```java
package AnotherTypeofEmployee;

public class Executive extends Employee {
    private double bonus;

    public Executive (String eName, String eAddress, String ePhone, String socSecNumber, double rate){
        super (eName, eAddress, ePhone, socSecNumber, rate);

        bonus = 0;
    }

    public void awardBonus (double execBonus){
        bonus = execBonus;
    }

    public double pay(){
        double payment = super.pay()+bonus;

        bonus = 0;

        return payment;
    }
}
```

Employee.java

```java
package AnotherTypeofEmployee;

public class Employee extends StaffMember {
    protected String socialSecurityNumber;
    protected double payRate;

    public Employee (String eName, String eAddress, String ePhone, String socSecNumber, double rate){
        super (eName, eAddress, ePhone);

        socialSecurityNumber = socSecNumber;
        payRate = rate;
    }

    public String toString(){
        String result = super.toString();

        result +="\nSocial Security Number: "+socialSecurityNumber;

        return result;
    }

    public double pay(){
        return payRate;
    }

}
```

Comission.java

```java
package AnotherTypeofEmployee;

public class Commission extends Hourly {
    private double total_sales;
    private double commission_rate;

    public Commission(String eName, String eAddress, String ePhone, String socSecNumber, double rate, double comm_rate){
        super (eName, eAddress, ePhone, socSecNumber, rate);
        commission_rate = comm_rate;
    }

    public void addSales(double total_sales){
        this.total_sales = total_sales;
    }

    public double pay(){
        double payment = super.pay()+(total_sales*commission_rate);

        total_sales = 0;

        return payment;
    }

    public String toString(){
        String result = super.toString();

        result+="\n Total Sales: "+total_sales;

        return result;
    }
}
```

RUN

```
<terminated> New_configuration [Java Application] C:\Program Files\Java\jre1.8.0_291\bin\javaw.exe (May 2, 2021, 5:44:53 AM)
Name: Sam
Address: 123 Main Line
Phone: 555-0469
Social Security Number: 123-45-6789
Paid: 2937.07
-----------------------------------
Name: Carla
Address: 456 Off Line
Phone: 555-0101
Social Security Number: 987-65-4321
Paid: 1246.23
-----------------------------------
Name: Woody
Address: 789 Off Rocker
Phone: 555-0000
Social Security Number: 010-20-3040
Paid: 1169.23
-----------------------------------
Name: Diane
Address: 678 Fith Ave.
Phone: 555-0690
Social Security Number: 958-47-3625
Current hours: 40
Paid: 422.0
-----------------------------------
Name: Norm
Address: 987 Suds Blvd.
Phone: 555-8374
Thanks!
-----------------------------------
Name: Cliff
Address: 321 Duds Lane
Phone: 555-7282
Thanks!
-----------------------------------
-----------------------------------
Name: Chongyun
Address: 112 Liyue st.
Phone: 555-1240
Social Security Number: 123-21-4020
Current hours: 35
 Total Sales: 400.0
Paid: 298.75
-----------------------------------
Name: Kaeya
Address: 152 mondo st.
Phone: 555-2312
Social Security Number: 124-53-3124
Current hours: 40
 Total Sales: 950.0
Paid: 532.5
-----------------------------------
```