

PRAKTIKUM PEMROGRAMAN BERORIENTASI OBJEK

Bab 8

POLYMORPHISM



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INFORMATIKA

FAKULTAS KOMUNIKASI DAN INFORMATIKA

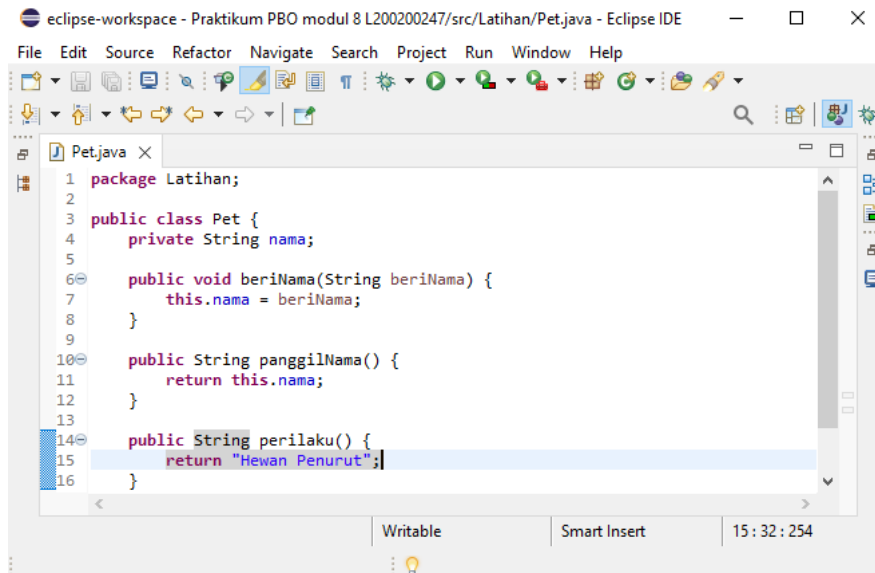
UNIVERSITAS MUHAMMADIYAH SURAKARTA

2021

Kegiatan praktikum modul 8 yaitu:

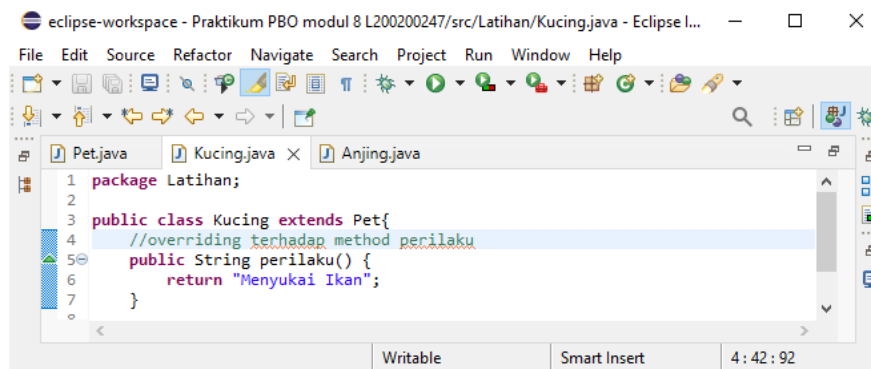
- Menjawab pertanyaan Latihan dan dokumentasikan hasil program anda (e-modul halaman 52)

Silahkan tulis dan jalankan Program 8 berikut ini! Kemudian kerjakan soal setelahnya!

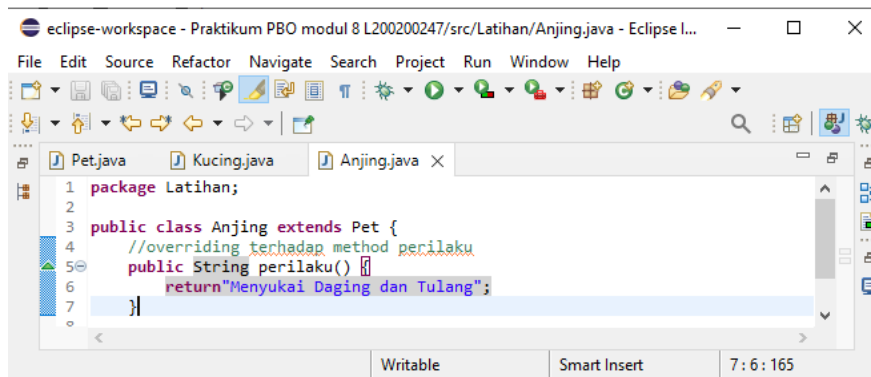


```
1 package Latihan;
2
3 public class Pet {
4     private String nama;
5
6     public void beriNama(String beriNama) {
7         this.nama = beriNama;
8     }
9
10    public String panggilNama() {
11        return this.nama;
12    }
13
14    public String perilaku() {
15        return "Hewan Penurut";
16    }
17 }
```

1. Buatlah class Kucing dan Anjing dimana kedua class tersebut melakukan overriding terhadap method perilaku()!

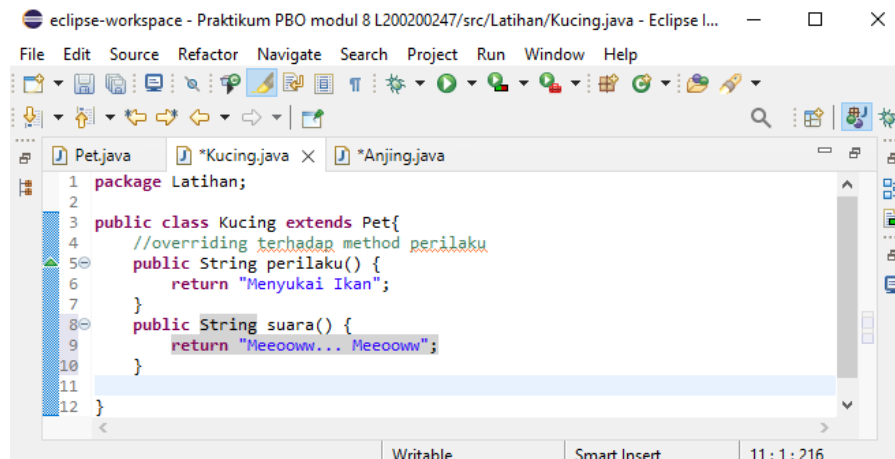


```
1 package Latihan;
2
3 public class Kucing extends Pet {
4     //overriding terhadap method perilaku
5     public String perilaku() {
6         return "Menyukai Ikan";
7     }
8 }
```



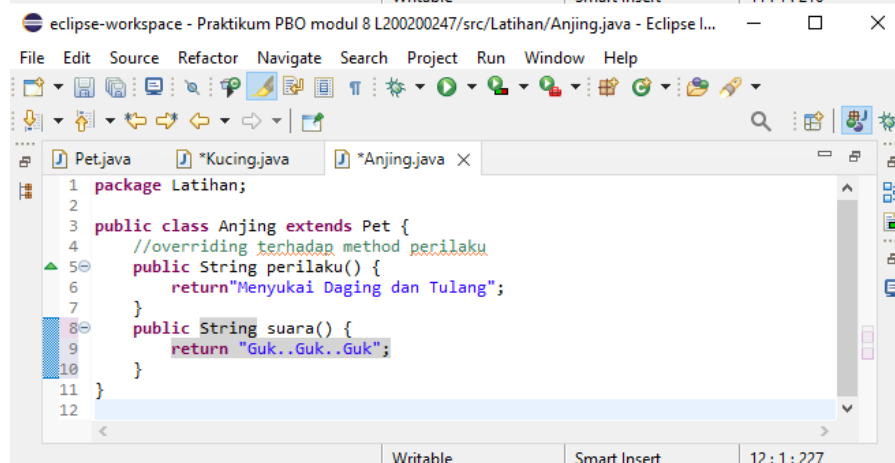
```
1 package Latihan;
2
3 public class Anjing extends Pet {
4     //overriding terhadap method perilaku
5     public String perilaku() {
6         return "Menyukai Daging dan Tulang";
7     }
8 }
```

2. Tambahkan satu method pada masing-masing class yang secara khusus hanya berlaku pada masing-masing class tersebut.



The screenshot shows the Eclipse IDE with the file `Kucing.java` open. The code defines a package `Latihan` and a class `Kucing` that extends `Pet`. It overrides the `perilaku()` method to return "Menyukai Ikan" and adds a new `suara()` method that returns "Meeooww... Meeooww".

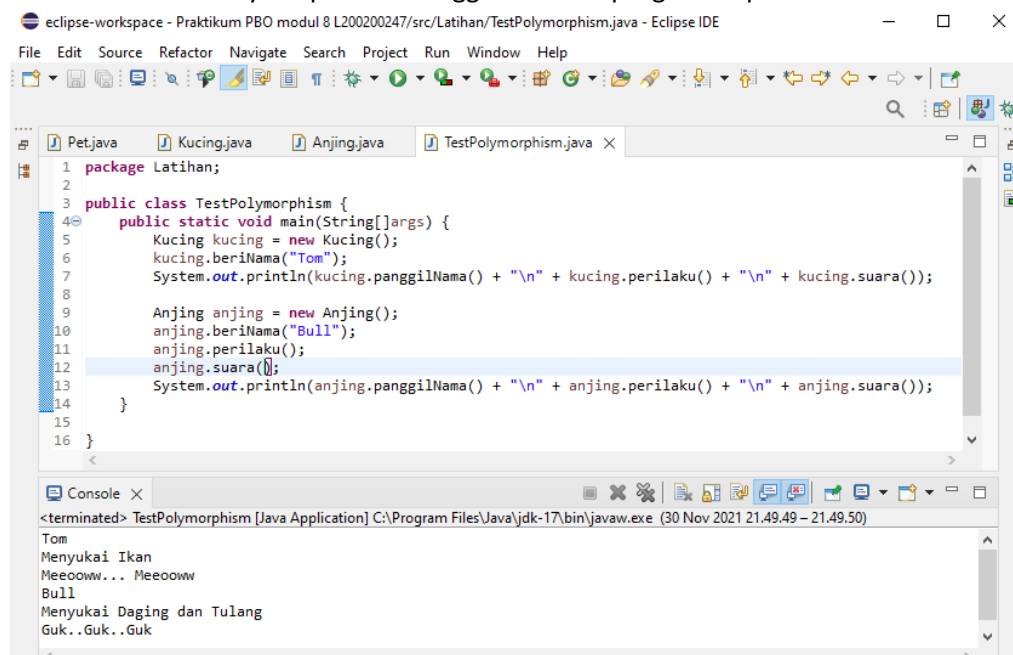
```
1 package Latihan;
2
3 public class Kucing extends Pet{
4     //overriding terhadap method perilaku
5     public String perilaku() {
6         return "Menyukai Ikan";
7     }
8     public String suara() {
9         return "Meeooww... Meeooww";
10    }
11 }
12 }
```



The screenshot shows the Eclipse IDE with the file `Anjing.java` open. The code defines a package `Latihan` and a class `Anjing` that extends `Pet`. It overrides the `perilaku()` method to return "Menyukai Daging dan Tulang" and adds a new `suara()` method that returns "Guk..Guk..Guk".

```
1 package Latihan;
2
3 public class Anjing extends Pet {
4     //overriding terhadap method perilaku
5     public String perilaku() {
6         return "Menyukai Daging dan Tulang";
7     }
8     public String suara() {
9         return "Guk..Guk..Guk";
10    }
11 }
12 }
```

3. Buat class TestPolymorphism sehingga keluaran program seperti berikut ini!



The screenshot shows the Eclipse IDE with the file `TestPolymorphism.java` open. The code defines a package `Latihan` and a class `TestPolymorphism` with a `main` method. It creates instances of `Kucing` and `Anjing`, sets their names, and prints their names, behaviors, and sounds. The console output shows the results of the program execution.

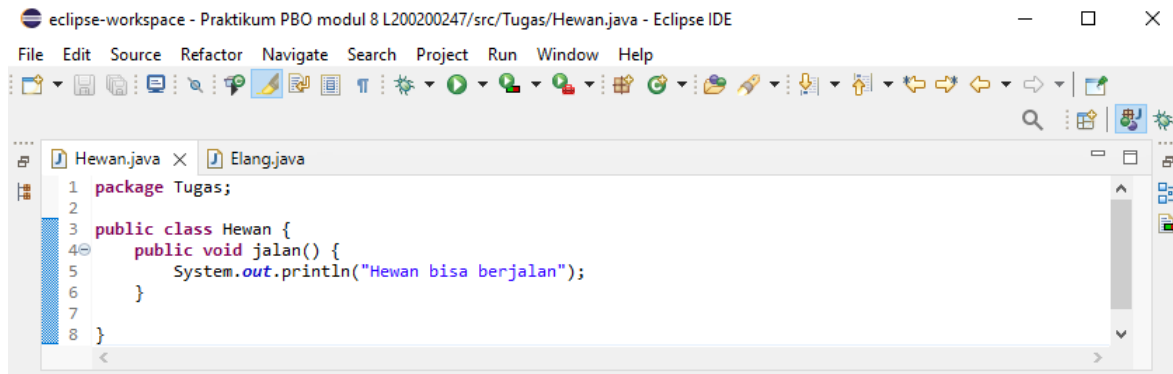
```
1 package Latihan;
2
3 public class TestPolymorphism {
4     public static void main(String[] args) {
5         Kucing kucing = new Kucing();
6         kucing.beriNama("Tom");
7         System.out.println(kucing.panggilNama() + "\n" + kucing.perilaku() + "\n" + kucing.suara());
8
9         Anjing anjing = new Anjing();
10        anjing.beriNama("Bull");
11        anjing.perilaku();
12        anjing.suara();
13        System.out.println(anjing.panggilNama() + "\n" + anjing.perilaku() + "\n" + anjing.suara());
14    }
15 }
16 }
```

Console Output:

```
<terminated> TestPolymorphism [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (30 Nov 2021 21:49:49 - 21:49:50)
Tom
Menyukai Ikan
Meeooww... Meeooww
Bull
Menyukai Daging dan Tulang
Guk..Guk..Guk
```

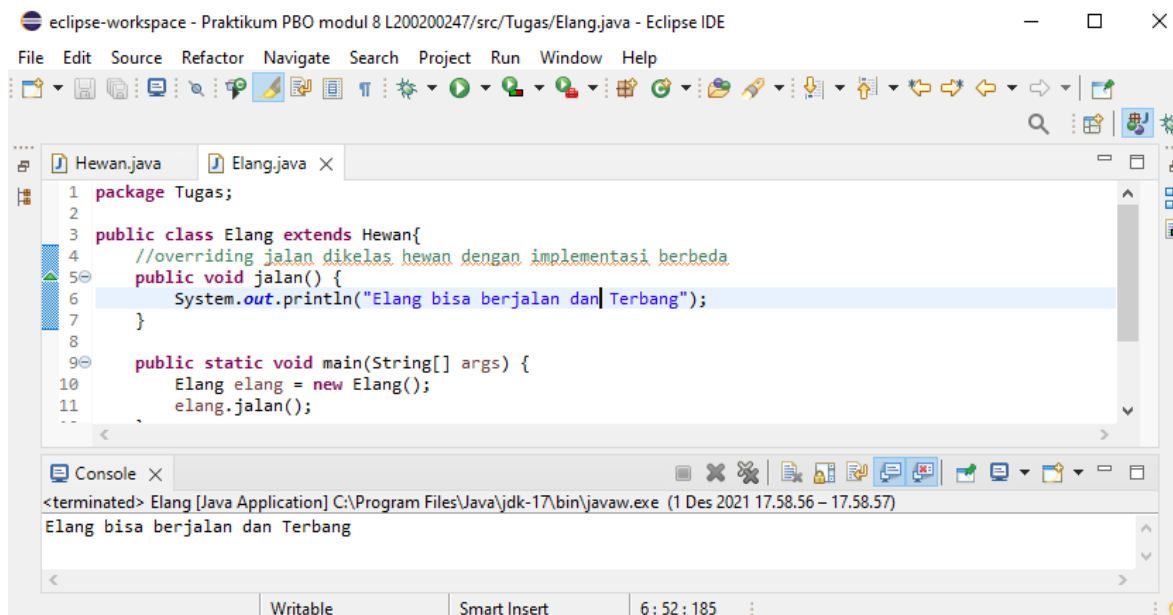
-Mengerjakan Tugas (e-modul halaman 53)

1. Lihat kembali Program 4 mengenai overriding, buatlah class Elang yang memiliki method jalan() namun implementasinya berbeda dari kedua class lainnya!



The screenshot shows the Eclipse IDE with the file 'Hewan.java' open. The code defines a package 'Tugas' and a public class 'Hewan'. The 'jalan()' method is implemented to print 'Hewan bisa berjalan'.

```
1 package Tugas;
2
3 public class Hewan {
4     public void jalan() {
5         System.out.println("Hewan bisa berjalan");
6     }
7 }
8 }
```



The screenshot shows the Eclipse IDE with the file 'Elang.java' open. The code defines a package 'Tugas' and a public class 'Elang' that extends 'Hewan'. The 'jalan()' method is overridden to print 'Elang bisa berjalan dan Terbang'. A 'main' method is also present, which creates an instance of 'Elang' and calls the 'jalan()' method. The console output at the bottom shows the result of the program execution.

```
1 package Tugas;
2
3 public class Elang extends Hewan{
4     //overriding jalan dikelas hewan dengan implementasi berbeda
5     public void jalan() {
6         System.out.println("Elang bisa berjalan dan Terbang");
7     }
8
9     public static void main(String[] args) {
10         Elang elang = new Elang();
11         elang.jalan();
12     }
13 }
```

Console Output:

```
<terminated> Elang [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (1 Des 2021 17.58.56 - 17.58.57)
Elang bisa berjalan dan Terbang
```

2. Buatlah class baru dengan nama CustomerData, tambahkan variabel nama, alamat, tanggal lahir, pekerjaan dan gaji. Selanjutnya buatlah overloading constructor dari class tersebut.

```

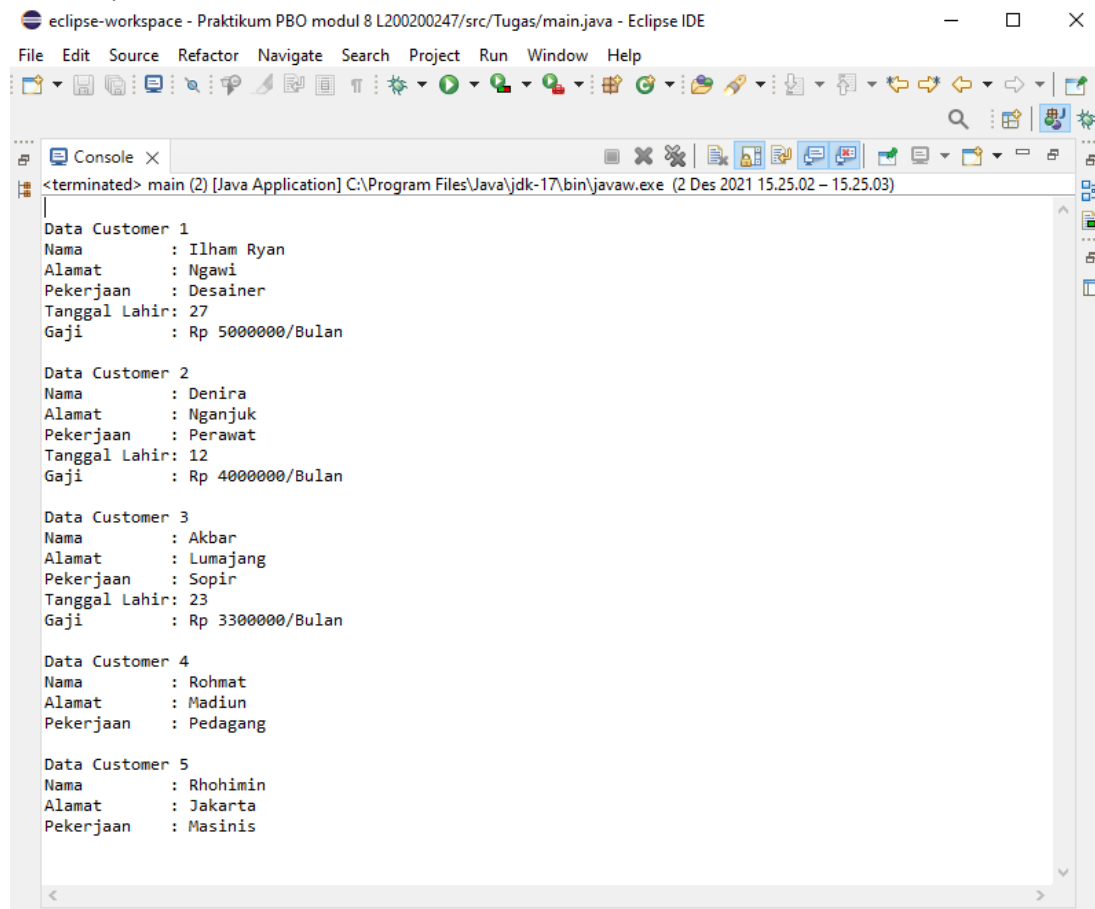
1 package Tugas;
2
3 public class CustomerData {
4     public String nama, alamat, pekerjaan;
5     public int gaji, tanggalLahir;
6     public static int jumlahCustomer;
7
8     //overloading
9     CustomerData(){
10         CustomerData.jumlahCustomer++;
11         System.out.println("\nData Customer "+CustomerData.jumlahCustomer);
12     }
13     CustomerData(String nama, String alamat, String pekerjaan){
14         this.nama = nama;
15         this.alamat = alamat;
16         this.pekerjaan = pekerjaan;
17         System.out.println("Nama      : "+ this.nama +
18                             "\nAlamat   : "+ this.alamat +
19                             "\nPekerjaan : "+ this.pekerjaan);
20     }
21
22     CustomerData(String nama, String alamat, String pekerjaan, int tanggalLahir, int gaji){
23         this.nama = nama;
24         this.alamat = alamat;
25         this.pekerjaan = pekerjaan;
26         this.tanggalLahir = tanggalLahir;
27         this.gaji = gaji;
28         System.out.println("Nama      : "+ this.nama +
29                             "\nAlamat   : "+ this.alamat +
30                             "\nPekerjaan : "+ this.pekerjaan +
31                             "\nTanggal Lahir: "+ this.tanggalLahir+
32                             "\nGaji      : Rp "+this.gaji+"/Bulan");
33     }
34 }
  
```

3. Buatlah class baru dengan method main() yang disertai 10 object customer dari class CustomerData.

```

1 package Tugas;
2
3 public class main {
4     public static void main(String[] args) {
5         //membuat 10 objek CustomerData
6         CustomerData a = new CustomerData();
7         CustomerData customer1 = new CustomerData("Ilham Ryan", "Ngawi", "Desainer", 27, 5000000);
8         CustomerData b = new CustomerData();
9         CustomerData customer2 = new CustomerData("Denira", "Nganjuk", "Perawat", 12, 4000000);
10        CustomerData c = new CustomerData();
11        CustomerData customer3 = new CustomerData("Akbar", "Lumajang", "Sopir", 23, 3300000);
12        CustomerData d = new CustomerData();
13        CustomerData customer4 = new CustomerData("Rohmat", "Madiun", "Pedagang");
14        CustomerData e = new CustomerData();
15        CustomerData customer5 = new CustomerData("Rohimin", "Jakarta", "Masinis");
16    }
17 }
  
```

Hasil output:



```
eclipse-workspace - Praktikum PBO modul 8 L200200247/src/Tugas/main.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help

<terminated> main (2) [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (2 Des 2021 15.25.02 - 15.25.03)

Data Customer 1
Nama      : Ilham Ryan
Alamat    : Ngawi
Pekerjaan : Desainer
Tanggal Lahir: 27
Gaji      : Rp 5000000/Bulan

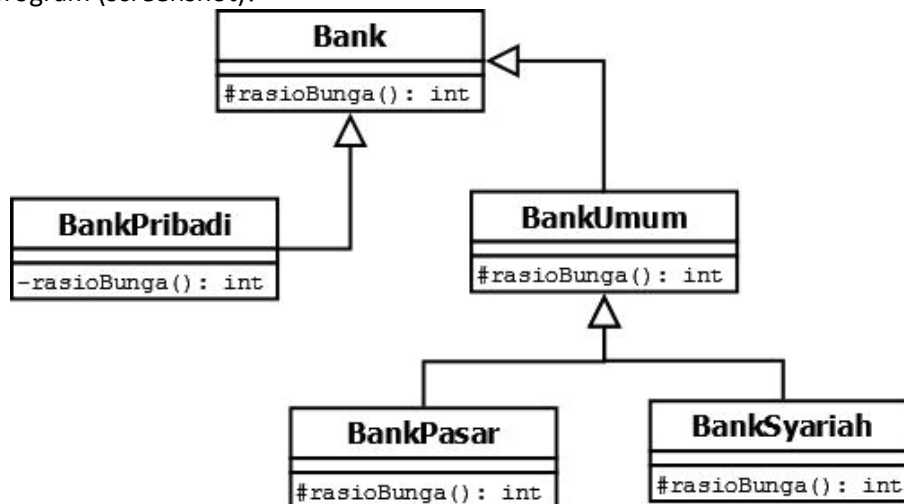
Data Customer 2
Nama      : Denira
Alamat    : Nganjuk
Pekerjaan : Perawat
Tanggal Lahir: 12
Gaji      : Rp 4000000/Bulan

Data Customer 3
Nama      : Akbar
Alamat    : Lumajang
Pekerjaan : Sopir
Tanggal Lahir: 23
Gaji      : Rp 3300000/Bulan

Data Customer 4
Nama      : Rohmat
Alamat    : Madiun
Pekerjaan : Pedagang

Data Customer 5
Nama      : Rhohimin
Alamat    : Jakarta
Pekerjaan : Masinis
```

4. Buatlah class berdasarkan diagram UML berikut ini! Terapkan teknik polymorphism dan tampilkan hasil output program (screenshot)!



eclipse-workspace - Praktikum PBO modul 8 L200200247/src/Tugas/Bank.java - Eclipse IDE

File Edit Source Refactor Navigate Search Project Run Window Help

Bank.java BankPriadi... BankUmum.java BankPasar.java BankDemo.java »1

```
1 package Tugas;
2
3 public class Bank {
4     protected int rasioBunga() {
5         int bungapertahun = 5 ;
6         System.out.println("Bank memiliki bunga : "+ bungapertahun + "%" );
7         return bungapertahun;
8     }
9 }
```

BankPriadi... BankUmum.java BankPasar.java BankSyariah... BankDemo.java »1

```
1 package Tugas;
2
3 public class BankPriadi extends Bank{
4     protected int rasioBunga() {
5         int bungapertahun = 9 ;
6         System.out.println("Bank Priadi memiliki bunga : "+ bungapertahun + "%" );
7         return bungapertahun;
8     }
9 }
```

Writable Smart Insert 6: ... 151

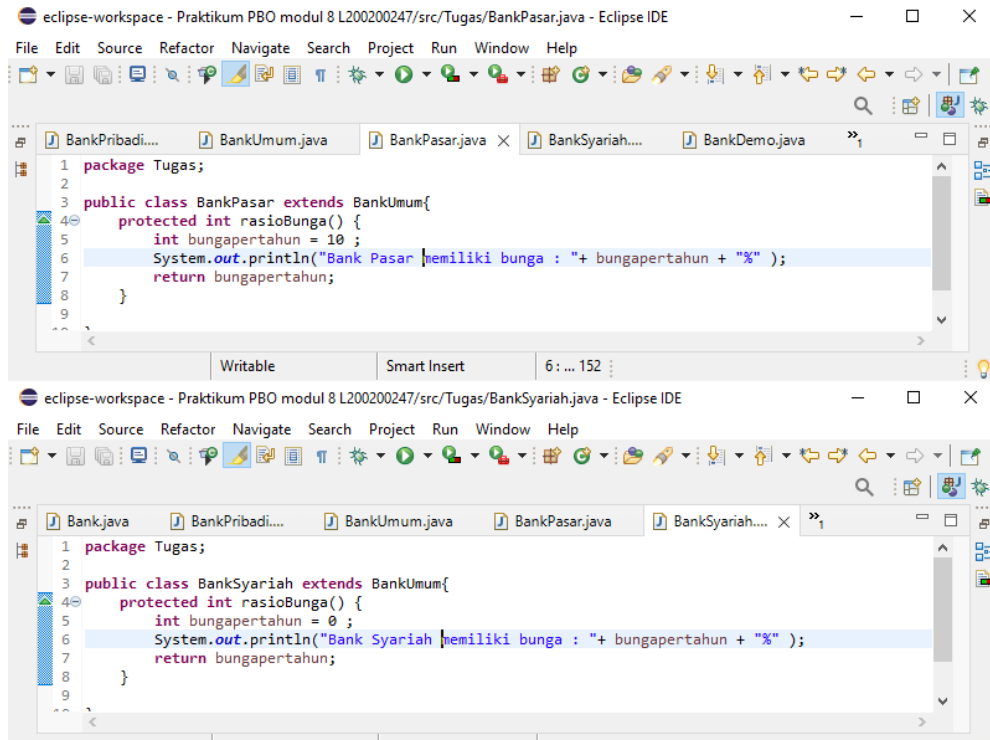
eclipse-workspace - Praktikum PBO modul 8 L200200247/src/Tugas/BankUmum.java - Eclipse IDE

File Edit Source Refactor Navigate Search Project Run Window Help

BankPriadi... BankUmum.java BankPasar.java BankSyariah... BankDemo.java »1

```
1 package Tugas;
2
3 public class BankUmum extends Bank {
4     protected int rasioBunga() {
5         int bungapertahun = 6 ;
6         System.out.println("Bank Umum memiliki bunga : "+ bungapertahun + "%" );
7         return bungapertahun;
8     }
9 }
```

Writable Smart Insert 6: ... 146



BankDemo untuk menampilkan outputnya:

