

MODUL 1

PENGENALAN JAVA

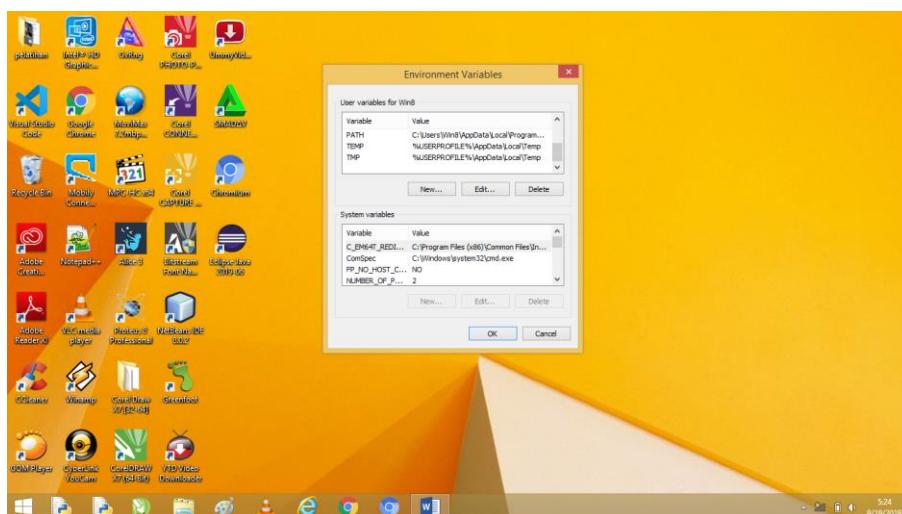
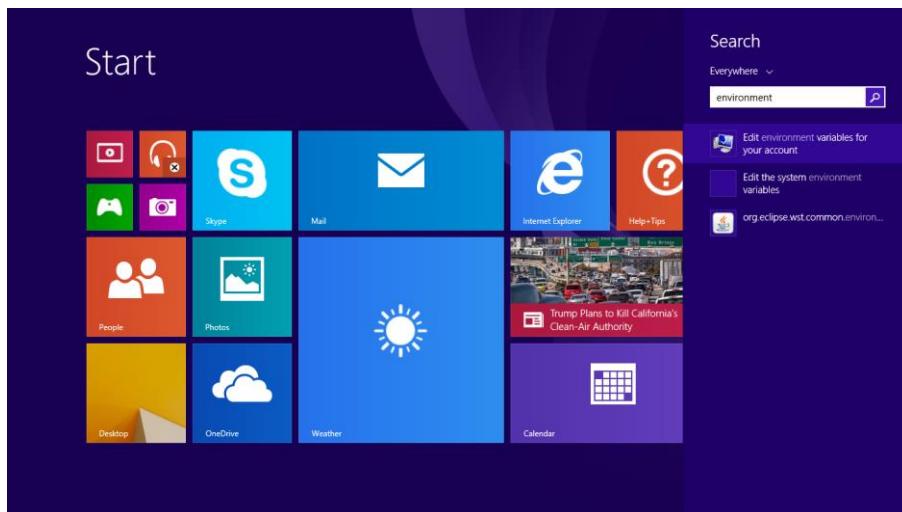
PRAKTIKUM PEMROGRAMAN BERORIENTASI OBJEK

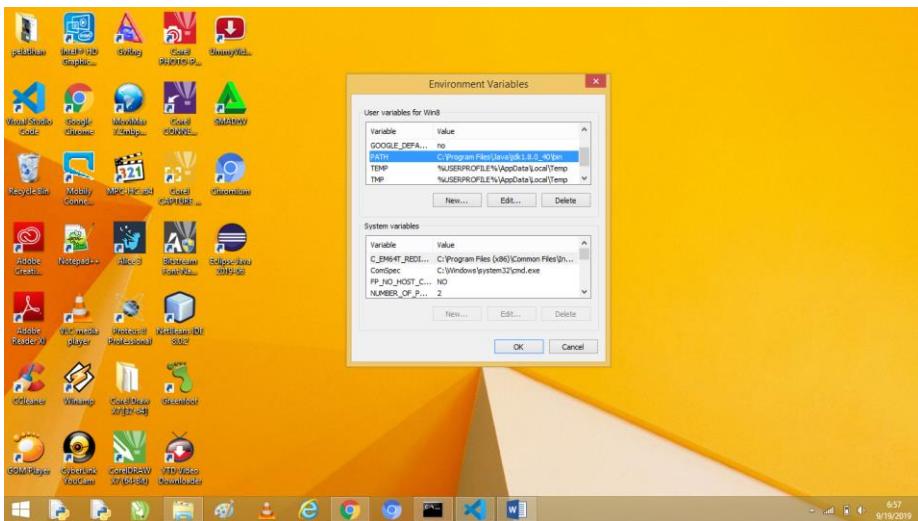
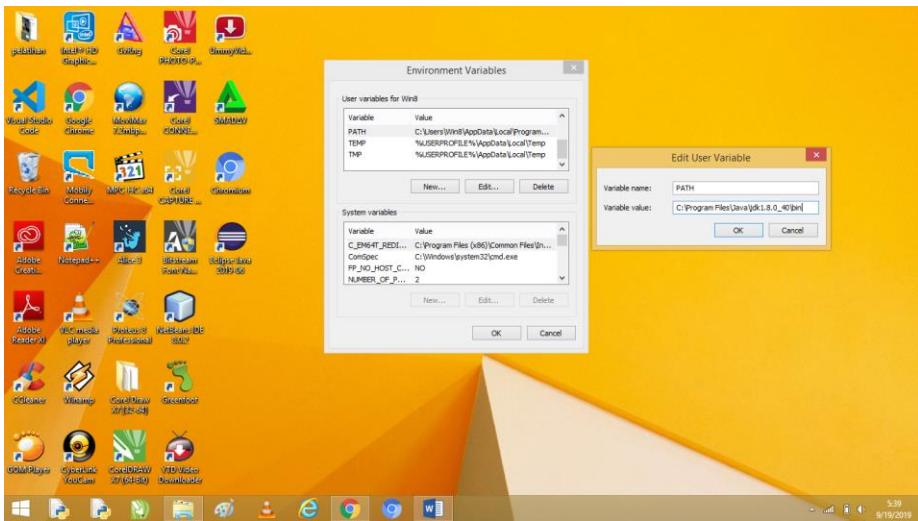
Nama : Annisa Nugraheni

NIM : L200180066

Kelas : B

- ❖ Menambah path
 - Screenshot pada edit environment variables for your account





❖ Modul 1

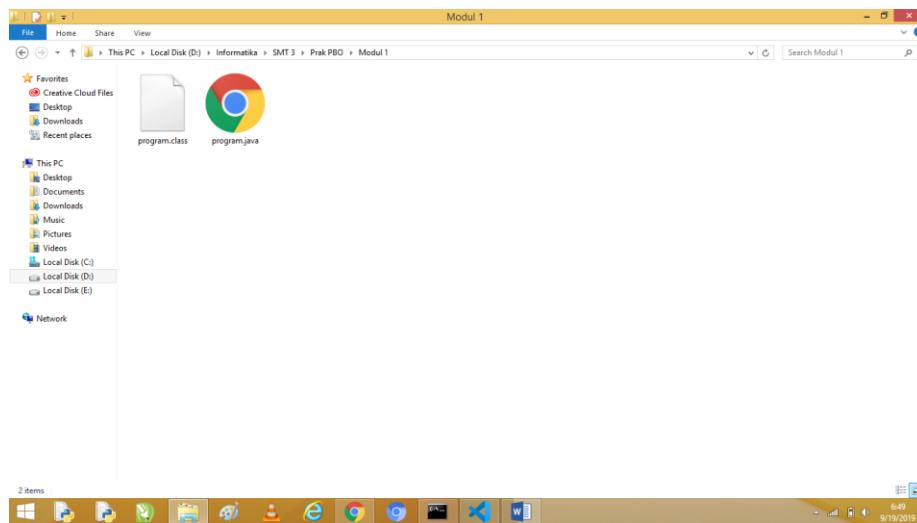
- Screenshot dari visual studio code

The screenshot shows the Visual Studio Code interface with a dark theme. A single file, 'program.java', is open in the editor. The code is as follows:

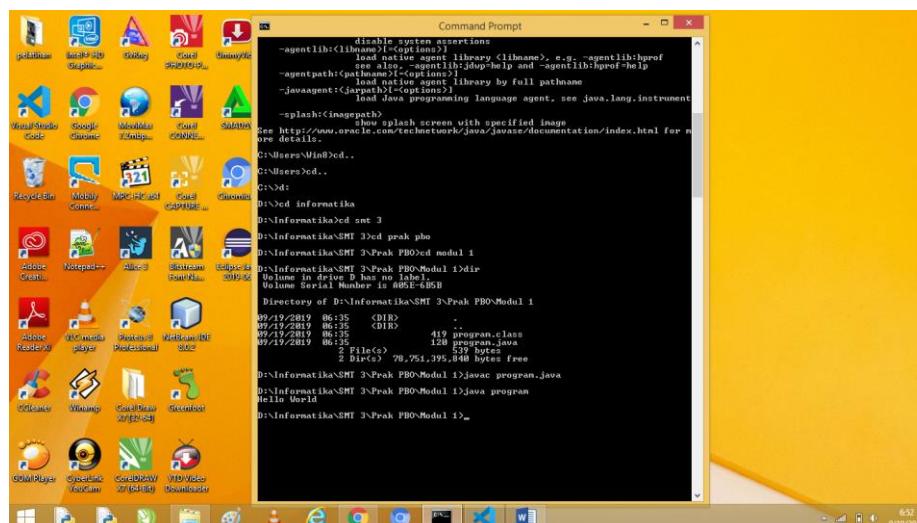
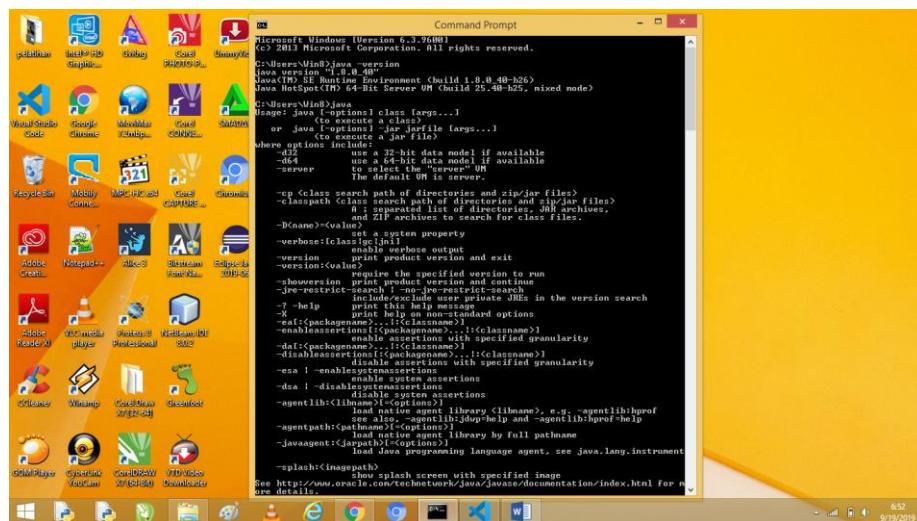
```
d: > Informatika > SMT 3 > Prak PBO > Modul 1 > program.java
1 public class program{
2     public static void main(String[] args){
3         System.out.println("Hello World");
4     }
5 }
```

The status bar at the bottom indicates the file is saved with 1 change, and the code is in Java mode. The taskbar at the bottom shows icons for File Explorer, Task View, Start, and other system icons.

- Screenshot dari tempat penyimpanan



- Screenshot dari Command Prompt



MODUL 2

CLASS DAN OBJECT

PRAKTIKUM PEMROGRAMAN BERORIENTASI OBJEK

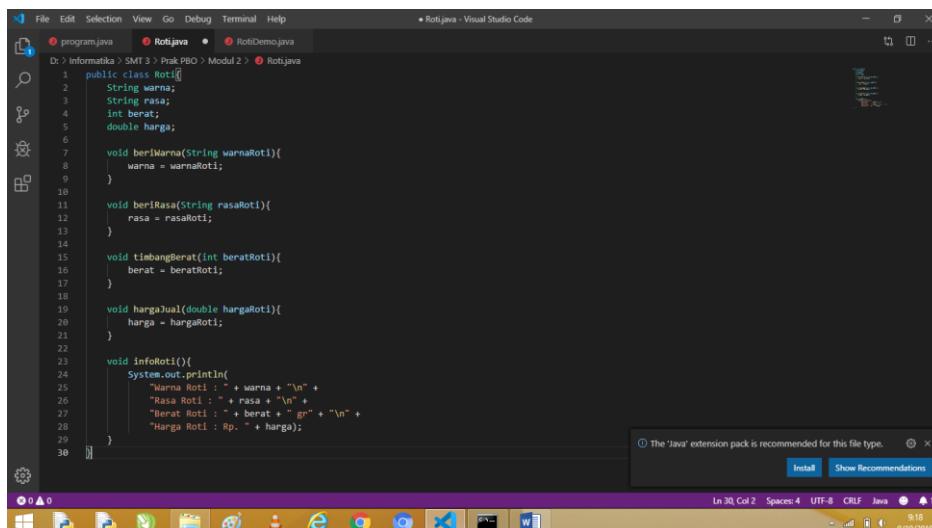
Nama : Annisa Nugraheni

NIM : L200180066

Kelas : B

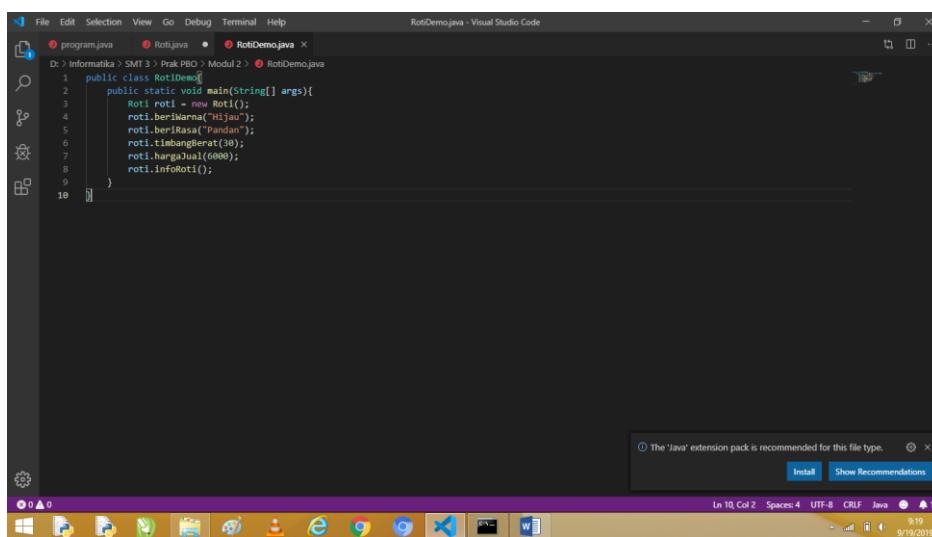
➤ CONTOH

- ❖ Screenshot class Roti dan class RotiDemo



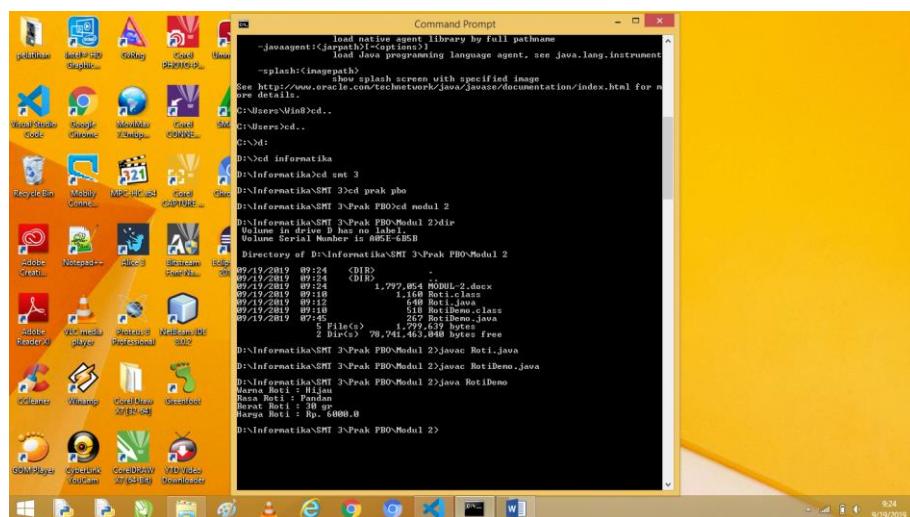
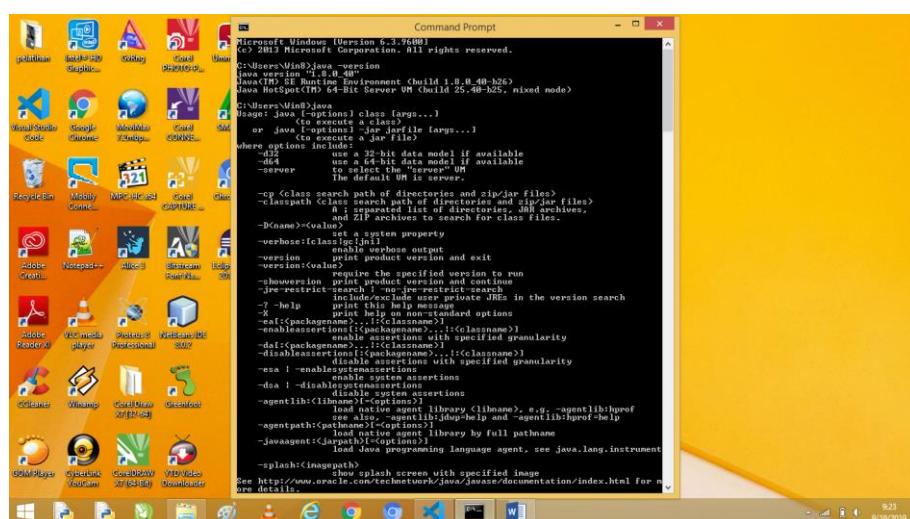
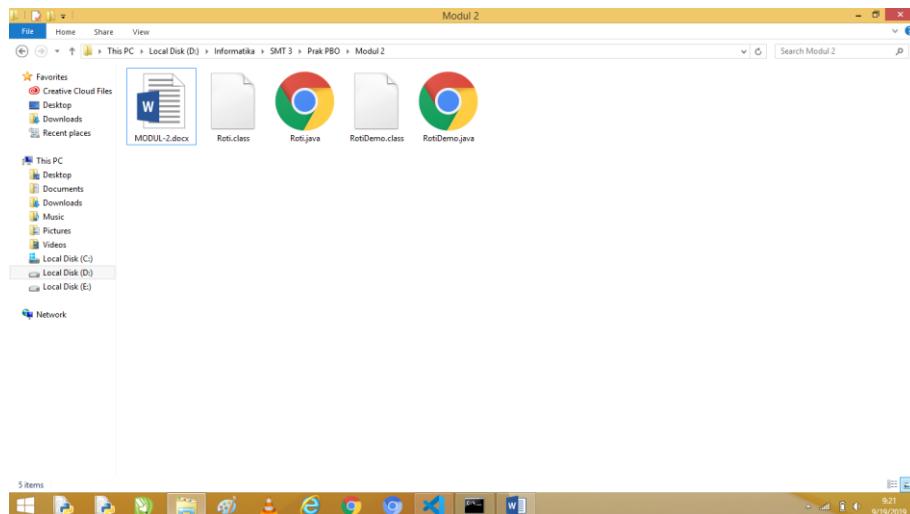
The screenshot shows the Visual Studio Code interface with the file 'Roti.java' open. The code defines a class 'Roti' with methods to set color ('beriWarna'), flavor ('beriRasa'), weight ('timbangBerat'), and price ('hargaJual'). It also has a method to print information ('infoRoti'). The code is written in Java.

```
1 public class Roti{  
2     String warna;  
3     String rasa;  
4     int berat;  
5     double harga;  
6  
7     void beriWarna(String warnaRoti){  
8         warna = warnaRoti;  
9     }  
10    void beriRasa(String rasaRoti){  
11        rasa = rasaRoti;  
12    }  
13    void timbangBerat(int beratRoti){  
14        berat = beratRoti;  
15    }  
16    void hargaJual(double hargaRoti){  
17        harga = hargaRoti;  
18    }  
19    void infoRoti(){  
20        System.out.println(  
21            "Warna Roti : " + warna + "\n" +  
22            "Rasa Roti : " + rasa + "\n" +  
23            "Berat Roti : " + berat + " gr" + "\n" +  
24            "Harga Roti : Rp. " + harga);  
25    }  
26}
```



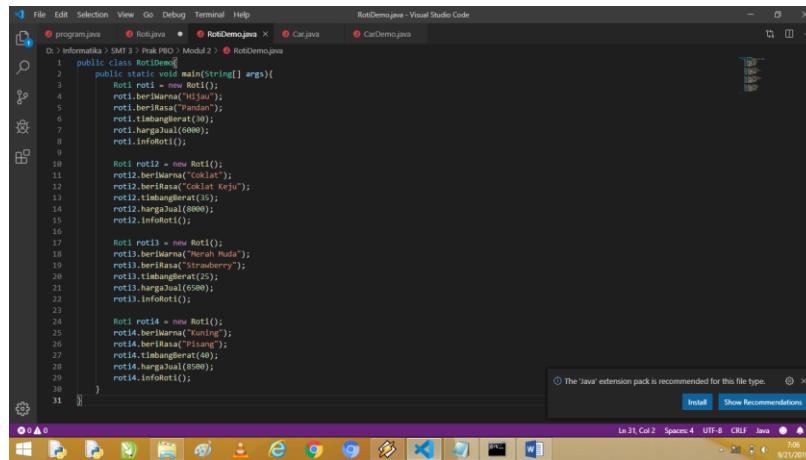
The screenshot shows the Visual Studio Code interface with the file 'RotiDemo.java' open. The code creates a new instance of 'Roti' named 'roti', sets its color to 'Hijau', flavor to 'Pandan', and weight to 30. It then prints the information of the roti. The code is written in Java.

```
1 public class RotiDemo{  
2     public static void main(String[] args){  
3         Roti roti = new Roti();  
4         roti.beriWarna("Hijau");  
5         roti.beriRasa("Pandan");  
6         roti.timbangBerat(30);  
7         roti.hargaJual(6000);  
8         roti.infoRoti();  
9     }  
10}
```

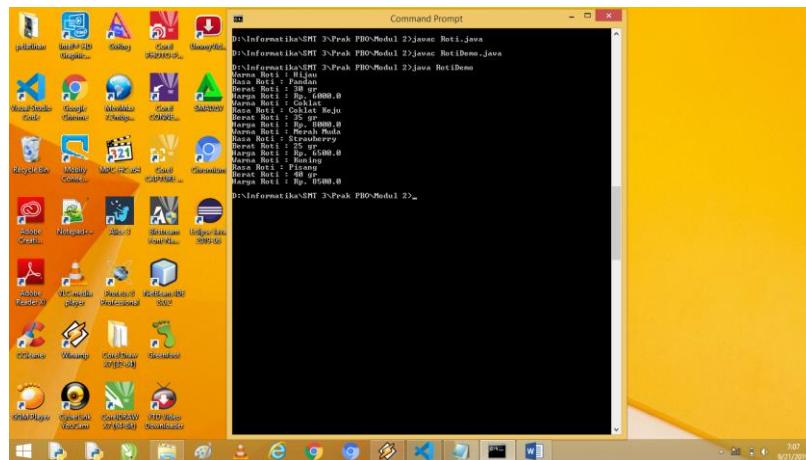


➤ LATIHAN

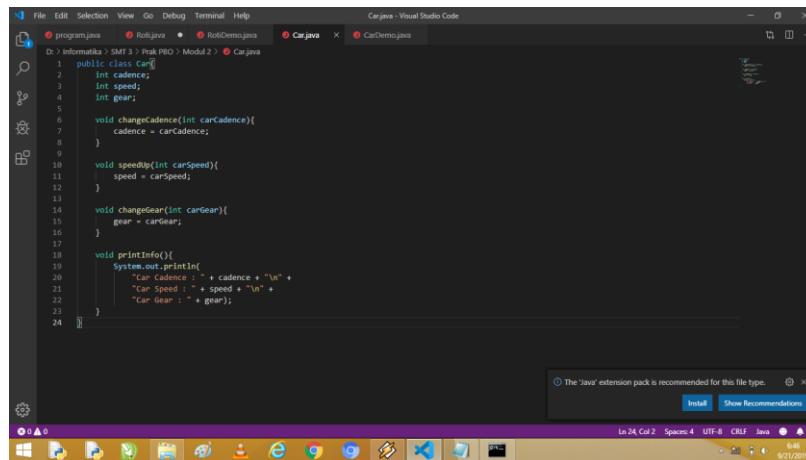
- ❖ Modifikasi class RotiDemo dan membuat 3 object baru di dalamnya



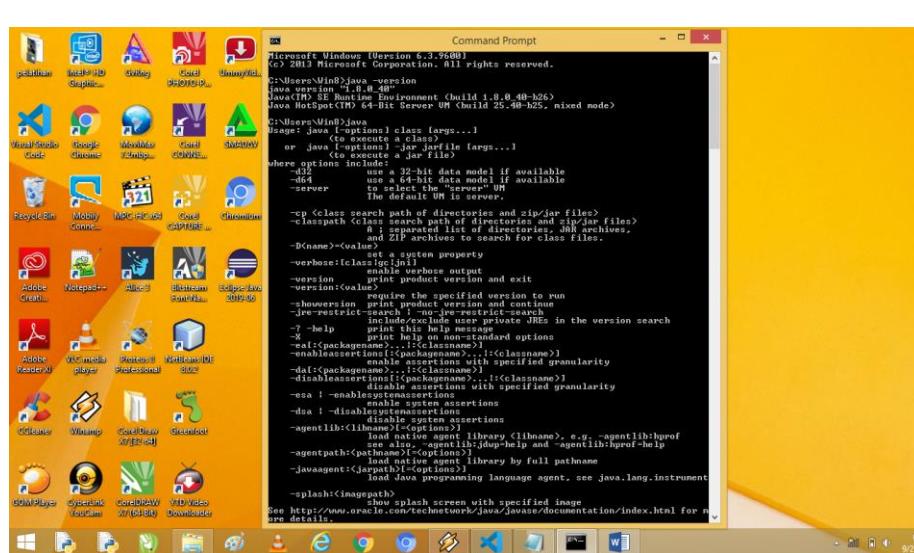
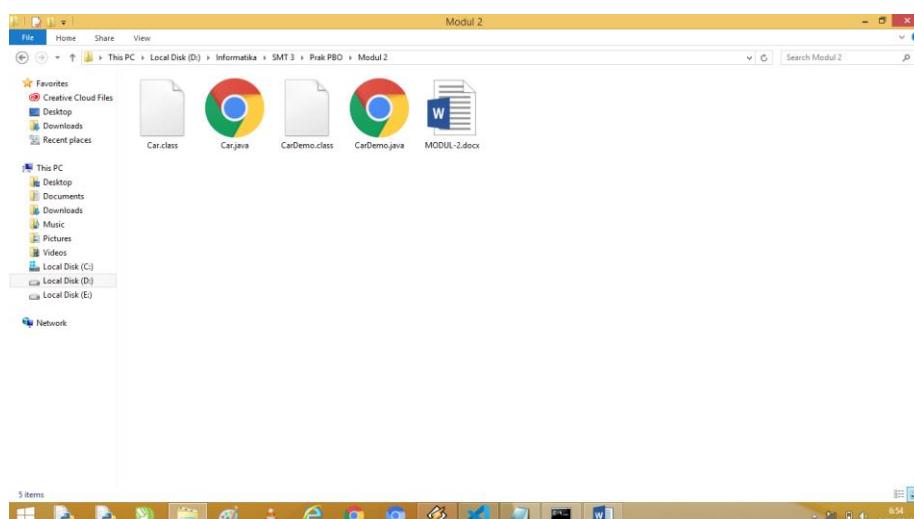
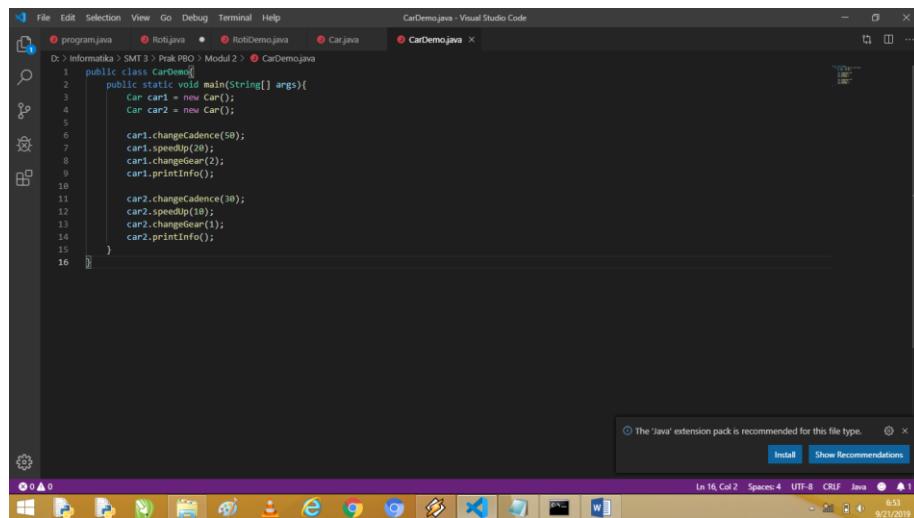
```
File Edit Selection View Go Debug Terminal Help RotiDemo.java - Visual Studio Code
D:\Informatika> SMT 3 > Ptask PRO - Modul 2 > RotiDemo.java
1 public class RotiDemo{
2     public static void main(String[] args){
3         Roti roti = new Roti();
4         roti.beriRasa("Wijen");
5         roti.beriRasa("Pandan");
6         roti.tambahGaram(10);
7         roti.hargaJual(6000);
8         roti.infoRoti();
9
10        Roti roti2 = new Roti();
11        roti2.beriRasa("Coklat");
12        roti2.beriRasa("Coklat Keju");
13        roti2.tambahGaram(20);
14        roti2.hargaJual(6500);
15        roti2.infoRoti();
16
17        Roti roti3 = new Roti();
18        roti3.beriRasa("Merah Muda");
19        roti3.beriRasa("Pisang");
20        roti3.tambahGaram(20);
21        roti3.hargaJual(6500);
22        roti3.infoRoti();
23
24        Roti roti4 = new Roti();
25        roti4.beriRasa("Kuning");
26        roti4.beriRasa("Pisang");
27        roti4.tambahGaram(40);
28        roti4.hargaJual(6500);
29        roti4.infoRoti();
30    }
31 }
```

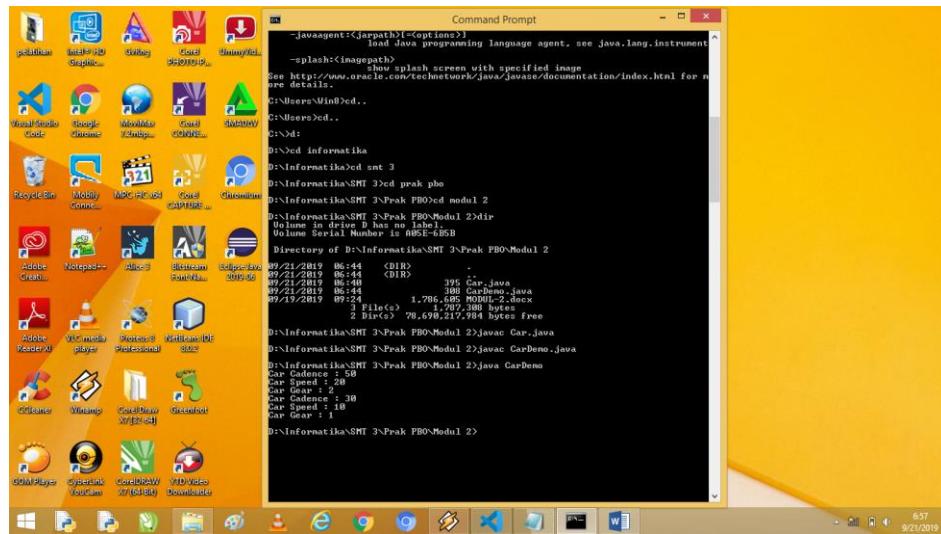


- ❖ Membuat satu class baru yang bisa digunakan sebagai template atau blueprint dari class CarDemo



```
File Edit Selection View Go Debug Terminal Help Car.java - Visual Studio Code
D:\Informatika> SMT 3 > Ptask PRO - Modul 2 > Car.java
1 public class Car{
2     int cadence;
3     int speed;
4     int gear;
5
6     void changeCadence(int carCadence){
7         cadence = carCadence;
8     }
9
10    void speedUp(int carSpeed){
11        speed = carSpeed;
12    }
13
14    void changeGear(int carGear){
15        gear = carGear;
16    }
17
18    void printInfo(){
19        System.out.println(
20            "Car Cadence : " + cadence + "\n" +
21            "Car Speed : " + speed + "\n" +
22            "Car Gear : " + gear);
23    }
24 }
```





- ❖ Membuat suatu class yang dapat merepresentasikan sifat-sifat dari object kucing

Kucing.java - Visual Studio Code

```
D:\> informatika>SMT 3>Prak PBO>Modul 2> Kucing.java
1 public class Kucing{
2     int umur;
3     String warnaBulu;
4
5     void umur(int umurBaru){
6         umur = umurBaru;
7     }
8
9     void meong(){
10        System.out.println(
11            "Umur Kucing : " + umur + " bulan");
12    }
13 }
```

The 'Java' extension pack is recommended for this file type.

Install Show Recommendations

In 13, Col 2 Spaces: 4 UTF-8 CR LF Java 1 1:38 9/21/2019

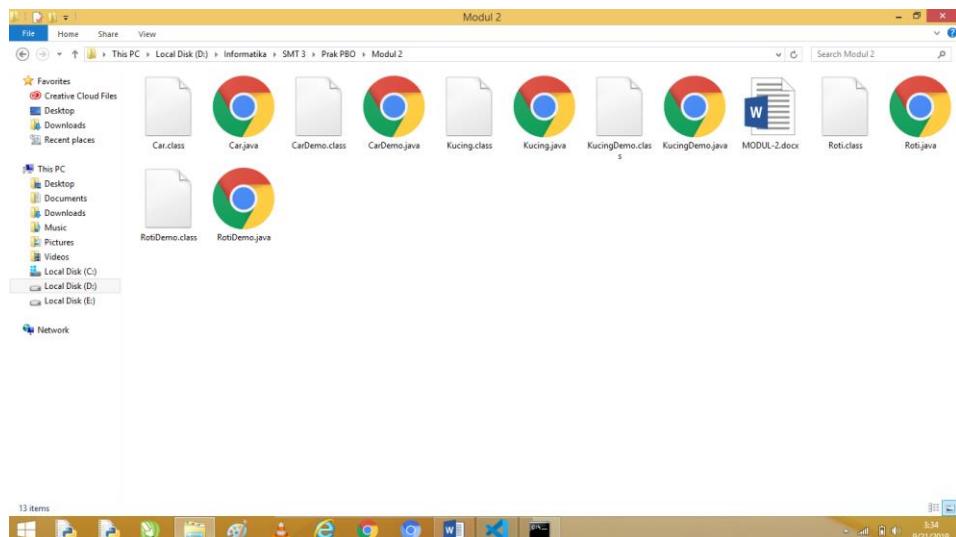
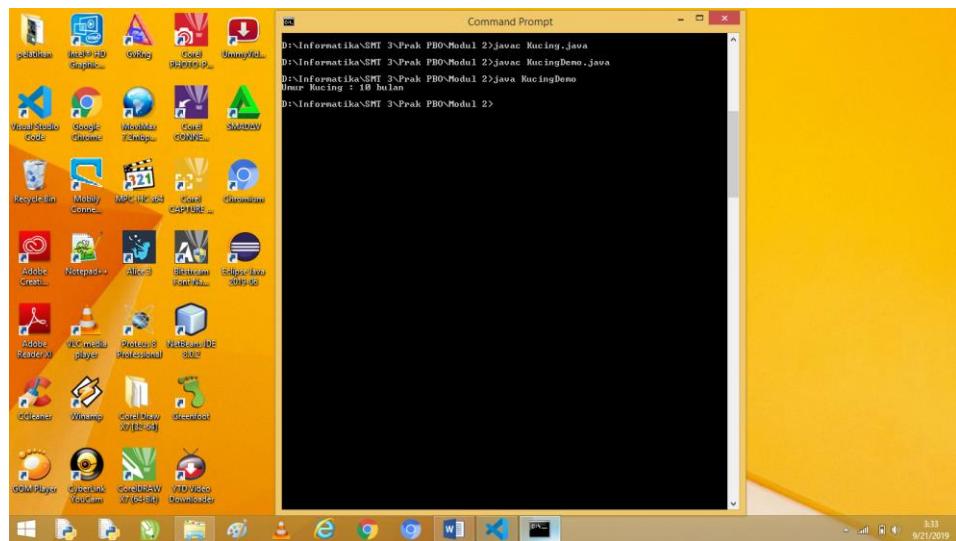
KucingDemo.java - Visual Studio Code

```
D:\> informatika>SMT 3>Prak PBO>Modul 2> KucingDemo.java
1 public class KucingDemo{
2     public static void main(String[] args){
3         Kucing kucing = new Kucing();
4
5         kucing.umur(10);
6         kucing.meong();
7     }
8 }
```

The 'Java' extension pack is recommended for this file type.

Install Show Recommendations

In 8, Col 2 Spaces: 4 UTF-8 CR LF Java 1 1:30 9/21/2019



❖ Membuat class yang merepresentasikan rekening bank

The screenshot shows a Visual Studio Code (VS Code) interface with multiple tabs open. The active tab is "Rekening.java". The code in the editor is as follows:

```
1 public class Rekening{
2     int saldo;
3     int no_rekening;
4     String nama;
5     int tabung;
6     int ambil;
7     int no_rek_tujuan;
8     int transfer;
9
10    void beriNama(String namaBaru){
11        nama = namaBaru;
12    }
13
14    void beri_no(int noBaru){
15        no_rekening = noBaru;
16    }
17
18    void cek_saldo(int saldoBaru){
19        saldo = saldoBaru;
20    }
21
22    void menabung(int tabungBaru){
23        tabung = tabungBaru;
24        saldo = saldo + tabung;
25    }
26
27    void menarik(int ambilBaru){
28        ambil = ambilBaru;
29        saldo = saldo - ambil;
30    }
31
32    void transfer(int transferBaru, int no_tujuan){
```

The status bar at the bottom of the VS Code window indicates: "Ln 49, Col 2 Spaces: 4 UTF-8 CRLF Java".

File Edit Selection View Go Debug Terminal Help

D:\> informatika > SMT 3 > Prak PBO > Modul 2 > Rekening.java

```
21
22     void menabung(int tabungBaru){
23         tabung = tabungBaru;
24         saldo = saldo + tabung;
25     }
26
27     void menarik(int ambilBaru){
28         ambil = ambilBaru;
29         saldo = saldo - ambil;
30     }
31
32     void transfer(int transferBaru, int no_tujuan){
33         no_rek_tujuan = no_tujuan;
34         transfer = transferBaru;
35         saldo = saldo - transfer;
36     }
37
38     void infoRekening(){
39         System.out.println(
40             "Nama : " + nama + "\n" +
41             "No Rekening : " + no_rek +
42             "Menabung : Rp. " + tabung + "\n" +
43             "Mengambil : Rp. " + ambil + "\n" +
44             "Transfer : " + "\n" +
45             "No Rekening Tujuan : " + no_rek_tujuan + "\n" +
46             "Jumlah Transfer : Rp. " + transfer + "\n" +
47             "Saldo : Rp. " + saldo);
48     }
49 }
```

Ln 49, Col 2 Spaces: 4 UTF-8 CRLF Java

File Edit Selection View Go Debug Terminal Help

D:\> informatika > SMT 3 > Prak PBO > Modul 2 > RekeningDemo.java

```
1 public class RekeningDemo{
2     public static void main(String[] args){
3         Rekening rekening = new Rekening();
4
5         rekening.beriNama("aku");
6         rekening.beriNo(1234567890);
7         rekening.cekSaldo(100000000);
8         rekening.menabung(50000000);
9         rekening.menarik(10000000);
10        rekening.transfer(5000000, 1998887776);
11        rekening.infoRekening();
12    }
13 }
```

Ln 10, Col 37 Spaces: 4 UTF-8 CRLF Java

Command Prompt

```
D:\> informatika > SMT 3 > Prak PBO > Modul 2 > javac RekeningDemo.java
D:\> informatika > SMT 3 > Prak PBO > Modul 2 > java RekeningDemo
No Rekening : 1234567890
Nama : Aku
Menabung : Rp. 50000000
Mengambil : Rp. 10000000
Transfer : Rp. 5000000
No Rekening Tujuan : 1998887776
Jumlah Transfer : Rp. 5000000
Saldo : Rp. 135000000
```

Ln 1, Col 1 Spaces: 4 UTF-8 CRLF Java

➤ PEKERJAAN RUMAH

- ❖ Membuat class Hewan dan object didalamnya

The screenshot shows the Visual Studio Code interface with the Hewan.java file open. The code defines a class Hewan with methods for setting name, number of legs, food, and type, and an infoHewan method for printing all information.

```
1 public class Hewan{
2     String nama;
3     int jml_kaki;
4     String makanan;
5     String tipe;
6
7     void beriNama(String namaBaru){
8         nama = namaBaru;
9     }
10
11    void JumlahKaki(int jml){
12        jml_kaki = jml;
13    }
14
15    void beriMakan(String makan){
16        makanan = makan;
17    }
18
19    void beriTipe(String tipeBaru){
20        tipe = tipeBaru;
21    }
22
23    void infoHewan(){
24        System.out.println(
25            "Nama Hewan : " + nama + "\n" +
26            "Jumlah Kaki : " + jml_kaki + "\n" +
27            "Makanan : " + makanan + "\n" +
28            "Tipe Hewan : " + tipe);
29    }
30 }
```

The screenshot shows the Visual Studio Code interface with the HewanDemo.java file open. It creates two Hewan objects and calls their methods to demonstrate their functionality.

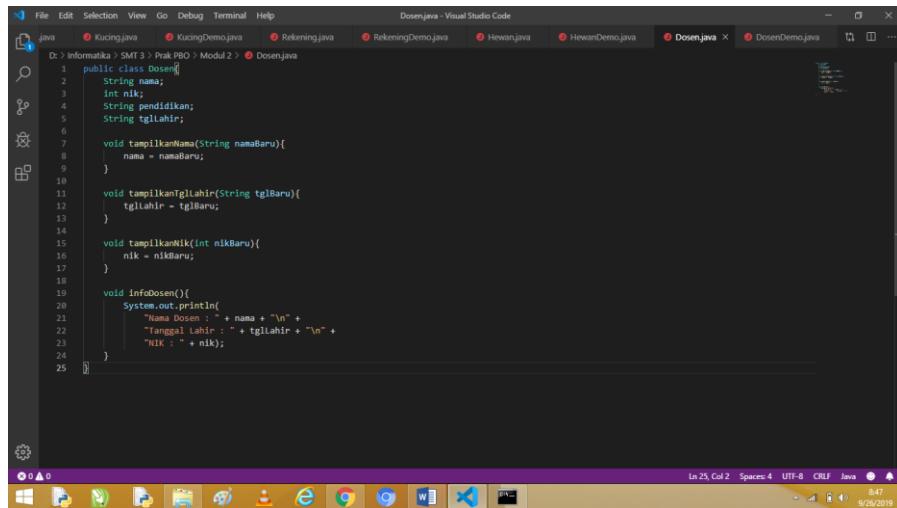
```
1 public class HewanDemo{
2     public static void main(String[] args){
3         Hewan hewant = new Hewan();
4         Hewan hewant2 = new Hewan();
5
6         hewant.beriNama("Harimau");
7         hewant.JumlahKaki(4);
8         hewant.beriMakan("Daging");
9         hewant.beriTipe("Karnivora");
10        hewant.infoHewan();
11
12        hewant2.beriNama("kerbau");
13        hewant2.JumlahKaki(4);
14        hewant2.beriMakan("Rumput");
15        hewant2.beriTipe("Herbivora");
16        hewant2.infoHewan();
17    }
18 }
```

The screenshot shows a Command Prompt window running on Windows. It displays the output of executing the HewanDemo.java program, which prints the details of two Hewan objects (Harimau and kerbau) created with specific names, leg counts, foods, and types.

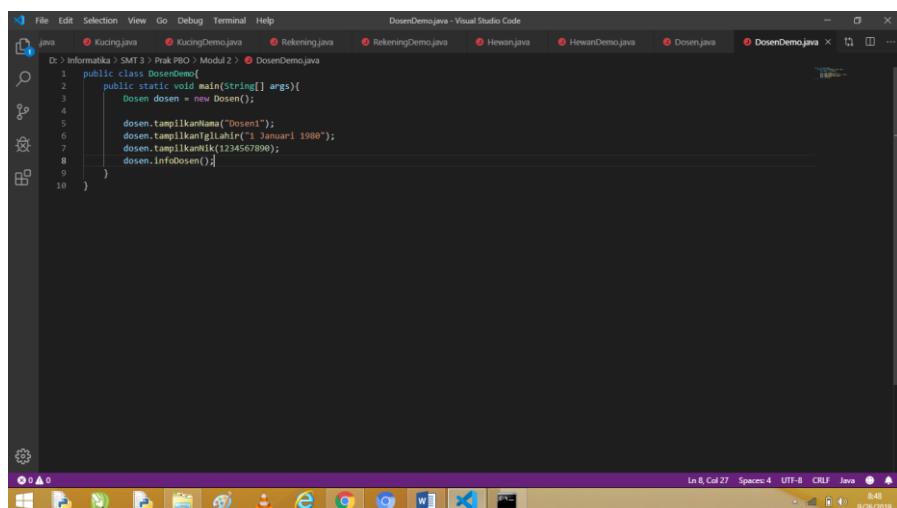
```
D:\Informatika\SMIT 3\Prak PBO\Modul 2>javac HewanDemo.java
D:\Informatika\SMIT 3\Prak PBO\Modul 2>java HewanDemo
Nama Hewan : Harimau
Jumlah Kaki : 4
Makanan : Daging
Tipe Hewan : Karnivora
Nama Hewan : kerbau
Jumlah Kaki : 4
Makanan : Rumput
Tipe Hewan : Herbivora
D:\Informatika\SMIT 3\Prak PBO\Modul 2>
```

❖ Membuat class berdasarkan class diagram

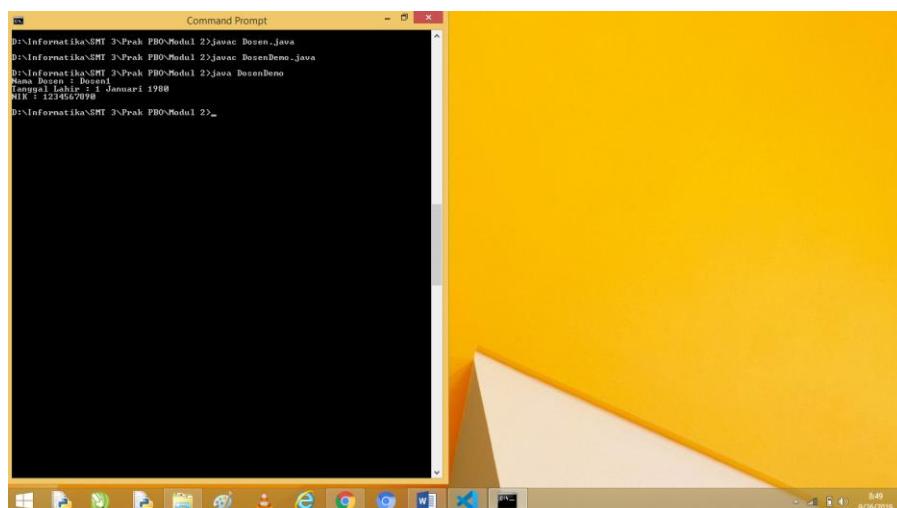
- Class Dosen



```
File Edit Selection View Go Debug Terminal Help Dosen.java - Visual Studio Code
D:\Informatika\SMT3>PrakPBO>Modul2> Dosen.java
1 public class Dosen{
2     String nama;
3     int nik;
4     String pendidikan;
5     String tglLahir;
6
7     void tampilkanNama(String namaBaru){
8         nama = namaBaru;
9     }
10
11    void tampilkanTglLahir(String tglBaru){
12        tglLahir = tglBaru;
13    }
14
15    void tampilkanNik(int nikBaru){
16        nik = nikBaru;
17    }
18
19    void infoDosen(){
20        System.out.println(
21            "Nama Dosen : " + nama + "\n" +
22            "Tanggal Lahir : " + tglLahir + "\n" +
23            "NIK : " + nik);
24    }
25 }
```

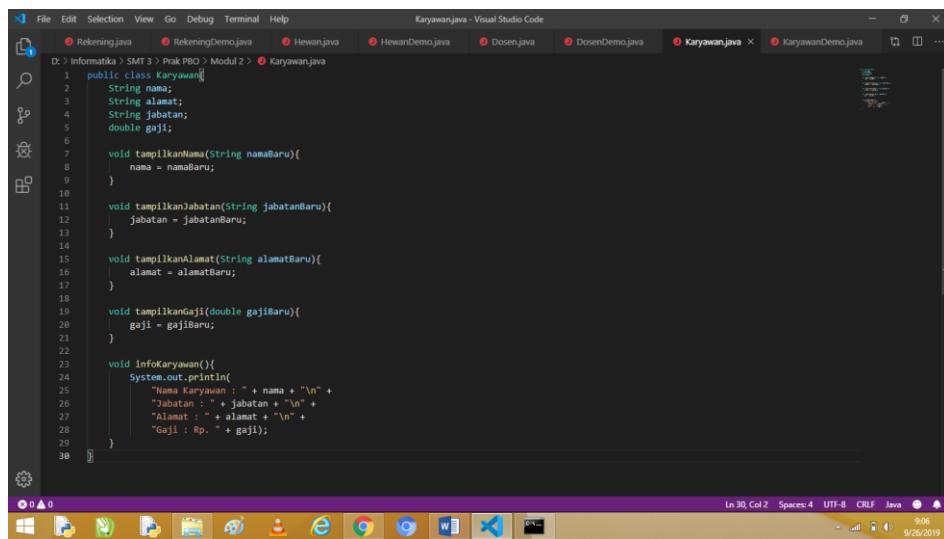


```
File Edit Selection View Go Debug Terminal Help DosenDemo.java - Visual Studio Code
D:\Informatika\SMT3>PrakPBO>Modul2> DosenDemo.java
1 public class DosenDemo{
2     public static void main(String[] args){
3         Dosen dosen = new Dosen();
4
5         dosen.tampilkanNama("Dosen1");
6         dosen.tampilkanTglLahir("1 Januari 1988");
7         dosen.tampilkanNik(1234567890);
8         dosen.infoDosen();
9     }
10 }
```



```
Command Prompt
D:\Informatika\SMT3>PrakPBO>Modul2>javac Dosen.java
D:\Informatika\SMT3>PrakPBO>Modul2>javac DosenDemo.java
D:\Informatika\SMT3>PrakPBO>Modul2>java DosenDemo
Nama Dosen : Dosen1
Tanggal Lahir : 1 Januari 1988
NIK : 1234567890
D:\Informatika\SMT3>PrakPBO>Modul2>
```

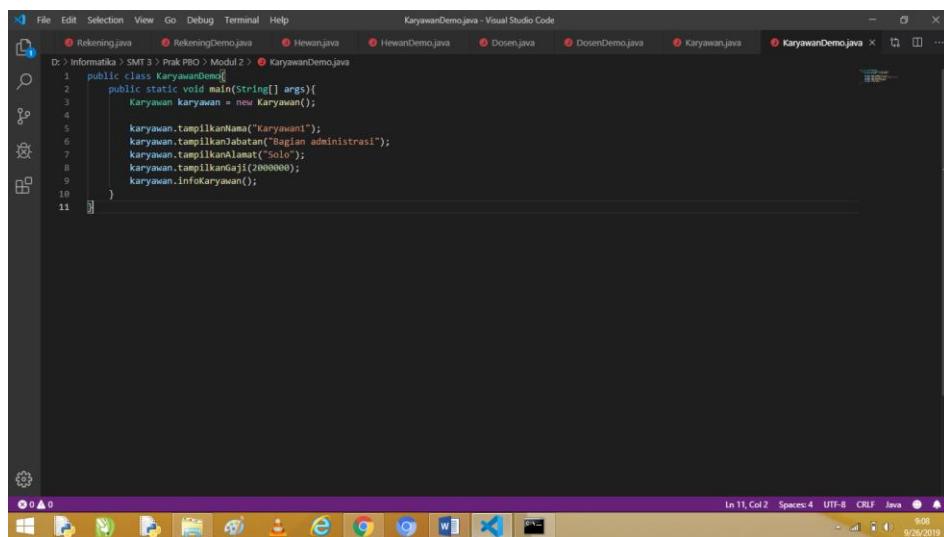
- Class Karyawan



```

File Edit Selection View Go Debug Terminal Help
Karyawan.java - Visual Studio Code
D:\Informatika>SMT 3>Prak PBO>Modul 2> Karyawan.java
1 public class Karyawan{
2     String nama;
3     String alamat;
4     String jabatan;
5     double gaji;
6
7     void tampilkanNama(String namaBaru){
8         nama = namaBaru;
9     }
10
11    void tampilkanJabatan(String jabatanBaru){
12        jabatan = jabatanBaru;
13    }
14
15    void tampilkanAlamat(String alamatBaru){
16        alamat = alamatBaru;
17    }
18
19    void tampilkanGaji(double gajiBaru){
20        gaji = gajiBaru;
21    }
22
23    void infoKaryawan(){
24        System.out.println(
25            "Nama Karyawan : " + nama + "\n" +
26            "Jabatan : " + jabatan + "\n" +
27            "Alamat : " + alamat + "\n" +
28            "Gaji : Rp. " + gaji);
29    }
30

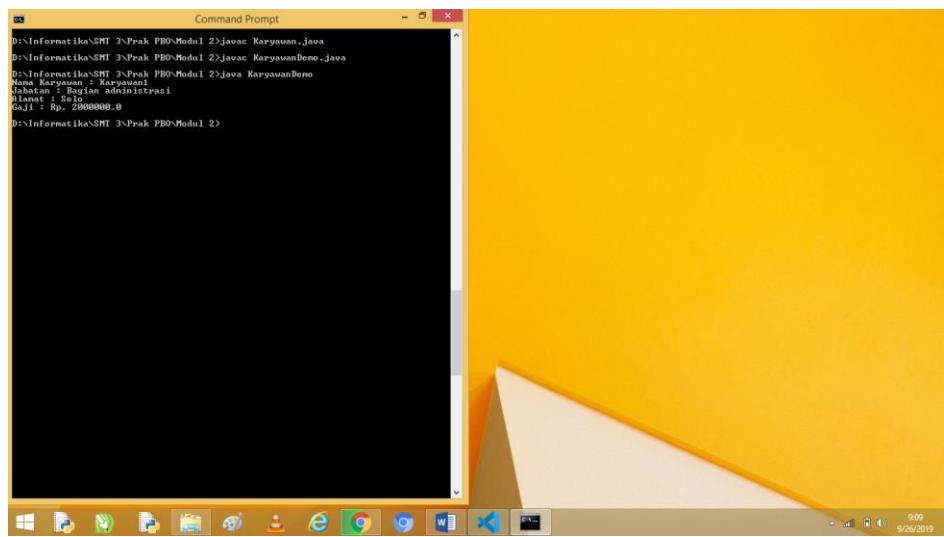
```



```

File Edit Selection View Go Debug Terminal Help
KaryawanDemo.java - Visual Studio Code
D:\Informatika>SMT 3>Prak PBO>Modul 2> KaryawanDemo.java
1 public class KaryawanDemo{
2     public static void main(String[] args){
3         Karyawan karyawan = new Karyawan();
4
5         karyawan.tampilkanNama("Karyawan1");
6         karyawan.tampilkanJabatan("Bagian administrasi");
7         karyawan.tampilkanAlamat("Sol 0");
8         karyawan.tampilkanGaji(1000000);
9         karyawan.infoKaryawan();
10    }
11

```

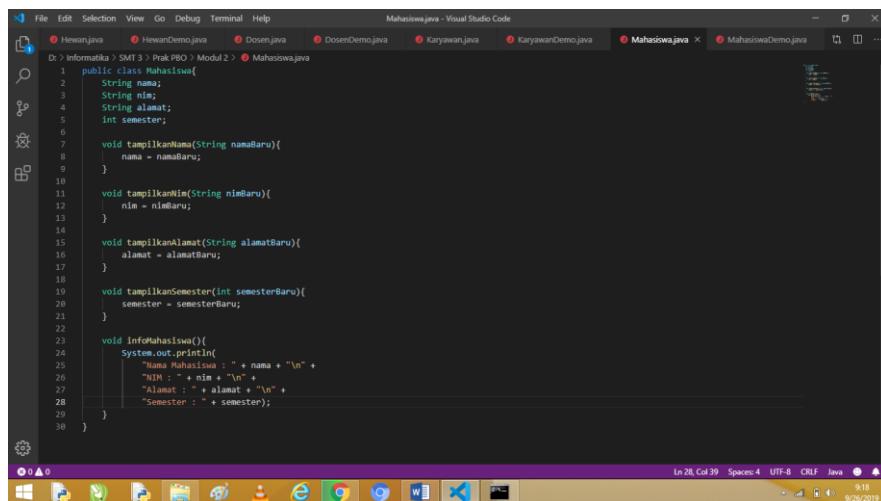


```

Command Prompt
D:\Informatika>SMT 3>Prak PBO>Modul 2>javac Karyawan.java
D:\Informatika>SMT 3>Prak PBO>Modul 2>javac KaryawanDemo.java
D:\Informatika>SMT 3>Prak PBO>Modul 2>java KaryawanDemo
Nama Karyawan : Karyawan1
Jabatan : Bagian administrasi
Alamat : Sol 0
Gaji : Rp. 1000000.0
D:\Informatika>SMT 3>Prak PBO>Modul 2>

```

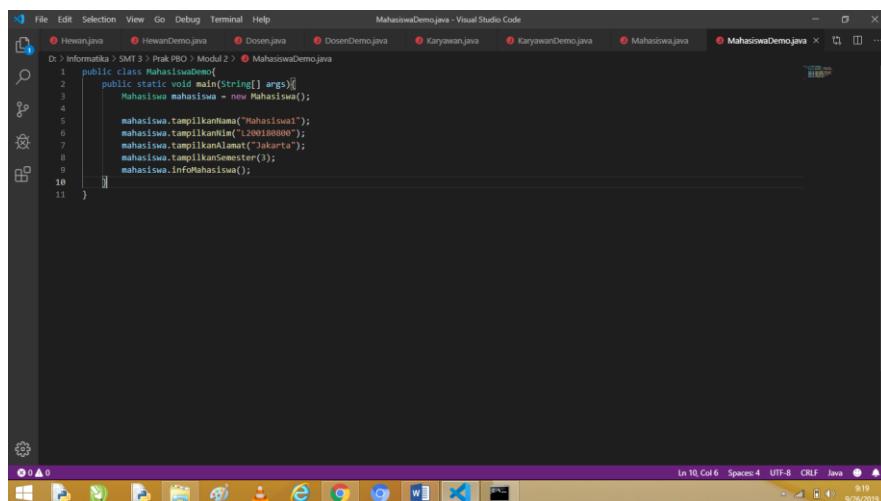
- Class Mahasiswa



```

1  public class Mahasiswa{
2      String nama;
3      String nim;
4      String alamat;
5      int semester;
6
7      void tampilkanNama(String namaBaru){
8          nama = namaBaru;
9      }
10
11     void tampilkanNim(String nimBaru){
12         nim = nimBaru;
13     }
14
15     void tampilkanAlamat(String alamatBaru){
16         alamat = alamatBaru;
17     }
18
19     void tampilkanSemester(int semesterBaru){
20         semester = semesterBaru;
21     }
22
23     void infoMahasiswa(){
24         System.out.println(
25             "Nama Mahasiswa : " + nama + "\n" +
26             "NIM : " + nim + "\n" +
27             "Alamat : " + alamat + "\n" +
28             "Semester : " + semester);
29     }
30 }

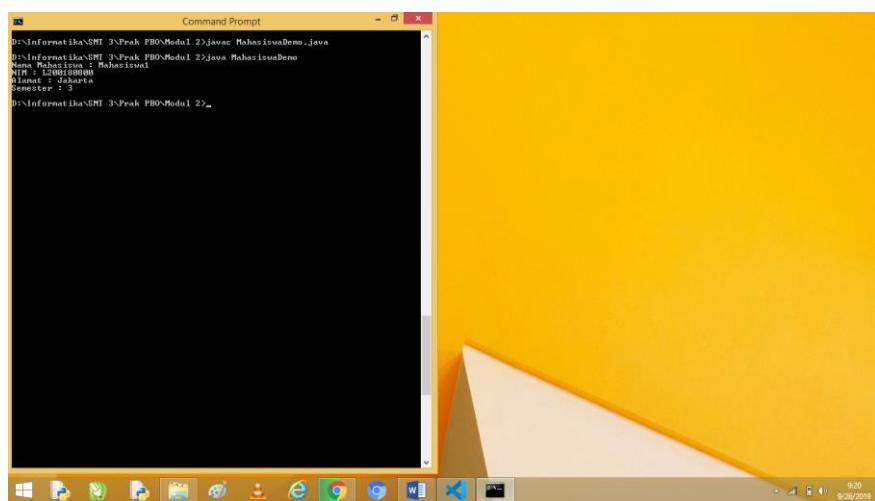
```



```

1  public class MahasiswaDemo{
2      public static void main(String[] args){
3          Mahasiswa mahasiswa = new Mahasiswa();
4
5          mahasiswa.tampilkanNama("Hewan");
6          mahasiswa.tampilkanNim("L200188008");
7          mahasiswa.tampilkanAlamat("Jakarta");
8          mahasiswa.tampilkanSemester();
9          mahasiswa.infoMahasiswa();
10     }
11 }

```



```

C:\Informatika\SMI 3\Prak PBO\Modul 2>javac MahasiswaDemo.java
C:\Informatika\SMI 3\Prak PBO\Modul 2>java MahasiswaDemo
Nama Mahasiswa : Hewan
NIM : L200188008
Alamat : Jakarta
Semester : 3
C:\Informatika\SMI 3\Prak PBO\Modul 2>_

```

MODUL 3

CLASS MEMBER : VARIABLE DAN METHOD

PRAKTIKUM PEMROGRAMAN BERORIENTASI OBJEK

Nama : Annisa Nugraheni

NIM : L200180066

Kelas : B

❖ 3.1.1 LOCAL VARIABLE

➤ Program 1. Penerapan Variabel Lokal

The screenshot shows the NetBeans IDE interface with the following details:

- Project Explorer:** Shows JavaApplication3 with files Coba.java, Coba2.java, JavaApplication3.java, JavaApplication3\$1.java, MethodParameter.java, NonvoidMethod.java, Pegawai.java, StaticVariable.java, StaticVariableAccess.java, and VoidMethod.java.
- Code Editor:** Displays JavaApplication3.java containing the following code:

```
public class JavaApplication3 {
    //int umur = 26;
    public void hitungUsia(){
        int usia = 0;
        int tahunSekarang = 2019;
        int tahunLahir = 1993;
        usia = tahunSekarang - tahunLahir;
        System.out.println("Usia saya : " + usia);
    }
    //public void beratBadan(){
    //    int beratLahir = 4;
    //    int beratBadan;
    //    beratBadan = beratLahir + (umur / 2);
    //}
    public static void main(String[] args) {
        JavaApplication3 Usia = new JavaApplication3();
        //JavaApplication3 Berat = new JavaApplication3();

        Usia.hitungUsia();
        //Berat.beratBadan();
    }
}
```
- Output Window:** Shows the output of the run command:

```
Usia saya : 26
BUILD SUCCESSFUL (total time: 1 second)
```

➤ Latihan 1

1. Screenshot dari NetBeans

The screenshot shows the NetBeans IDE interface with the following details:

- Project Explorer:** Shows JavaApplication3 with files Coba.java, Coba2.java, JavaApplication3.java, JavaApplication3\$1.java, MethodParameter.java, NonvoidMethod.java, Pegawai.java, StaticVariable.java, StaticVariableAccess.java, and VoidMethod.java.
- Code Editor:** Displays JavaApplication3.java containing the following code:

```
public class JavaApplication3 {
    //int umur = 26;
    public void hitungUsia(){
        int usia = 0;
        int tahunSekarang = 2019;
        int tahunLahir = 1993;
        usia = tahunSekarang - tahunLahir;
        System.out.println("Usia saya : " + usia);
    }
    public void beratBadan(){
        int beratLahir = 4;
        int beratBadan;
        beratBadan = beratLahir + (usia / 2);
    }
    public static void main(String[] args) {
        JavaApplication3 a = new JavaApplication3();

        a.hitungUsia();
        a.beratBadan();
    }
}
```
- Output Window:** Shows the output of the run command, which includes an exception:

```
Usia saya : 26
Exception in thread "main" java.lang.RuntimeException: Uncompilable source code - cannot find symbol
  symbol:   variable usia
  location: variable usia
    at javaapplication3.JavaApplication3.hitungUsia(JavaApplication3.java:24)
    at javaapplication3.JavaApplication3.beratBadan(JavaApplication3.java:31)
    at javaapplication3.JavaApplication3.main(JavaApplication3.java:31)
Java Result: 1
BUILD SUCCESSFUL (total time: 4 seconds)
```

2. Nilai dari variabel usia tidak bisa dipanggil karena usia merupakan local variable dan local variable hanya bisa diakses di dalam method yang sama. Jadi nilai usia hanya bisa dipanggil di dalam method hitungUsia().

❖ 3.1.2 INSTANCE VARIABLE

➤ Latihan 2

1) Screenshot dari NetBeans

```

JavaApplication3 - NetBeans IDE 8.0.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
...ave | Cob2.java | ... | JavaApplication3.java | StaticVariable.java | StaticvariableAccess.java | NonlocalMethod.java | MethodParameter...
Projects | Files | Services
Source Packages
  Coba
    Coba.java
    Cob2.java
  Libraries
  JavaApplication3
    JavaApplication3.java
    MethodParameter.java
    Nila.java
    NonlocalMethod.java
    Peper.java
    Peper2.java
    StaticVariable.java
    StaticvariableAccess.java
    VoidMethod.java
  Source Packages
    JavaApplication3
      JavaApplication3.java
      beratBadan()
      hitungUsia()
      main()
      umur
      int
  Members
    JavaApplication3
      beratBadan()
      hitungUsia()
      main()
      umur
      int
  Output - JavaApplication3 (run)
  run...
  ...
  Usia saya : 26
  Berat badan : 17
  BUILD SUCCESSFUL (total time: 1 second)
  33:3 5:57 10/1/2019
  Windows Taskbar icons

```

2) Hasilnya adalah :

Usia saya : 26

Berat badan : 17

- 3) Pada percobaan ini nilai dari variabel umur bisa dipanggil di dalam method beratBadan karena variabel umur merupakan instance variable atau global variable sehingga bisa diakses dimanapun didalam class tersebut.

❖ 3.1.3 STATIC VARIABLE

➤ Program 3. Penerapan Variabel Static

```

JavaApplication3 - NetBeans IDE 8.0.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
...ave | Cob2.java | ... | JavaApplication3.java | StaticVariable.java | StaticvariableAccess.java | NonlocalMethod.java | MethodParameter...
Projects | Files | Services
Source Packages
  Coba
    Coba.java
    Cob2.java
  Libraries
  JavaApplication3
    JavaApplication3.java
    MethodParameter.java
    Nila.java
    NonlocalMethod.java
    Peper.java
    Peper2.java
    StaticVariable.java
    StaticvariableAccess.java
    VoidMethod.java
  Source Packages
    JavaApplication3
      JavaApplication3.java
      firstMethod()
      secondMethod()
      akreditasi : char
      jurusan : String
  Members
    JavaApplication3
      firstMethod()
      secondMethod()
      akreditasi : char
      jurusan : String
  Output - JavaApplication3 (run)
  run...
  ...
  Akreditasi : A
  Jurusan : Informatika
  BUILD SUCCESSFUL (total time: 1 second)
  1:1 6:22 10/1/2019
  Windows Taskbar icons

```

➤ Program 4. Contoh Pengaksesan Variabel Static

The screenshot shows the NetBeans IDE interface with the title "JavaApplication3 - NetBeans IDE 8.0.2". The Projects tab lists "Coba" and "JavaApplication3" projects. The Source tab shows the code for "StaticVariableAccess.java". The code defines a static variable "akreditasi" and calls methods from "StaticVariable.java". The Output tab shows the results of running the application, including the command "run:", the output "Informatika", "Akreditasi : B", and the message "BUILD SUCCESSFUL (total time: 1 second)".

```

/*
 * To change this license header, choose License Headers in Project Properties.
 * To change this template file, choose Tools | Templates
 * and open the template in the editor.
 */
package javaapplication3;

/**
 *
 * @author LABRPL-q
 */
public class StaticVariableAccess {
    public static void main(String[] args){
        StaticVariable sv = new StaticVariable();
        sv.firstMethod();
        sv.secondMethod();
    }
}

```

❖ 3.2.1 METHOD NON VOID

➤ Program 5. Metode Non Void

The screenshot shows the NetBeans IDE interface with the title "Coba - NetBeans IDE 8.0.2". The Projects tab lists "Coba" and "JavaApplication3" projects. The Source tab shows the code for "NonVoidMethod.java". The code defines a class "NonVoidMethod" with methods "getNama" and "getNIM", and a main method that prints "Annisa Nugraheni" and "L200180066". The Output tab shows the results of running the application, including the command "run:", the output "Annisa Nugraheni" and "L200180066", and the message "BUILD SUCCESSFUL (total time: 2 seconds)".

```

/*
 * Author: Wind
 */
public class NonVoidMethod {
    String nama;
    String nim;

    public String getNama(String nama) {
        return this.nama = nama;
    }

    public String getNIM(String nim) {
        return this.nim = nim;
    }

    public void main() {
        System.out.println(this.getNama("Annisa Nugraheni"));
        System.out.println(this.getNIM("L200180066"));
    }

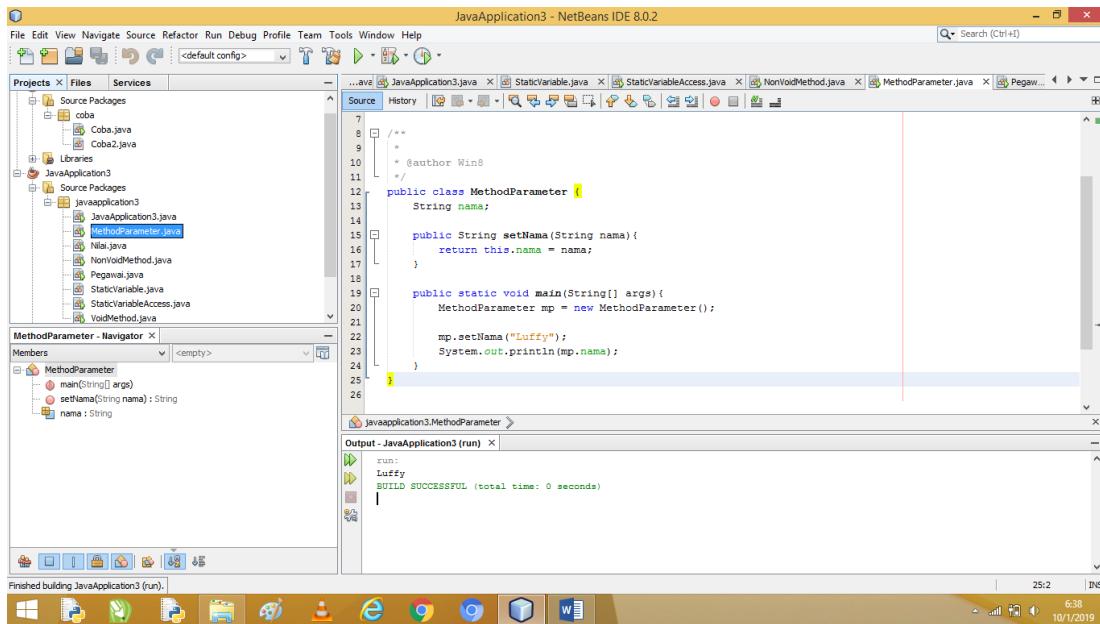
    public static void main(String[] args) {
        NonVoidMethod mahasiswa = new NonVoidMethod();

        mahasiswa.main();
    }
}

```

❖ 3.2.2 PARAMETER METHOD

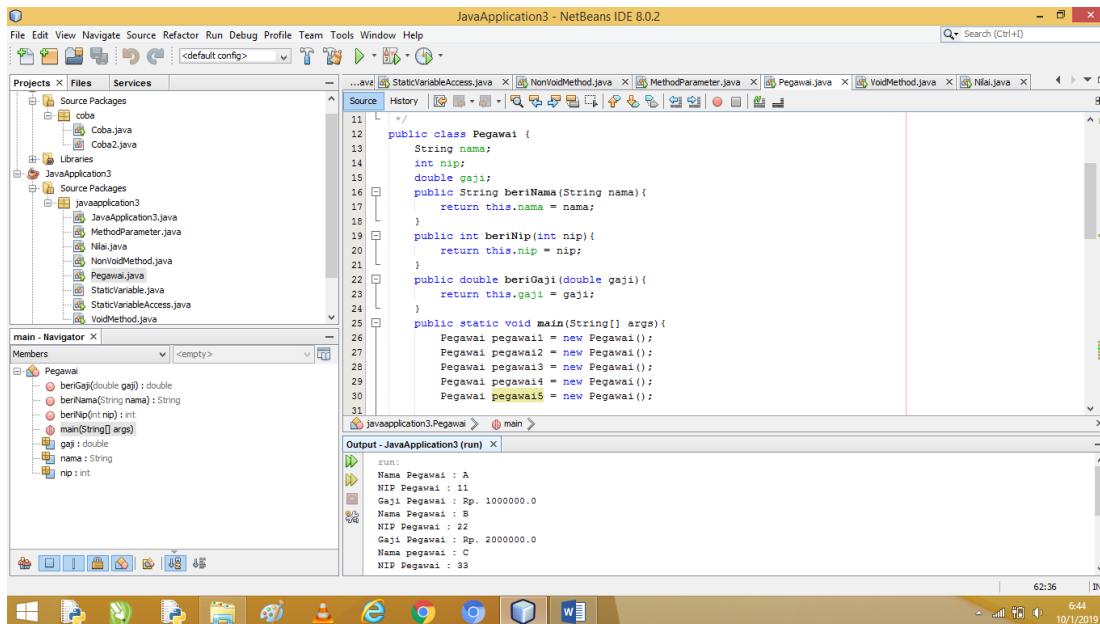
- Program 6. Parameter pada Method dan Program 7. Method main() pada Class MethodParameter



```
JavaApplication3 - NetBeans IDE 8.0.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
...ava JavaApplication3.java x StaticVariable.java x StaticVariableAccess.java x NonVoidMethod.java x MethodParameter.java x Pegawai.java x VoidMethod.java
Projects x Files Services
Source Packages
  coba
    Coba.java
    Coba2.java
  JavaApplication3
    JavaApplication3.java
    MethodParameter.java
    Nilai.java
    NonVoidMethod.java
    Pegawai.java
    StaticVariable.java
    StaticVariableAccess.java
    VoidMethod.java
  Libraries
  Javaapplication3
    Javaapplication3.java
    MethodParameter.java
    Nilai.java
    NonVoidMethod.java
    Pegawai.java
    StaticVariable.java
    StaticVariableAccess.java
    VoidMethod.java
MethodParameter - Navigator x
Members
  MethodParameter
    main(String[] args)
    setNama(String nama) : String
    nama : String
Source History
public class MethodParameter {
    String nama;
    public String setNama(String nama){
        return this.nama = nama;
    }
    public static void main(String[] args){
        MethodParameter mp = new MethodParameter();
        mp.setNama("Luffy");
        System.out.println(mp.nama);
    }
}
Output - JavaApplication3 (run) x
run:
Luffy
BUILD SUCCESSFUL (total time: 0 seconds)
|
25:2 638 10/1/2019
```

➤ LATIHAN 3

- Program 8. Latihan Membuat Parameter pada Method



```
JavaApplication3 - NetBeans IDE 8.0.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
...ava StaticVariableAccess.java x NonVoidMethod.java x MethodParameter.java x Pegawai.java x VoidMethod.java x Nilai.java x
Projects x Files Services
Source Packages
  coba
    Coba.java
    Coba2.java
  JavaApplication3
    JavaApplication3.java
    MethodParameter.java
    Nilai.java
    NonVoidMethod.java
    Pegawai.java
    StaticVariable.java
    StaticVariableAccess.java
    VoidMethod.java
  Libraries
  Javaapplication3
    Javaapplication3.java
    MethodParameter.java
    Nilai.java
    NonVoidMethod.java
    Pegawai.java
    StaticVariable.java
    StaticVariableAccess.java
    VoidMethod.java
Pegawai - Navigator x
Members
  Pegawai
    beriGaji(double gaji)
    beriNama(String nama)
    beriNip(int nip)
    main(String[] args)
    gaji : double
    nama : String
    nip : int
Source History
public class Pegawai {
    String nama;
    int nip;
    double gaji;
    public String beriNama(String nama){
        return this.nama = nama;
    }
    public int beriNip(int nip){
        return this.nip = nip;
    }
    public double beriGaji(double gaji){
        return this.gaji = gaji;
    }
    public static void main(String[] args){
        Pegawai pegawai1 = new Pegawai();
        Pegawai pegawai2 = new Pegawai();
        Pegawai pegawai3 = new Pegawai();
        Pegawai pegawai4 = new Pegawai();
        Pegawai pegawai5 = new Pegawai();
    }
}
Output - JavaApplication3 (run) x
run:
Nama Pegawai : A
NIP Pegawai : 11
Gaji Pegawai : Rp. 1000000.0
Nama Pegawai : B
NIP Pegawai : 22
Gaji Pegawai : Rp. 2000000.0
Nama pegawai : C
NIP Pegawai : 33
|
62:36 644 10/1/2019
```

JavaApplication3 - NetBeans IDE 8.0.2

```

public class Pegawai {
    static String nama;
    static int nip;
    static double gaji;
    static double NIP;
    static double Gaji;
    static double Pegawai;
    static void beriNama(String nama) {
        Pegawai.nama = nama;
    }
    static void beriNip(int nip) {
        Pegawai.nip = nip;
    }
    static void beriGaji(double gaji) {
        Pegawai.gaji = gaji;
    }
    static void beriNIP(double NIP) {
        Pegawai.NIP = NIP;
    }
    static void beriGajiPegawai(double Pegawai) {
        Pegawai.Pegawai = Pegawai;
    }
    static void main(String[] args) {
        Pegawai.beriNama("C");
        Pegawai.beriNip(33);
        Pegawai.beriGaji(1000000);
        System.out.println("Nama Pegawai : " + Pegawai.nama);
        System.out.println("NIP Pegawai : " + Pegawai.nip);
        System.out.println("Gaji Pegawai : Rp. " + Pegawai.gaji);
        Pegawai.beriNama("D");
        Pegawai.beriNip(44);
        Pegawai.beriGaji(2000000);
        System.out.println("Nama Pegawai : " + Pegawai.nama);
        System.out.println("NIP Pegawai : " + Pegawai.nip);
        System.out.println("Gaji Pegawai : Rp. " + Pegawai.gaji);
        Pegawai.beriNama("E");
        Pegawai.beriNip(44);
        Pegawai.beriGaji(4000000.0);
        System.out.println("Nama Pegawai : " + Pegawai.nama);
        System.out.println("NIP Pegawai : " + Pegawai.nip);
        System.out.println("Gaji Pegawai : Rp. " + Pegawai.gaji);
        Pegawai.beriNama("F");
        Pegawai.beriNip(44);
        Pegawai.beriGaji(4000000);
        System.out.println("Nama Pegawai : " + Pegawai.nama);
        System.out.println("NIP Pegawai : " + Pegawai.nip);
        System.out.println("Gaji Pegawai : Rp. " + Pegawai.gaji);
        Pegawai.beriNama("G");
        Pegawai.beriNip(44);
        Pegawai.beriGaji(1500000);
        System.out.println("Nama Pegawai : " + Pegawai.nama);
        System.out.println("NIP Pegawai : " + Pegawai.nip);
        System.out.println("Gaji Pegawai : Rp. " + Pegawai.gaji);
    }
}

```

Output - JavaApplication3(run) :

```

Nama pegawai : C
NIP Pegawai : 33
Gaji Pegawai : Rp. 1000000.0
NIP Pegawai : 44
Gaji Pegawai : Rp. 2000000.0
Nama Pegawai : E
NIP Pegawai : 44
Gaji Pegawai : Rp. 4000000.0
NIP Pegawai : 44
Gaji Pegawai : Rp. 5000000.0
BUILD SUCCESSFUL (total time: 2 seconds)

```

JavaApplication3 - NetBeans IDE 8.0.2

```

public class Pegawai {
    static String nama;
    static int nip;
    static double gaji;
    static double NIP;
    static double Gaji;
    static double Pegawai;
    static void beriNama(String nama) {
        Pegawai.nama = nama;
    }
    static void beriNip(int nip) {
        Pegawai.nip = nip;
    }
    static void beriGaji(double gaji) {
        Pegawai.gaji = gaji;
    }
    static void beriNIP(double NIP) {
        Pegawai.NIP = NIP;
    }
    static void beriGajiPegawai(double Pegawai) {
        Pegawai.Pegawai = Pegawai;
    }
    static void main(String[] args) {
        Pegawai.beriNama("C");
        Pegawai.beriNip(44);
        Pegawai.beriGaji(3000000);
        System.out.println("Nama Pegawai : " + Pegawai.nama);
        System.out.println("NIP Pegawai : " + Pegawai.nip);
        System.out.println("Gaji Pegawai : Rp. " + Pegawai.gaji);
        Pegawai.beriNama("D");
        Pegawai.beriNip(44);
        Pegawai.beriGaji(4000000);
        System.out.println("Nama Pegawai : " + Pegawai.nama);
        System.out.println("NIP Pegawai : " + Pegawai.nip);
        System.out.println("Gaji Pegawai : Rp. " + Pegawai.gaji);
        Pegawai.beriNama("E");
        Pegawai.beriNip(44);
        Pegawai.beriGaji(1500000);
        System.out.println("Nama Pegawai : " + Pegawai.nama);
        System.out.println("NIP Pegawai : " + Pegawai.nip);
        System.out.println("Gaji Pegawai : Rp. " + Pegawai.gaji);
        Pegawai.beriNama("F");
        Pegawai.beriNip(44);
        Pegawai.beriGaji(4000000);
        System.out.println("Nama Pegawai : " + Pegawai.nama);
        System.out.println("NIP Pegawai : " + Pegawai.nip);
        System.out.println("Gaji Pegawai : Rp. " + Pegawai.gaji);
        Pegawai.beriNama("G");
        Pegawai.beriNip(44);
        Pegawai.beriGaji(1500000);
        System.out.println("Nama Pegawai : " + Pegawai.nama);
        System.out.println("NIP Pegawai : " + Pegawai.nip);
        System.out.println("Gaji Pegawai : Rp. " + Pegawai.gaji);
    }
}

```

Output - JavaApplication3(run) :

```

Gaji Pegawai : Rp. 3000000.0
Nama Pegawai : D
NIP Pegawai : 44
Gaji Pegawai : Rp. 4000000.0
Nama Pegawai : E
NIP Pegawai : 44
Gaji Pegawai : Rp. 5000000.0
BUILD SUCCESSFUL (total time: 2 seconds)

```

❖ 3.2.3 METHOD VOID

➤ Program 9. Method Void

JavaApplication3 - NetBeans IDE 8.0.2

```

public class VoidMethod {
    int hour, minute, second;
    public void duration(int hour, int minute, int second) {
        this.hour = hour;
        this.minute = minute;
        this.second = second;
    }
    public void info() {
        System.out.println("Total Waktu \n" + hour + " jam " + minute + " menit " + second + " detik ");
    }
    public static void main(String[] args) {
        VoidMethod vm = new VoidMethod();
        vm.duration(1, 30, 15);
        vm.info();
    }
}

```

Output - JavaApplication3(run) :

```

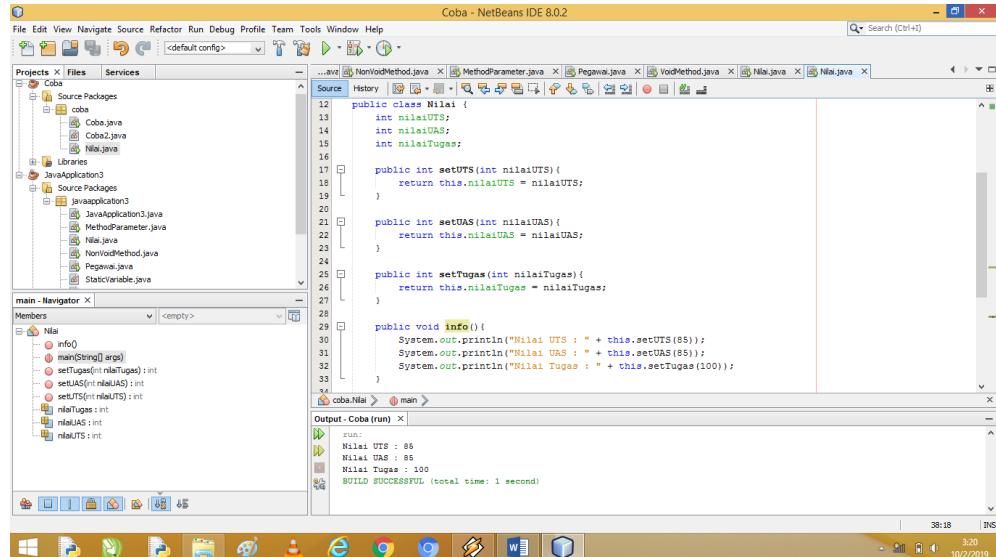
Total Waktu
1 jam 30 menit 15 detik
BUILD SUCCESSFUL (total time: 2 seconds)

```

❖ 3.3 PEKERJAAN RUMAH

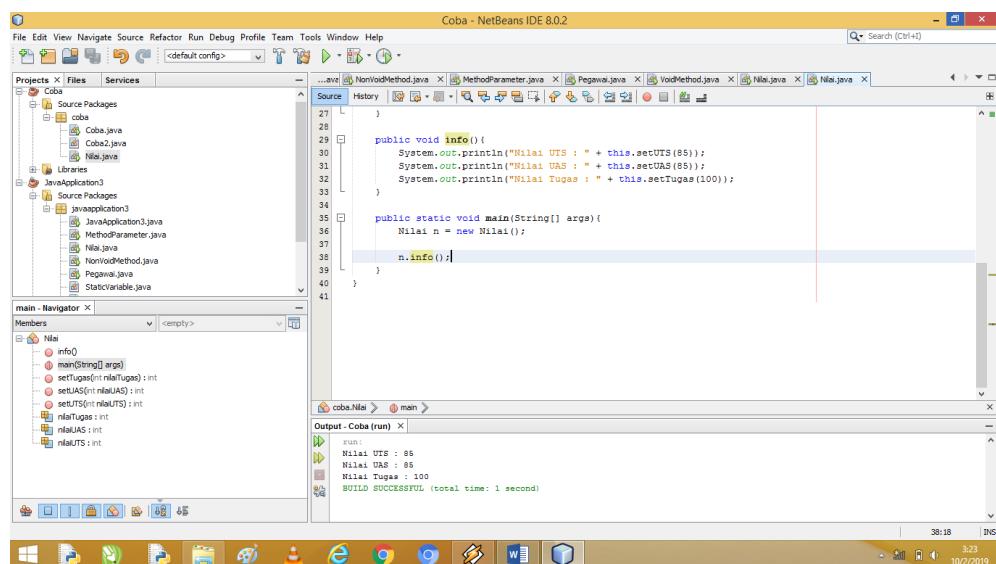
➤ Program 10. Tugas Implementasi Method

1. Melengkapi kode pada program 10



The screenshot shows the NetBeans IDE interface with the following details:

- Project Explorer:** Shows the project "Coba" with source packages "coba" containing files Coba.java, Coba2.java, and Nilai.java.
- Source Editor:** Displays the code for NonVoidMethod.java. The code defines a class Nilai with methods for setting and getting UTS, UAS, and Tugas marks, and an info() method that prints the values of these variables.
- Output Window:** Shows the results of a run: "Nilai UTS : 85", "Nilai UAS : 85", and "Nilai Tugas : 100".
- Bottom Bar:** Shows the Windows taskbar with various application icons.



The screenshot shows the NetBeans IDE interface with the following details:

- Project Explorer:** Shows the project "Coba" with source packages "coba" containing files Coba.java, Coba2.java, and Nilai.java.
- Source Editor:** Displays the completed code for NonVoidMethod.java. It includes a main() method that creates a Nilai object and calls its info() method.
- Output Window:** Shows the results of a run: "Nilai UTS : 85", "Nilai UAS : 85", and "Nilai Tugas : 100".
- Bottom Bar:** Shows the Windows taskbar with various application icons.

2. Mengubah tipe data dari int ke double dan menambahkan satu variable double nilaiTotal

Coba - NetBeans IDE 8.0

```

public class Nilai {
    double nilaiUTS;
    double nilaiUAS;
    double nilaiTugas;

    public double setUTS(double nilaiUTS){
        return this.nilaiUTS = nilaiUTS;
    }

    public double setUAS(double nilaiUAS){
        return this.nilaiUAS = nilaiUAS;
    }

    public double setTugas(double nilaiTugas){
        return this.nilaiTugas = nilaiTugas;
    }

    public void info(){
        System.out.println("Nilai UTS : " + this.setUTS(90));
        System.out.println("Nilai UAS : " + this.setUAS(90));
        System.out.println("Nilai Tugas : " + this.setTugas(100));
    }
}

class main {
    public static void main(String[] args){
        Nilai n = new Nilai();
        n.info();
    }
}

```

Output - Coba (run) :

```

run:
Nilai UTS : 90.0
Nilai UAS : 90.0
Nilai Tugas : 100.0
Nilai Total : 99.33333333333333
BUILD SUCCESSFUL (total time: 1 second)

```

Coba - NetBeans IDE 8.0

```

public void info(){
    System.out.println("Nilai UTS : " + this.setUTS(90));
    System.out.println("Nilai UAS : " + this.setUAS(90));
    System.out.println("Nilai Tugas : " + this.setTugas(100));
}

public void hitung(){
    double nilaiTotal;

    nilaiTotal = (nilaiUTS + nilaiUAS + nilaiTugas) / 3;

    System.out.println("Nilai Total : " + nilaiTotal);
}

public static void main(String[] args){
    Nilai n = new Nilai();

    n.info();
    n.hitung();
}

```

Output - Coba (run) :

```

run:
Nilai UTS : 90.0
Nilai UAS : 90.0
Nilai Tugas : 100.0
Nilai Total : 99.33333333333333
BUILD SUCCESSFUL (total time: 1 second)

```

MODUL 4

ACCESS MODIFIER

PRAKTIKUM PEMROGRAMAN BERORIENTASI OBJEK

Nama : Annisa Nugraheni

NIM : L200180066

Kelas : B

❖ 4.1 PRIVATE MODIFIER

➤ Program 1. Contoh Program dengan Tipe Akses Private

The screenshot shows the NetBeans IDE interface with the project 'Modul4' open. The 'Source Packages' panel shows files like DefaultModifier.java, Latihan1.java, Latihan2.java, Latihan3.java, Latihan4.java, PrivateModifier.java, ProtectedModifier.java, and PublicModifier.java. The 'modul4' package is expanded, showing sub-files Latihan41.java and Latihan441.java. The 'Navigator' panel shows members of the PrivateModifier class: printInfo(), printInfo0(), name, and umur. The 'Source' editor contains the code for PrivateModifier.java:

```
4  * and open the template in the editor.
5
6 package modul4;
7
8 /**
9  * @author LABRPL-4
10 */
11
12 public class PrivateModifier {
13     private String name;
14     private int umur;
15
16     public void printInfo() {
17         System.out.println("private modifier");
18     }
19 }
```

The 'Output' window shows the run results:

```
run:
Hasil kali = 90
Hasil penjumlahan = 16
Hasil pengurangan = 12
Hasil pembagian = 2
Data - rata = 5
BUILD SUCCESSFUL (total time: 1 second)
```

➤ 4.1.1. Latihan

The screenshot shows the NetBeans IDE interface with the project 'Modul4' open. The 'Source Packages' panel shows files like DefaultModifier.java, Latihan1.java, Latihan2.java, Latihan3.java, Latihan4.java, PrivateModifier.java, ProtectedModifier.java, and PublicModifier.java. The 'modul4' package is expanded, showing sub-files Latihan41.java and Latihan441.java. The 'Navigator' panel shows members of the Latihan1 class: main(). The 'Source' editor contains the code for Latihan1.java:

```
3  * To change this template file, choose Tools | Templates
4  * and open the template in the editor.
5
6 package modul4;
7
8 /**
9  * @author LABRPL-4
10 */
11
12 public class Latihan1 {
13     public static void main(String[] args) {
14         PrivateModifier.name = 'Annisa';
15         PrivateModifier.umur = 19;
16
17         PrivateModifier pm = new PrivateModifier();
18         pm.printInfo();
19     }
20 }
```

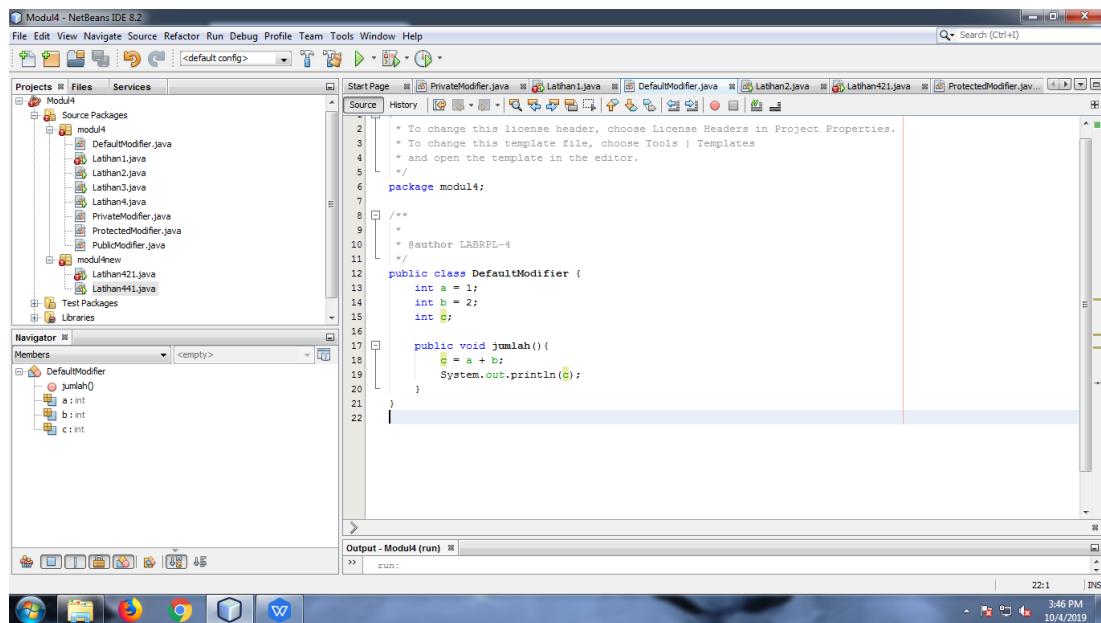
The 'Output' window shows the run results:

```
run:
BUILD SUCCESSFUL (total time: 1 second)
```

Variable diatas tidak dapat diakses di class lain karena tipe akses private hanya dapat diakses di dalam class nya sendiri.

❖ 4.2 DEFAULT MODIFIER

➤ Program 2. Contoh Program dengan Tipe Akses Default

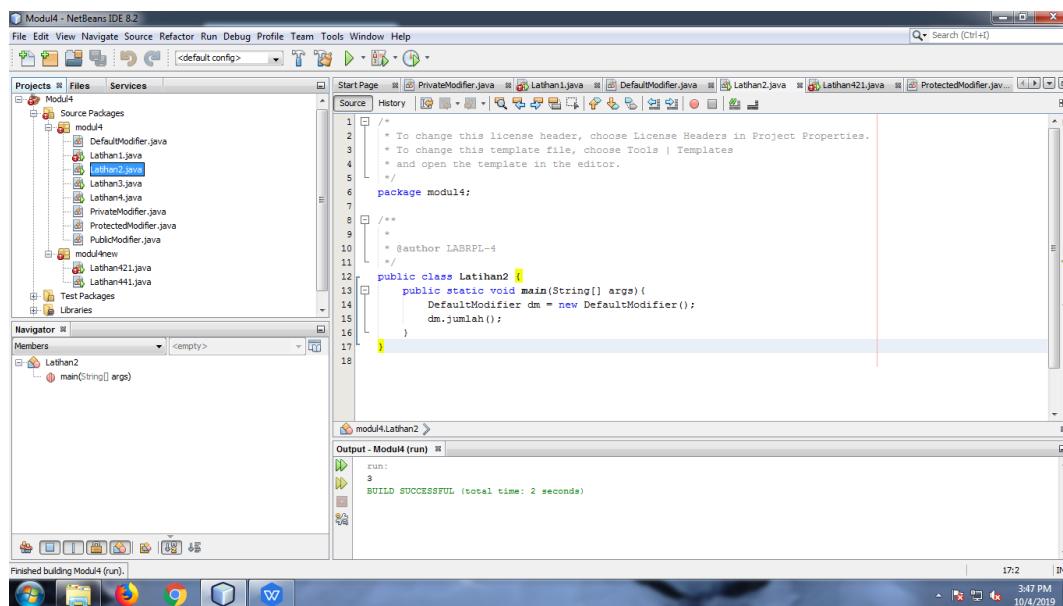


```
Modul4 - NetBeans IDE 8.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Projects Files Services Start Page PrivateModifier.java Lathan1.java DefaultModifier.java Lathan2.java Lathan421.java ProtectedModifier.java
modul4
  modul4
    DefaultModifier.java
    Lathan1.java
    Lathan2.java
    Lathan3.java
    Lathan4.java
    PrivateModifier.java
    ProtectedModifier.java
    PublicModifier.java
  modul4new
    Lathan421.java
    Lathan441.java
Test Packages Libraries
Source History
2   * To change this license header, choose License Headers in Project Properties.
3   * To change this template file, choose Tools | Templates
4   * and open the template in the editor.
5   */
6 package modul4;
7
8 /**
9  *
10 * @author LABRPL-4
11 */
12 public class DefaultModifier {
13     int a = 1;
14     int b = 2;
15     int c;
16
17     public void jumlah() {
18         c = a + b;
19         System.out.println(c);
20     }
21 }
22
```

Output - Modul4 (run) ::> run:

➤ 4.2.1 Latihan

- Nomor 1



```
Modul4 - NetBeans IDE 8.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Projects Files Services Start Page PrivateModifier.java Lathan1.java DefaultModifier.java Lathan2.java Lathan421.java ProtectedModifier.java
modul4
  modul4
    DefaultModifier.java
    Lathan1.java
    Lathan2.java
    Lathan3.java
    Lathan4.java
    PrivateModifier.java
    ProtectedModifier.java
    PublicModifier.java
  modul4new
    Lathan421.java
    Lathan441.java
Test Packages Libraries
Source History
1 /*
2  * To change this license header, choose License Headers in Project Properties.
3  * To change this template file, choose Tools | Templates
4  * and open the template in the editor.
5  */
6 package modul4;
7
8 /**
9  *
10 * @author LABRPL-4
11 */
12 public class Lathan2 {
13     public static void main(String[] args) {
14         DefaultModifier dm = new DefaultModifier();
15         dm.jumlah();
16     }
17 }
18
```

modul4.Lathan2 >

Output - Modul4 (run) ::> run:

BUILD SUCCESSFUL (total time: 2 seconds)

Variable tersebut dapat diakses di class lain karena tipe akses default dapat diakses di dalam classnya sendiri dan di class yang lain dalam package yang sama.

- Nomor 2

```

1  /*
2  * To change this license header, choose License Headers in Project Properties.
3  * To change this template file, choose Tools | Templates
4  * and open the template in the editor.
5  */
6  package modul4new;
7
8  import modul4.PublicModifier;
9
10 /**
11 * @author LABRPL-4
12 */
13
14 public class Lathan421 {
15     public static void main(String[] args) {
16         DefaultModifier dm = new DefaultModifier();
17         dm.jumblah();
18     }
19 }

```

Variable pada program 2 tidak dapat diakses di class lain pada package yang berbeda karena tipe akses default hanya dapat diakses di classnya sendiri dan class lain di dalam package yang sama.

❖ 4.3. PROTECTED MODIFIER

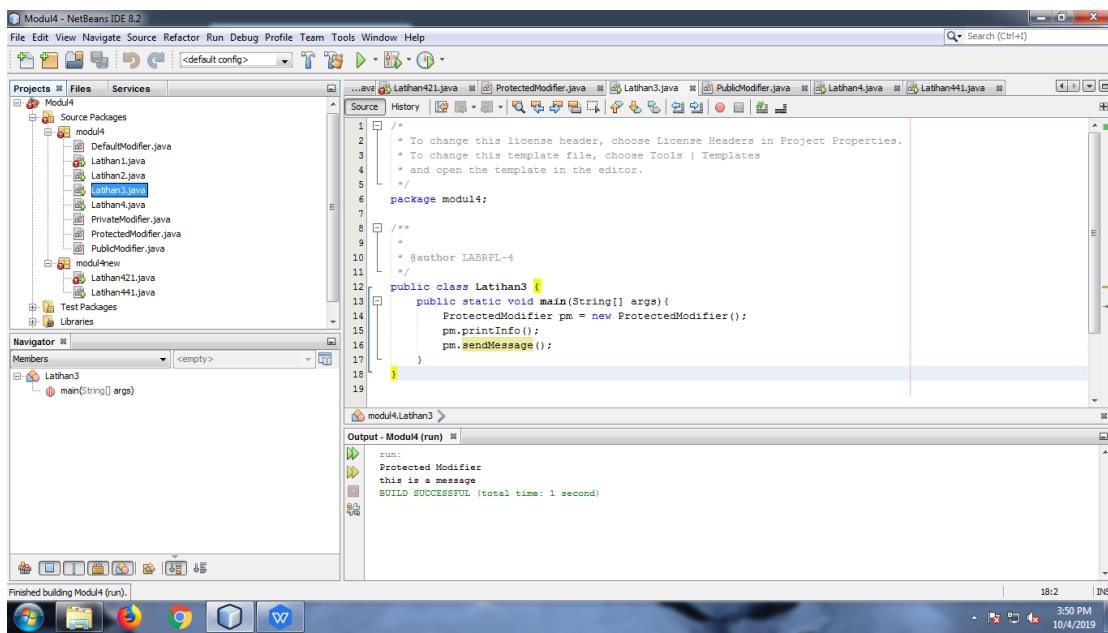
- Program 3. Contoh program dengan tipe akses protected

```

1  /*
2  * To change this license header, choose License Headers in Project Properties.
3  * To change this template file, choose Tools | Templates
4  * and open the template in the editor.
5  */
6  package modul4;
7
8  /**
9  * @author LABRPL-4
10 */
11
12 public class ProtectedModifier {
13     protected void printInfo() {
14         System.out.println("Protected Modifier");
15     }
16     protected void sendMessage() {
17         System.out.println("this is a message");
18     }
19 }

```

➤ 4.3.1 Latihan

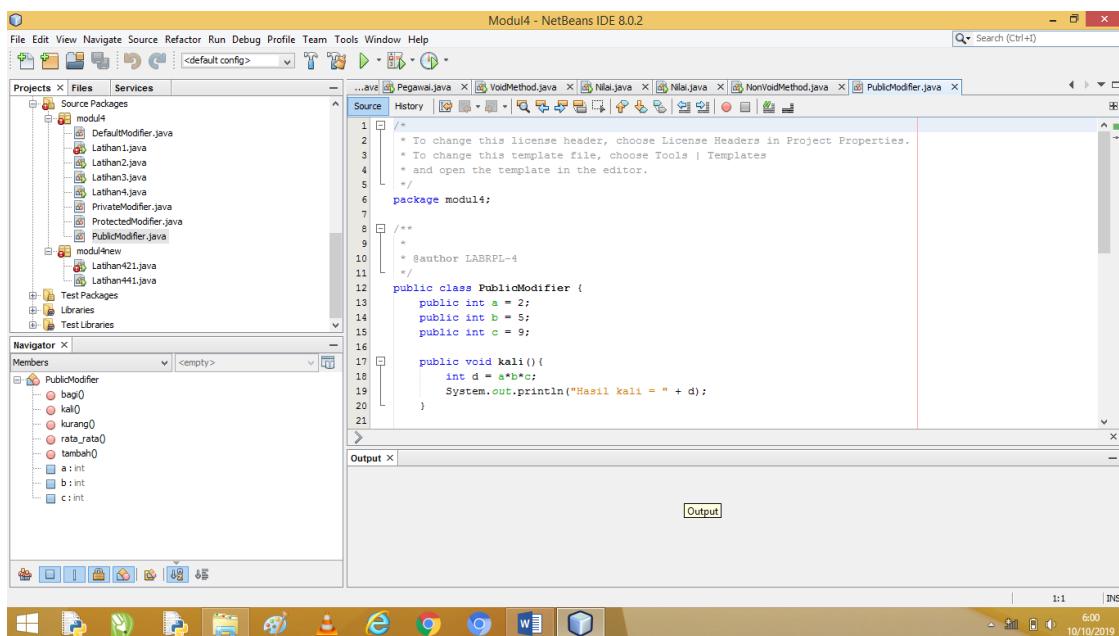


```
Modul4 - NetBeans IDE 8.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Projects Files Services
Modul4
  Source Packages
    modul4
      DefaultModifier.java
      Lathan1.java
      Lathan2.java
      Lathan3.java
      Lathan4.java
      PrivateModifier.java
      ProtectedModifier.java
      PublicModifier.java
    modul4new
      Lathan421.java
      Lathan441.java
    Test Packages
    Libraries
  Navigator
    Members <empty>
    Lathan3
      main(String[] args)
  Output - Modul4 (run) *
    run:
      Protected Modifier
      this is a message
      BUILD SUCCESSFUL (total time: 1 second)
  Finished building Modul4 (run).
  18:2 1NS
  3:50 PM 10/4/2019
```

Method pada program 3 dapat diakses di class lain karena tipe akses protected dapat diakses oleh classnya sendiri, class lain di dalam package yang sama, dan semua subclassnya meskipun berada di package yang berbeda.

❖ 4.4 PUBLIC MODIFIER

➤ Program 4. Contoh Program dengan Tipe Akses Public

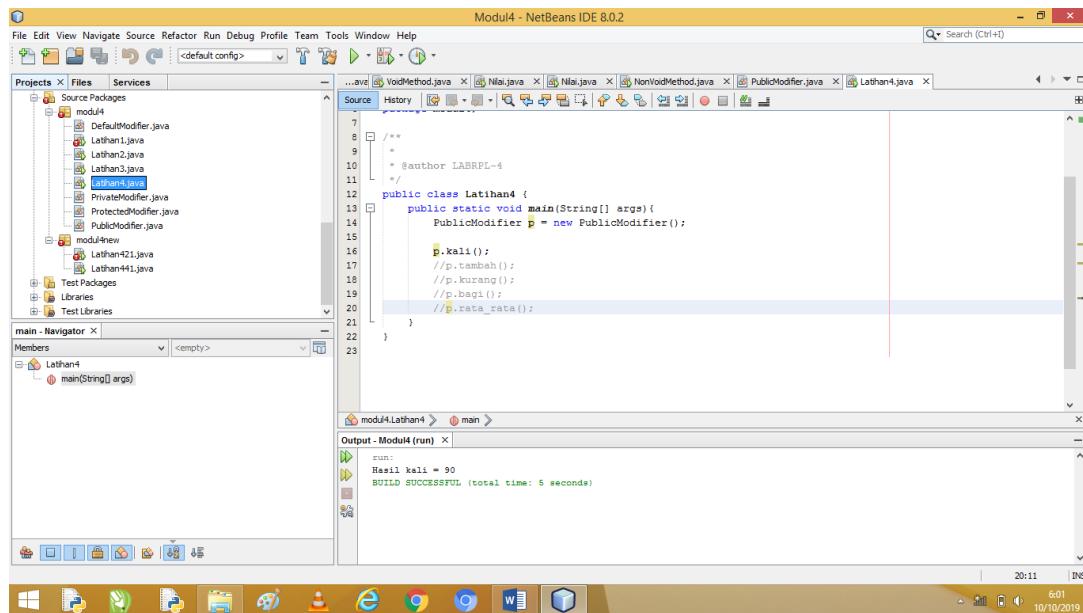


```
Modul4 - NetBeans IDE 8.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Projects Files Services
Modul4
  Source Packages
    modul4
      DefaultModifier.java
      Lathan1.java
      Lathan2.java
      Lathan3.java
      Lathan4.java
      PrivateModifier.java
      ProtectedModifier.java
      PublicModifier.java
    modul4new
      Lathan421.java
      Lathan441.java
    Test Packages
    Libraries
  Navigator
    Members <empty>
    PublicModifier
      bagi()
      kali()
      kurang()
      rata_rata()
      tambah()
      a : int
      b : int
      c : int
  Output *
  [Output]
  1:1 600
  10/10/2019
```

➤ 4.4.1 Latihan

- Nomor 1

Class lain di dalam package yang sama



The screenshot shows the NetBeans IDE interface with the title bar "Modul4 - NetBeans IDE 8.0.2". The left sidebar displays the project structure under "Source Packages" for the "modul4" package, containing files like DefaultModifier.java, Lathan1.java, Lathan2.java, Lathan3.java, Lathan4.java, PrivateModifier.java, ProtectedModifier.java, PublicModifier.java, Lathan421.java, and Lathan441.java. The main editor window shows the "Lathan4.java" file with the following code:

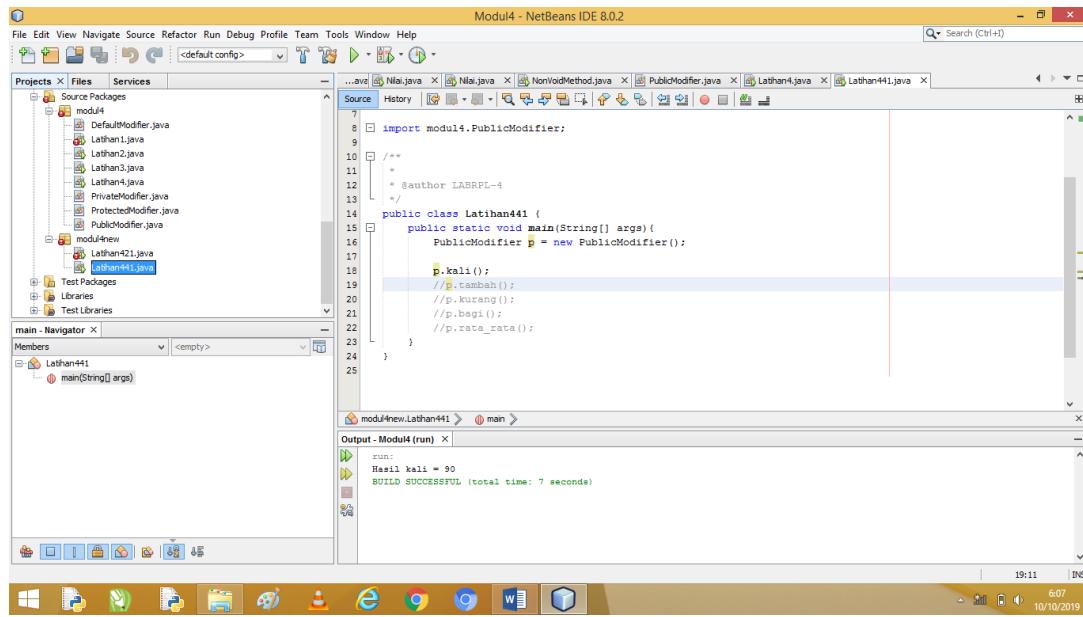
```
7
8  /**
9   * @author LABRPL-4
10  */
11
12 public class Lathan4 {
13     public static void main(String[] args) {
14         PublicModifier p = new PublicModifier();
15
16         p.kali();
17         //p.tambah();
18         //p.kurang();
19         //p.bagi();
20         //p.rata_rata();
21     }
22 }
23
```

The output window below shows the run results:

```
run:
Hasil kali = 90
BUILD SUCCESSFUL (total time: 5 seconds)
```

The system tray at the bottom right shows the date as 10/10/2019 and the time as 20:11.

Class lain pada package yang berbeda



The screenshot shows the NetBeans IDE interface with the title bar "Modul4 - NetBeans IDE 8.0.2". The left sidebar displays the project structure under "Source Packages" for both "modul4" and "modul4New" packages. The "modul4" package contains files like DefaultModifier.java, Lathan1.java, Lathan2.java, Lathan3.java, Lathan4.java, PrivateModifier.java, ProtectedModifier.java, PublicModifier.java, Lathan421.java, and Lathan441.java. The "modul4New" package contains files like Lathan421.java and Lathan441.java. The main editor window shows the "Lathan441.java" file with the following code:

```
7
8  import modul4.PublicModifier;
9
10 /**
11  * @author LABRPL-4
12  */
13
14 public class Lathan441 {
15     public static void main(String[] args) {
16         PublicModifier p = new PublicModifier();
17
18         p.kali();
19         //p.tambah();
20         //p.kurang();
21         //p.bagi();
22         //p.rata_rata();
23     }
24 }
```

The output window below shows the run results:

```
run:
Hasil kali = 90
BUILD SUCCESSFUL (total time: 7 seconds)
```

The system tray at the bottom right shows the date as 10/10/2019 and the time as 19:11.

Variable pada program 4 dapat diakses di semua class karena tipe akses public dapat diakses di class manapun dan di package manapun.

- Nomor 2

Menambahkan beberapa method baru

```

public class PublicModifier {
    public int a = 2;
    public int b = 5;
    public int c = 9;

    public void kali(){
        int d = a*c;
        System.out.println("Hasil kali = " + d);
    }

    public void tambah(){
        int e = a + b + c;
        System.out.println("Hasil penjumlahan = " + e);
    }

    public void kurang(){
        int f = a - b - c;
        System.out.println("Hasil pengurangan = " + f);
    }

    public void bagi(){
        int g = b / a;
        System.out.println("Hasil pembagian = " + g);
    }

    public void rata_rata(){
        int h = (a + b + c) / 3;
        System.out.println("Rata - rata = " + h);
    }
}

```

```

public class PublicModifier {
    public int a = 2;
    public int b = 5;
    public int c = 9;

    public void kali(){
        int d = a*c;
        System.out.println("Hasil kali = " + d);
    }

    public void tambah(){
        int e = a + b + c;
        System.out.println("Hasil penjumlahan = " + e);
    }

    public void kurang(){
        int f = a - b - c;
        System.out.println("Hasil pengurangan = " + f);
    }

    public void bagi(){
        int g = b / a;
        System.out.println("Hasil pembagian = " + g);
    }

    public void rata_rata(){
        int h = (a + b + c) / 3;
        System.out.println("Rata - rata = " + h);
    }
}

```

Mengakses program 4 pada class lain didalam package yang sama

```

package modul4;

public class Latihan4 {
    public static void main(String[] args) {
        PublicModifier p = new PublicModifier();

        p.kali();
        p.tambah();
        p.kurang();
        p.bagi();
        p.rata_rata();
    }
}

```

Mengakses program 4 pada class lain dan package yang berbeda

The screenshot shows the NetBeans IDE interface with the following details:

- Title Bar:** Modul4 - NetBeans IDE 8.2
- Menu Bar:** File, Edit, View, Navigate, Source, Refactor, Run, Debug, Profile, Team, Tools, Window, Help
- Toolbar:** Standard NetBeans toolbar icons.
- Projects Tab:** Shows the project "Modul4" with packages "modul4" and "modul4new".
- Source Editor:** Displays the code for `Lathan441.java`. The code imports `modul4.PublicModifier` and defines a class `Latihan441` with a main method that creates an instance of `PublicModifier` and calls its methods.
- Output Tab:** Shows the build output and run results:

```
run:
Hasil kali = 90
Hasil penjumlahan = 16
Hasil pengurangan = -12
Hasil pembagian = 2
Rata - rata = 5
BUILD SUCCESSFUL (total time: 1 second)
```
- Bottom Status Bar:** Shows the date and time: 10/4/2019, 22:23, 3:53 PM.

MODUL 5

CONSTRUCTOR

PRAKTIKUM PEMROGRAMAN BERORIENTASI OBJEK

Nama : Annisa Nugraheni

NIM : L200180066

Kelas : B

❖ 5.1 DEFAULT CONSTRUCTOR

➤ Program 1. Default Constructor

The screenshot shows the NetBeans IDE interface with the title "modul5 - NetBeans IDE 8.0.2". The left sidebar displays the "Projects" view with the "modul5" project expanded, showing packages like "modul5", "modul5.modifiers", and "modul5.modifiers.modifiers". The "Files" tab is selected, showing Java files such as "Lathan4.java", "PrivateModifier.java", "ProtectedModifier.java", "PublicModifier.java", "Lathan21.java", "Lathan41.java", and "Constructor.java". The "Services" tab is also present. The main workspace shows the code for "Constructor.java" with the following content:

```
1  /*
2  * To change this license header, choose License Headers in Project Properties.
3  * To change this template file, choose Tools | Templates
4  * and open the template in the editor.
5  */
6 package modul5;
7 /**
8 *
9 * @author Win8
10 */
11 public class Constructor {
12     public Constructor() {
13         System.out.println("Default Constructor");
14     }
15 }
```

The "Navigator" tool window at the bottom left shows the "Constructor" class with one method: "Constructor()". The bottom right corner shows the status bar with "16:2" and "INE".

➤ Program 2. Mengakses default constructor

The screenshot shows the NetBeans IDE interface with the title "modul5 - NetBeans IDE 8.0.2". The left pane displays the "Projects" view with several Java files under the "modul5" project. The right pane shows the "Source" editor for "ConstructorAccess.java". The code is as follows:

```
1 // To change this license header, choose License Headers in Project Properties.
2 // To change this template file, choose Tools | Templates
3 // and open the template in the editor.
4 /*
5 */
6 package modul5;
7
8 /**
9 * @author WinS
10 */
11 public class ConstructorAccess {
12     public static void main(String[] args) {
13         Constructor cons = new Constructor();
14     }
15 }
16
17 
```

The "Output" window at the bottom shows the build log:

```
modul5.ConstructorAccess > main > cons >
Output - modul5 [run]
Default Constructor
BUILD SUCCESSFUL (total time: 3 seconds)
```

➤ 5.1.1 Latihan 1

The screenshot shows the NetBeans IDE interface with the project 'modul5' open. The 'Source' tab displays the code for `Latihan1.java`. The code defines a class `latihan1` with a constructor that initializes `nama`, `NIM`, and `alamat`. It then prints these values to the console. The 'Output' tab shows the run results: `Name : Annisa Nugraheni`, `NIM : L200180046`, and `Alamat : Solo`.

```
/*
 * To change this license header, choose License Headers in Project Properties.
 * To change this template file, choose Tools | Templates
 * and open the template in the editor.
 */
package modul5;

public class latihan1 {
    String nama;
    String nim;
    String alamat;
    latihan1() {
        System.out.println(
            "Nama : " + nama + "\n" +
            "NIM : " + nim + "\n" +
            "Alamat : " + alamat + "\n");
    }
}
```

The screenshot shows the NetBeans IDE interface with the project 'modul5' open. The 'Source' tab displays the code for `Latihan1Access.java`. It contains a main method that creates an instance of `latihan1` and prints its details. The 'Output' tab shows the run results: `Name : Annisa Nugraheni`, `NIM : L200180046`, and `Alamat : Solo`. The message `BUILD SUCCESSFUL (total time: 2 seconds)` is also displayed.

```
/*
 * To change this license header, choose License Headers in Project Properties.
 * To change this template file, choose Tools | Templates
 * and open the template in the editor.
 */
package modul5;

public class latihan1Access {
    public static void main(String[] args) {
        latihan1 ltn = new latihan1();
    }
}
```

❖ 5.2 PARAMETERIZED CONSTRUCTOR

➤ Program 3. Parameterized Constructor

The screenshot shows the NetBeans IDE interface with the project 'modul5' open. The 'Source' tab displays the code for `ParamConstructor.java`. It defines a class `ParamConstructor` with a constructor that takes `String name`, `int semester`, and `String nim`. It also includes a `Info()` method that prints the same information. The 'Output' tab shows the run results: `Name : annisa`, `NIM : L200180046`, and `Semester : 1`.

```
/*
 * To change this license header, choose License Headers in Project Properties.
 * To change this template file, choose Tools | Templates
 * and open the template in the editor.
 */
package modul5;

public class ParamConstructor {
    String name;
    int semester;
    String nim;
    ParamConstructor(String name, int semester, String nim) {
        this.name = name;
        this.semester = semester;
        this.nim = nim;
    }
    public void Info() {
        System.out.println(
            "Nama : " + name + "\n" +
            "NIM : " + nim + "\n" +
            "Semester : " + semester + "\n");
    }
}
```

➤ Program 4. Mengakses Parameterized Constructor

```

/*
 * To change this license header, choose License Headers in Project Properties.
 * To change this template file, choose Tools | Templates
 * and open the template in the editor.
 */
package modul5;

/**
 *
 * @author Win8
 */
public class ParamConstructorAccess {
    public static void main(String[] args) {
        ParamConstructor pc = new ParamConstructor("Luffy", 3, "L2001500xy");
        pc.info();
    }
}

modul5.ParamConstructorAccess > main >
Output - modul5 (run) >
run:
Nama : Luffy
NIM : L2001500xy
Semester : 3

BUILD SUCCESSFUL (total time: 8 seconds)

```

➤ 5.2.1 Latihan 2

1. Screenshot untuk perintah pada nomor 1

```

/*
 * To change this license header, choose License Headers in Project Properties.
 * To change this template file, choose Tools | Templates
 * and open the template in the editor.
 */
package modul5;

/**
 *
 * @author Win8
 */
public class Buku {
    String namaFengrang;
    String judulBuku;
    int tahunTerbit;
    int cetakanKe;
    double hargaJual;

    public Buku(String namaFengrang, String judulBuku) {
        this.namaFengrang = namaFengrang;
        this.judulBuku = judulBuku;
    }

    public Buku(int tahunTerbit, int cetakanKe) {
        this.tahunTerbit = tahunTerbit;
        this.cetakanKe = cetakanKe;
    }

    public Buku(String namaFengrang, String judulBuku, int tahunTerbit, int cetakanKe) {
        this.namaFengrang = namaFengrang;
        this.judulBuku = judulBuku;
        this.tahunTerbit = tahunTerbit;
        this.cetakanKe = cetakanKe;
    }

    public Buku(double hargaJual) {
        this.hargaJual = hargaJual;
    }

    public void info() {
        System.out.println(
            "Nama Fengrang : " + namaFengrang + "\n" +
            "Judul Buku : " + judulBuku + "\n" +
            "Tahun Terbit : " + tahunTerbit + "\n" +
            "Cetakan ke : " + cetakanKe + "\n" +
            "Harga Jual : Rp. " + hargaJual + "\n");
    }
}

modul5.Buku > Buku >
Output - modul5 (run) >
run:

```

```

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public Buku(String namaFengrang, String judulBuku, int tahunTerbit, int cetakanKe, double hargaJual) {
    this.namaFengrang = namaFengrang;
    this.judulBuku = judulBuku;
    this.tahunTerbit = tahunTerbit;
    this.cetakanKe = cetakanKe;
    this.hargaJual = hargaJual;
}

public void info() {
    System.out.println(
        "Nama Fengrang : " + namaFengrang + "\n" +
        "Judul Buku : " + judulBuku + "\n" +
        "Tahun Terbit : " + tahunTerbit + "\n" +
        "Cetakan ke : " + cetakanKe + "\n" +
        "Harga Jual : Rp. " + hargaJual + "\n");
}

modul5.Buku > Buku >
Output - modul5 (run) >
run:

```

2. Screenshot untuk perintah pada nomor 2

```

modul5 - NetBeans IDE 8.0.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Projects X Files Services
...java lathan1.java x lathanAccess.java x ParamConstructor.java x ParamConstructorAccess.java x Buku.java x BukuAccess.java x
Source History
10 * @author Win8
11 L
12 public class BukuAccess {
13     public static void main(String[] args){
14         Buku b1 = new Buku("A", "PRO", 2019, 1, 200000);
15         Buku b2 = new Buku("B", "ALGORIHM", 2018, 2, 150000);
16         Buku b3 = new Buku("C", "SISDIO", 2017, 3, 175000);
17         Buku b4 = new Buku("D", "SO", 2019, 1, 250000);
18         Buku b5 = new Buku("E", "KALKULUS", 2018, 2, 300000);
19         Buku b6 = new Buku("F", "WEB STATIS", 2017, 3, 180000);
20         Buku b7 = new Buku("G", "LOGIKA DAN KIMPOHAN", 2019, 1, 280000);
21         Buku b8 = new Buku("H", "PERROGRAMAN VISUAL", 2018, 1, 1450000);
22         Buku b9 = new Buku("I", "METODE NUMERIK", 2019, 1, 100000);
23         Buku b10 = new Buku("J", "MATEMATIKA DISKRIT", 2017, 2, 220000);
24
25         b1.info();
26         b2.info();
27         b3.info();
28         b4.info();
29         b5.info();
30         b6.info();
31         b7.info();
32         b8.info();
33         b9.info();
34         b10.info();
35     }
36 }

```

Output - modul5 (run) x

37:1 10:30 10/16/2019

Outputnya:

```

modul5 - NetBeans IDE 8.0.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Projects X Files Services
...java lathan1.java x lathanAccess.java x ParamConstructor.java x ParamConstructorAccess.java x Buku.java x BukuAccess.java x
Source History
Output - modul5 (run) x
run:
Nama Pengarang : A
Judul Buku : PRO
Tahun Terbit : 2019
Cetakan ke : 1
Harga Jual : Rp. 200000.0

Nama Pengarang : B
Judul Buku : ALGORIHM
Tahun Terbit : 2018
Cetakan ke : 2
Harga Jual : Rp. 160000.0

Nama Pengarang : C
Judul Buku : SISDIO
Tahun Terbit : 2017
Cetakan ke : 3
Harga Jual : Rp. 175000.0

Nama Pengarang : D
Judul Buku : SO
Tahun Terbit : 2019
Cetakan ke : 1
Harga Jual : Rp. 250000.0

Nama Pengarang : E
Judul Buku : KALKULUS
Tahun Terbit : 2018
Cetakan ke : 2
Harga Jual : Rp. 300000.0

Nama Pengarang : F
Judul Buku : WEB STATIS
Tahun Terbit : 2017
Cetakan ke : 3
Harga Jual : Rp. 180000.0

Nama Pengarang : G
Judul Buku : LOGIKA DAN KIMPOHAN
Tahun Terbit : 2019
Cetakan ke : 1
Harga Jual : Rp. 290000.0

Nama Pengarang : H
Judul Buku : PERROGRAMAN VISUAL
Tahun Terbit : 2018
Cetakan ke : 1
Harga Jual : Rp. 1450000.0

Nama Pengarang : I
Judul Buku : METODE NUMERIK
Tahun Terbit : 2019
Cetakan ke : 1
Harga Jual : Rp. 100000.0

Nama Pengarang : J
Judul Buku : MATEMATIKA DISKRIT
Tahun Terbit : 2017
Cetakan ke : 2
Harga Jual : Rp. 220000.0

```

37:1 10:32 10/16/2019

```

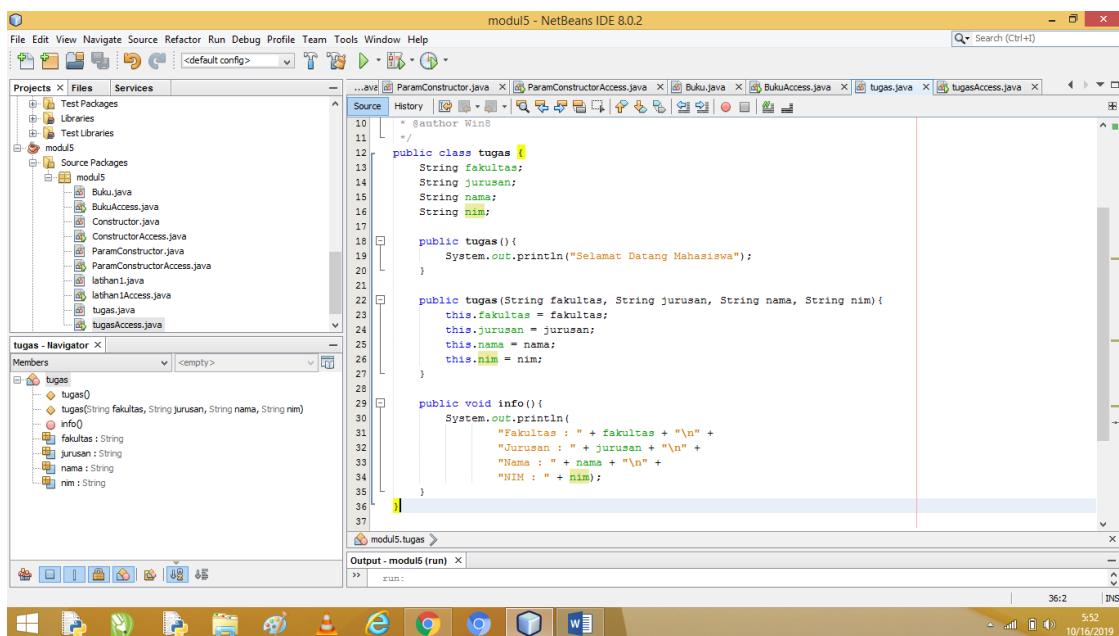
modul5 - NetBeans IDE 8.0.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Projects X Files Services
...java lathan1.java x lathanAccess.java x ParamConstructor.java x ParamConstructorAccess.java x Buku.java x BukuAccess.java x
Source History
Output - modul5 (run) x
BUILD SUCCESSFUL (total time: 2 seconds)

```

37:1 10:33 10/16/2019

❖ 5.3 TUGAS

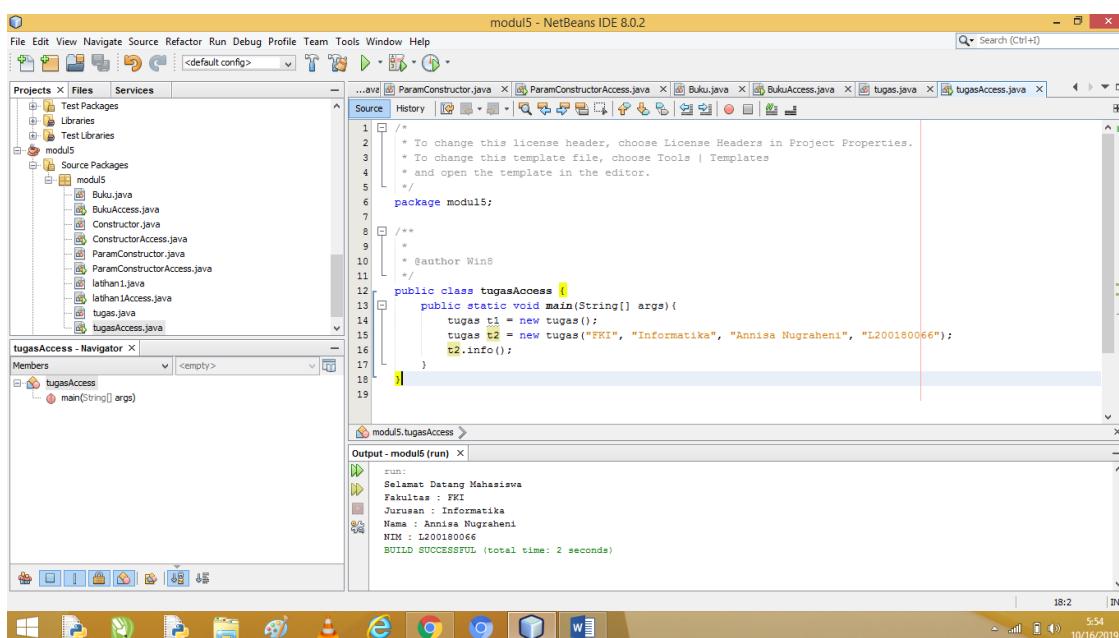
1) Screenshot untuk perintah pada nomor 1



The screenshot shows the NetBeans IDE interface with the following details:

- Project:** modul5
- Source Packages:** modul5
- Class:** tugas
- Code:** The code defines a class tugas with a constructor that prints a welcome message. It also has a constructor that takes fakultas, jurusan, nama, and nim as parameters and initializes the respective fields. A public info() method prints the values of fakultas, jurusan, nama, and nim.
- Output:** The output window shows the command "run:" followed by the output of the info() method.

2) Screenshot untuk perintah pada nomor 2



The screenshot shows the NetBeans IDE interface with the following details:

- Project:** modul5
- Source Packages:** modul5
- Class:** tugasAccess
- Code:** The code defines a main() method that creates two instances of tugas, t1 and t2, with specific values for fakultas, jurusan, nama, and nim. It then calls the info() method for both instances.
- Output:** The output window shows the welcome message and the details of the two tugas objects, followed by a success message.

MODUL 6

INHERITANCE

PRAKTIKUM PEMROGRAMAN BERORIENTASI OBJEK

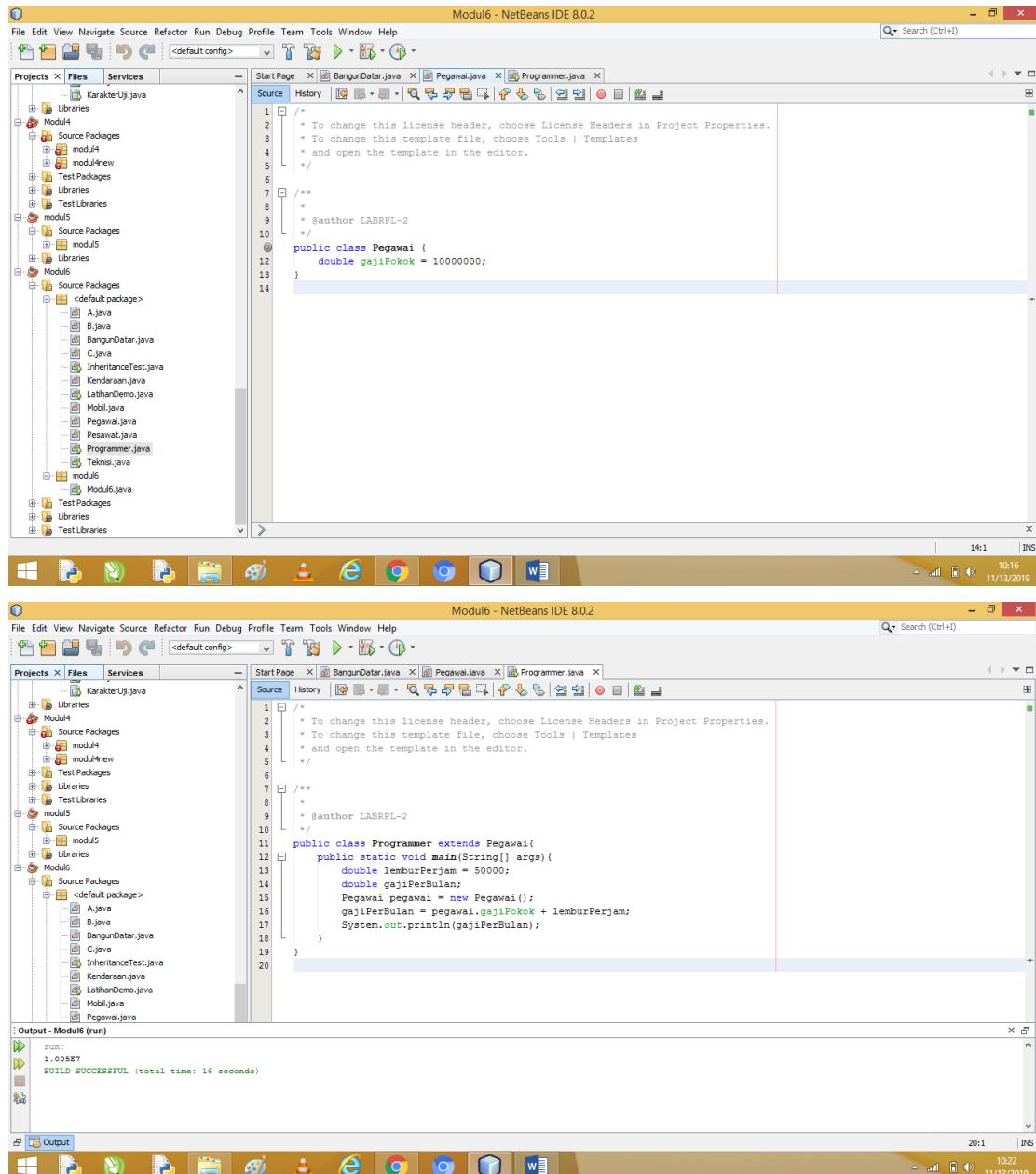
Nama : Annisa Nugraheni

NIM : L200180066

Kelas : B

❖ 6.1.1. Single Inheritance

➤ Program 1. Contoh Program Single Inheritance



```
Modul6 - NetBeans IDE 8.0.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Projects Files Services
Start Page BangunDatar.java Pegawai.java Programmer.java
1 /*
2  * To change this license header, choose License Headers in Project Properties.
3  * To change this template file, choose Tools | Templates
4  * and open the template in the editor.
5 */
6
7 /**
8 *
9 * @author LABRPL-2
10 */
11 public class Pegawai {
12     double gajiPokok = 10000000;
13 }
14

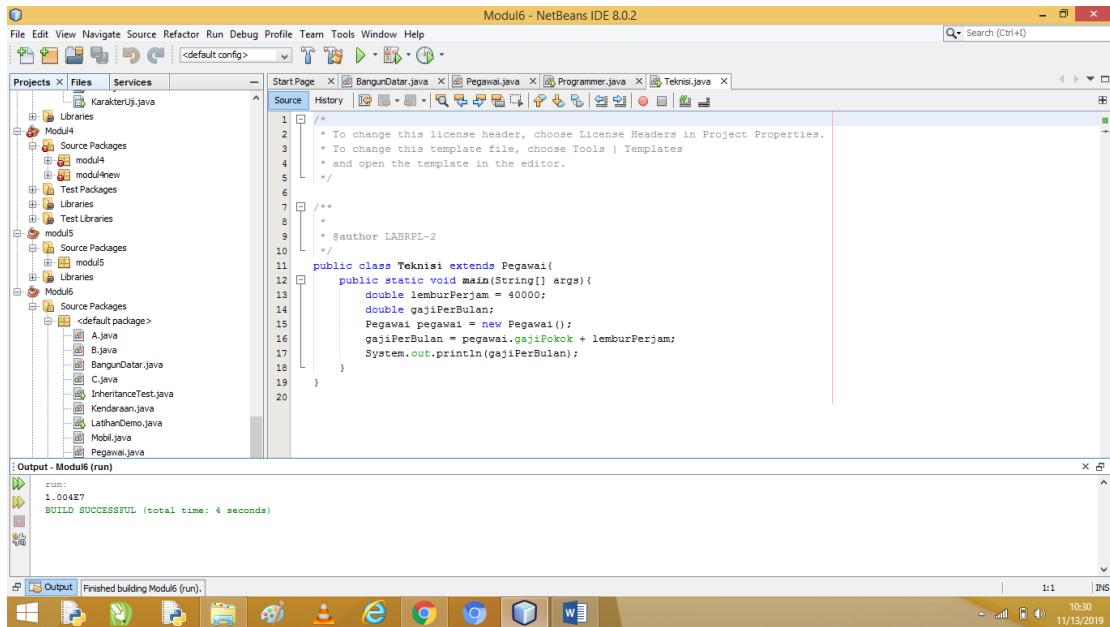
Modul6 - NetBeans IDE 8.0.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Projects Files Services
Start Page BangunDatar.java Pegawai.java Programmer.java
1 /*
2  * To change this license header, choose License Headers in Project Properties.
3  * To change this template file, choose Tools | Templates
4  * and open the template in the editor.
5 */
6
7 /**
8 *
9 * @author LABRPL-2
10 */
11 public class Programmer extends Pegawai{
12     public static void main(String[] args){
13         double lemburPerjam = 50000;
14         double gajiPerBulan;
15         Pegawai pegawai = new Pegawai();
16         gajiPerBulan = pegawai.gajiPokok + lemburPerjam;
17         System.out.println(gajiPerBulan);
18     }
19 }
20

Output - Modul6 (run)
run:
1.00587
BUILD SUCCESSFUL (total time: 16 seconds)

Output
10:16 11/13/2019
```

❖ 6.1.2 Hierarchical Inheritance

➤ Program 2. Contoh Program Hierarchical Inheritance



The screenshot shows the NetBeans IDE interface with the project 'Modul6' open. The 'Source' tab is selected in the editor. The code for the `Teknis` class is displayed:

```
/*
 * To change this license header, choose License Headers in Project Properties.
 * To change this template file, choose Tools | Templates
 * and open the template in the editor.
 */
public class Teknis extends Pegawai{
    public static void main(String[] args){
        double lemburPerjam = 40000;
        double gajiPerBulan;
        Pegawai pegawai = new Pegawai();
        gajiPerBulan = pegawai.gajiPokok + lemburPerjam;
        System.out.println(gajiPerBulan);
    }
}
```

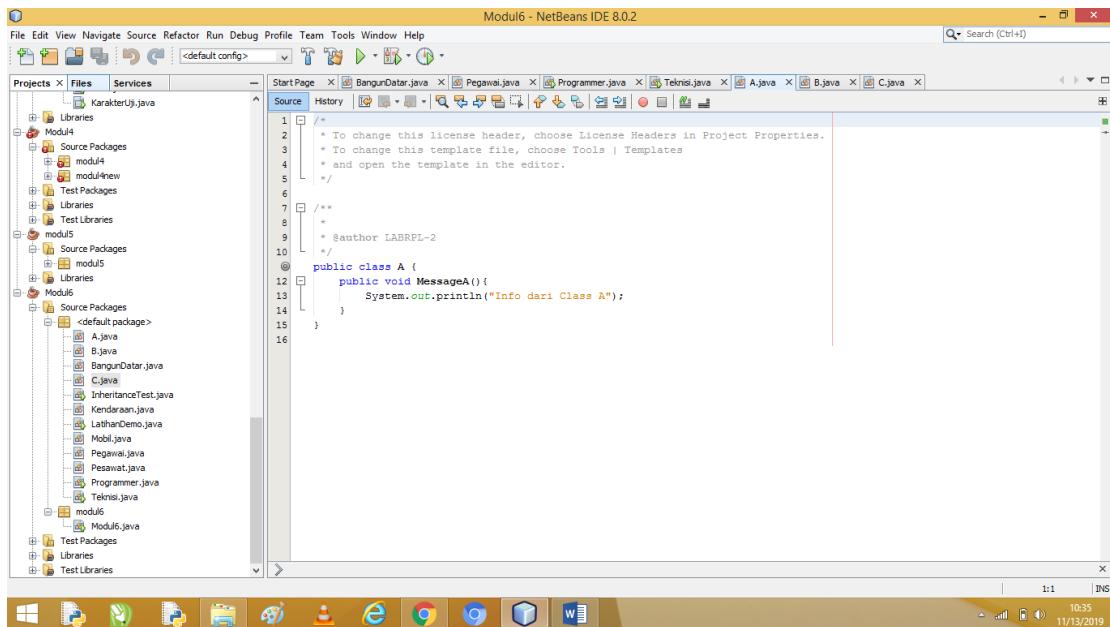
The output window shows the build results:

```
run:
1.004E7
BUILD SUCCESSFUL (total time: 4 seconds)
```

The status bar at the bottom right indicates the date as 11/13/2019 and the time as 10:30.

❖ 6.1.3 Multilevel Inheritance

➤ Program 3. Contoh Program Multilevel Inheritance



The screenshot shows the NetBeans IDE interface with the project 'Modul6' open. The 'Source' tab is selected in the editor. The code for the `A` class is displayed:

```
/*
 * To change this license header, choose License Headers in Project Properties.
 * To change this template file, choose Tools | Templates
 * and open the template in the editor.
 */
public class A {
    public void MessageA(){
        System.out.println("Info dari Class A");
    }
}
```

The status bar at the bottom right indicates the date as 11/13/2019 and the time as 10:35.

```

Module6 - NetBeans IDE 8.0.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
<default config> Search (Ctrl+F)
Projects Files Services Start Page BangunDatar.java Pegawai.java Programmer.java Teknis.java A.java B.java C.java
1 /*
2 * To change this license header, choose License Headers in Project Properties.
3 * To change this template file, choose Tools | Templates
4 * and open the template in the editor.
5 */
6
7 /**
8 *
9 * @author LABRPL-2
10 */
11 public class B extends A{
12     public void MessageB(){
13         System.out.println("Info dari Class B");
14     }
15 }

```



```

Module6 - NetBeans IDE 8.0.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
<default config> Search (Ctrl+F)
Projects Files Services Start Page BangunDatar.java Pegawai.java Programmer.java Teknis.java A.java B.java C.java
1 /*
2 * To change this license header, choose License Headers in Project Properties.
3 * To change this template file, choose Tools | Templates
4 * and open the template in the editor.
5 */
6
7 /**
8 *
9 * @author LABRPL-2
10 */
11 public class C extends B{
12     public void MessageC(){
13         System.out.println("Info dari Class C");
14     }
15 }

```

➤ Program 4. Contoh Pengaksesan Properties pada Multilevel Inheritance

```

Module6 - NetBeans IDE 8.0.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
<default config> Search (Ctrl+F)
Projects Files Services Start Page ... BangunDatar.java Pegawai.java Programmer.java Teknis.java A.java B.java C.java InheritanceTest.java
1 /*
2 * To change this license header, choose License Headers in Project Properties.
3 * To change this template file, choose Tools | Templates
4 * and open the template in the editor.
5 */
6
7 /**
8 *
9 * @author LABRPL-2
10 */
11 public class InheritanceTest {
12     public static void main(String[] args) {
13         A a = new A();
14         B b = new B();
15         C c = new C();
16
17         a.MessageA();
18         b.MessageB();
19         b.MessageA();
20         c.MessageC();
21         c.MessageB();
22         c.MessageA();
23     }
24 }

```


Output - Module6 (run)

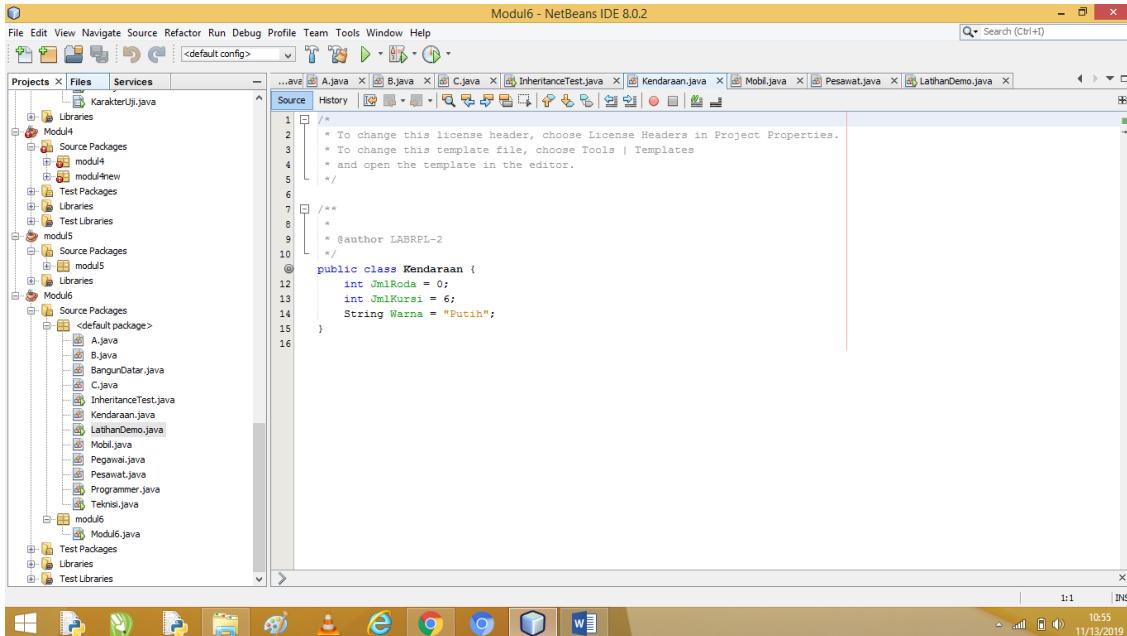
```

run:
Info dari Class A
Info dari Class B
Info dari Class A
Info dari Class C
Info dari Class B
Info dari Class A
BUILD SUCCESSFUL (total time: 2 seconds)

```

❖ 6.2 LATIHAN

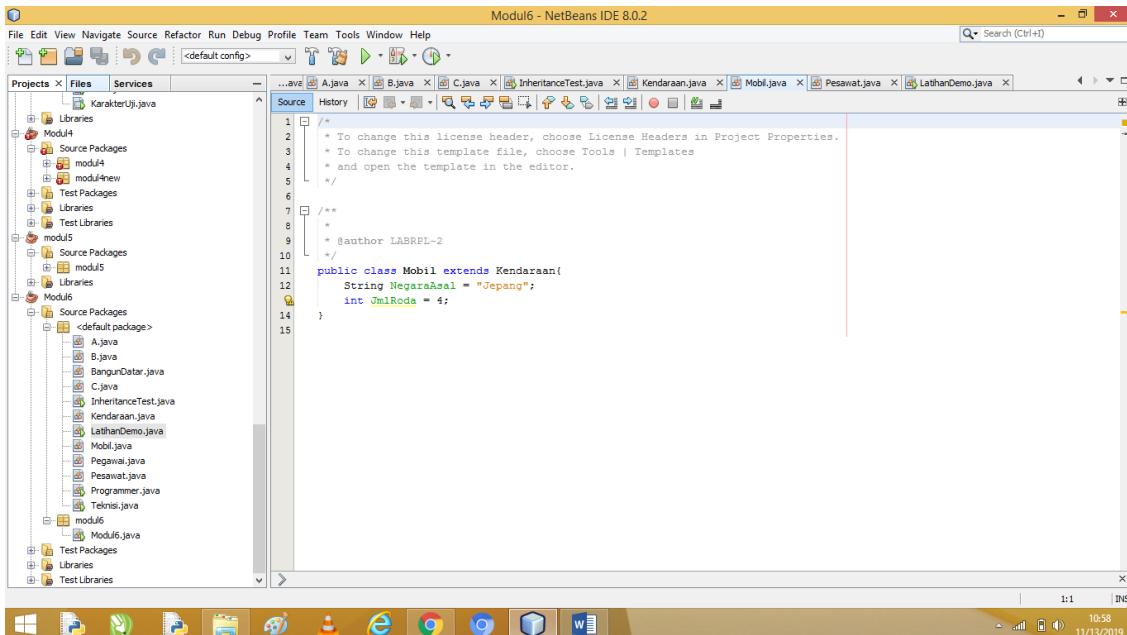
1. Membuat suatu class Kendaraan yang memiliki minimal 3 instance variable yang memiliki nilai awal. Setelah itu, membuat class Mobil dan Pesawat yang masing-masing merupakan subclass dari Kendaraan.



The screenshot shows the NetBeans IDE interface with the title bar "Modul6 - NetBeans IDE 8.0.2". The left sidebar displays a project structure with multiple modules and source packages. The main editor window shows the following Java code:

```
/*
 * To change this license header, choose License Headers in Project Properties.
 * To change this template file, choose Tools | Templates
 * and open the template in the editor.
 */
public class Kendaraan {
    int JmlRoda = 0;
    int JmlKursi = 6;
    String Warna = "Putih";
}
```

2. Dari tiap subclass, membuat 1 variable unique yang memiliki nilai awal yang tidak terdapat pada superclass dan 1 variable memiliki nilai awal, memiliki nama yang sama dengan variable yang ada pada superclassnya.



The screenshot shows the NetBeans IDE interface with the title bar "Modul6 - NetBeans IDE 8.0.2". The left sidebar displays a project structure with multiple modules and source packages. The main editor window shows the following Java code:

```
/*
 * To change this license header, choose License Headers in Project Properties.
 * To change this template file, choose Tools | Templates
 * and open the template in the editor.
 */
public class Mobil extends Kendaraan{
    String NegaraAsal = "Jepang";
    int JmlRoda = 4;
}
```

```

1 /*
2  * To change this license header, choose License Headers in Project Properties.
3  * To change this template file, choose Tools | Templates
4  * and open the template in the editor.
5 */
6
7 /**
8  *
9  * @author LABRPL-2
10 */
11 public class Pesawat extends Kendaraan{
12     String Nama = "Garuda Indonesia";
13     int JmlRoda = 6;
14 }
15

```

3. Membuat class dengan main method untuk menampilkan hasil dari kode diatas. Main method harus menampilkan nilai yang tersimpan pada seluruh instance variable yang terdapat pada subclass dan superclass.

```

1 /*
2  * @author LABRPL-2
3 */
4
5 public class LatihanDemo {
6     public static void main(String[] args){
7         Mobil m = new Mobil();
8         Pesawat p = new Pesawat();
9         Kendaraan k = new Kendaraan();
10
11         System.out.println(
12             "Jumlah Roda Mobil : " + m.JmlRoda + "\n" +
13             "Negara Asal : " + m.NegaraAsal + "\n" + "\n" +
14             "Jumlah Roda Pesawat : " + p.JmlRoda + "\n" +
15             "Nama Pesawat : " + p>Nama + "\n" + "\n" +
16             "Jumlah Kursi : " + k.JmlKursi + "\n" +
17             "Warna : " + k.Warna
18         );
19     }
20 }
21
22 }
23
24 }
25
26 }
27

```

The Output window shows the results of the run:

```

run:
Jumlah Roda Mobil : 4
Negara Asal : Jepang

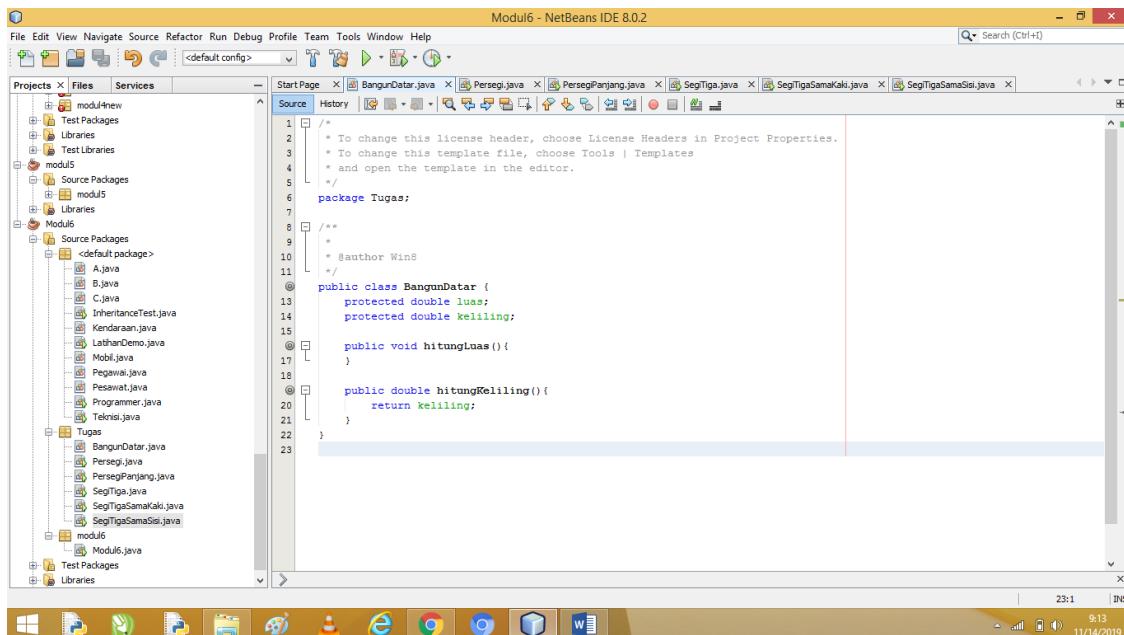
Jumlah Roda Pesawat : 6
Nama Pesawat : Garuda Indonesia

Jumlah Kursi : 6
Warna : Putih
BUILD SUCCESSFUL (total time: 1 second)

```

❖ 6.3 TUGAS

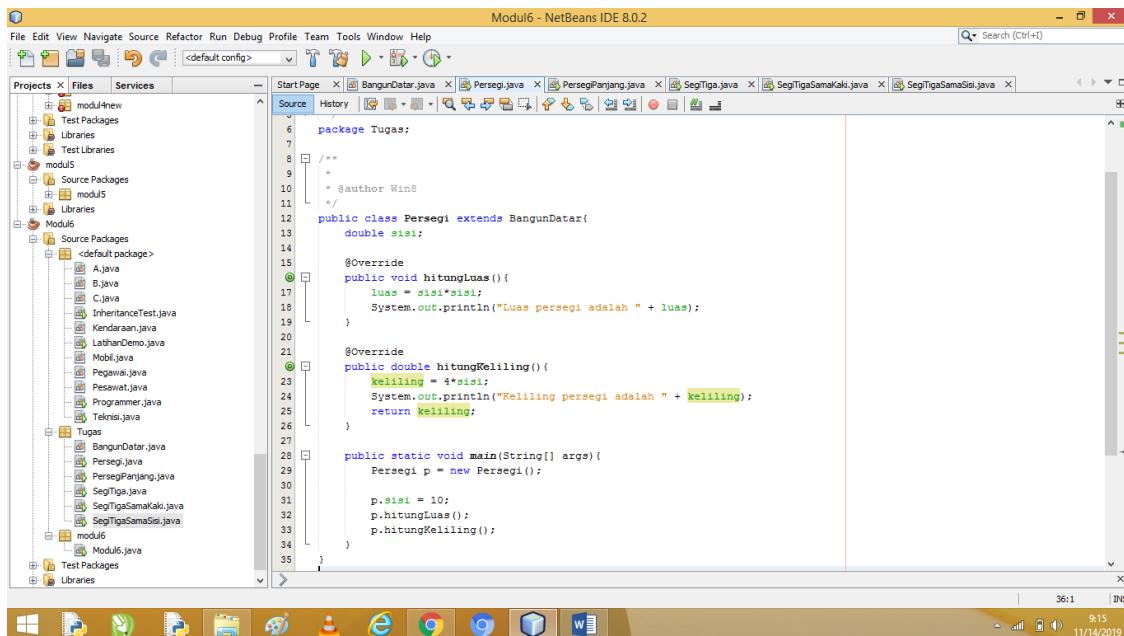
➤ Class BangunDatar



The screenshot shows the NetBeans IDE interface with the title bar "Modul6 - NetBeans IDE 8.0.2". The menu bar includes File, Edit, View, Navigate, Source, Refactor, Run, Debug, Profile, Team, Tools, Window, Help. The toolbar has icons for New File, Open, Save, Run, Stop, and others. The Projects tab is selected, showing a tree view of packages: modul4new, modul5, modul6, and Tugas. Under Tugas, files like BangunDatar.java, Persegi.java, PersegPanjang.java, SegTiga.java, SegTigaSamaKaki.java, and SegTigaSamaSisi.java are listed. The Files tab is selected, showing the source code for BangunDatar.java:

```
1  /*
2  * To change this license header, choose License Headers in Project Properties.
3  * To change this template file, choose Tools | Templates
4  * and open the template in the editor.
5  */
6  package Tugas;
7
8  /**
9  *
10 * @author Win8
11 */
12 public class BangunDatar {
13     protected double luas;
14     protected double keliling;
15
16     public void hitungLuas() {
17
18     }
19
20     public double hitungKeliling() {
21         return keliling;
22     }
23 }
```

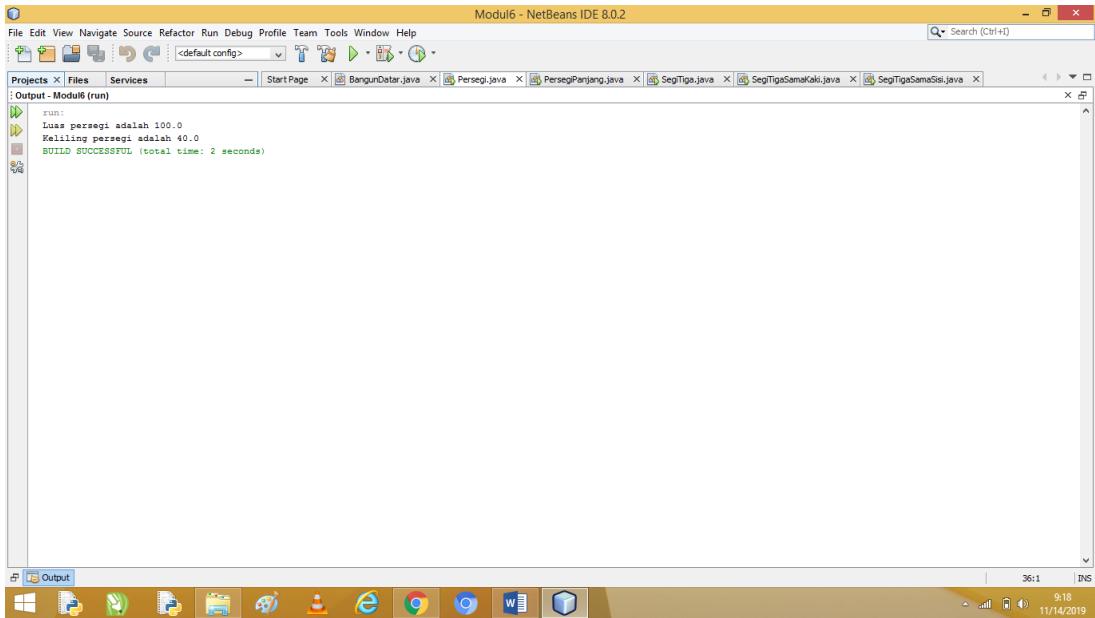
➤ Class Persegi



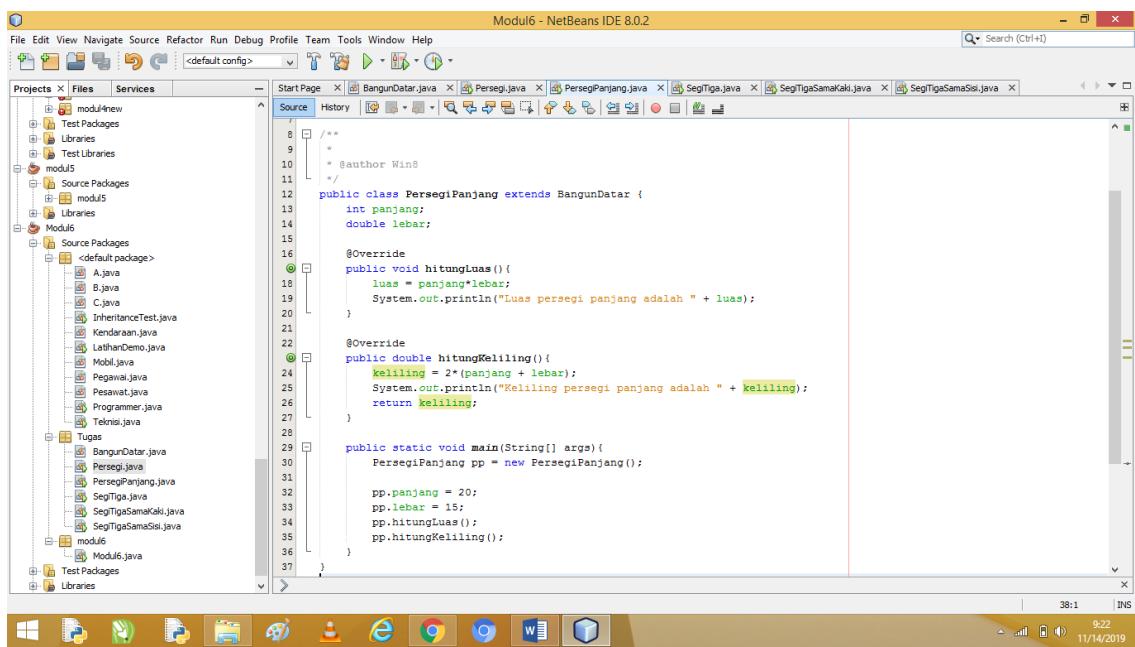
The screenshot shows the NetBeans IDE interface with the title bar "Modul6 - NetBeans IDE 8.0.2". The menu bar includes File, Edit, View, Navigate, Source, Refactor, Run, Debug, Profile, Team, Tools, Window, Help. The toolbar has icons for New File, Open, Save, Run, Stop, and others. The Projects tab is selected, showing a tree view of packages: modul4new, modul5, modul6, and Tugas. Under Tugas, files like BangunDatar.java, Persegi.java, PersegPanjang.java, SegTiga.java, SegTigaSamaKaki.java, and SegTigaSamaSisi.java are listed. The Files tab is selected, showing the source code for Persegi.java:

```
1  /*
2  * To change this license header, choose License Headers in Project Properties.
3  * To change this template file, choose Tools | Templates
4  * and open the template in the editor.
5  */
6  package Tugas;
7
8  /**
9  *
10 * @author Win8
11 */
12 public class Persegi extends BangunDatar{
13     double sisi;
14
15     @Override
16     public void hitungLuas() {
17         luas = sisi*sisi;
18         System.out.println("Luas persegi adalah " + luas);
19     }
20
21     @Override
22     public double hitungKeliling(){
23         keliling = 4*sisi;
24         System.out.println("Keliling persegi adalah " + keliling);
25         return keliling;
26     }
27
28     public static void main(String[] args){
29         Persegi p = new Persegi();
30
31         p.sisi = 10;
32         p.hitungLuas();
33         p.hitungKeliling();
34     }
35 }
```

- Output Class Persegi



➤ Class PersegiPanjang



- Output Class PersegiPanjang

```

run:
Luas persegi panjang adalah 300.0
Keliling persegi panjang adalah 20.0
BUILD SUCCESSFUL (total time: 2 seconds)

```

➤ Class SegiTiga

```

/*
 * Author: Wirs
 */
public class SegiTiga extends BangunDatar {
    protected double alas;
    int tinggi;
    int sisi_miring;

    @Override
    public void hitungLuas(){
        luas = (alas*tinggi)/2;
        System.out.println("Luas segitiga adalah " + luas);
    }

    @Override
    public double hitungKeliling(){
        keliling = alas + tinggi + sisi_miring;
        System.out.println("Keliling segitiga adalah " + keliling);
        return keliling;
    }

    public static void main(String[] args){
        SegiTiga s1 = new SegiTiga();

        s1.alas = 6;
        s1.tinggi = 8;
        s1.sisi_miring = 10;
        s1.hitungLuas();
        s1.hitungKeliling();
    }
}

```

- Output Class SegiTiga

```

run:
Luas segitiga adalah 24.0
Keliling segitiga adalah 24.0
BUILD SUCCESSFUL (total time: 1 second)

```

➤ Class SegiTigaSamaKaki

```

/*
 * @author Win8
 */
public class SegiTigaSamaKaki extends SegiTiga {
    double sisiMiring;
}

@Override
public double hitungKeliling(){
    keliling = (sisiMiring*2) + alas;
    System.out.println("Keliling segitiga sama kaki adalah " + keliling);
    return keliling;
}

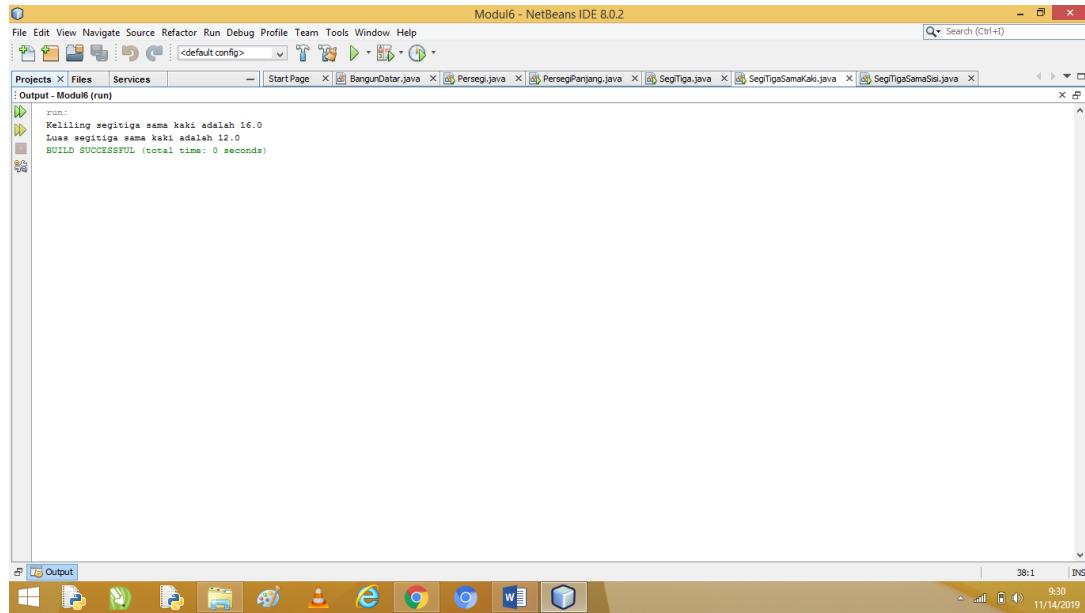
@Override
public void hitungLuas(){
    luas = (alas*tinggi)/2;
    System.out.println("Luas segitiga sama kaki adalah " + luas);
}

public static void main(String[] args){
    SegiTigaSamaKaki s2 = new SegiTigaSamaKaki();

    s2.sisiMiring = 5;
    s2.alas = 6;
    s2.tinggi = 4;
    s2.hitungKeliling();
    s2.hitungLuas();
}

```

- Output Class SegiTigaSamaKaki



The screenshot shows the NetBeans IDE interface with the title bar "Modul6 - NetBeans IDE 8.0.2". The menu bar includes File, Edit, View, Navigate, Source, Refactor, Run, Debug, Profile, Team, Tools, Window, Help. The toolbar has icons for New Project, Open Project, Save, Undo, Redo, Cut, Copy, Paste, Find, Replace, Run, Stop, and Exit. The Projects tab shows several Java files: StartPage.java, BangunDatar.java, Persegi.java, Persegipanjang.java, SegiTiga.java, SegiTigaSamaKaki.java, and SegiTigaSamaSisi.java. The Files tab is selected. The Services tab is also present. The Output tab shows the following text:

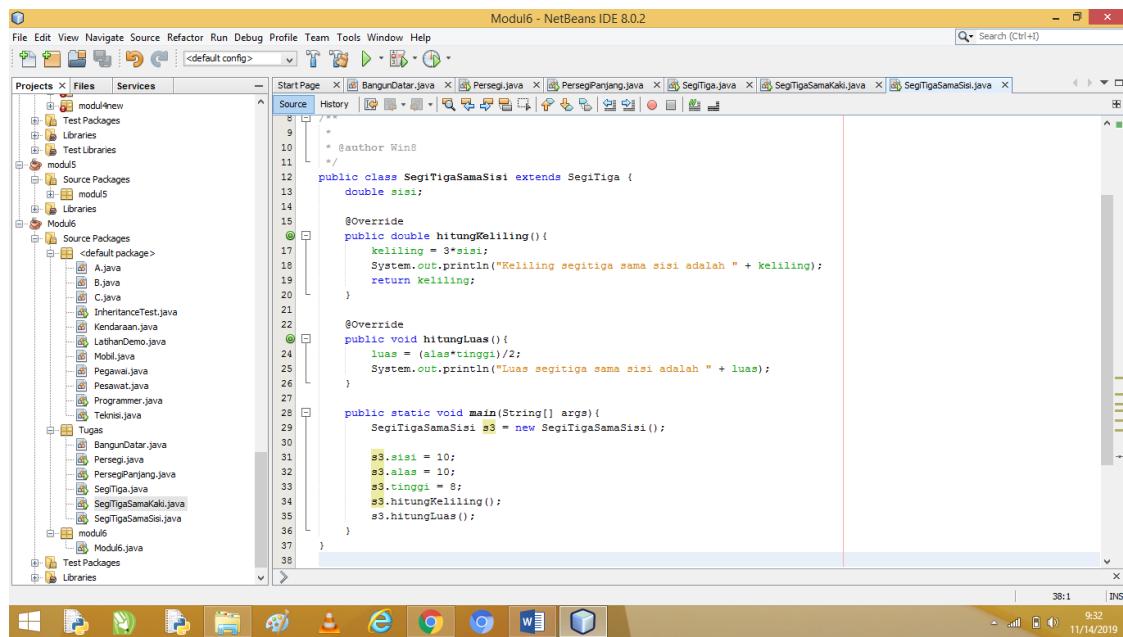
```

run:
Keliling segitiga sama kaki adalah 16.0
Luas segitiga sama kaki adalah 12.0
BUILD SUCCESSFUL (total time: 0 seconds)

```

The status bar at the bottom right shows the date and time: 11/14/2019, 9:30.

➤ Class SegiTigaSamaSisi



The screenshot shows the NetBeans IDE interface with the title bar "Modul6 - NetBeans IDE 8.0.2". The menu bar includes File, Edit, View, Navigate, Source, Refactor, Run, Debug, Profile, Team, Tools, Window, Help. The toolbar has icons for New Project, Open Project, Save, Undo, Redo, Cut, Copy, Paste, Find, Replace, Run, Stop, and Exit. The Projects tab shows several Java files: modul4new, Test Packages, modul5, modul6, modul7, and modul8. The Files tab is selected. The Services tab is also present. The code editor displays the SegiTigaSamaSisi.java file:

```

/*
 * Author: Wino
 */
public class SegiTigaSamaSisi extends SegiTiga {
    double sisi;

    @Override
    public double hitungKeliling() {
        keliling = 3*sisi;
        System.out.println("Keliling segitiga sama sisi adalah " + keliling);
        return keliling;
    }

    @Override
    public void hitungLuas(){
        luas = (alas*tinggi)/2;
        System.out.println("Luas segitiga sama sisi adalah " + luas);
    }

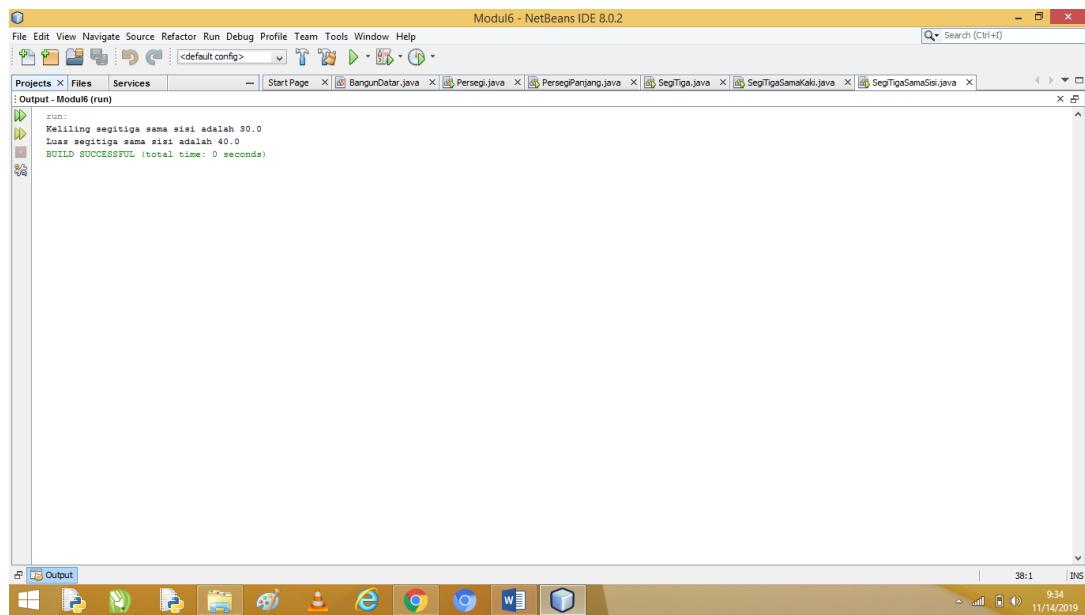
    public static void main(String[] args){
        SegiTigaSamaSisi s3 = new SegiTigaSamaSisi();

        s3.sisi = 10;
        s3.alas = 10;
        s3.tinggi = 8;
        s3.hitungKeliling();
        s3.hitungLuas();
    }
}

```

The status bar at the bottom right shows the date and time: 11/14/2019, 9:32.

- Output Class SegiTigaSamaSisi



```
Modul6 - NetBeans IDE 8.0.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Projects Files Services Start Page BangunDatar.java Persegi.java Persegipanjang.java SegTiga.java SegTigaSamaKaki.java SegTigaSamaSisi.java
Output - Modul6 (run)
run:
Keliling segitiga sama sisi adalah 30.0
Luas segitiga sama sisi adalah 40.0
BUILD SUCCESSFUL (total time: 0 seconds)
```

The screenshot shows the NetBeans IDE interface with the title "Modul6 - NetBeans IDE 8.0.2". The menu bar includes File, Edit, View, Navigate, Source, Refactor, Run, Debug, Profile, Team, Tools, Window, and Help. The toolbar has icons for file operations like New, Open, Save, and Print. The main workspace shows several Java files: BangunDatar.java, Persegi.java, Persegipanjang.java, SegTiga.java, SegTigaSamaKaki.java, and SegTigaSamaSisi.java. Below the workspace is the "Output" tab, which contains the run log. The log shows the execution of the "run" command, followed by the output of the program: "Keliling segitiga sama sisi adalah 30.0" and "Luas segitiga sama sisi adalah 40.0", and concludes with "BUILD SUCCESSFUL (total time: 0 seconds)". The status bar at the bottom right shows the date and time: 9:34 11/14/2019.

MODUL 7

ENCAPSULATION

PRAKTIKUM PEMROGRAMAN BERORIENTASI OBJEK

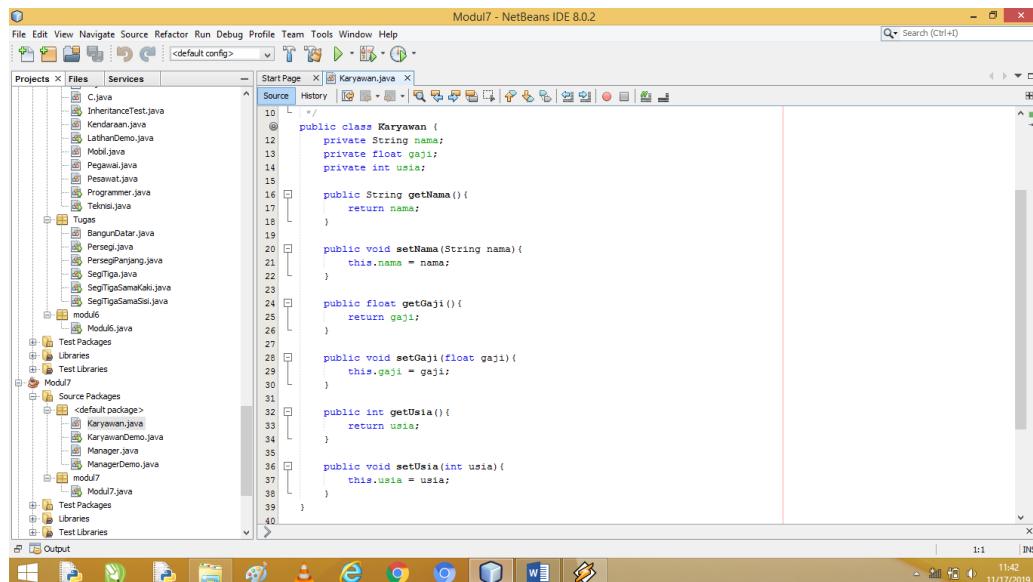
Nama : Annisa Nugraheni

NIM : L200180066

Kelas : B

❖ 7.1 Gambaran Umum

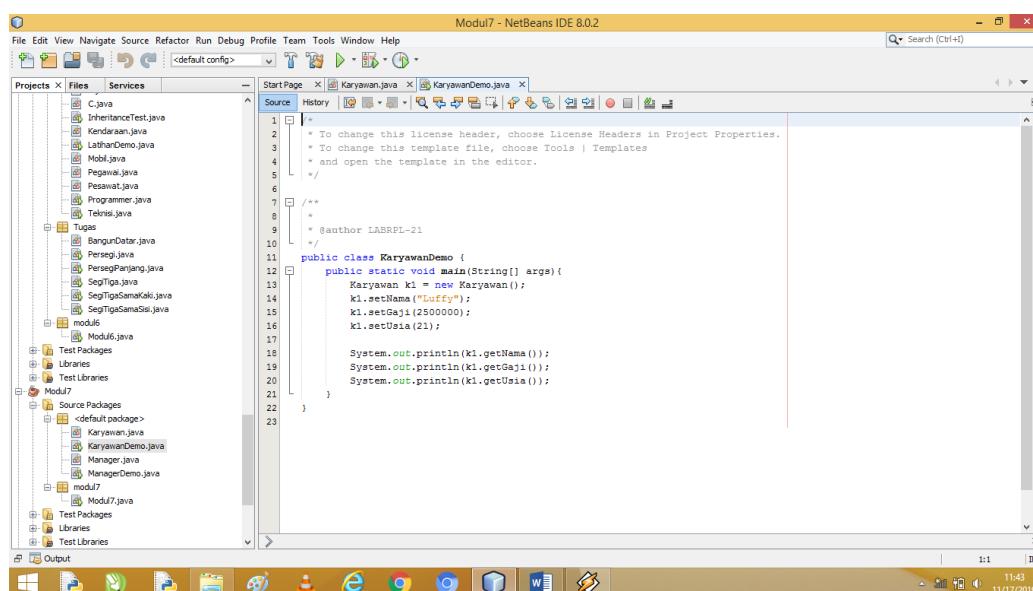
➤ Program 1. Akses Modifier Private pada Encapsulation



The screenshot shows the NetBeans IDE interface with the title bar "Modul7 - NetBeans IDE 8.0.2". The left sidebar displays a project structure with several Java files under the "modul7" package. The main editor window shows the code for the "Karyawan.java" class:

```
10  /*
11  * To change this license header, choose License Headers in Project Properties.
12  * To change this template file, choose Tools | Templates.
13  * and open the template in the editor.
14  */
15
16  public class Karyawan {
17      private String nama;
18      private float gaji;
19      private int usia;
20
21      public String getName() {
22          return nama;
23      }
24
25      public void setName(String nama) {
26          this.nama = nama;
27      }
28
29      public float getGaji() {
30          return gaji;
31      }
32
33      public void setGaji(float gaji) {
34          this.gaji = gaji;
35      }
36
37      public int getUsia() {
38          return usia;
39      }
40
41      public void setUsia(int usia) {
42          this.usia = usia;
43      }
44  }
```

➤ Program 2. Pemanfaatan Getter dan Setter



The screenshot shows the NetBeans IDE interface with the title bar "Modul7 - NetBeans IDE 8.0.2". The left sidebar displays a project structure with several Java files under the "modul7" package. The main editor window shows the code for the "KaryawanDemo.java" class:

```
1 /*
2  * To change this license header, choose License Headers in Project Properties.
3  * To change this template file, choose Tools | Templates.
4  * and open the template in the editor.
5  */
6
7 /**
8  * @author LABRPL-21
9  */
10
11 public class KaryawanDemo {
12     public static void main(String[] args) {
13         Karyawan k1 = new Karyawan();
14         k1.setName("Luffy");
15         k1.setGaji(2500000);
16         k1.setUsia(21);
17
18         System.out.println(k1.getName());
19         System.out.println(k1.getGaji());
20         System.out.println(k1.getUsia());
21     }
22 }
23
```

- Output ketika program 2 atau class KaryawanDemo dijalankan

```

run:
Luffy
2500000.0
21
BUILD SUCCESSFUL (total time: 2 seconds)

```

- Program 3. Contoh Program Single Inheritance

```

/*
 * To change this license header, choose License Headers in Project Properties.
 * To change this template file, choose Tools | Templates
 * and open the template in the editor.
 */

/**
 * @author LABRPL-21
 */
public class Manager extends Karyawan {
    private float jamKerja = 7.5f;

    //public void setJamKerja(float jamKerja){
    //    this.jamKerja = jamKerja;
    //}

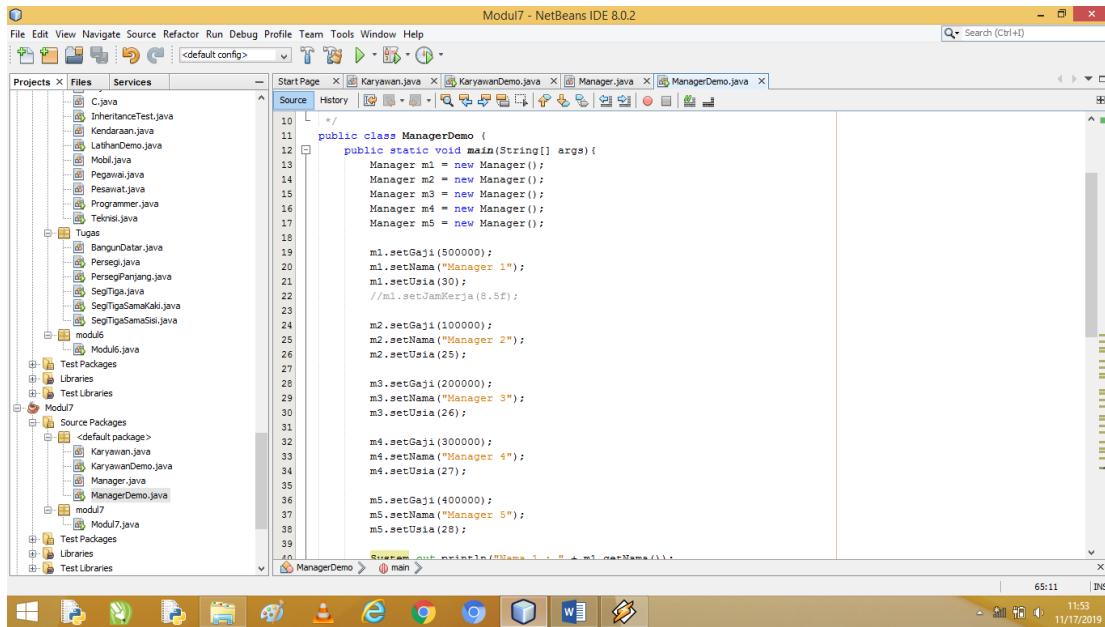
    public float jamKerja(){
        return jamKerja;
    }

    public float getGajiManager(){
        return getGaji() * 2;
    }
}

```

❖ 7.2 Latihan

1. Membuat class dengan fungsi main() dan 5 objek berbeda yang dihasilkan dari class Manager. Kemudian melalui objek tersebut, menampilkan nilai private variable dari class Manager dan class Karyawan.



```
Modul7 - NetBeans IDE 8.0.2
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Tugas BangunDatar.java Persegi.java PersegiPanjang.java SegiTiga.java SegiTigaSamakaki.java SegiTigaSamasisi.java
modul6 Modul6.java
Test Packages Libraries
Modul7
Source Packages <default package>
    Karyawan.java KaryawanDemo.java Manager.java ManagerDemo.java
modul7 Modul7.java
Test Packages Libraries
Test Libraries
ManagerDemo.java
public class ManagerDemo {
    public static void main(String[] args){
        Manager m1 = new Manager();
        Manager m2 = new Manager();
        Manager m3 = new Manager();
        Manager m4 = new Manager();
        Manager m5 = new Manager();

        m1.setGaji(500000);
        m1.setNama("Manager 1");
        m1.setUsia(30);
        //m1.setJamKerja(8.5f);

        m2.setGaji(100000);
        m2.setNama("Manager 2");
        m2.setUsia(25);

        m3.setGaji(200000);
        m3.setNama("Manager 3");
        m3.setUsia(26);

        m4.setGaji(300000);
        m4.setNama("Manager 4");
        m4.setUsia(27);

        m5.setGaji(400000);
        m5.setNama("Manager 5");
        m5.setUsia(28);

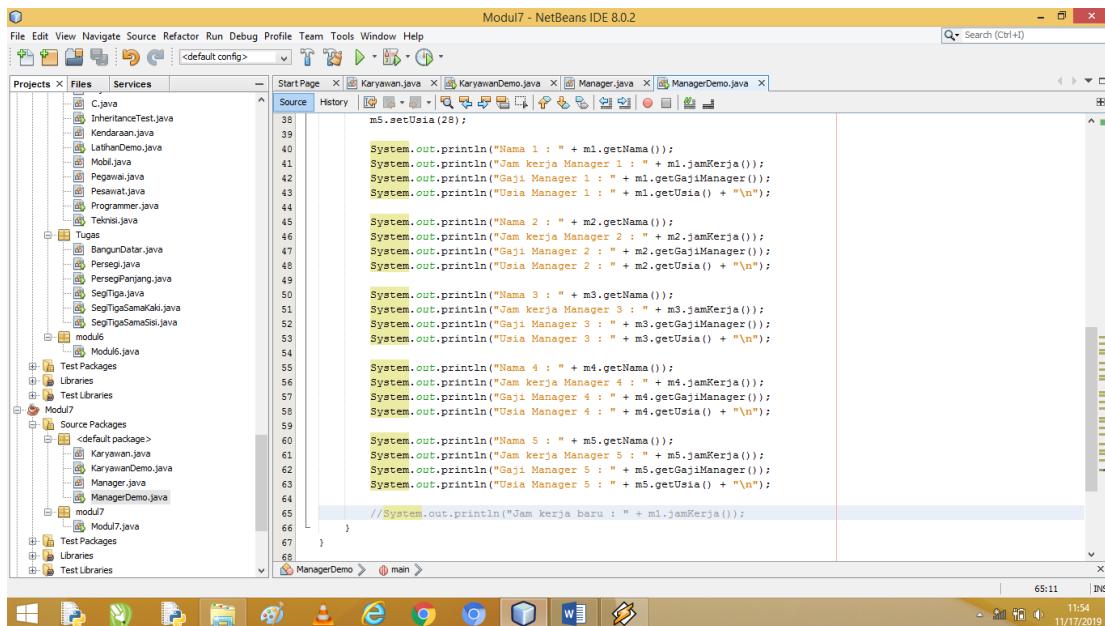
        System.out.println("Nama 1 : " + m1.getNama());
        System.out.println("Jam kerja Manager 1 : " + m1.jamKerja());
        System.out.println("Gaji Manager 1 : " + m1.getGajiManager());
        System.out.println("Usia Manager 1 : " + m1.getUsia() + "\n");

        System.out.println("Nama 2 : " + m2.getNama());
        System.out.println("Jam kerja Manager 2 : " + m2.jamKerja());
        System.out.println("Gaji Manager 2 : " + m2.getGajiManager());
        System.out.println("Usia Manager 2 : " + m2.getUsia() + "\n");

        System.out.println("Nama 3 : " + m3.getNama());
        System.out.println("Jam kerja Manager 3 : " + m3.jamKerja());
        System.out.println("Gaji Manager 3 : " + m3.getGajiManager());
        System.out.println("Usia Manager 3 : " + m3.getUsia() + "\n");

        System.out.println("Nama 4 : " + m4.getNama());
        System.out.println("Jam kerja Manager 4 : " + m4.jamKerja());
        System.out.println("Gaji Manager 4 : " + m4.getGajiManager());
        System.out.println("Usia Manager 4 : " + m4.getUsia() + "\n");

        System.out.println("Nama 5 : " + m5.getNama());
        System.out.println("Jam kerja Manager 5 : " + m5.jamKerja());
        System.out.println("Gaji Manager 5 : " + m5.getGajiManager());
        System.out.println("Usia Manager 5 : " + m5.getUsia() + "\n");
    }
}
main
```



```
Modul7 - NetBeans IDE 8.0.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
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Projects X Files Services
C.java InheritanceTest.java Kendaranan.java LathenDemo.java Mobi.java Pegawai.java Pesawat.java Programmer.java Teknisi.java
Tugas BangunDatar.java Persegi.java PersegiPanjang.java SegiTiga.java SegiTigaSamakaki.java SegiTigaSamasisi.java
modul6 Modul6.java
Test Packages Libraries
Modul7
Source Packages <default package>
    Karyawan.java KaryawanDemo.java Manager.java ManagerDemo.java
modul7 Modul7.java
Test Packages Libraries
Test Libraries
ManagerDemo.java
public class ManagerDemo {
    public static void main(String[] args){
        Manager m1 = new Manager();
        Manager m2 = new Manager();
        Manager m3 = new Manager();
        Manager m4 = new Manager();
        Manager m5 = new Manager();

        m1.setGaji(500000);
        m1.setNama("Manager 1");
        m1.setUsia(30);
        //m1.setJamKerja(8.5f);

        m2.setGaji(100000);
        m2.setNama("Manager 2");
        m2.setUsia(25);

        m3.setGaji(200000);
        m3.setNama("Manager 3");
        m3.setUsia(26);

        m4.setGaji(300000);
        m4.setNama("Manager 4");
        m4.setUsia(27);

        m5.setGaji(400000);
        m5.setNama("Manager 5");
        m5.setUsia(28);

        System.out.println("Nama 1 : " + m1.getNama());
        System.out.println("Jam kerja Manager 1 : " + m1.jamKerja());
        System.out.println("Gaji Manager 1 : " + m1.getGajiManager());
        System.out.println("Usia Manager 1 : " + m1.getUsia() + "\n");

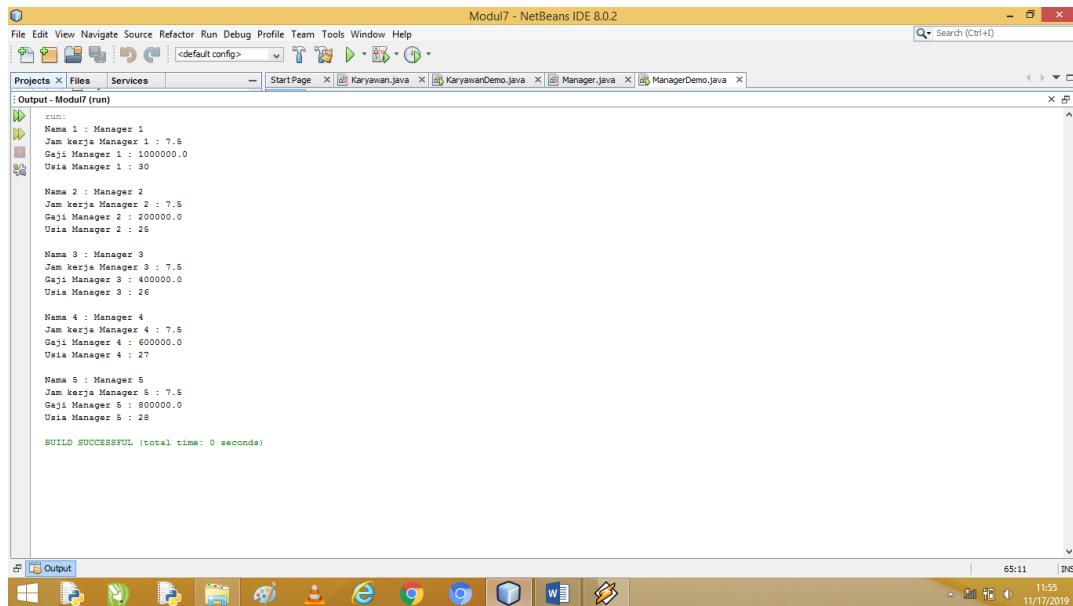
        System.out.println("Nama 2 : " + m2.getNama());
        System.out.println("Jam kerja Manager 2 : " + m2.jamKerja());
        System.out.println("Gaji Manager 2 : " + m2.getGajiManager());
        System.out.println("Usia Manager 2 : " + m2.getUsia() + "\n");

        System.out.println("Nama 3 : " + m3.getNama());
        System.out.println("Jam kerja Manager 3 : " + m3.jamKerja());
        System.out.println("Gaji Manager 3 : " + m3.getGajiManager());
        System.out.println("Usia Manager 3 : " + m3.getUsia() + "\n");

        System.out.println("Nama 4 : " + m4.getNama());
        System.out.println("Jam kerja Manager 4 : " + m4.jamKerja());
        System.out.println("Gaji Manager 4 : " + m4.getGajiManager());
        System.out.println("Usia Manager 4 : " + m4.getUsia() + "\n");

        System.out.println("Nama 5 : " + m5.getNama());
        System.out.println("Jam kerja Manager 5 : " + m5.jamKerja());
        System.out.println("Gaji Manager 5 : " + m5.getGajiManager());
        System.out.println("Usia Manager 5 : " + m5.getUsia() + "\n");
    }
}
main
```

➤ Output dari program diatas



```
Modul7 - NetBeans IDE 8.0.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Projects Files Services StartPage Karyawan.java KaryawanDemo.java Manager.java ManagerDemo.java
Output - Modul7/run
run:
Nama 1 : Manager 1
Jam kerja Manager 1 : 7.5
Gaji Manager 1 : 1000000.0
Usia Manager 1 : 30

Nama 2 : Manager 2
Jam kerja Manager 2 : 7.5
Gaji Manager 2 : 200000.0
Usia Manager 2 : 26

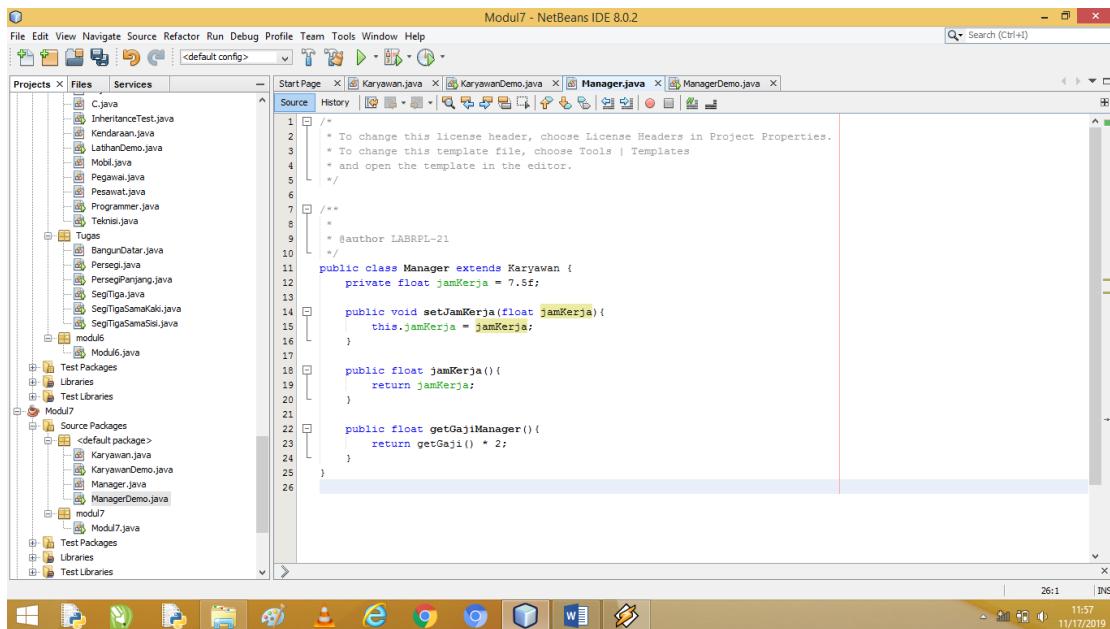
Nama 3 : Manager 3
Jam kerja Manager 3 : 7.5
Gaji Manager 3 : 400000.0
Usia Manager 3 : 26

Nama 4 : Manager 4
Jam kerja Manager 4 : 7.5
Gaji Manager 4 : 600000.0
Usia Manager 4 : 27

Nama 5 : Manager 5
Jam kerja Manager 5 : 7.5
Gaji Manager 5 : 800000.0
Usia Manager 5 : 28

BUILD SUCCESSFUL (total time: 0 seconds)
```

2. Menambahkan setter pada class Manager untuk memodifikasi nilai baru jamKerja menjadi 8.5



```
Modul7 - NetBeans IDE 8.0.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Projects Files Services StartPage Karyawan.java KaryawanDemo.java Manager.java ManagerDemo.java
Source History
1 /*
2  * To change this license header, choose License Headers in Project Properties.
3  * To change this template file, choose Tools | Templates
4  * and open the template in the editor.
5 */
6
7 /**
8  * @author LABRPL-21
9  */
10 public class Manager extends Karyawan {
11     private float jamKerja = 7.5f;
12
13     public void setJamKerja(float jamKerja) {
14         this.jamKerja = jamKerja;
15     }
16
17     public float jamKerja() {
18         return jamKerja;
19     }
20
21     public float getGajiManager() {
22         return getGaji() * 2;
23     }
24
25 }
```

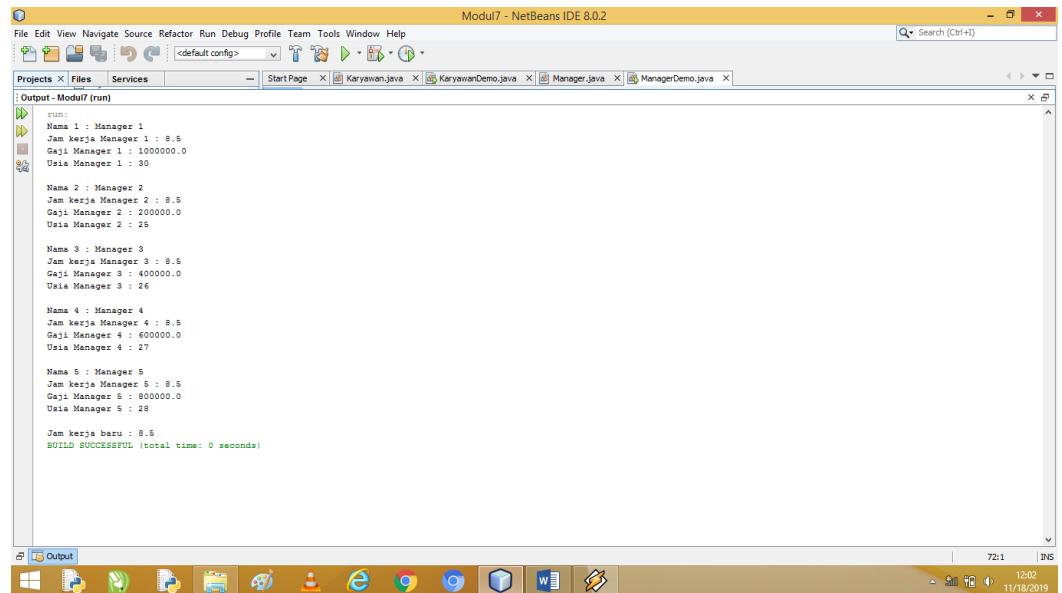
Modul7 - NetBeans IDE 8.0.2

```
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Projects Files Services Start Page Karyawan.java KaryawanDemo.java Manager.java ManagerDemo.java
Source History Search (Ctrl+F) ... T T D G E P S
1 /*
2  * To change this license header, choose License Headers in Project Properties.
3  * To change this template file, choose Tools | Templates
4  * and open the template in the editor.
5 */
6
7 /**
8  *
9  * @author LABRPL-21
10 */
11 public class ManagerDemo {
12     public static void main(String[] args){
13         Manager m1 = new Manager();
14         Manager m2 = new Manager();
15         Manager m3 = new Manager();
16         Manager m4 = new Manager();
17         Manager m5 = new Manager();
18
19         m1.setGaji(500000);
20         m1.setName("Manager 1");
21         m1.setUsia(30);
22         m1.setJamKerja(8.5f);
23
24         m2.setGaji(100000);
25         m2.setName("Manager 2");
26         m2.setUsia(25);
27         m2.setJamKerja(8.5f);
28
29         m3.setGaji(200000);
30         m3.setName("Manager 3");
31         m3.setUsia(26);
32         m3.setJamKerja(8.5f);
33
34         m4.setGaji(300000);
35         m4.setName("Manager 4");
36         m4.setUsia(27);
37         m4.setJamKerja(8.5f);
38
39         m5.setGaji(400000);
40         m5.setName("Manager 5");
41         m5.setUsia(28);
42         m5.setJamKerja(8.5f);
43
44         System.out.println("Nama 1 : " + m1.getName());
45         System.out.println("Jam kerja Manager 1 : " + m1.jamKerja());
46         System.out.println("Gaji Manager 1 : " + m1.getGajiManager());
47         System.out.println("Usia Manager 1 : " + m1.getUsia() + "\n");
48
49         System.out.println("Nama 2 : " + m2.getName());
50         System.out.println("Jam kerja Manager 2 : " + m2.jamKerja());
51         System.out.println("Gaji Manager 2 : " + m2.getGajiManager());
52         System.out.println("Usia Manager 2 : " + m2.getUsia() + "\n");
53
54         System.out.println("Nama 3 : " + m3.getName());
55         System.out.println("Jam kerja Manager 3 : " + m3.jamKerja());
56         System.out.println("Gaji Manager 3 : " + m3.getGajiManager());
57         System.out.println("Usia Manager 3 : " + m3.getUsia() + "\n");
58
59         System.out.println("Nama 4 : " + m4.getName());
60         System.out.println("Jam kerja Manager 4 : " + m4.jamKerja());
61         System.out.println("Gaji Manager 4 : " + m4.getGajiManager());
62         System.out.println("Usia Manager 4 : " + m4.getUsia() + "\n");
63
64         System.out.println("Nama 5 : " + m5.getName());
65         System.out.println("Jam kerja Manager 5 : " + m5.jamKerja());
66         System.out.println("Gaji Manager 5 : " + m5.getGajiManager());
67         System.out.println("Usia Manager 5 : " + m5.getUsia() + "\n");
68
69         System.out.println("Jam kerja baru : " + m1.jamKerja());
70     }
71 }
```

Modul7 - NetBeans IDE 8.0.2

```
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Projects Files Services Start Page Karyawan.java KaryawanDemo.java Manager.java ManagerDemo.java
Source History Search (Ctrl+F) ... T T D G E P S
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➤ Output dari program diatas:



```
Modul7 - NetBeans IDE 8.0.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
File Files Services Start Page Karyawan.java KaryawanDemo.java Manager.java ManagerDemo.java
Output - Modul7 (run)
Nama 1 : Manager 1
Jam kerja Manager 1 : 8.5
Gaji Manager 1 : 1000000.0
Usia Manager 1 : 30

Nama 2 : Manager 2
Jam kerja Manager 2 : 8.5
Gaji Manager 2 : 200000.0
Usia Manager 2 : 26

Nama 3 : Manager 3
Jam kerja Manager 3 : 8.5
Gaji Manager 3 : 400000.0
Usia Manager 3 : 26

Nama 4 : Manager 4
Jam kerja Manager 4 : 8.5
Gaji Manager 4 : 600000.0
Usia Manager 4 : 27

Nama 5 : Manager 5
Jam kerja Manager 5 : 8.5
Gaji Manager 5 : 800000.0
Usia Manager 5 : 28

Jam kerja baru : 8.5
BUILD SUCCESSFUL (total time: 0 seconds)
```

MODUL 8

POLYMORPHISM

PRAKTIKUM PEMROGRAMAN BERORIENTASI OBJEK

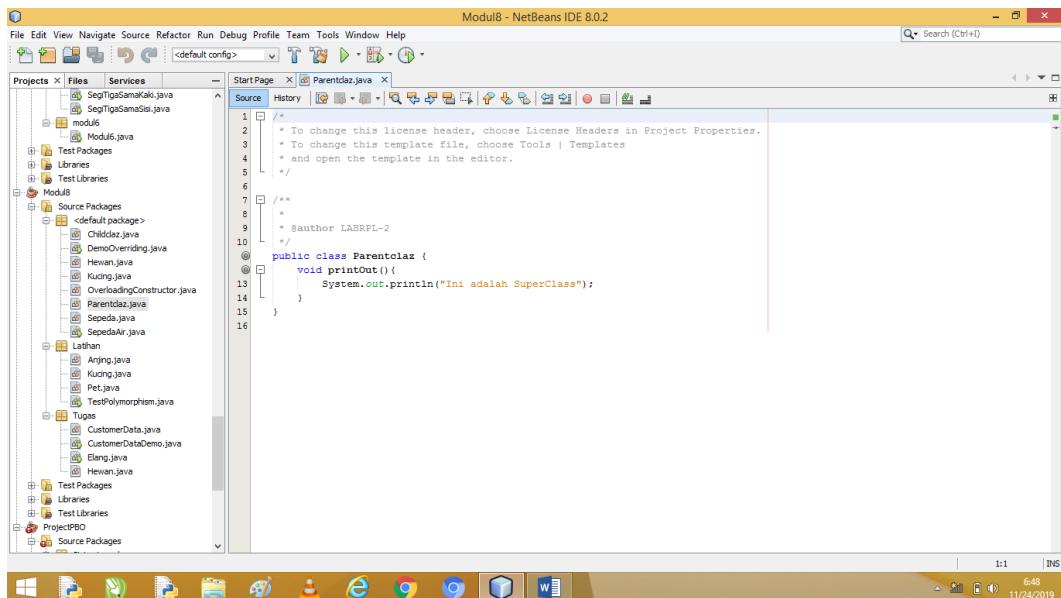
Nama : Annisa Nugraheni

NIM : L200180066

Kelas : B

❖ 8.1.1. Overriding

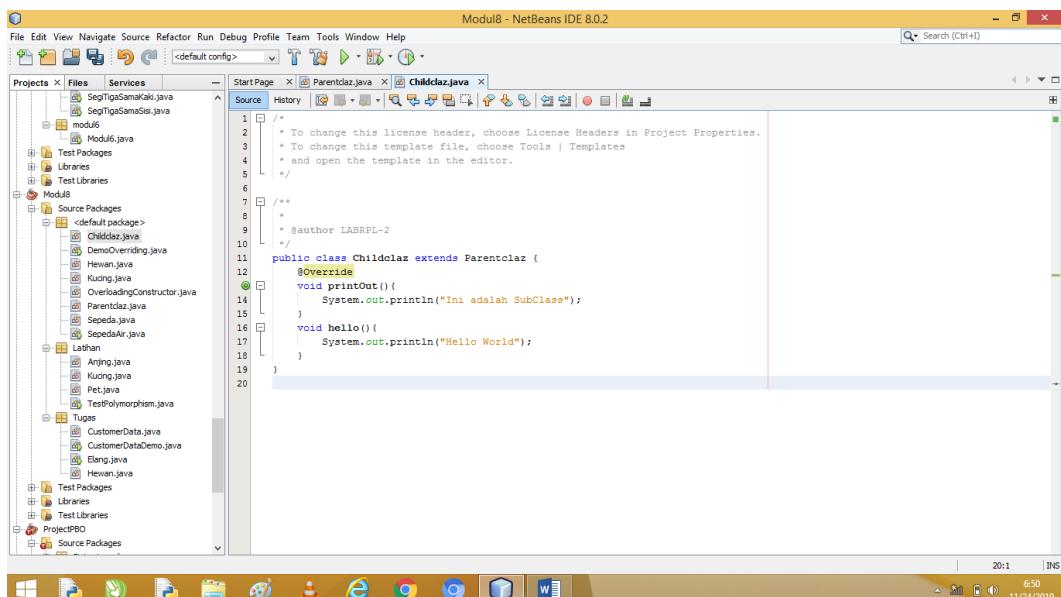
- Program 1. Superclass yang akan diterapkan konsep overriding



The screenshot shows the NetBeans IDE interface with the title bar "Modul8 - NetBeans IDE 8.0.2". The left sidebar displays the project structure under "Projects" with packages like mod6 and mod8 containing various Java files. The main editor window shows the code for "ParentClass.java":

```
1  /*
2  * To change this license header, choose License Headers in Project Properties.
3  * To change this template file, choose Tools | Templates
4  * and open the template in the editor.
5  */
6
7 /**
8 *
9 * @author LABRPL-2
10 */
11 public class ParentClass {
12     void printOut(){
13         System.out.println("Ini adalah SuperClass");
14     }
15 }
```

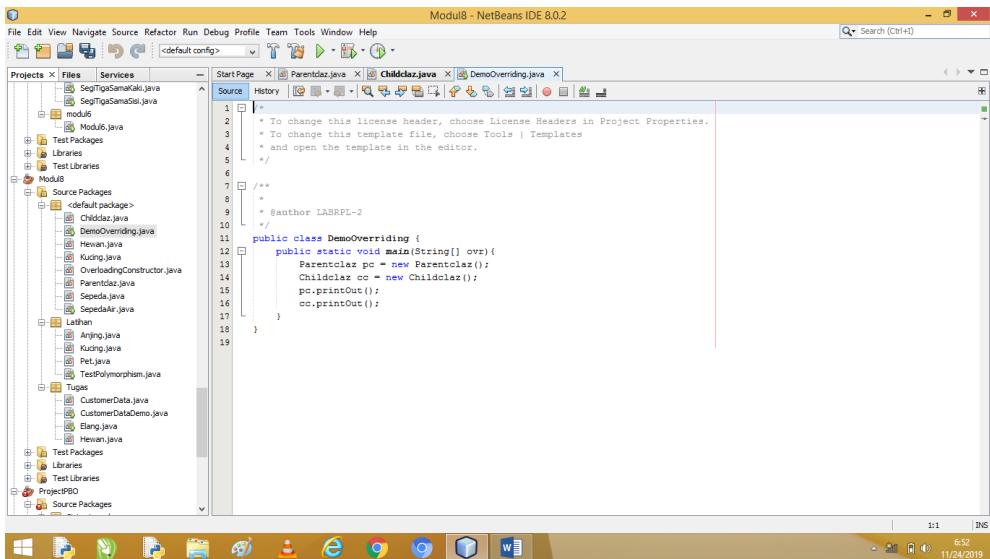
- Program 2. Penerapan overriding pada subclass



The screenshot shows the NetBeans IDE interface with the title bar "Modul8 - NetBeans IDE 8.0.2". The left sidebar displays the project structure under "Projects" with packages like mod6 and mod8 containing various Java files. The main editor window shows the code for "ChildClass.java" which extends "ParentClass":

```
1 /*
2 * To change this license header, choose License Headers in Project Properties.
3 * To change this template file, choose Tools | Templates
4 * and open the template in the editor.
5 */
6
7 /**
8 *
9 * @author LABRPL-2
10 */
11 public class ChildClass extends ParentClass {
12     @Override
13     void printOut(){
14         System.out.println("Ini adalah SubClass");
15     }
16     void hello(){
17         System.out.println("Hello World");
18     }
19 }
```

➤ Program 3. Menjalankan konsep overriding

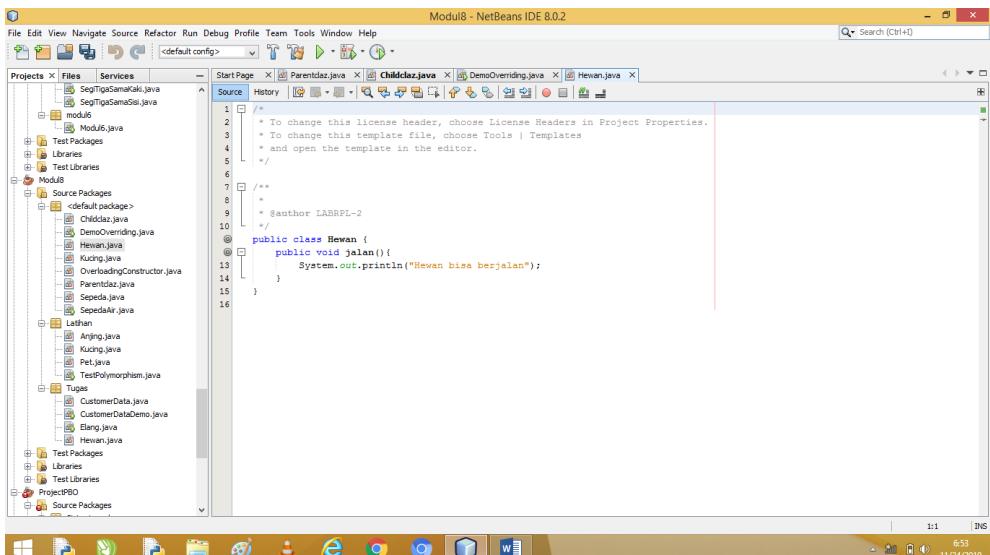


```

Modul8 - NetBeans IDE 8.0.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
<default config> Source History < > Search (Ctrl+F) 11:11 652 11/24/2019
Projects Files Services Start Page x Parentclaz.java x Childclaz.java x DemoOverriding.java x
Source History < > Search (Ctrl+F) 11:11 652 11/24/2019
1 /*
2 * To change this license header, choose License Headers in Project Properties.
3 * To change this template file, choose Tools | Templates
4 * and open the template in the editor.
5 */
6
7 /**
8 *
9 * @author LABRPL-2
10 */
11 public class DemoOverriding {
12     public static void main(String[] args) {
13         Parentclaz pc = new Parentclaz();
14         Childclaz cc = new Childclaz();
15         pc.printOut();
16         cc.printOut();
17     }
18 }

```

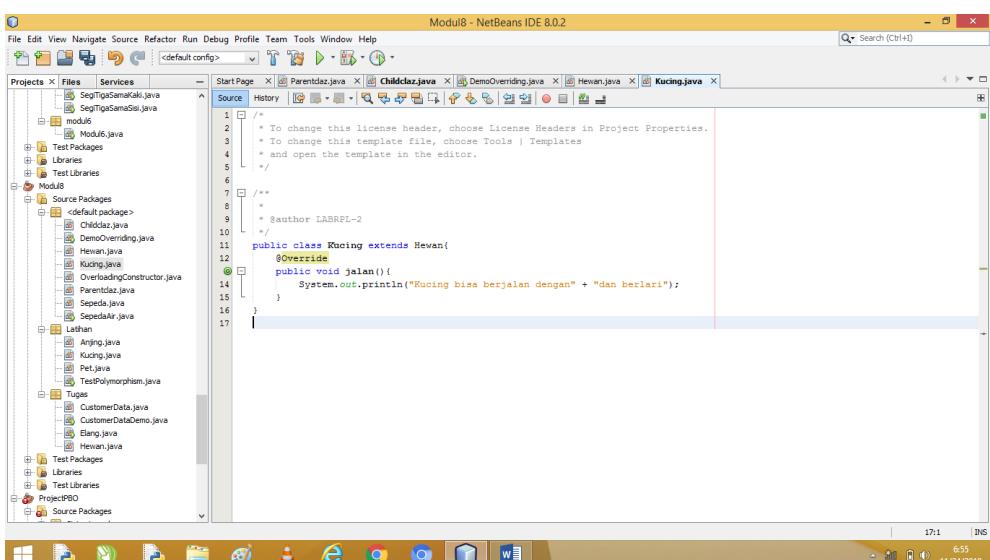
➤ Program 4. Contoh overriding method



```

Modul8 - NetBeans IDE 8.0.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
<default config> Source History < > Search (Ctrl+F) 11:11 653 11/24/2019
Projects Files Services Start Page x Parentclaz.java x Childclaz.java x DemoOverriding.java x Hewan.java x
Source History < > Search (Ctrl+F) 11:11 653 11/24/2019
1 /*
2 * To change this license header, choose License Headers in Project Properties.
3 * To change this template file, choose Tools | Templates
4 * and open the template in the editor.
5 */
6
7 /**
8 *
9 * @author LABRPL-2
10 */
11 public class Hewan {
12     @Override
13     public void jalan(){
14         System.out.println("Hewan bisa berjalan");
15     }
16 }

```



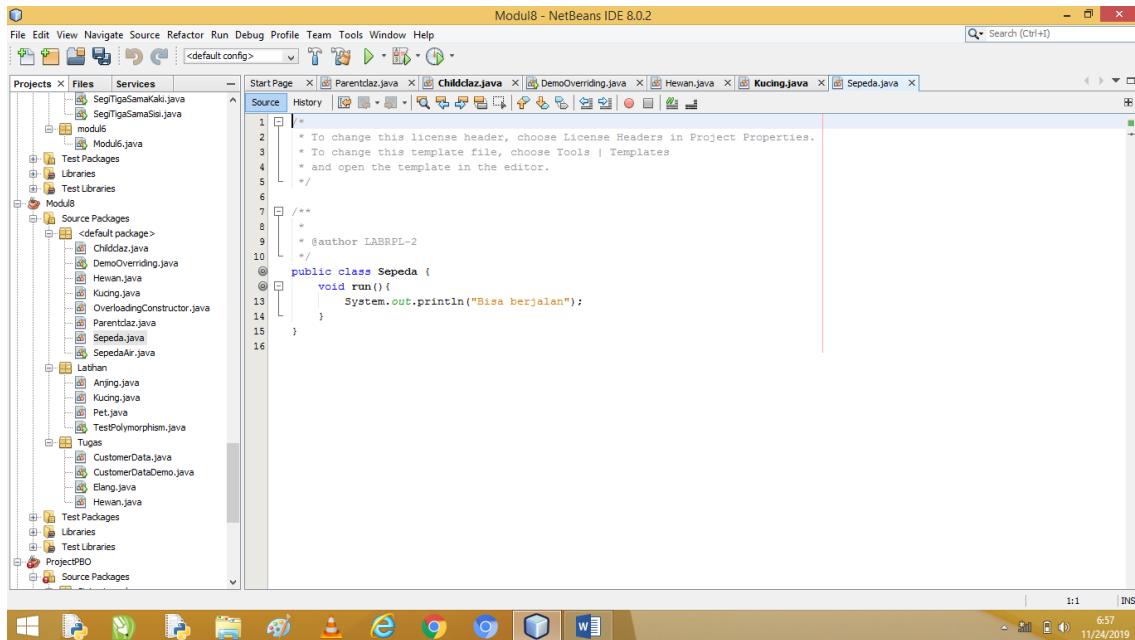
```

Modul8 - NetBeans IDE 8.0.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
<default config> Source History < > Search (Ctrl+F) 17:1 655 11/24/2019
Projects Files Services Start Page x Parentclaz.java x Childclaz.java x DemoOverriding.java x Hewan.java x Kucing.java x
Source History < > Search (Ctrl+F) 17:1 655 11/24/2019
1 /*
2 * To change this license header, choose License Headers in Project Properties.
3 * To change this template file, choose Tools | Templates
4 * and open the template in the editor.
5 */
6
7 /**
8 *
9 * @author LABRPL-2
10 */
11 public class Kucing extends Hewan{
12     @Override
13     public void jalan(){
14         System.out.println("Kucing bisa berjalan dengan " + "dan berlari");
15     }
16 }

```

❖ 8.1.2 Upcasting

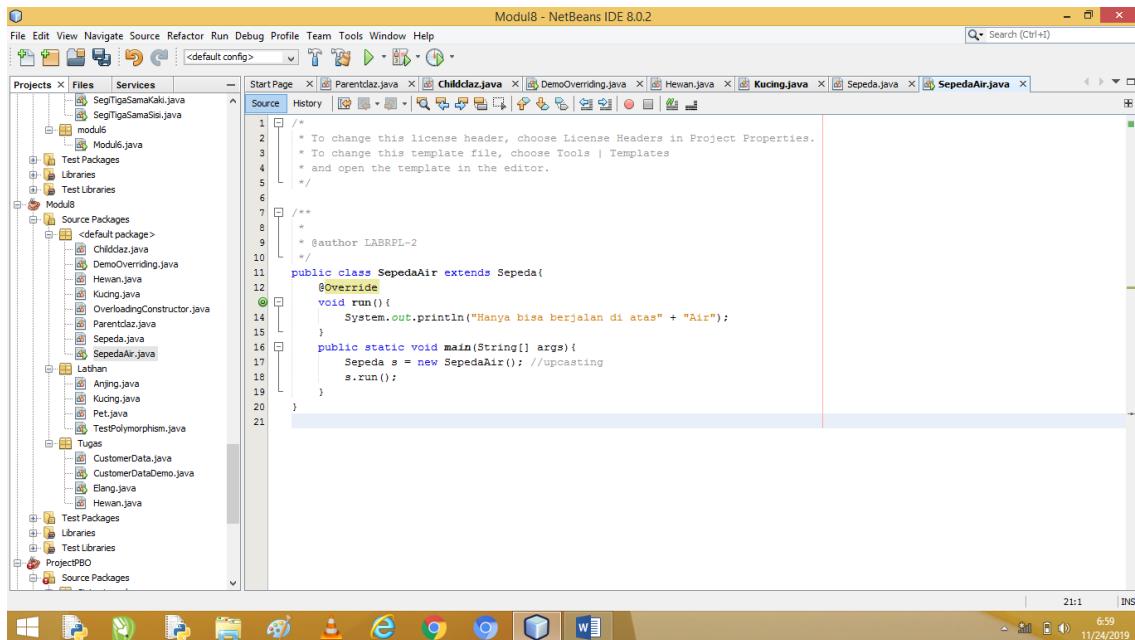
- Program 5. Superclass yang akan diterapkan konsep upcasting



The screenshot shows the NetBeans IDE interface with the title bar "Modul8 - NetBeans IDE 8.0.2". The menu bar includes File, Edit, View, Navigate, Source, Refactor, Run, Debug, Profile, Team, Tools, Window, Help. The toolbar has icons for New Project, Open Project, Save, Cut, Copy, Paste, Find, Replace, Run, Stop, and Exit. The Projects tab shows a tree view of Java files under "modul6" and "Modul8" packages. The Files tab shows the source code for "Sepeda.java". The code defines a class "Sepeda" with a run() method that prints "Bisa berjalan". The code editor has syntax highlighting and a status bar at the bottom.

```
/*
 * To change this license header, choose License Headers in Project Properties.
 * To change this template file, choose Tools | Templates
 * and open the template in the editor.
 */
public class Sepeda {
    void run(){
        System.out.println("Bisa berjalan");
    }
}
```

- Program 6. Penerapan upcasting pada subclass

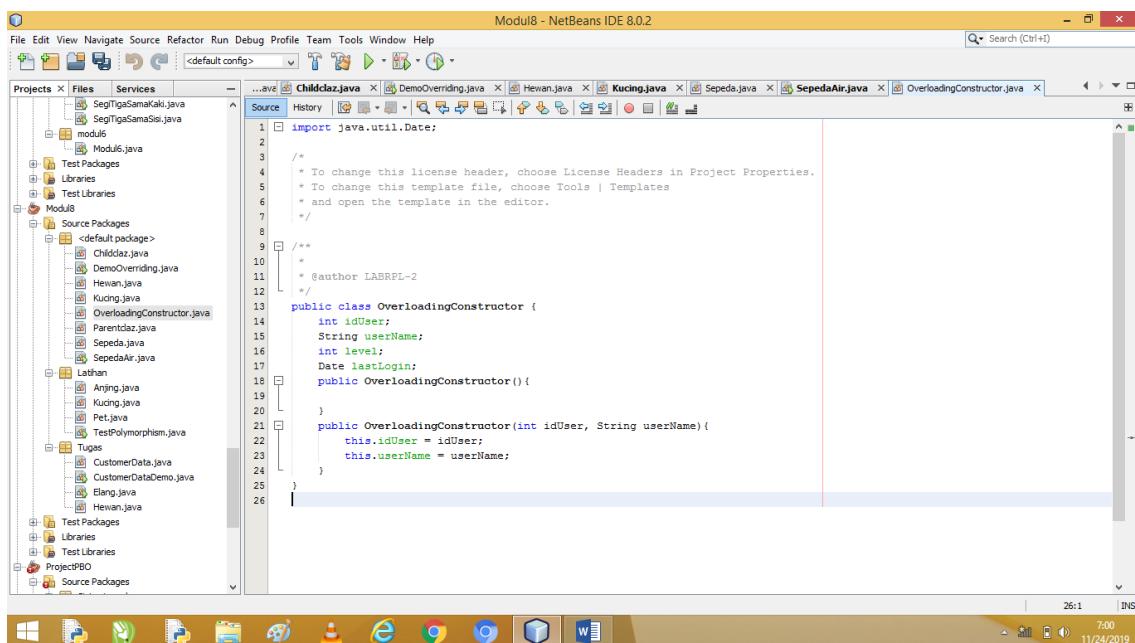


The screenshot shows the NetBeans IDE interface with the title bar "Modul8 - NetBeans IDE 8.0.2". The menu bar includes File, Edit, View, Navigate, Source, Refactor, Run, Debug, Profile, Team, Tools, Window, Help. The toolbar has icons for New Project, Open Project, Save, Cut, Copy, Paste, Find, Replace, Run, Stop, and Exit. The Projects tab shows a tree view of Java files under "modul6" and "Modul8" packages. The Files tab shows the source code for "SepedaAir.java". The code defines a class "SepedaAir" that extends "Sepeda". It overrides the run() method to print "Hanya bisa berjalan di atas" + "Air". A main() method creates a SepedaAir object and calls its run() method. The code editor has syntax highlighting and a status bar at the bottom.

```
/*
 * To change this license header, choose License Headers in Project Properties.
 * To change this template file, choose Tools | Templates
 * and open the template in the editor.
 */
public class SepedaAir extends Sepeda{
    @Override
    void run(){
        System.out.println("Hanya bisa berjalan di atas" + "Air");
    }
    public static void main(String[] args){
        Sepeda s = new SepedaAir(); //upcasting
        s.run();
    }
}
```

❖ 8.1.3 Overloading

➤ Program 7. Overloading pada constructor

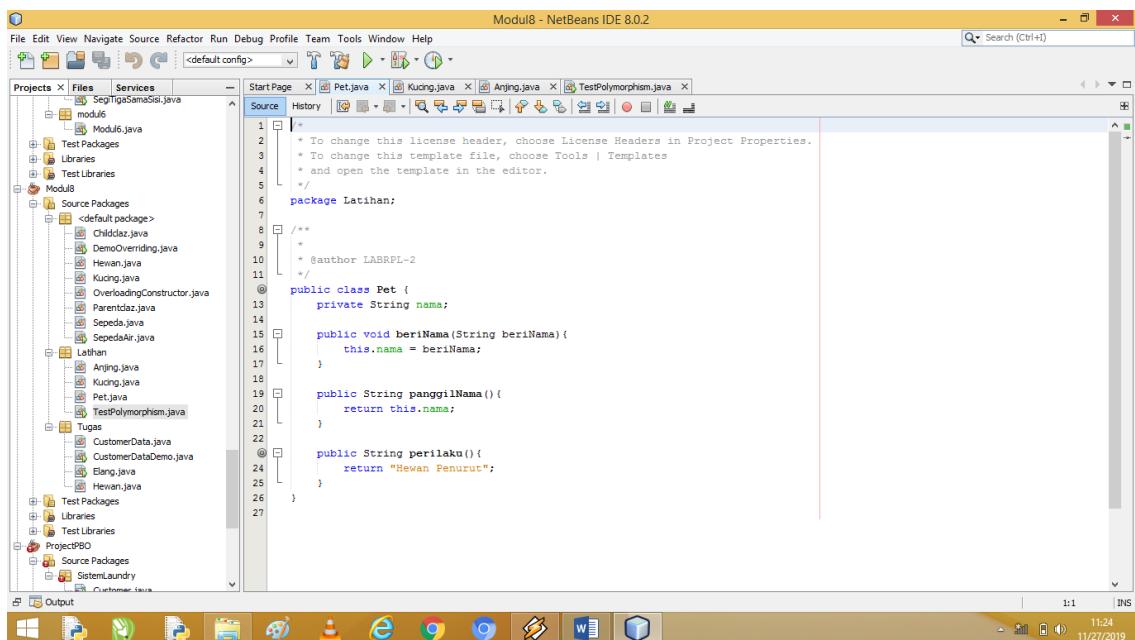


The screenshot shows the NetBeans IDE interface with the title bar "Modul8 - NetBeans IDE 8.0.2". The left sidebar displays a project structure with packages like SegitigaSamaKaki, modul6, and Modul8, containing various Java files such as Chidiaz.java, DemoOverriding.java, Hewan.java, Kucing.java, OverloadingConstructor.java, Parentdas.java, Sepeda.java, and SepedaAr.java. The main editor area shows the code for OverloadingConstructor.java:

```
1 import java.util.Date;
2
3 /**
4  * To change this license header, choose License Headers in Project Properties.
5  * To change this template file, choose Tools | Templates
6  * and open the template in the editor.
7 */
8
9 /**
10  *
11  * @author LABRPL-2
12  */
13 public class OverloadingConstructor {
14     int idUser;
15     String userName;
16     int level;
17     Date lastLogin;
18     public OverloadingConstructor() {
19     }
20     public OverloadingConstructor(int idUser, String userName) {
21         this.idUser = idUser;
22         this.userName = userName;
23     }
24 }
25
26
```

❖ 8.2 LATIHAN

➤ Program 8. Latihan menerapkan konsep polymorphism

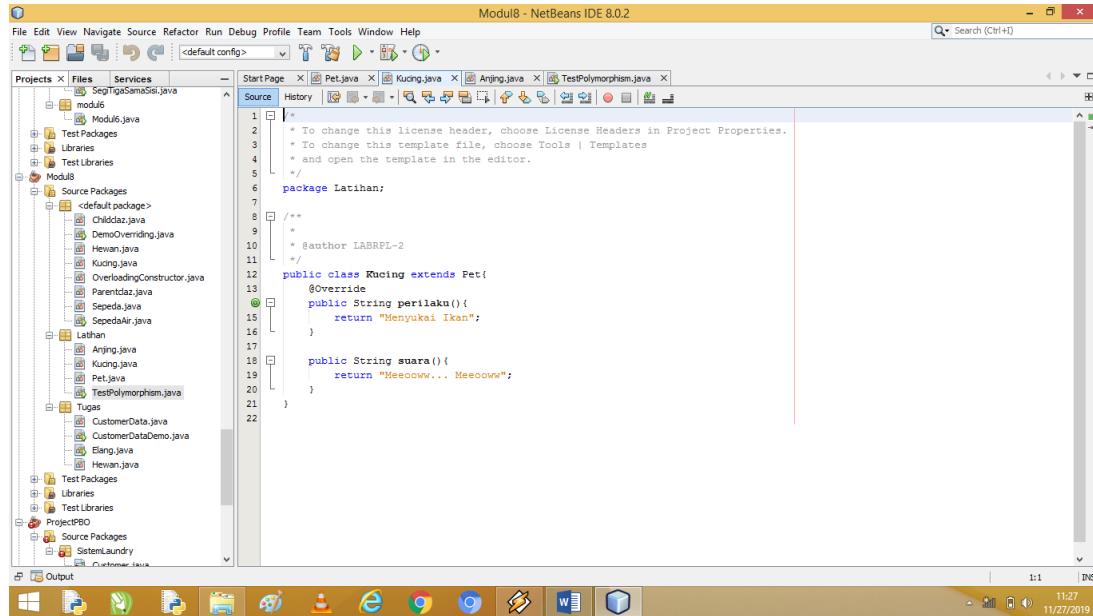


The screenshot shows the NetBeans IDE interface with the title bar "Modul8 - NetBeans IDE 8.0.2". The left sidebar displays a project structure with packages like SegitigaSamaSisi, modul6, and Modul8, containing various Java files such as Chidiaz.java, DemoOverriding.java, Hewan.java, Kucing.java, OverloadingConstructor.java, Parentdas.java, Sepeda.java, and SepedaAr.java. The main editor area shows the code for Pet.java:

```
1 /*
2  * To change this license header, choose License Headers in Project Properties.
3  * To change this template file, choose Tools | Templates
4  * and open the template in the editor.
5  */
6 package Latihan;
7
8 /**
9  *
10  * @author LABRPL-2
11  */
12 public class Pet {
13     private String nama;
14
15     public void beriNama(String beriNama) {
16         this.nama = beriNama;
17     }
18
19     public String panggilNama() {
20         return this.nama;
21     }
22
23     public String perilaku() {
24         return "Hewan Penurut";
25     }
26 }
27
```

1. Membuat class Kucing dan Anjing dimana kedua class tersebut melakukan overriding terhadap method perilaku() dan menambahkan satu method pada masing-masing class yang secara khusus hanya berlaku pada masing-masing class tersebut.

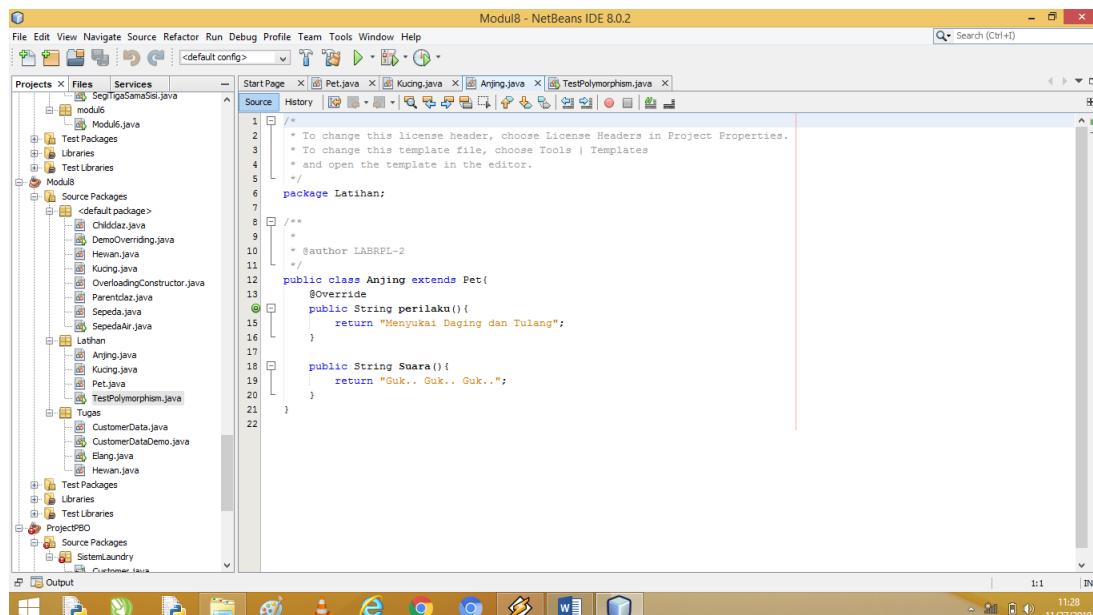
➤ Class Kucing



The screenshot shows the NetBeans IDE interface with the title bar "Modul8 - NetBeans IDE 8.0.2". The left sidebar displays a project structure with packages like modul6, modul8, and Lathan, containing various Java files such as SegitigaSamaSisi.java, Modul6.java, Modul8.java, Childdar.java, DemoOverriding.java, Hewan.java, Kucing.java, OverloadingConstructor.java, Parentalz.java, Sepeda.java, SepedaAir.java, Anjing.java, Kucing.java, Pet.java, TestPolymorphism.java, and several Tugas and Hewan.java files. The main editor window shows the code for Kucing.java:

```
1  /*
2  * To change this license header, choose License Headers in Project Properties.
3  * To change this template file, choose Tools | Templates
4  * and open the template in the editor.
5  */
6  package Latihan;
7
8  /**
9  *
10 * @author LABRPL-2
11 */
12 public class Kucing extends Pet{
13     @Override
14     public String perilaku(){
15         return "Menyukai Ikan";
16     }
17
18     public String suara(){
19         return "Meeoww... Meeoww";
20     }
21 }
```

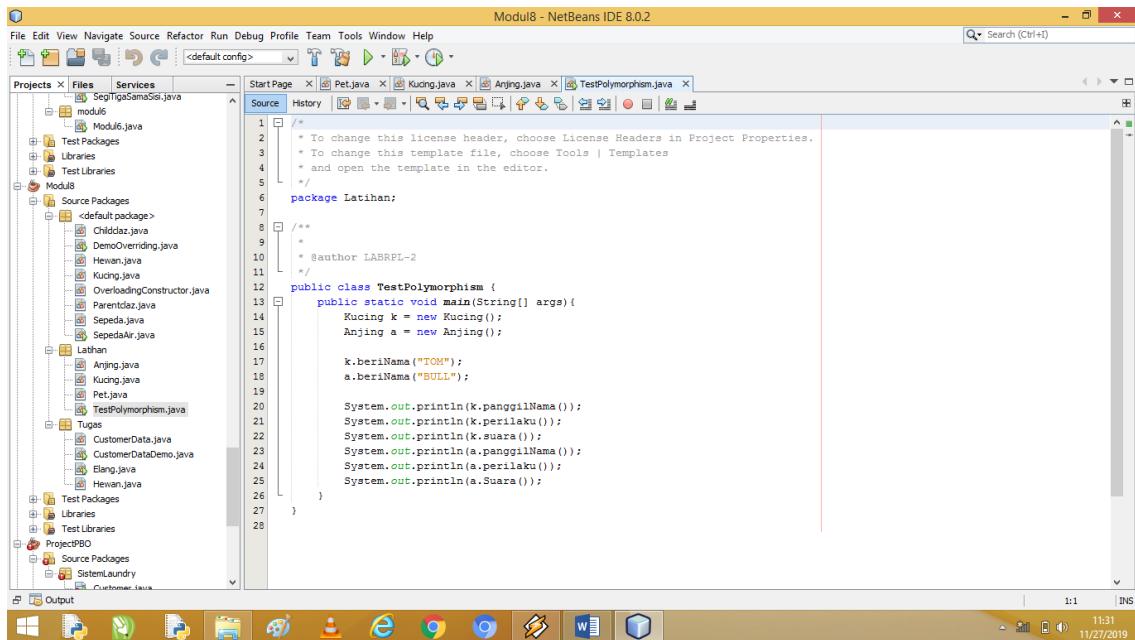
➤ Class Anjing



The screenshot shows the NetBeans IDE interface with the title bar "Modul8 - NetBeans IDE 8.0.2". The left sidebar displays a project structure similar to the previous screenshot. The main editor window shows the code for Anjing.java:

```
1  /*
2  * To change this license header, choose License Headers in Project Properties.
3  * To change this template file, choose Tools | Templates
4  * and open the template in the editor.
5  */
6  package Latihan;
7
8  /**
9  *
10 * @author LABRPL-2
11 */
12 public class Anjing extends Pet{
13     @Override
14     public String perilaku(){
15         return "Menyukai Daging dan Tulang";
16     }
17
18     public String Suara(){
19         return "Guk.. Guk.. Guk..";
20     }
21 }
```

2. Membuat class TestPolymorphism

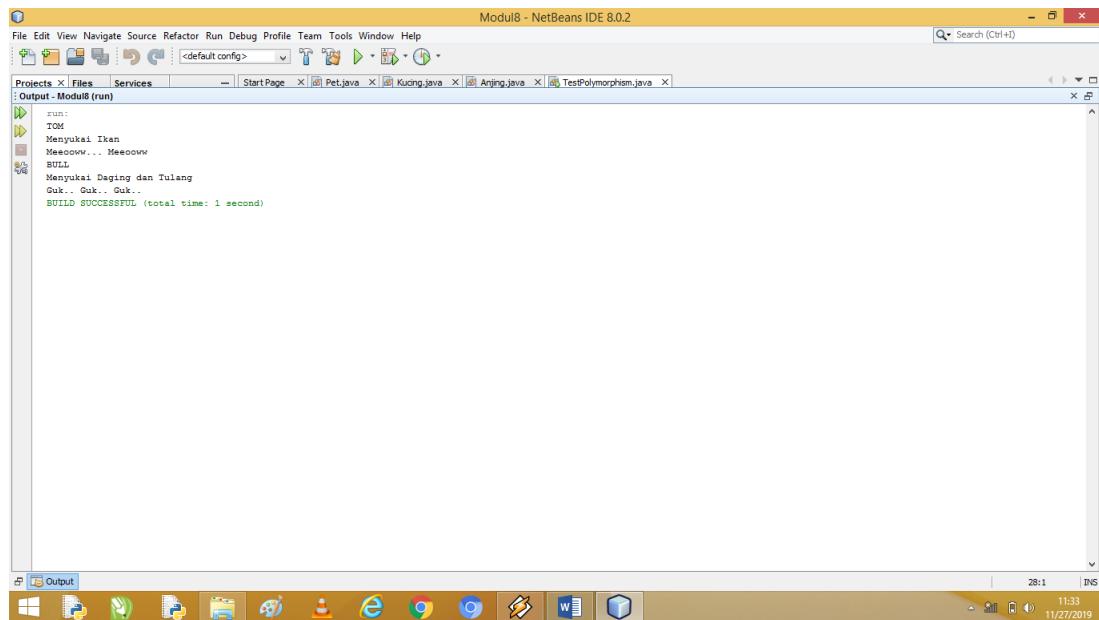


The screenshot shows the NetBeans IDE interface with the title bar "Modul8 - NetBeans IDE 8.0.2". The menu bar includes File, Edit, View, Navigate, Source, Refactor, Run, Debug, Profile, Team, Tools, Window, Help. The toolbar has icons for New Project, Open Project, Save, Undo, Redo, Cut, Copy, Paste, Find, Replace, Run, Stop, and Build. The Projects tab shows a hierarchy of packages and files. The Files tab displays the source code for TestPolymorphism.java:

```
1 /*
2  * To change this license header, choose License Headers in Project Properties.
3  * To change this template file, choose Tools | Templates
4  * and open the template in the editor.
5  */
6 package Latihan;
7
8 /**
9  * @author LABRPL-2
10 */
11
12 public class TestPolymorphism {
13     public static void main(String[] args){
14         Kucing k = new Kucing();
15         Anjing a = new Anjing();
16
17         k.beriNama("TOM");
18         a.beriNama("BULL");
19
20         System.out.println(k.panggilNama());
21         System.out.println(k.perilaku());
22         System.out.println(k.suara());
23         System.out.println(a.panggilNama());
24         System.out.println(a.perilaku());
25         System.out.println(a.suara());
26     }
27 }
28
```

The status bar at the bottom shows the time as 11:31 and the date as 11/27/2019.

➤ Output dari program diatas:



The screenshot shows the NetBeans IDE interface with the title bar "Modul8 - NetBeans IDE 8.0.2". The menu bar includes File, Edit, View, Navigate, Source, Refactor, Run, Debug, Profile, Team, Tools, Window, Help. The toolbar has icons for New Project, Open Project, Save, Undo, Redo, Cut, Copy, Paste, Find, Replace, Run, Stop, and Build. The Projects tab shows a hierarchy of packages and files. The Files tab shows the output of the run command:

```
run:
TOM
Mewukai Ikan
Meowwww... Meowwww
BULL
Menyukai Daging dan Tulang
Guk.. Guk.. Guk..
```

The status bar at the bottom shows the time as 28:1 and the date as 11/27/2019.

❖ 8.3 TUGAS

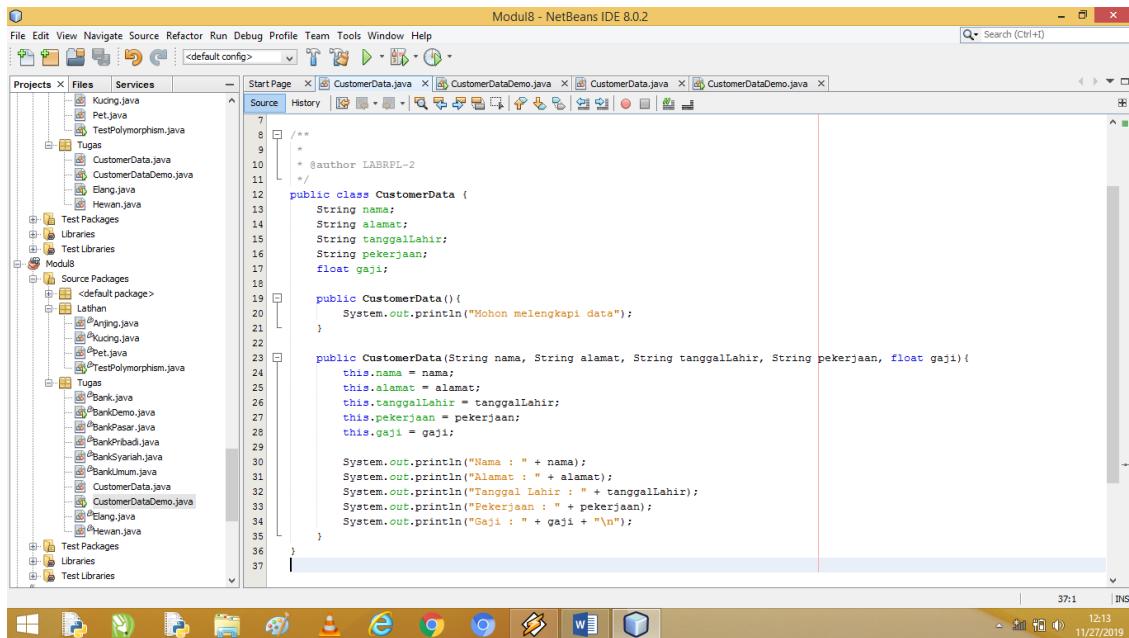
- 1) Membuat class Elang yang memiliki method jalan() namun implementasinya berbeda dari kedua class lainnya.

```
Modul8 - NetBeans IDE 8.0.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Projects X Files Services Start Page X Hewan.java X Elang.java X Hewan.java X Elang.java X
Source History < > Search (Ctrl+F)
1 /**
2  * To change this license header, choose License Headers in Project Properties.
3  * To change this template file, choose Tools | Templates
4  * and open the template in the editor.
5 */
6 package Tugas;
7
8 /**
9  *
10 * @author LABRPL-2
11 */
12 public class Hewan {
13     public void jalan(){
14         System.out.println("Hewan bisa berjalan");
15     }
16 }
17
```

```
Modul8 - NetBeans IDE 8.0.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Projects X Files Services Start Page X Hewan.java X Elang.java X Hewan.java X Elang.java X
Source History < > Search (Ctrl+F)
1 /**
2  * To change this license header, choose License Headers in Project Properties.
3  * To change this template file, choose Tools | Templates
4  * and open the template in the editor.
5 */
6 package Tugas;
7
8 /**
9  *
10 * @author LABRPL-2
11 */
12 public class Elang extends Hewan {
13     @Override
14     public void jalan(){
15         System.out.println("Elang bisa berjalan " + "dan terbang");
16     }
17
18     public static void main(String[] args){
19         Elang e = new Elang();
20         e.jalan();
21     }
22 }
23
```

```
Modul8 - NetBeans IDE 8.0.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Projects X Files Services Start Page X Hewan.java X Elang.java X Hewan.java X Elang.java X
Output Modul8 (run) < > Search (Ctrl+F)
run:
Elang bisa berjalan dan terbang
BUILD SUCCESSFUL (total time: 1 second)
```

2) Membuat class baru dengan nama CustomerData, menambahkan variable nama, alamat, tanggal lahir, pekerjaan, dan gaji. Selanjutnya membuat overloading constructor dari class tersebut.

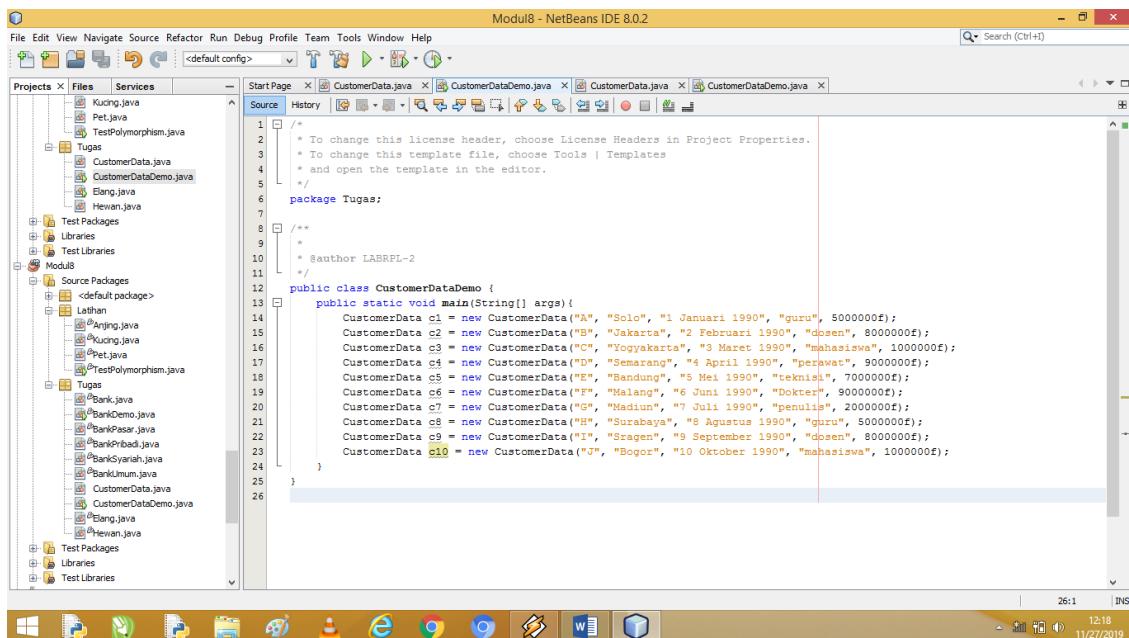


```

Modul8 - NetBeans IDE 8.0.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Projects X Files Services Start Page X CustomerData.java X CustomerDataDemo.java X CustomerData.java X CustomerDataDemo.java X
Source History | Search (Ctrl+F) |
7 /**
8 * 
9 * @author LABRPL-2
10 */
11 
12 public class CustomerData {
13     String nama;
14     String alamat;
15     String tanggalLahir;
16     String pekerjaan;
17     float gaji;
18 
19     public CustomerData() {
20         System.out.println("Mohon lengkapil data");
21     }
22 
23     public CustomerData(String nama, String alamat, String tanggalLahir, String pekerjaan, float gaji) {
24         this.nama = nama;
25         this.alamat = alamat;
26         this.tanggalLahir = tanggalLahir;
27         this.pekerjaan = pekerjaan;
28         this.gaji = gaji;
29 
30         System.out.println("Nama : " + nama);
31         System.out.println("Alamat : " + alamat);
32         System.out.println("Tanggal Lahir : " + tanggalLahir);
33         System.out.println("Pekerjaan : " + pekerjaan);
34         System.out.println("Gaji : " + gaji + "\n");
35     }
36 }
37

```

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

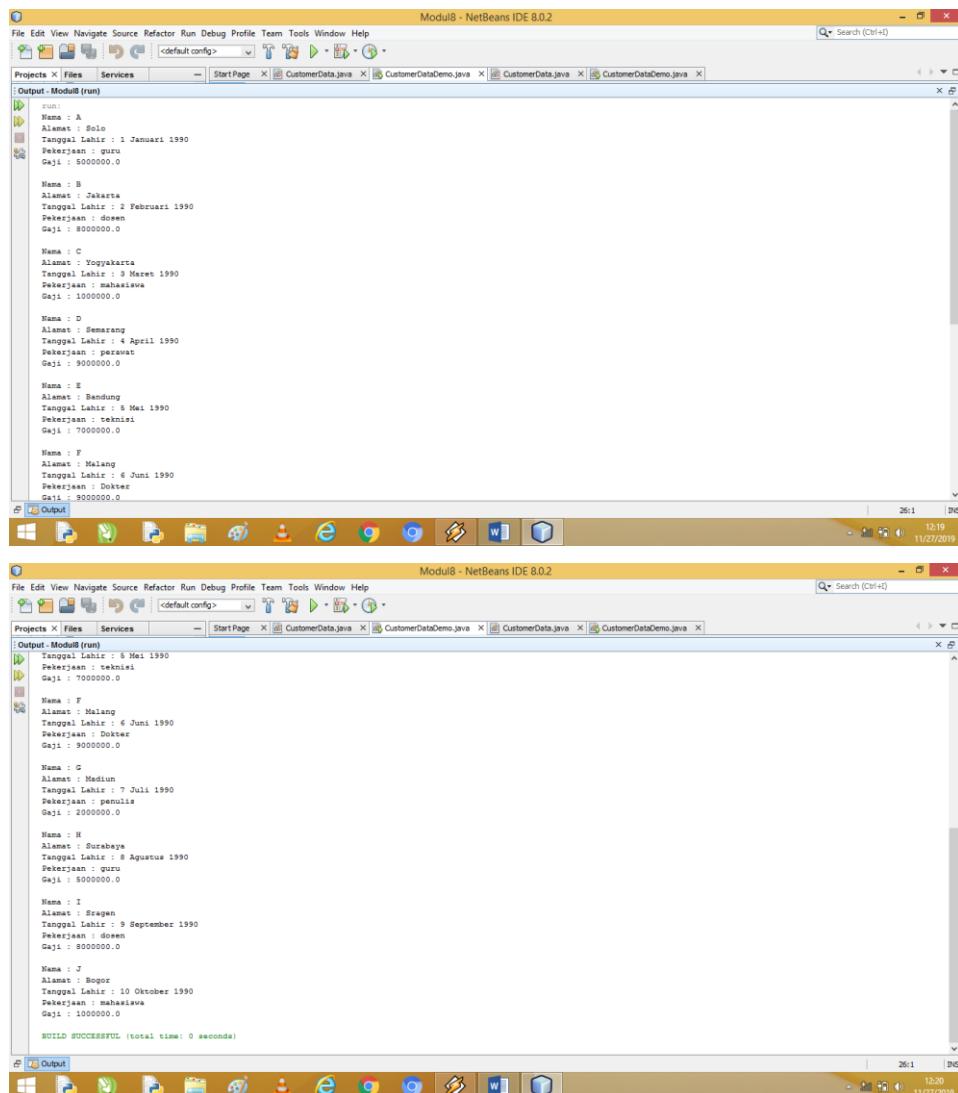


```

Modul8 - NetBeans IDE 8.0.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Projects X Files Services Start Page X CustomerData.java X CustomerDataDemo.java X CustomerData.java X CustomerDataDemo.java X
Source History | Search (Ctrl+F) |
1 /**
2  * To change this license header, choose License Headers in Project Properties.
3  * To change this template file, choose Tools | Templates
4  * and open the template in the editor.
5 */
6 package Tugas;
7 
8 /**
9 * 
10 * @author LABRPL-2
11 */
12 
13 public class CustomerDataDemo {
14     public static void main(String[] args) {
15         CustomerData c1 = new CustomerData("A", "Solo", "1 Januari 1990", "guru", 5000000f);
16         CustomerData c2 = new CustomerData("B", "Jakarta", "2 Februari 1990", "dosen", 8000000f);
17         CustomerData c3 = new CustomerData("C", "Yogyakarta", "3 Maret 1990", "mahasiswa", 1000000f);
18         CustomerData c4 = new CustomerData("D", "Semarang", "4 April 1990", "perawat", 9000000f);
19         CustomerData c5 = new CustomerData("E", "Bandung", "5 Mei 1990", "teknisi", 7000000f);
20         CustomerData c6 = new CustomerData("F", "Malang", "6 Juni 1990", "Dokter", 9000000f);
21         CustomerData c7 = new CustomerData("G", "Medan", "7 Juli 1990", "penulis", 2000000f);
22         CustomerData c8 = new CustomerData("H", "Surabaya", "8 Agustus 1990", "guru", 500000f);
23         CustomerData c9 = new CustomerData("I", "Stagen", "9 September 1990", "dosen", 8000000f);
24         CustomerData c10 = new CustomerData("J", "Bogor", "10 Oktober 1990", "mahasiswa", 1000000f);
25     }
26 }

```

➤ Output dari program diatas:



```

Modul8 - NetBeans IDE 8.0.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Projects | Files | Services | Start Page | CustomerData.java | CustomerDataDemo.java | CustomerData.java | CustomerDataDemo.java |
Output - Modul8 (run)
run:
Nama : A
Alamat : Solo
Tanggal Lahir : 1 Januari 1990
Pekerjaan : guru
Gaji : 5000000.0

Nama : B
Alamat : Jakarta
Tanggal Lahir : 2 Februari 1990
Pekerjaan : dosen
Gaji : 8000000.0

Nama : C
Alamat : Yogyakarta
Tanggal Lahir : 3 Maret 1990
Pekerjaan : mahasiswa
Gaji : 1000000.0

Nama : D
Alamat : Semarang
Tanggal Lahir : 4 April 1990
Pekerjaan : perawat
Gaji : 900000.0

Nama : E
Alamat : Bandung
Tanggal Lahir : 5 Mei 1990
Pekerjaan : teknisi
Gaji : 7000000.0

Nama : F
Alamat : Malang
Tanggal Lahir : 6 Juni 1990
Pekerjaan : Dokter
Gaji : 8000000.0

Nama : G
Alamat : Medan
Tanggal Lahir : 7 Juli 1990
Pekerjaan : pemulis
Gaji : 200000.0

Nama : H
Alamat : Surabaya
Tanggal Lahir : 8 Agustus 1990
Pekerjaan : guru
Gaji : 5000000.0

Nama : I
Alamat : Samarinda
Tanggal Lahir : 9 September 1990
Pekerjaan : dosen
Gaji : 8000000.0

Nama : J
Alamat : Bogor
Tanggal Lahir : 10 Oktober 1990
Pekerjaan : mahasiswa
Gaji : 1000000.0

BUILD SUCCESSFUL (total time: 0 seconds)

Modul8 - NetBeans IDE 8.0.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Projects | Files | Services | Start Page | CustomerData.java | CustomerDataDemo.java | CustomerData.java | CustomerDataDemo.java |
Output - Modul8 (run)
Tanggal Lahir : 5 Mei 1990
Pekerjaan : teknisi
Gaji : 7000000.0

Nama : F
Alamat : Malang
Tanggal Lahir : 6 Juni 1990
Pekerjaan : Dokter
Gaji : 8000000.0

Nama : G
Alamat : Medan
Tanggal Lahir : 7 Juli 1990
Pekerjaan : pemulis
Gaji : 200000.0

Nama : H
Alamat : Surabaya
Tanggal Lahir : 8 Agustus 1990
Pekerjaan : guru
Gaji : 5000000.0

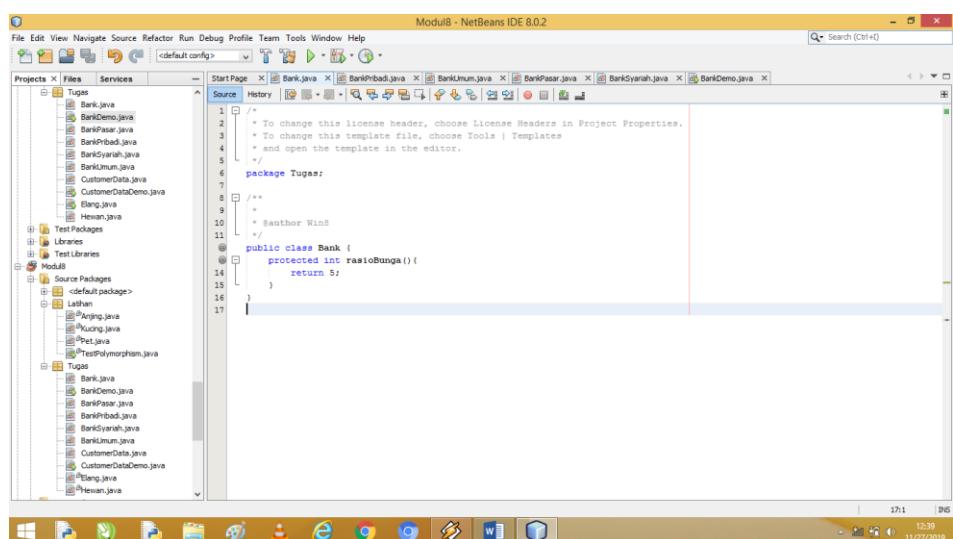
Nama : I
Alamat : Samarinda
Tanggal Lahir : 9 September 1990
Pekerjaan : dosen
Gaji : 8000000.0

Nama : J
Alamat : Bogor
Tanggal Lahir : 10 Oktober 1990
Pekerjaan : mahasiswa
Gaji : 1000000.0

```

- 4) Membuat class berdasarkan diagram UML. Menerapkan teknik polymorphism dan menampilkan hasil output program.

➤ Class Bank



```

Modul8 - NetBeans IDE 8.0.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Projects | Files | Services | Start Page | Bank.java | BankBidan.java | BankIbum.java | BankPasar.java | BankSyariah.java | BankDemo.java |
Source Packages | Tugas | Bank.java | BankBidan.java | BankIbum.java | BankPasar.java | BankSyariah.java | BankDemo.java |
Bank.java
  1 /**
  2  * To change this license header, choose License Headers in Project Properties.
  3  * To change this template file, choose Tools | Templates
  4  * and open the template in the editor.
  5 */
  6 package Tugas;
  7
  8 /**
  9  * Author Wina
 10 */
 11 public class Bank {
 12     protected int rasioBunga();
 13     {
 14         return 5;
 15     }
 16 }

```

➤ Class BankPribadi

➤ Class BankUmum

The screenshot shows the Modu8 - NetBeans IDE 8.0.2 interface. The menu bar includes File, Edit, View, Navigate, Source, Refactor, Run, Debug, Profile, Team, Tools, Window, Help. The title bar says "Modu8 - NetBeans IDE 8.0.2". The toolbar includes icons for New Project, Open Project, Save, Undo, Redo, Cut, Copy, Paste, Find, Replace, Go To, and Build. The Projects tab shows a hierarchy of packages: Tugas, Bank.java, BankCeo.java, BankPaser.java, BankBapak.java, BankUmum.java, BankPasar.java, BankSyariah.java, and BankDemo.java. The Services tab shows Test Packages, Libraries, and Test Libraries. The Files tab is selected, showing the BankUmum.java file. The code editor displays the following Java code:

```
/*
 * To change this license header, choose License Headers in Project Properties.
 * To change this template file, choose Tools | Templates
 * and open the template in the editor.
 */
package Tugas;

/**
 *
 * @author Win8
 */
public class BankUmum extends Bank{
    @Override
    protected int rasioBunga(){
        return 9;
    }
}
```

The status bar at the bottom shows the date and time as 11/23/2019 12:41.

➤ Class BankPasar

The screenshot shows the Modu8 - NetBeans IDE 8.0.2 interface. The menu bar includes File, Edit, View, Navigate, Source, Refactor, Run, Debug, Profile, Team, Tools, Window, Help, and a search bar. The toolbar has icons for file operations like New, Open, Save, and Print. The Projects tab is selected, displaying a tree view of Java files across several packages: Tugas, Bank, BankPasar, BankUmum, BankBunga, BankSyariah, and BankDemo. The Services tab is also visible. The Files tab is selected, showing the source code for the `BankPasar.java` file. The code defines a class `BankPasar` that extends `BankUmum`. It overrides the `rasioBunga` method and returns the value 3. The code editor includes syntax highlighting and a status bar at the bottom.

➤ Class BankSyariah

The screenshot shows the NetBeans IDE interface with the title bar "Modul8 - NetBeans IDE 8.0.2". The left sidebar displays the project structure under the "Tugas" package, which contains several Java files like Bank.java, BankDemo.java, etc. The main editor window shows the code for the "BankSyariah" class:

```
1  /*
2   * To change this license header, choose License Headers in Project Properties.
3   * To change this template file, choose Tools | Templates
4   * and open the template in the editor.
5   */
6  package Tugas;
7
8  /**
9   * 
10  * @author Win8
11  */
12 public class BankSyariah extends BankUmm {
13     @Override
14     protected int rasioBunga() {
15         return 0;
16     }
17 }
```

➤ Class BankDemo (main class)

The screenshot shows the NetBeans IDE interface with the title bar "Modul8 - NetBeans IDE 8.0.2". The left sidebar displays the project structure under the "Tugas" package. The main editor window shows the code for the "BankDemo" class:

```
1  /*
2   * To change this license header, choose License Headers in Project Properties.
3   * To change this template file, choose Tools | Templates
4   * and open the template in the editor.
5   */
6  package Tugas;
7
8  /**
9   * 
10  * @author Win8
11  */
12 public class BankDemo {
13     public static void main(String[] args) {
14         BankPribadi bpr = new BankPribadi();
15         BankUmm bum = new BankUmm();
16         BankPasar bps = new BankPasar();
17         BankSyariah bsy = new BankSyariah();
18
19         System.out.println(
20             "Ratio Bunga Bank Pribadi : " + bpr.rasioBunga() + "\n" +
21             "Ratio Bunga Bank Umm : " + bum.rasioBunga() + "\n" +
22             "Ratio Bunga Bank Pasar : " + bps.rasioBunga() + "\n" +
23             "Ratio Bunga Bank Syariah : " + bsy.rasioBunga());
24     }
25 }
```

➤ Output:

The screenshot shows the NetBeans IDE interface with the title bar "Modul8 - NetBeans IDE 8.0.2". The left sidebar shows the project structure. The bottom panel is titled "Output: Modul8 (run)" and displays the console output of the program:

```
Ratio Bunga Bank Pribadi : 7
Ratio Bunga Bank Umm : 9
Ratio Bunga Bank Pasar : 3
Ratio Bunga Bank Syariah : 0
BUILD SUCCESSFUL (total time: 0 seconds)
```

MODUL 9

ABSTRACT CLASS

PRAKTIKUM PEMROGRAMAN BERORIENTASI OBJEK

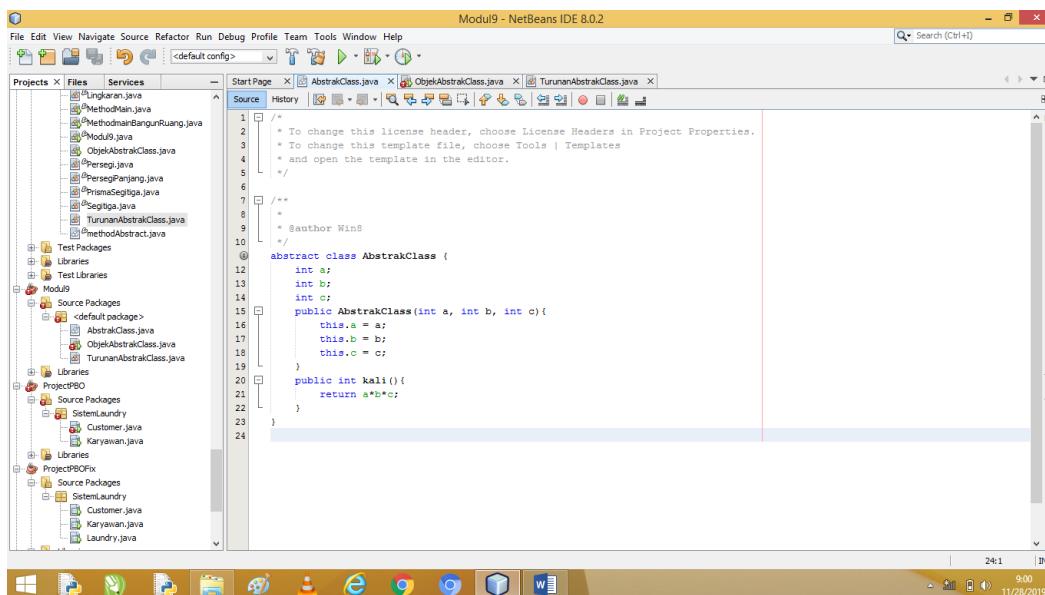
Nama : Annisa Nugraheni

NIM : L200180066

Kelas : B

❖ 9.1 OBJECT CLASS ABSTRACT

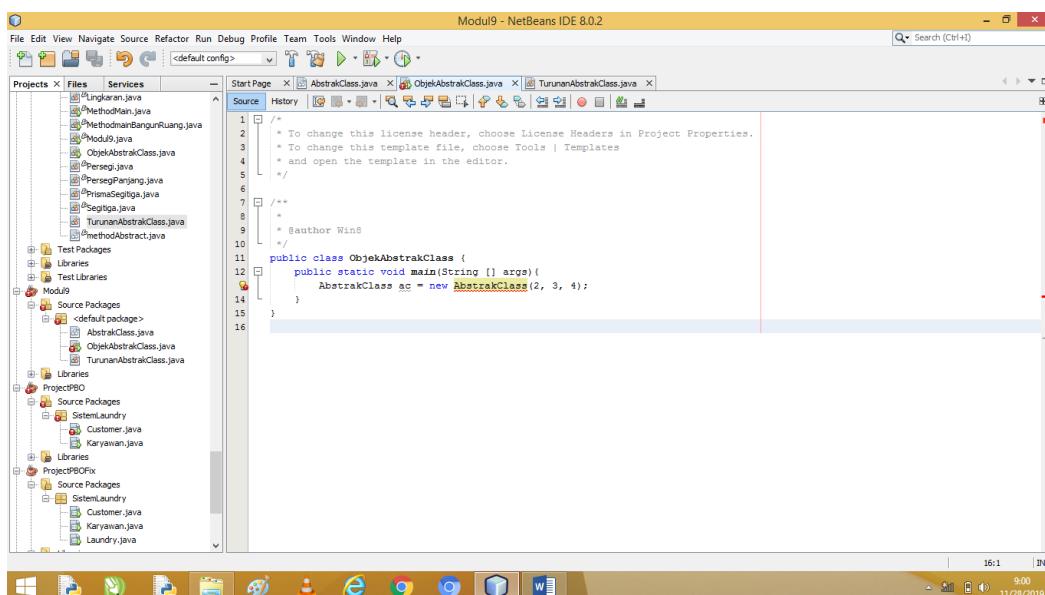
- Program 1. Contoh class abstract



The screenshot shows the NetBeans IDE interface with the title bar "Modul9 - NetBeans IDE 8.0.2". The left sidebar displays the project structure for "Modul9" with several source packages and files. The main editor window shows the code for "AbstrakClass.java". The code defines an abstract class "AbstrakClass" with three integer fields (a, b, c) and a method "kali()". The code is as follows:

```
/*
 * To change this license header, choose License Headers in Project Properties.
 * To change this template file, choose Tools | Templates
 * and open the template in the editor.
 */
abstract class AbstrakClass {
    int a;
    int b;
    int c;
    public AbstrakClass(int a, int b, int c){
        this.a = a;
        this.b = b;
        this.c = c;
    }
    public int kali(){
        return a*b*c;
    }
}
```

- Program 2. Class abstract tidak dapat dibuat objectnya



The screenshot shows the NetBeans IDE interface with the title bar "Modul9 - NetBeans IDE 8.0.2". The left sidebar displays the project structure for "Modul9" with several source packages and files. The main editor window shows the code for "ObjekAbstrakClass.java". The code defines a public class "ObjekAbstrakClass" with a static main method that creates an instance of "AbstrakClass". The code is as follows:

```
/*
 * To change this license header, choose License Headers in Project Properties.
 * To change this template file, choose Tools | Templates
 * and open the template in the editor.
 */
public class ObjekAbstrakClass {
    public static void main(String [] args){
        AbstrakClass ac = new AbstrakClass(2, 3, 4);
    }
}
```

The screenshot shows the NetBeans IDE interface with the title bar "Modul9 - NetBeans IDE 8.0.2". The left sidebar displays a project structure with several Java files like Lingkaran.java, MethodMan.java, and TurunanAbstrakClass.java. The main editor window shows the code for AbstrakClass.java:

```

1  /*
2   * To change this license header, choose License Headers in Project Properties.
3   * To change this template file, choose Tools | Templates
4   * and open the template in the editor.
5   */
6
7 /**
8 *
9 * @author Win8
10 */
11
12 public class AbstrakClass {
13     public AbstrakClass(int a, int b, int c) {
14         super(a, b, c);
15     }
16 }

```

A yellow tooltip box appears over the line "AbstrakClass ac = new AbstrakClass(2, 3, 4);", stating "AbstrakClass is abstract; cannot be instantiated". The status bar at the bottom right shows the time as 16:1 and date as 11/28/2019.

Jika kita menjalankan kode Program 2, maka bisa dipastikan terjadi kesalahan (error). Error muncul disebabkan karena ada pembuatan objek dari class AbstractClass. Sehingga untuk menggunakan class abstract agar bisa diimplementasikan kita perlu membuat kode program yang merupakan turunan dari class abstract tersebut.

➤ Program 3. Implementasi class abstract melalui subclass

The screenshot shows the NetBeans IDE interface with the title bar "Modul9 - NetBeans IDE 8.0.2". The left sidebar displays a project structure with Java files like Lingkaran.java, MethodMan.java, and TurunanAbstrakClass.java. The main editor window shows the code for TurunanAbstrakClass.java, which extends AbstrakClass:

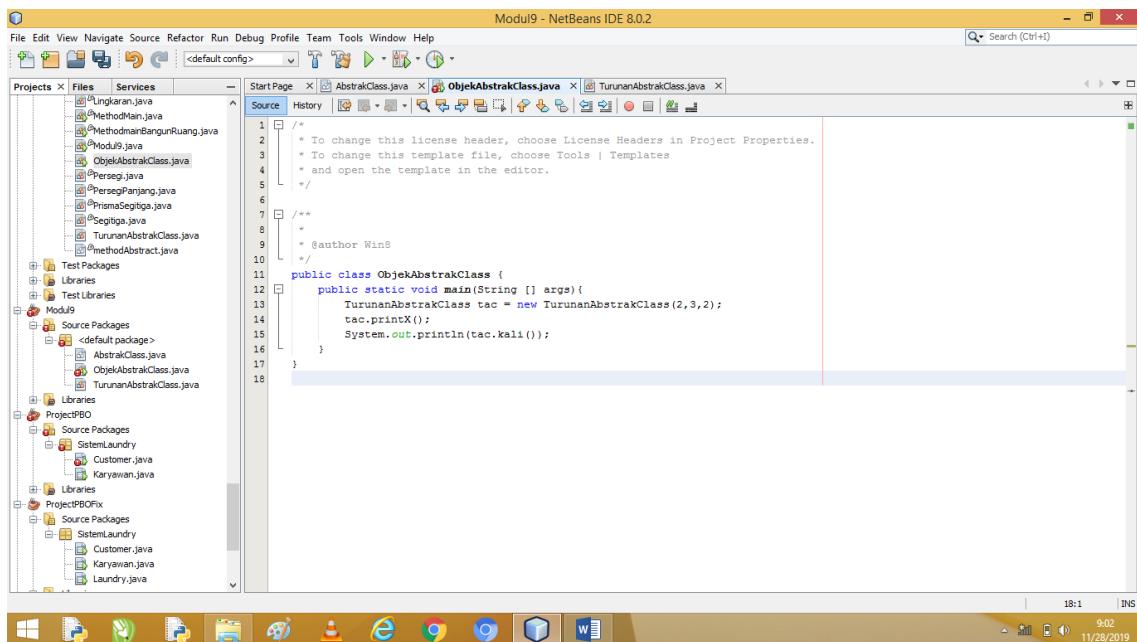
```

1  /*
2   * To change this license header, choose License Headers in Project Properties.
3   * To change this template file, choose Tools | Templates
4   * and open the template in the editor.
5   */
6
7 /**
8 *
9 * @author Win8
10 */
11
12 public class TurunanAbstrakClass extends AbstrakClass {
13     int x;
14
15     public TurunanAbstrakClass (int a, int b, int c){
16         super(a,b,c);
17         x = a+b+c;
18     }
19     public void printX(){
20         System.out.println(x);
21     }
22 }

```

The status bar at the bottom right shows the time as 22:1 and date as 11/28/2019.

➤ Program 4. Penggunaan properties class abstract melalui object subclass

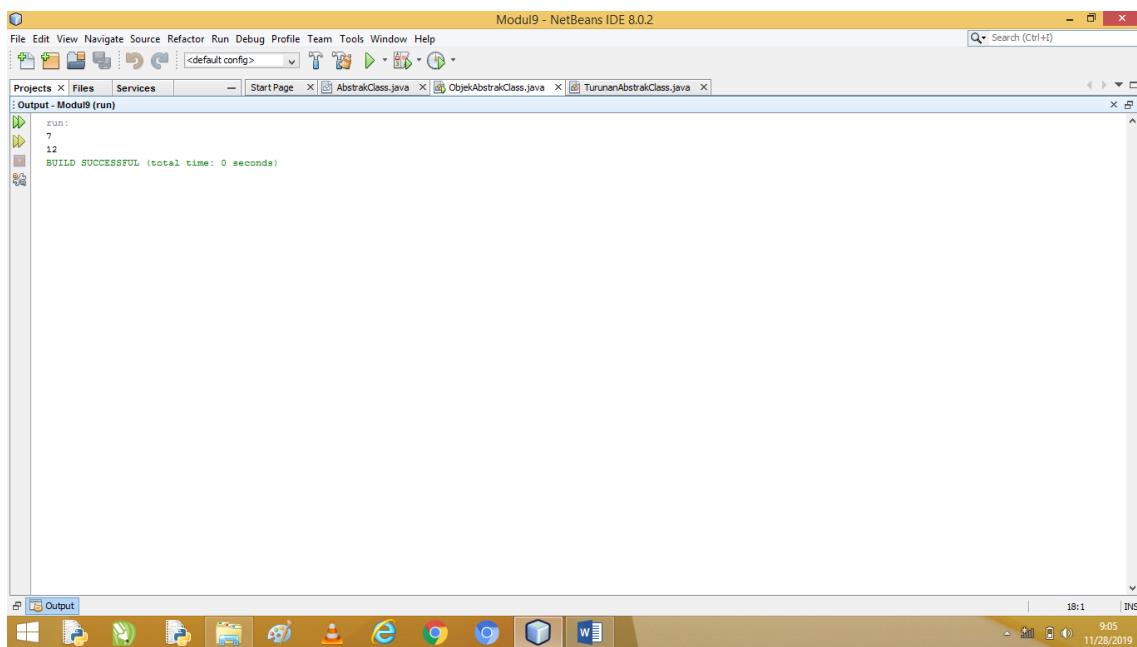


The screenshot shows the NetBeans IDE interface. The title bar reads "Modul9 - NetBeans IDE 8.0.2". The menu bar includes File, Edit, View, Navigate, Source, Refactor, Run, Debug, Profile, Team, Tools, Window, Help. The toolbar has icons for New Project, Open Project, Save, Undo, Redo, Cut, Copy, Paste, Find, Replace, and others. The Projects tab shows a list of Java files: Lingkaran.java, MetodHutan.java, MetodManBangunRuang.java, Modul9.java, ObjekAbstrakClass.java, Persegi.java, PersegiPanjang.java, PrismSegitiga.java, Segitiga.java, and TurunanAbstrakClass.java. The Files tab shows Test Packages, Libraries, and Test Libraries. The current file is "ObjekAbstrakClass.java" in the Source tab, containing the following code:

```
/*
 * To change this license header, choose License Headers in Project Properties.
 * To change this template file, choose Tools | Templates
 * and open the template in the editor.
 */
public class ObjekAbstrakClass {
    public static void main(String [] args){
        TurunanAbstrakClass tac = new TurunanAbstrakClass(2,3,2);
        tac.printX();
        System.out.println(tac.kali());
    }
}
```

The status bar at the bottom shows the time as 18:1 and the date as 11/28/2019.

Output:



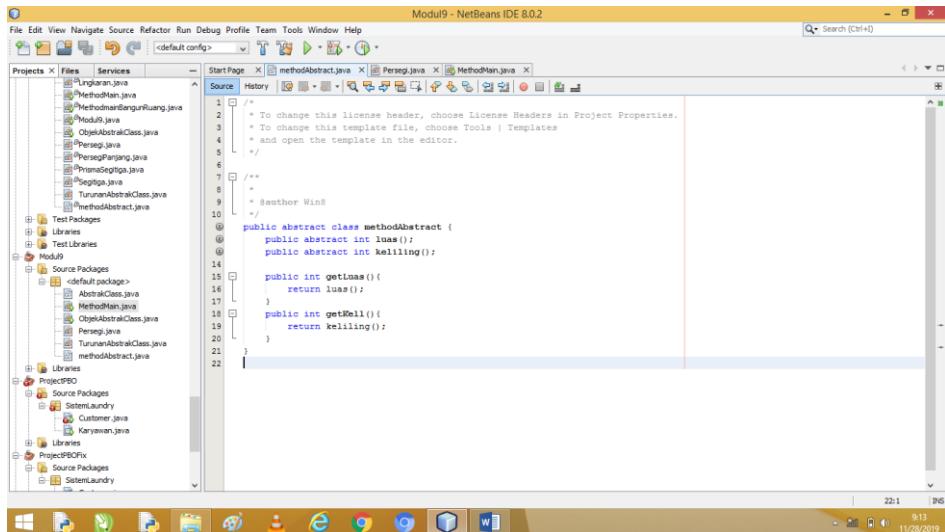
The screenshot shows the NetBeans IDE interface with the title bar "Modul9 - NetBeans IDE 8.0.2". The menu bar and toolbar are identical to the previous screenshot. The Projects tab shows the same list of Java files. The current file is "TurunanAbstrakClass.java" in the Source tab. The Output tab shows the build logs:

```
C:\Users\12
BUILD SUCCESSFUL (total time: 0 seconds)
```

The status bar at the bottom shows the time as 18:1 and the date as 11/28/2019.

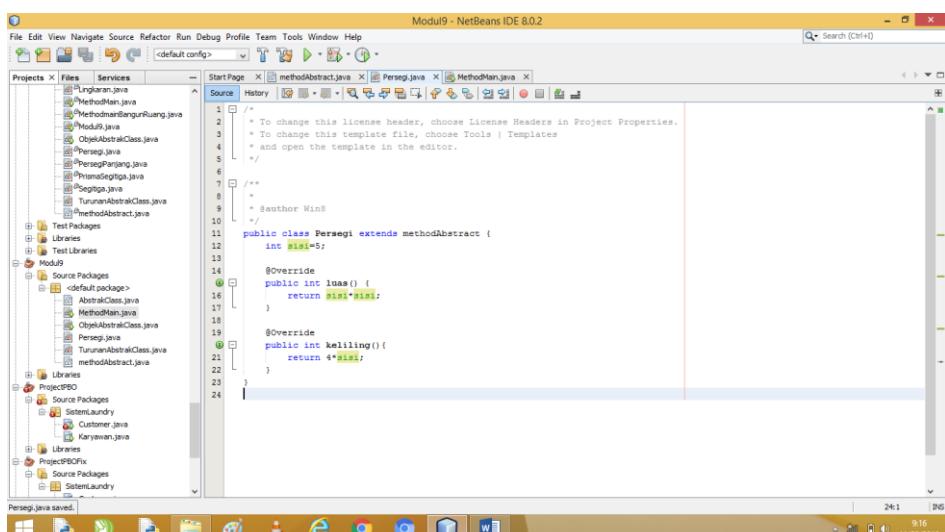
❖ 9.2 METHOD ABSTRACT

- Program 5. Class yang mengandung method abstract



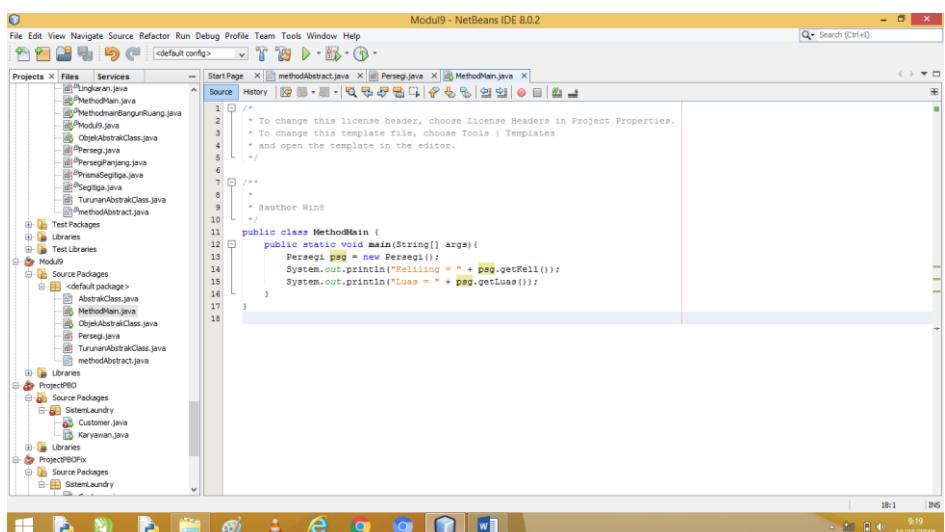
```
1  /*
2  * To change this license header, choose License Headers in Project Properties.
3  * To change this template file, choose Tools | Templates
4  * and open the template in the editor.
5  */
6
7 /**
8 *
9 * @author Win8
10 */
11 public abstract class MethodAbstract {
12     public abstract int luas();
13     public abstract int keliling();
14
15     public int getLuas(){
16         return luas();
17     }
18     public int getKeliling(){
19         return keliling();
20     }
21 }
22
```

- Program 6. Implementasi method abstract oleh subclass



```
1  /*
2  * To change this license header, choose License Headers in Project Properties.
3  * To change this template file, choose Tools | Templates
4  * and open the template in the editor.
5  */
6
7 /**
8 *
9 * @author Win8
10 */
11 public class Perseg extends MethodAbstract {
12     int sisid;
13
14     @Override
15     public int luas() {
16         return sisid*sisid;
17     }
18
19     @Override
20     public int keliling() {
21         return 4*sisid;
22     }
23 }
24
```

- Program 7. Penggunaan properties method abstract melalui object subclass



```
1  /*
2  * To change this license header, choose License Headers in Project Properties.
3  * To change this template file, choose Tools | Templates
4  * and open the template in the editor.
5  */
6
7 /**
8 *
9 * @author Win8
10 */
11 public class MethodMain {
12     public static void main(String[] args){
13         Perseg psq = new Perseg();
14         System.out.println("Keliling = " + psq.getKeliling());
15         System.out.println("Luas = " + psq.getLuas());
16     }
17 }
```

❖ 9.3 LATIHAN

➤ Class PersegiPanjang

The screenshot shows the NetBeans IDE interface with the title bar "Modul9 - NetBeans IDE 8.0.2". The code editor displays the following Java code for the `PersegiPanjang` class:

```
1  /*
2   * To change this license header, choose License Headers in Project Properties.
3   * To change this template file, choose Tools | Templates
4   * and open the template in the editor.
5   */
6
7  /**
8   * 
9   * @author Win8
10  */
11 public class PersegiPanjang extends methodAbstract {
12     int panjang = 20;
13     int lebar = 15;
14
15     @Override
16     public int luas() {
17         return panjang*lebar;
18     }
19
20     @Override
21     public int keliling(){
22         return 2*(panjang + lebar);
23     }
24 }
```

The code defines a class `PersegiPanjang` that extends `methodAbstract`. It has two instance variables: `panjang` and `lebar`, both initialized to 20 and 15 respectively. It overrides the `luas()` and `keliling()` methods.

➤ Class JajarGenjang

The screenshot shows the NetBeans IDE interface with the title bar "Modul9 - NetBeans IDE 8.0.2". The code editor displays the following Java code for the `JajarGenjang` class:

```
1  /*
2   * To change this license header, choose License Headers in Project Properties.
3   * To change this template file, choose Tools | Templates
4   * and open the template in the editor.
5   */
6
7  /**
8   * 
9   * @author Win8
10  */
11 public class JajarGenjang extends methodAbstract {
12     int alas = 10;
13     int tinggi = 4;
14     int sisi_miring = 5;
15
16     @Override
17     public int luas() {
18         return alas*tinggi;
19     }
20
21     @Override
22     public int keliling(){
23         return (2*alas) + (2*sisi_miring);
24     }
25 }
```

The code defines a class `JajarGenjang` that extends `methodAbstract`. It has three instance variables: `alas` (10), `tinggi` (4), and `sisi_miring` (5). It overrides the `luas()` and `keliling()` methods.

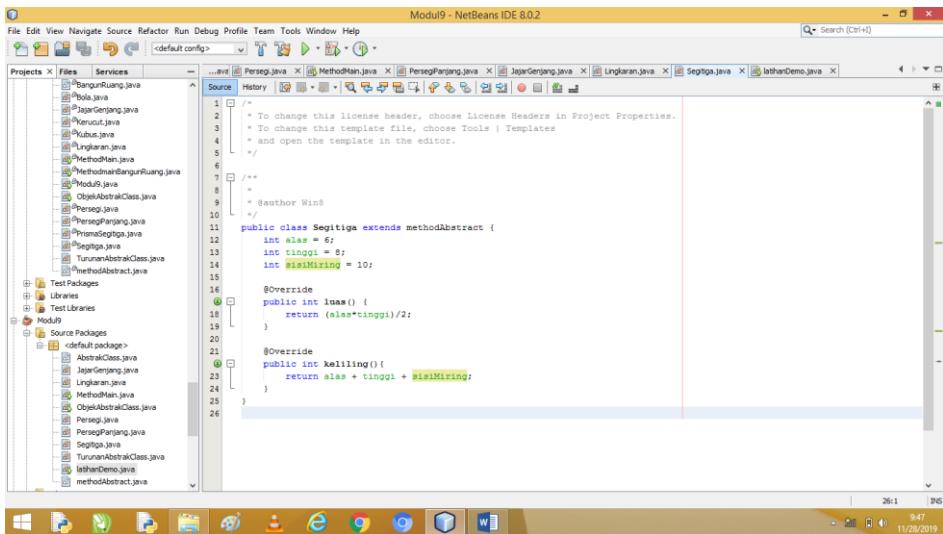
➤ Class Lingkaran

The screenshot shows the NetBeans IDE interface with the title bar "Modul9 - NetBeans IDE 8.0.2". The code editor displays the following Java code for the `Lingkaran` class:

```
1  /*
2   * To change this license header, choose License Headers in Project Properties.
3   * To change this template file, choose Tools | Templates
4   * and open the template in the editor.
5   */
6
7  /**
8   * 
9   * @author Win8
10  */
11 public class Lingkaran extends methodAbstract {
12     int r = 7;
13
14     @Override
15     public int luas() {
16         return ((22*r*r)/7);
17     }
18
19     @Override
20     public int keliling(){
21         return (2*22*r)/7;
22     }
23 }
```

The code defines a class `Lingkaran` that extends `methodAbstract`. It has one instance variable `r` (7). It overrides the `luas()` and `keliling()` methods.

➤ Class Segitiga



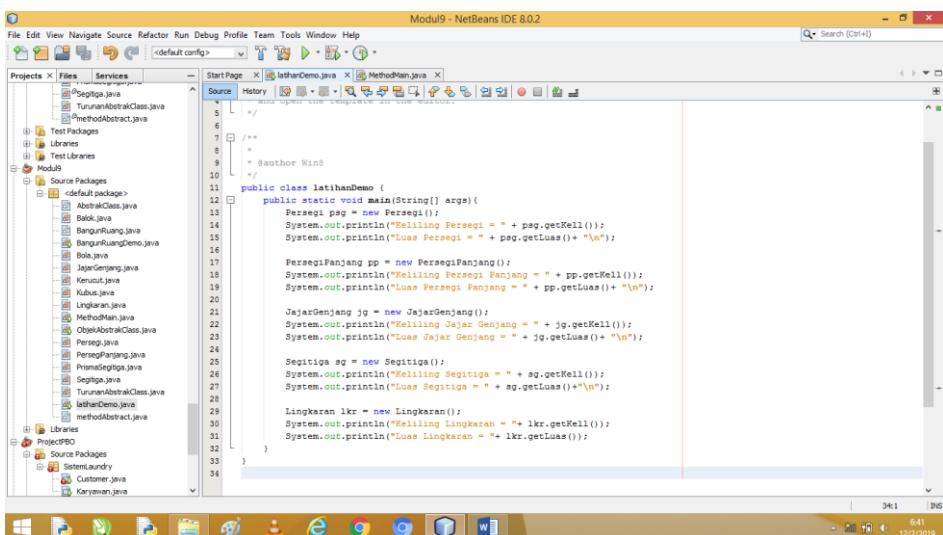
The screenshot shows the NetBeans IDE interface with the title "Modul9 - NetBeans IDE 8.0.2". The "Projects" tab is selected, displaying a list of Java files including PersegiRuang.java, Persegi.java, JajarGenjang.java, Kerucut.java, Kubus.java, Lingkaran.java, MethodMan.java, MethodManBangunRuang.java, Modul8.java, Perek.java, Segitiga.java, TurunanAbstrakClass.java, and methodAbstract.java. The "Files" tab is selected, showing the content of Segitiga.java:

```

1  /*
2   * To change this license header, choose License Headers in Project Properties.
3   * To change this template file, choose Tools | Templates
4   * and open the template in the editor.
5   */
6
7  /**
8   * 
9   * @author Win8
10  */
11 public class Segitiga extends methodAbstract {
12     int alas = 6;
13     int tinggi = 8;
14     int isiMiring = 10;
15
16     @Override
17     public int luas() {
18         return (alas*tinggi)/2;
19     }
20
21     @Override
22     public int keliling(){
23         return alas + tinggi + isiMiring;
24     }
25 }

```

➤ Class latihanDemo (main class)



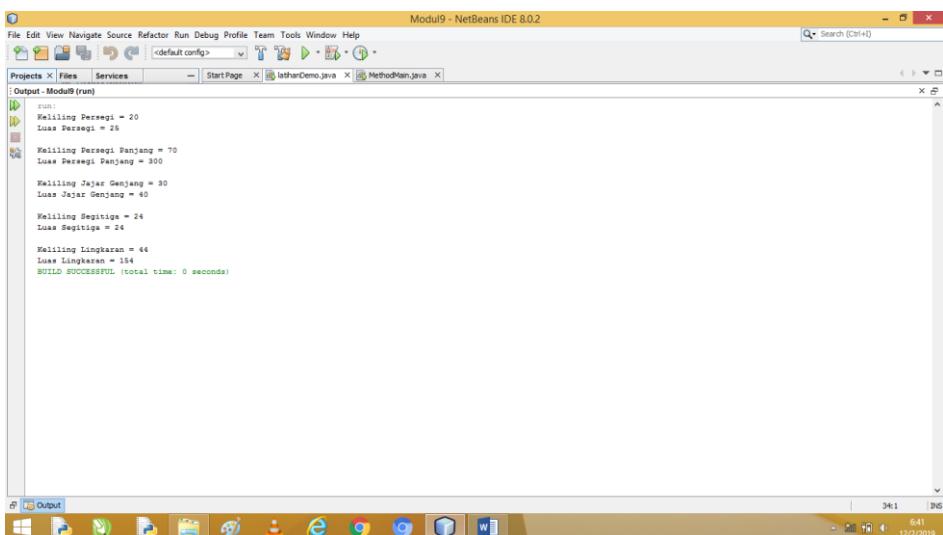
The screenshot shows the NetBeans IDE interface with the title "Modul9 - NetBeans IDE 8.0.2". The "Projects" tab is selected, displaying a list of Java files including Segitiga.java, TurunanAbstrakClass.java, methodAbstract.java, and others. The "Files" tab is selected, showing the content of latihanDemo.java:

```

5
6
7 /**
8  * 
9  * @author Win8
10 */
11 public class latihanDemo {
12     static void main(String[] args) {
13         Persegi pg = new Persegi();
14         System.out.println("Keliling Persegi = " + pg.getKell());
15         System.out.println("Luas Persegi = " + pg.getLuas()) + "\n";
16
17         PersegiPanjang pp = new PersegiPanjang();
18         System.out.println("Keliling Persegi Panjang = " + pp.getKell());
19         System.out.println("Luas Persegi Panjang = " + pp.getLuas()) + "\n";
20
21         JajarGenjang jg = new JajarGenjang();
22         System.out.println("Keliling Jajar Genjang = " + jg.getKell());
23         System.out.println("Luas Jajar Genjang = " + jg.getLuas()) + "\n";
24
25         Segitiga sg = new Segitiga();
26         System.out.println("Keliling Segitiga = " + sg.getKell());
27         System.out.println("Luas Segitiga = " + sg.getLuas()) + "\n";
28
29         Lingkaran lkr = new Lingkaran();
30         System.out.println("Keliling Lingkaran = " + lkr.getKell());
31         System.out.println("Luas Lingkaran = " + lkr.getLuas());
32     }
33 }

```

➤ Output:



The screenshot shows the NetBeans IDE interface with the title "Modul9 - NetBeans IDE 8.0.2". The "Output" tab is selected, showing the build output:

```

Build SUCCESSFUL (total time: 0 seconds)

```

The output window displays the following console output:

```

Keliling Persegi = 20
Luas Persegi = 36

Keliling Persegi Panjang = 300
Luas Persegi Panjang = 300

Keliling Jajar Genjang = 30
Luas Jajar Genjang = 40

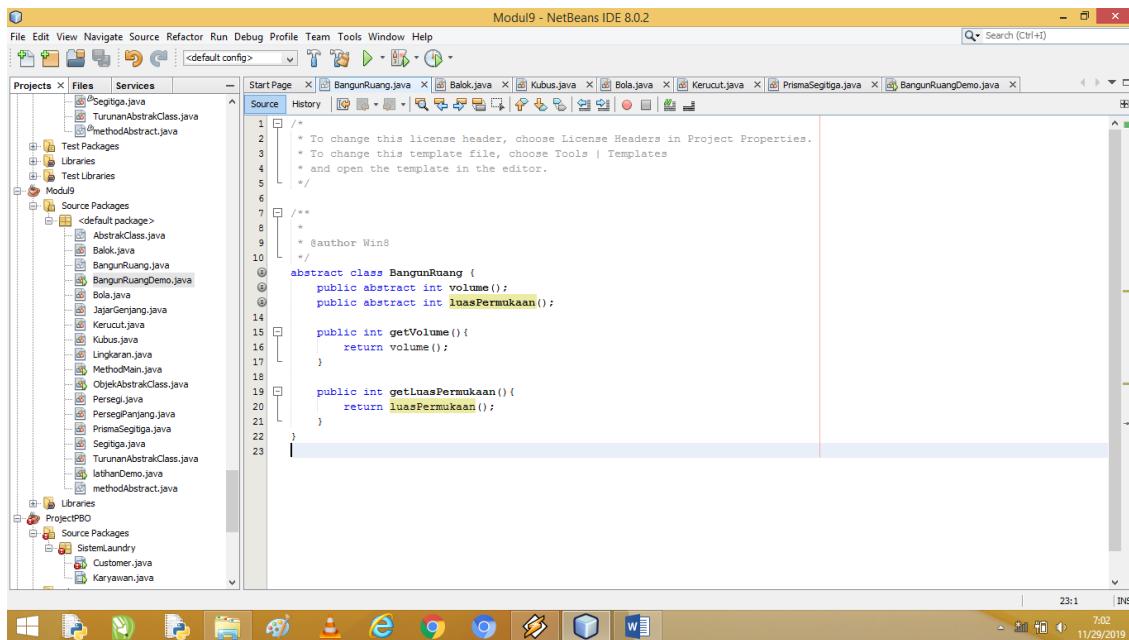
Keliling Segitiga = 24
Luas Segitiga = 24

Keliling Lingkaran = 44
Luas Lingkaran = 184

```

❖ 9.4 TUGAS

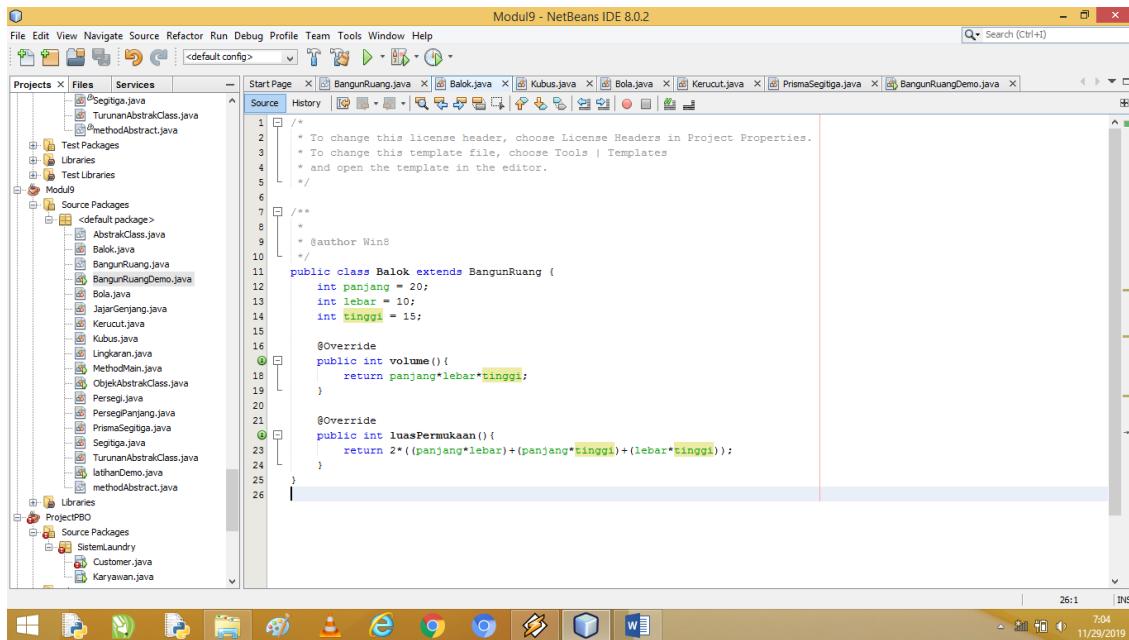
➤ Class BangunRuang (Abstract Class)



```
Modul9 - NetBeans IDE 8.0.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
<default config> Start Page BangunRuang.java Balok.java Kubus.java Bola.java Kerucut.java PrismaSegitiga.java BangunRuangDemo.java
Projects Files Services
Modul9
Source Packages <default package>
    AbstrakClass.java
    Balok.java
    BangunRuang.java
    BangunRuangDemo.java
    Bola.java
    JajarGenjang.java
    Kerucut.java
    Kubus.java
    Lingkaran.java
    MethodMain.java
    ObjekAbstrakClass.java
    Persegi.java
    PersegiPanjang.java
    PrismaSegitiga.java
    Segitiga.java
    TurunanAbstrakClass.java
    IalaharDemo.java
    methodAbstract.java
Libraries ProjectPBO
Source Packages SistemLaundry
Customer.java Karyawan.java
23:1 7:02 11/29/2019

1 /*
2  * To change this license header, choose License Headers in Project Properties.
3  * To change this template file, choose Tools | Templates
4  * and open the template in the editor.
5  */
6
7 /**
8  *
9  * @author Win8
10 */
11 abstract class BangunRuang {
12     public abstract int volume();
13     public abstract int luasPermukaan();
14
15     public int getVolume() {
16         return volume();
17     }
18
19     public int getLuasPermukaan() {
20         return luasPermukaan();
21     }
22 }
23
```

➤ Class Balok



```
Modul9 - NetBeans IDE 8.0.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
<default config> Start Page BangunRuang.java Balok.java Kubus.java Bola.java Kerucut.java PrismaSegitiga.java BangunRuangDemo.java
Projects Files Services
Modul9
Source Packages <default package>
    AbstrakClass.java
    Balok.java
    BangunRuang.java
    BangunRuangDemo.java
    Bola.java
    JajarGenjang.java
    Kerucut.java
    Kubus.java
    Lingkaran.java
    MethodMain.java
    ObjekAbstrakClass.java
    Persegi.java
    PersegiPanjang.java
    PrismaSegitiga.java
    Segitiga.java
    TurunanAbstrakClass.java
    IalaharDemo.java
    methodAbstract.java
Libraries ProjectPBO
Source Packages SistemLaundry
Customer.java Karyawan.java
26:1 7:04 11/29/2019

1 /*
2  * To change this license header, choose License Headers in Project Properties.
3  * To change this template file, choose Tools | Templates
4  * and open the template in the editor.
5  */
6
7 /**
8  *
9  * @author Win8
10 */
11 public class Balok extends BangunRuang {
12     int panjang = 20;
13     int lebar = 10;
14     int tinggi = 15;
15
16     @Override
17     public int volume() {
18         return panjang*lebar*tinggi;
19     }
20
21     @Override
22     public int luasPermukaan() {
23         return 2*(panjang*lebar)+(panjang*tinggi)+(lebar*tinggi);
24     }
25 }
26
```

➤ Class Kubus

The screenshot shows the NetBeans IDE interface with the title bar "Modul9 - NetBeans IDE 8.0.2". The left sidebar displays the project structure under "Modul9" with various Java files listed. The main editor window shows the code for the Kubus class, which extends the BangunRuang class. The code includes comments and two overridden methods: volume() and luasPermukaan(). The code is as follows:

```
1 // To change this license header, choose License Headers in Project Properties.
2 // To change this template file, choose Tools | Templates
3 // and open the template in the editor.
4
5 /**
6 * 
7 * @author Win8
8 */
9 public class Kubus extends BangunRuang {
10     int sisi = 10;
11
12     @Override
13     public int volume(){
14         return sisi*sisi*sisi;
15     }
16
17     @Override
18     public int luasPermukaan(){
19         return 6*(sisi*sisi);
20     }
21 }
22
23
24 }
```

➤ Class Bola

The screenshot shows the NetBeans IDE interface with the title bar "Modul9 - NetBeans IDE 8.0.2". The left sidebar displays the project structure under "Modul9" with various Java files listed. The main editor window shows the code for the Bola class, which extends the BangunRuang class. The code includes comments and two overridden methods: volume() and luasPermukaan(). The code is as follows:

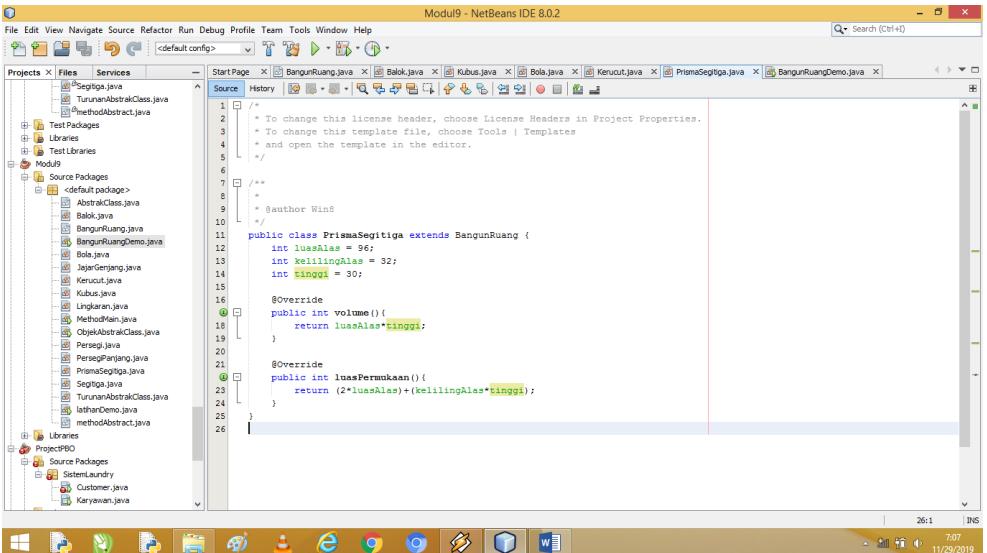
```
1 // To change this license header, choose License Headers in Project Properties.
2 // To change this template file, choose Tools | Templates
3 // and open the template in the editor.
4
5 /**
6 * 
7 * @author Win8
8 */
9 public class Bola extends BangunRuang {
10     int r = 21;
11
12     @Override
13     public int volume(){
14         return ((4*22*r*r*r)/7)/3;
15     }
16
17     @Override
18     public int luasPermukaan(){
19         return (4*22*r*r);
20     }
21 }
22
23
24 }
```

➤ Class Kerucut

The screenshot shows the NetBeans IDE interface with the title bar "Modul9 - NetBeans IDE 8.0.2". The left sidebar displays the project structure under "Modul9" with various Java files listed. The main editor window shows the code for the Kerucut class, which extends the BangunRuang class. The code includes comments and two overridden methods: volume() and luasPermukaan(). The code is as follows:

```
1 // To change this license header, choose License Headers in Project Properties.
2 // To change this template file, choose Tools | Templates
3 // and open the template in the editor.
4
5 /**
6 * 
7 * @author Win8
8 */
9 public class Kerucut extends BangunRuang {
10     int r = 21;
11     int t = 50;
12     int g = 30;
13
14     @Override
15     public int volume(){
16         return ((22*r*r*t)/7)/3;
17     }
18
19     @Override
20     public int luasPermukaan(){
21         return ((22*r)/7)*(r+g);
22     }
23 }
24
25
26 }
```

➤ Class PrismaSegitiga

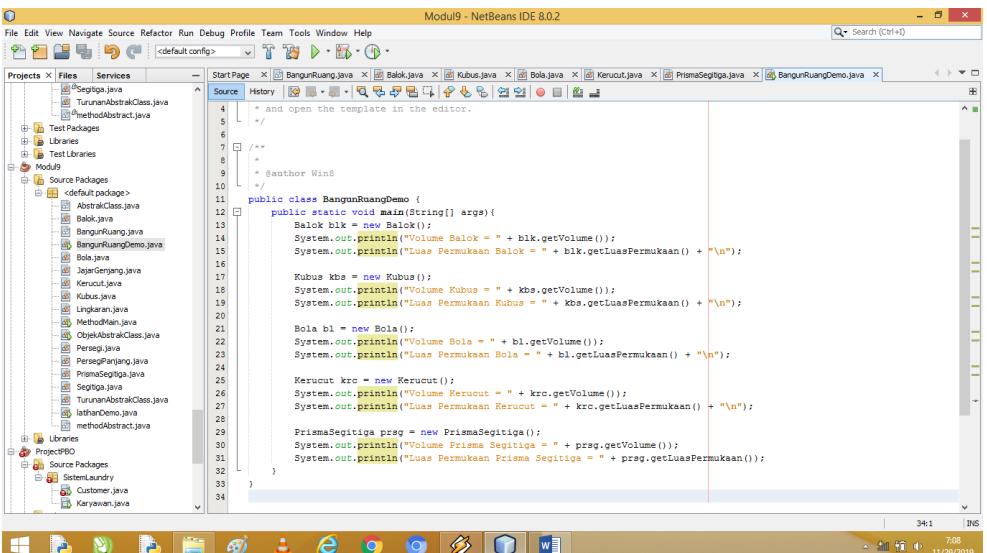


```

Modul9 - NetBeans IDE 8.0.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
<default config> Start Page BangunRuang.java Balok.java Kubus.java Bola.java Kerucut.java PrismaSegitiga.java BangunRuangDemo.java
Projects Files Services
Source History
1 /*
2 * To change this license header, choose License Headers in Project Properties.
3 * To change this template file, choose Tools | Templates
4 * and open the template in the editor.
5 */
6
7 /**
8 *
9 * @author Win8
10 */
11 public class PrismaSegitiga extends BangunRuang {
12     int luasAlas = 56;
13     int kelilingAlas = 32;
14     int tinggi = 30;
15
16     @Override
17     public int volume() {
18         return luasAlas*tinggi;
19     }
20
21     @Override
22     public int luasPermukaan(){
23         return (2*luasAlas)+(kelilingAlas*tinggi);
24     }
25 }

```

➤ Class BangunRuangDemo (Main Class)

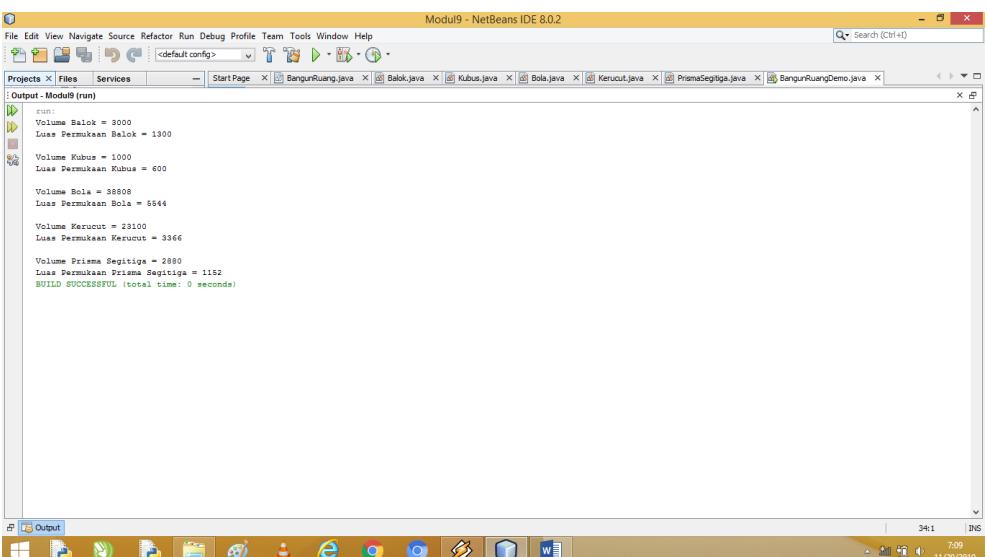


```

Modul9 - NetBeans IDE 8.0.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
<default config> Start Page BangunRuang.java Balok.java Kubus.java Bola.java Kerucut.java PrismaSegitiga.java BangunRuangDemo.java
Projects Files Services
Source History
1 /*
2 * To change this license header, choose License Headers in Project Properties.
3 * To change this template file, choose Tools | Templates
4 * and open the template in the editor.
5 */
6
7 /**
8 *
9 * @author Win8
10 */
11 public class BangunRuangDemo {
12     public static void main(String[] args){
13         Balok blk = new Balok();
14         System.out.println("Volume Balok = " + blk.getVolume());
15         System.out.println("Luas Permukaan Balok = " + blk.getLuasPermukaan() + "\n");
16
17         Kubus kbs = new Kubus();
18         System.out.println("Volume Kubus = " + kbs.getVolume());
19         System.out.println("Luas Permukaan Kubus = " + kbs.getLuasPermukaan() + "\n");
20
21         Bola bl = new Bola();
22         System.out.println("Volume Bola = " + bl.getVolume());
23         System.out.println("Luas Permukaan Bola = " + bl.getLuasPermukaan() + "\n");
24
25         Kerucut krc = new Kerucut();
26         System.out.println("Volume Kerucut = " + krc.getVolume());
27         System.out.println("Luas Permukaan Kerucut = " + krc.getLuasPermukaan() + "\n");
28
29         PrismaSegitiga prsg = new PrismaSegitiga();
30         System.out.println("Volume Prisma Segitiga = " + prsg.getVolume());
31         System.out.println("Luas Permukaan Prisma Segitiga = " + prsg.getLuasPermukaan());
32     }
33 }

```

➤ Output:



```

Modul9 - NetBeans IDE 8.0.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
<default config> Start Page BangunRuang.java Balok.java Kubus.java Bola.java Kerucut.java PrismaSegitiga.java BangunRuangDemo.java
Output - Modul9 (run)
run:
Volume Balok = 3000
Luas Permukaan Balok = 1300

Volume Kubus = 1000
Luas Permukaan Kubus = 600

Volume Bola = 38808
Luas Permukaan Bola = 5544

Volume Kerucut = 23100
Luas Permukaan Kerucut = 3366

Volume Prisma Segitiga = 2880
Luas Permukaan Prisma Segitiga = 1152
BUILD SUCCESSFUL (total time: 0 seconds)


```

MODUL 10

INTERFACE

PRAKTIKUM PEMROGRAMAN BERORIENTASI OBJEK

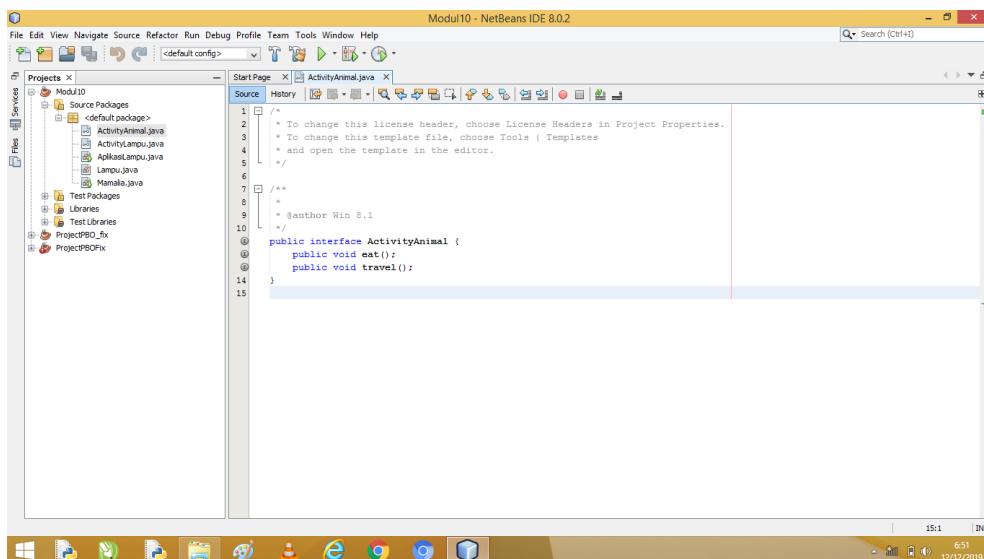
Nama : Annisa Nugraheni

NIM : L200180066

Kelas : B

❖ 10.1 DEKLARASI INTERFACE

- Program 2. Contoh Sebuah Interface Sederhana

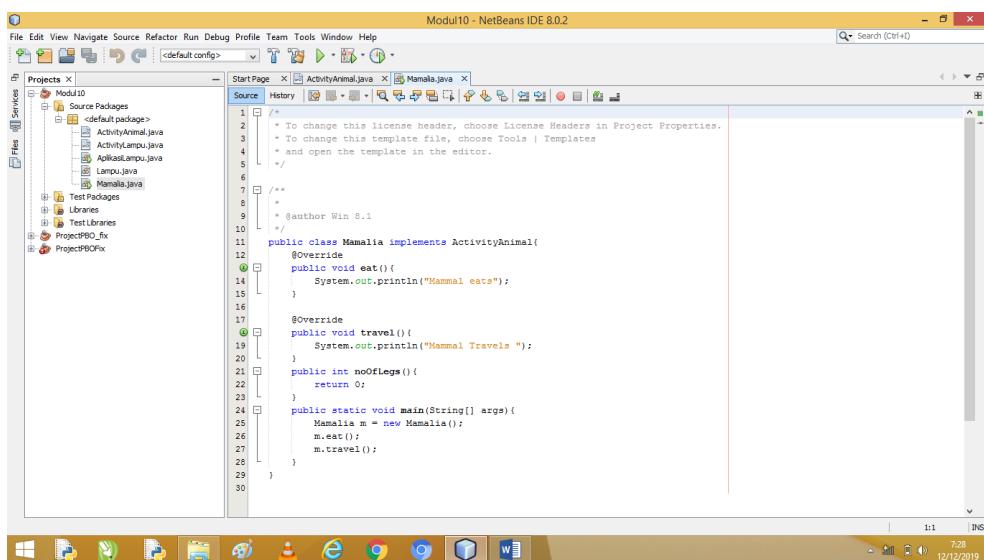


The screenshot shows the NetBeans IDE interface with the title bar "Modul10 - NetBeans IDE 8.0.2". The left sidebar displays the project structure under "Projects" for "Modul10", including source packages like "default package" containing files such as ActivityAnimal.java, ActivityLampu.java, ApikasiLampu.java, Lampu.java, and Mamalia.java. The main editor window shows the code for ActivityAnimal.java:

```
1  /*
2   * To change this license header, choose License Headers in Project Properties.
3   * To change this template file, choose Tools | Templates
4   * and open the template in the editor.
5   */
6
7  /**
8   * @author Win 8.1
9   */
10 public interface ActivityAnimal {
11     public void eat();
12     public void travel();
13 }
```

❖ 10.2 IMPLEMENTASI INTERFACE

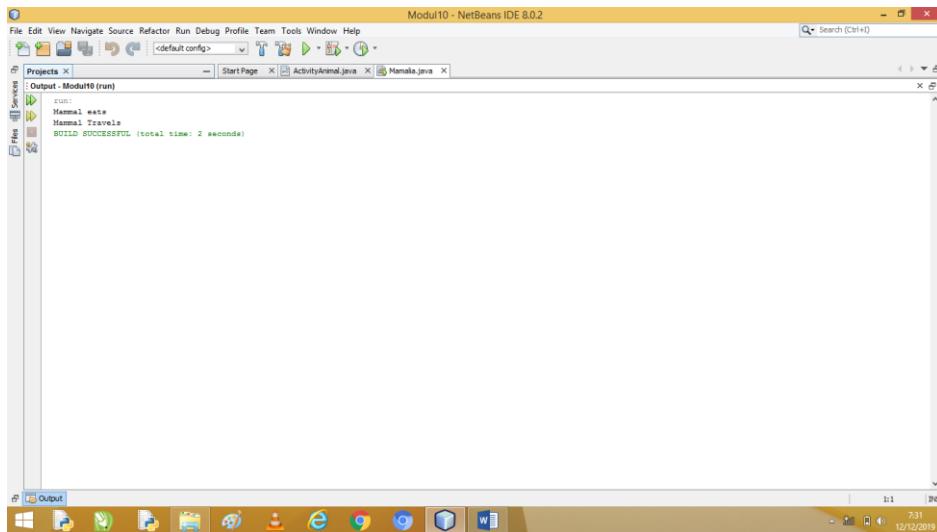
- Program 3. Class yang mengimplementasikan sebuah interface



The screenshot shows the NetBeans IDE interface with the title bar "Modul10 - NetBeans IDE 8.0.2". The left sidebar displays the project structure under "Projects" for "Modul10", including source packages like "default package" containing files such as ActivityAnimal.java, ActivityLampu.java, ApikasiLampu.java, Lampu.java, and Mamalia.java. The main editor window shows the code for Mamalia.java:

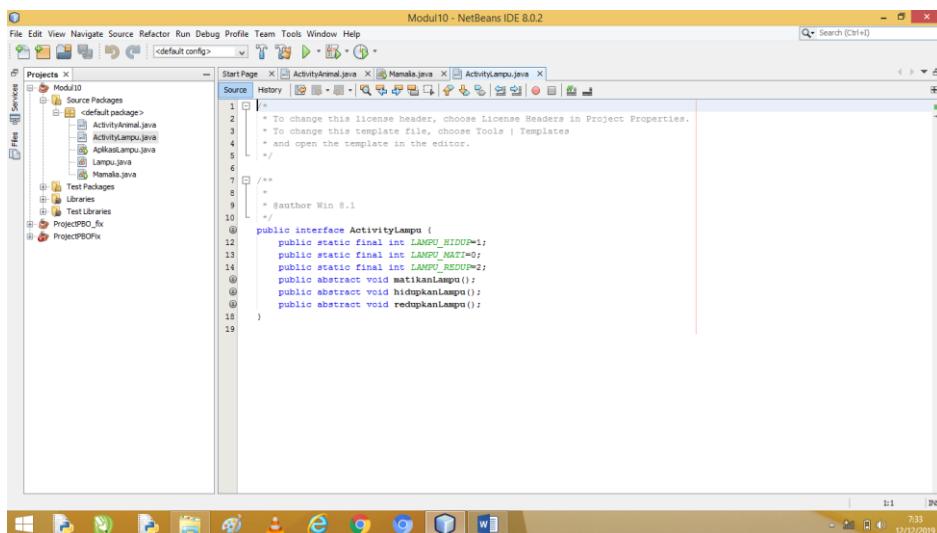
```
1  /*
2   * To change this license header, choose License Headers in Project Properties.
3   * To change this template file, choose Tools | Templates
4   * and open the template in the editor.
5   */
6
7  /**
8   * @author Win 8.1
9   */
10 public class Mamalia implements ActivityAnimal{
11     @Override
12     public void eat(){
13         System.out.println("Mammal eats");
14     }
15
16     @Override
17     public void travel(){
18         System.out.println("Mammal Travels ");
19     }
20
21     public int noOfLegs(){
22         return 0;
23     }
24
25     public static void main(String[] args){
26         Mamalia m = new Mamalia();
27         m.eat();
28         m.travel();
29     }
30 }
```

➤ Output:

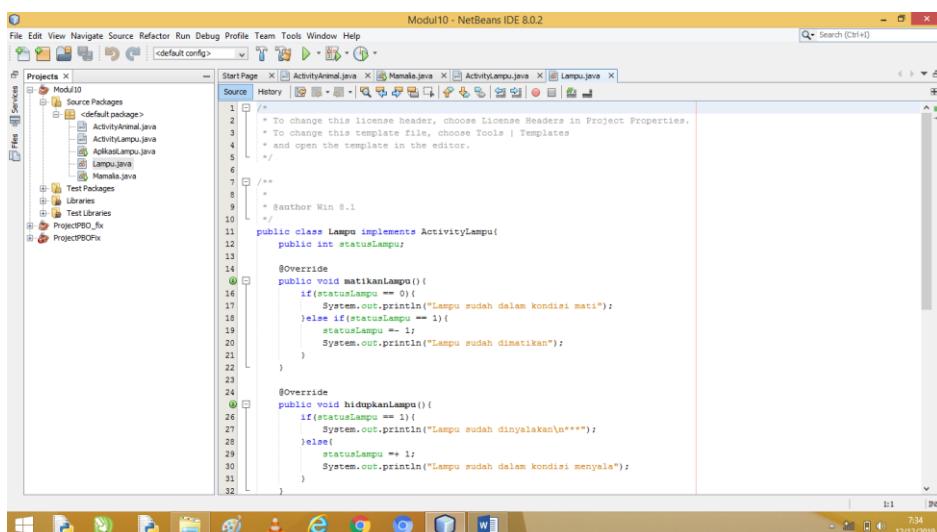


❖ 10.2.1 PERCOBAAN

➤ Program 4. Interface ActivityLampu dengan Method dan Variabelnya



➤ Program 5. Class Lampu Mengimplementasikan Interface



```

18     else if(statusLampu == 1){
19         statusLampu -= 1;
20         System.out.println("Lampu sudah dimatikan");
21     }
22 }
23
24 @Override
25 public void hidupkanLampu(){
26     if(statusLampu == 1){
27         System.out.println("Lampu sudah dinyalakan\n***");
28     }else{
29         statusLampu += 1;
30         System.out.println("Lampu sudah dalam kondisi menyala");
31     }
32 }
33
34 public int setSaklar(int saklar){
35     return statusLampu = saklar;
36 }
37
38 @Override
39 public void redupkanLampu(){
40     if(statusLampu == 2){
41         System.out.println("Lampu telah diredukan");
42     }else{
43         statusLampu += 1;
44         System.out.println("Keredupan Lampu telah ditambah");
45     }
46 }
47 }
48 }
49

```

➤ Program 6. Fungsi main() Untuk Menjalankan Program Interface

```

1 import java.util.Scanner;
2
3 /**
4 * To change this license header, choose License Headers in Project Properties.
5 * To change this template file, choose Tools | Templates
6 * and open the template in the editor.
7 */
8
9
10 /**
11 * @author Win 8.1
12 */
13
14 public class AplikasiLampu {
15     public static void main(String[] args){
16         Lampu lampu = new Lampu();
17         Scanner s = new Scanner(System.in);
18         lampu.setStatusLampu = lampu.setSaklar(0);
19         System.out.println("Status Lampu = " + lampu.getStatusLampu +"\n Ketikkan");
20         System.out.println("1 Untuk menyalaikan Lampu\n0 Untuk mematikan Lampu\n2 Untuk meredupkan Lampu");
21
22         if(lampu.setSaklar(s.nextInt()) == 0){
23             lampu.matiKanLampu();
24         }else if(lampu.getStatusLampu == 1){
25             lampu.hidupKanLampu();
26         }else{
27             lampu.redupkanLampu();
28         }
29     }
30 }
31

```

➤ Output:

```

run:
Status Lampu = 0
Ketikkan
1 Untuk menyalaikan Lampu
0 Untuk mematikan Lampu
2 Untuk meredupkan Lampu
1
Lampu sudah dinyalakan
***
BUILD SUCCESSFUL (total time: 12 seconds)

```

```

run:
Status Lampu = 0
Ketikkan
1 Untuk menyalaikan Lampu
0 Untuk mematikan Lampu
Untuk mematikan Lampu
0
Lampu sudah dalam kondisi mati
BUILD SUCCESSFUL (total time: 9 seconds)

```

❖ 10.3 TUGAS

➤ Class ActivityLampu (Class Interface)

```

public interface ActivityLampu {
    public static final int LAMPU_HIDUP=1;
    public static final int LAMPU_MATI=0;
    public static final int LAMPU_REDUP=2;
    public abstract void matikanLampu();
    public abstract void hidupkanLampu();
    public abstract void redupkanLampu();
}

```

➤ Class Lampu (Class yang mengimplementasikan interface)

```

public class Lampu implements ActivityLampu {
    public int statusLampu;

    @Override
    public void matikanLampu(){
        if(statusLampu == 0){
            System.out.println("Lampu sudah dalam kondisi mati");
        }else if(statusLampu == 1){
            statusLampu = 0;
            System.out.println("Lampu sudah dimatikan");
        }
    }

    @Override
    public void hidupkanLampu(){
        if(statusLampu == 1){
            System.out.println("Lampu sudah dinyalakan\n***");
        }else{
            statusLampu = 1;
            System.out.println("Lampu sudah dalam kondisi menyala");
        }
    }
}

```

```

Modul10 - NetBeans IDE 8.0.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Projects Services
Modul10
  Source Packages
    <default package>
      ActivityAnimal.java
      ActivityCampu.java
      AplikasiLampu.java
      Lampu.java
      Mamala.java
    Test Packages
    Libraries
    ProjectPSOFix
    ProjectPSOFix

Start Page ActivityAnimal.java Mamala.java ActivityLampu.java Lampu.java AplikasiLampu.java

18     }else if(statusLampu == 1){
19         statusLampu = 1;
20         System.out.println("Lampu sudah dimatikan");
21     }
22 }
23
24 @Override
25 public void hidupkanLampu(){
26     if(statusLampu == 1){
27         System.out.println("Lampu sudah dinyalakan\n***");
28     }else{
29         statusLampu += 1;
30         System.out.println("Lampu sudah dalam kondisi menyala");
31     }
32 }
33
34 public int setSaklar(int saklar){
35     return statusLampu * saklar;
36 }
37
38 @Override
39 public void redupkanLampu(){
40     if(statusLampu == 2){
41         System.out.println("Lampu telah diredukan");
42     }else{
43         statusLampu -=1;
44         System.out.println("Keredupan Lampu telah ditambah");
45     }
46 }
47
48 }

1:1 7:36
12/12/2019

```

➤ Class AplikasiLampu (main class)

```

Modul10 - NetBeans IDE 8.0.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Projects Services
Modul10
  Source Packages
    <default package>
      ActivityAnimal.java
      ActivityCampu.java
      AplikasiLampu.java
      Lampu.java
      Mamala.java
    Test Packages
    Libraries
    ProjectPSOFix
    ProjectPSOFix

Start Page ActivityAnimal.java Mamala.java ActivityLampu.java Lampu.java AplikasiLampu.java

1 import java.util.Scanner;
2 /*
3  * To change this license header, choose License Headers in Project Properties.
4  * To change this template file, choose Tools | Templates
5  * and open the template in the editor.
6  */
7
8 /**
9  * Author Win 8.1
10 */
11
12 /*
13  * @author Win 8.1
14  */
15 public class AplikasiLampu {
16     public static void main(String[] args){
17         Lampu lampu = new Lampu();
18         Scanner sc = new Scanner(System.in);
19         lampu.statusLampu = lampu.setSaklar(0);
20         System.out.println("Status Lampu = " + lampu.statusLampu +"\n Ketikkan");
21         System.out.println("1 Untuk menyalaikan Lampu\n0 Untuk mematikan Lampu\n2 Untuk meredupkan Lampu");
22
23         if(lampu.setSaklar(sc.nextInt()) == 0){
24             lampu.matiLampu();
25         }else if(lampu.statusLampu == 1){
26             lampu.hidupkanLampu();
27         }else{
28             lampu.redupkanLampu();
29         }
30     }
31 }

1:1 7:37
12/12/2019

```

➤ Output:

```

Modul10 - NetBeans IDE 8.0.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Projects Services
Output - Modul10 (run)
Status Lampu = 0
Ketikkan
1 Untuk menyalaikan Lampu
0 Untuk mematikan Lampu
2 Untuk meredupkan Lampu
2
Lampu telah diredukan
BUILD SUCCESSFUL (total time: 48 seconds)

1:1 8:55
12/12/2019

```

MODUL 11

NESTED CLASS

PRAKTIKUM PEMROGRAMAN BERORIENTASI OBJEK

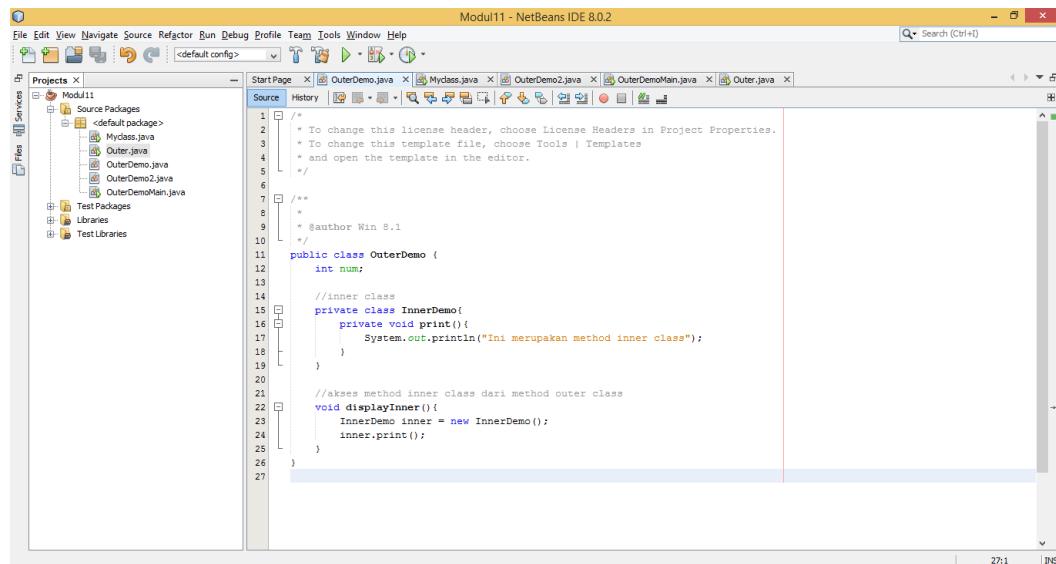
Nama : Annisa Nugraheni

NIM : L200180066

Kelas : B

❖ 11.1 INNER CLASS (NON-STATIC NESTED CLASS)

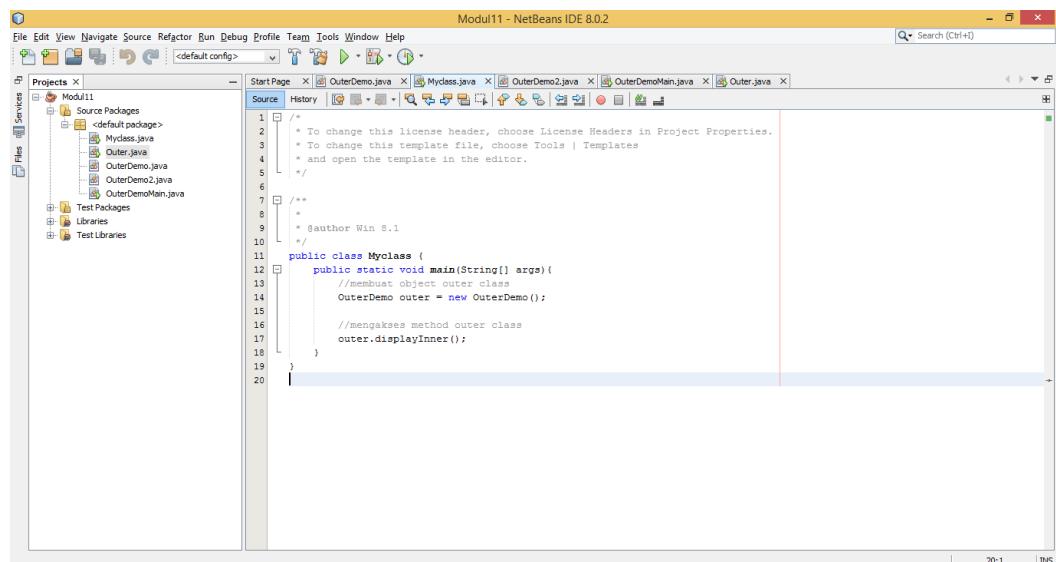
- Program 2. Pengaksesan Properties pada Inner Class



The screenshot shows the NetBeans IDE interface with the title bar "Modul11 - NetBeans IDE 8.0.2". The left sidebar displays the project structure under "Projects X" with files like OuterDemo.java, Myclass.java, Outer.java, OuterDemo.java, OuterDemo2.java, and OuterDemoMain.java. The main editor area shows the following Java code:

```
1 /*  
2  * To change this license header, choose License Headers in Project Properties.  
3  * To change this template file, choose Tools | Templates  
4  * and open the template in the editor.  
5 */  
6  
7 /**  
8  *  
9  * @author Win 8.1  
10 */  
11 public class OuterDemo {  
12     int num;  
13  
14     //inner class  
15     private class InnerDemo{  
16         private void print(){  
17             System.out.println("Ini merupakan method inner class");  
18         }  
19     }  
20  
21     //akses method inner class dari method outer class  
22     void displayInner(){  
23         InnerDemo inner = new InnerDemo();  
24         inner.print();  
25     }  
26 }  
27
```

- Program 3. Menjalankan (run) Inner Class Melalui Metode main()



The screenshot shows the NetBeans IDE interface with the title bar "Modul11 - NetBeans IDE 8.0.2". The left sidebar displays the project structure under "Projects X" with files like OuterDemo.java, Myclass.java, Outer.java, OuterDemo.java, OuterDemo2.java, and OuterDemoMain.java. The main editor area shows the following Java code:

```
1 /*  
2  * To change this license header, choose License Headers in Project Properties.  
3  * To change this template file, choose Tools | Templates  
4  * and open the template in the editor.  
5 */  
6  
7 /**  
8  *  
9  * @author Win 8.1  
10 */  
11 public class Myclass {  
12     public static void main(String[] args){  
13         //membuat object outer class  
14         OuterDemo outer = new OuterDemo();  
15  
16         //mengakses method outer class  
17         outer.displayInner();  
18     }  
19 }  
20
```

- Output dari program 3

```
Modul11 - NetBeans IDE 8.0.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
<default config> Search (Ctrl+F)
Projects Services
Output - Modul11 (run)
Init merupakan method inner class
BUILD SUCCESSFUL (total time: 0 seconds)

20:1 INS
```

- ❖ 11.2 MENGAKSES PRIVATE MEMBER

- Program 4. Mengakses Variable Private

```
Modul11 - NetBeans IDE 8.0.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
<default config> Search (Ctrl+F)
Projects Services
Modul11
Source Packages
OuterDemo.java OuterDemo2.java OuterDemoMain.java Outer.java
Outer.java OuterDemo.java OuterDemo2.java OuterDemoMain.java Outer.java
OuterDemo2.java OuterDemoMain.java Outer.java
Test Packages
Libraries
Test Libraries

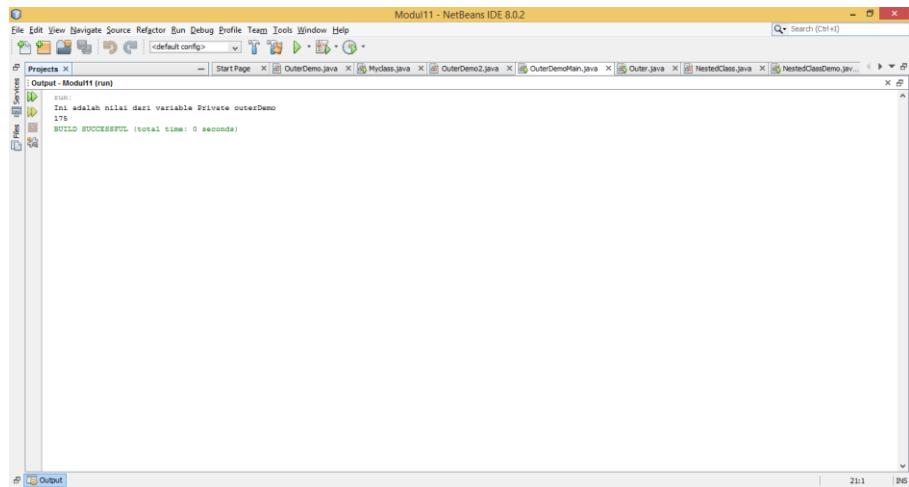
1 /*
2 * To change this license header, choose License Headers in Project Properties.
3 * To change this template file, choose Tools | Templates
4 * and open the template in the editor.
5 */
6
7 /**
8 * 
9 * @author Win 8.1
10 */
11 public class OuterDemo2 {
12     private int num = 175;
13
14     public class Inner_Demo{
15         public int getNum(){
16             System.out.println("Ini adalah nilai dari variable Private outerDemo");
17             return num;
18         }
19     }
20 }
21
```

- Program 5. Class dengan Method main() untuk Mengakses Variable Private

```
Modul11 - NetBeans IDE 8.0.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
<default config> Search (Ctrl+F)
Projects Services
Modul11
Source Packages
OuterDemo.java OuterDemo2.java OuterDemoMain.java Outer.java
Outer.java OuterDemo.java OuterDemo2.java OuterDemoMain.java Outer.java
OuterDemo2.java OuterDemoMain.java Outer.java
Test Packages
Libraries
Test Libraries

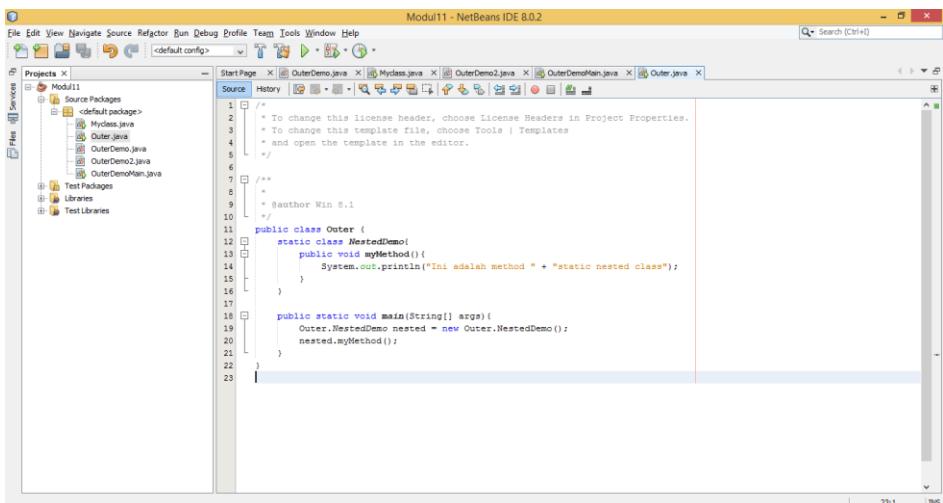
1 /*
2 * To change this license header, choose License Headers in Project Properties.
3 * To change this template file, choose Tools | Templates
4 * and open the template in the editor.
5 */
6
7 /**
8 * 
9 * @author Win 8.1
10 */
11 public class OuterDemoMain {
12     public static void main(String[] args){
13         //membuat object outerDemo
14         OuterDemo2 outer = new OuterDemo2();
15
16         //membuat object InnerDemo
17         OuterDemo2.Inner_Demo inner = outer.new Inner_Demo();
18         System.out.println(inner.getNum());
19     }
20 }
21
```

▪ Output Program 5

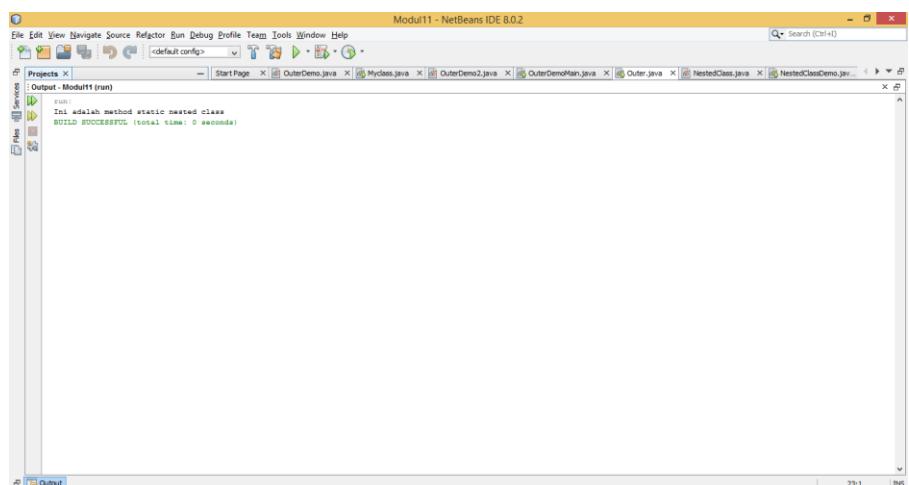


❖ 11.3 STATIC NESTED CLASS

➤ Program 6. Membuat Instance dari Static Nested Class



▪ Output Program 6

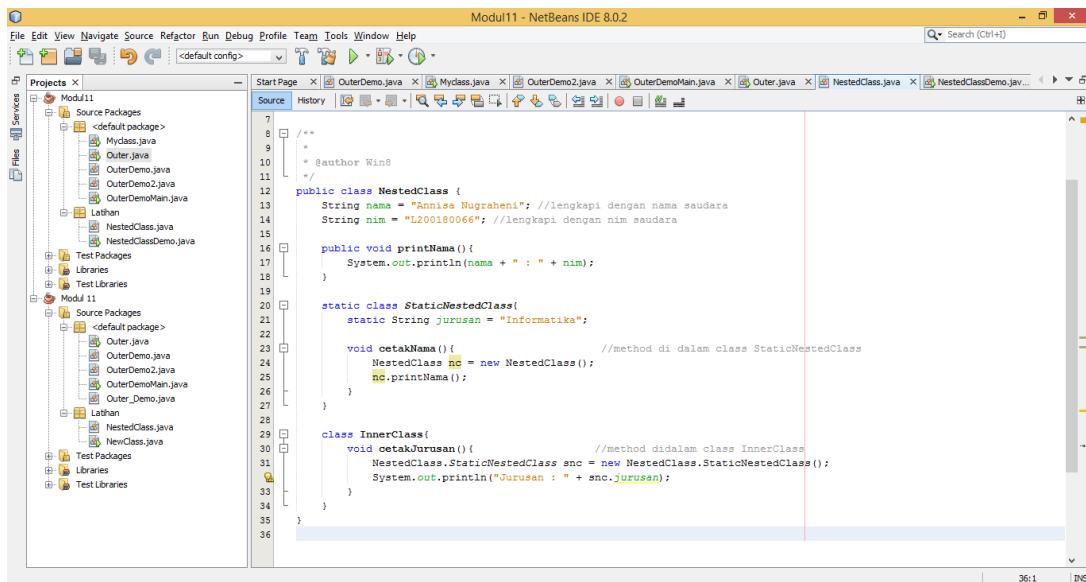


❖ 11.4 LATIHAN

Mengisikan Nama dan NIM pada variabel, membuat method di dalam class StaticNestedClass untuk mengakses method printNama(), membuat method di dalam InnerClass untuk mengakses variabel jurusan, dan membuat class dengan fungsi main() untuk menampilkan hasil dari kode program.

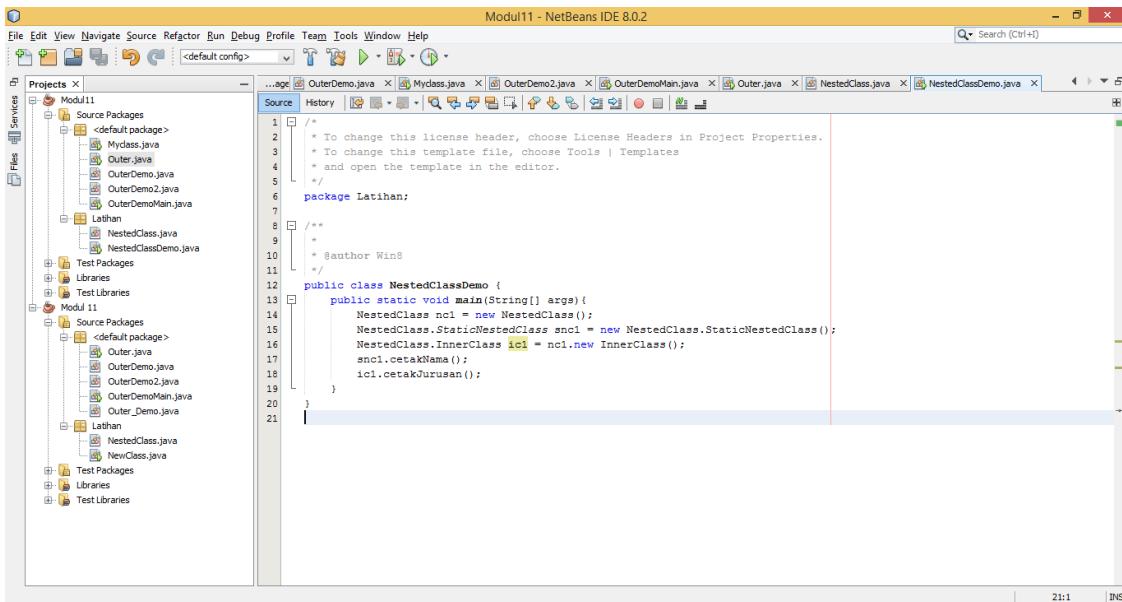
➤ Program 7. Soal Latihan Nested Class

■ Class NestedClass



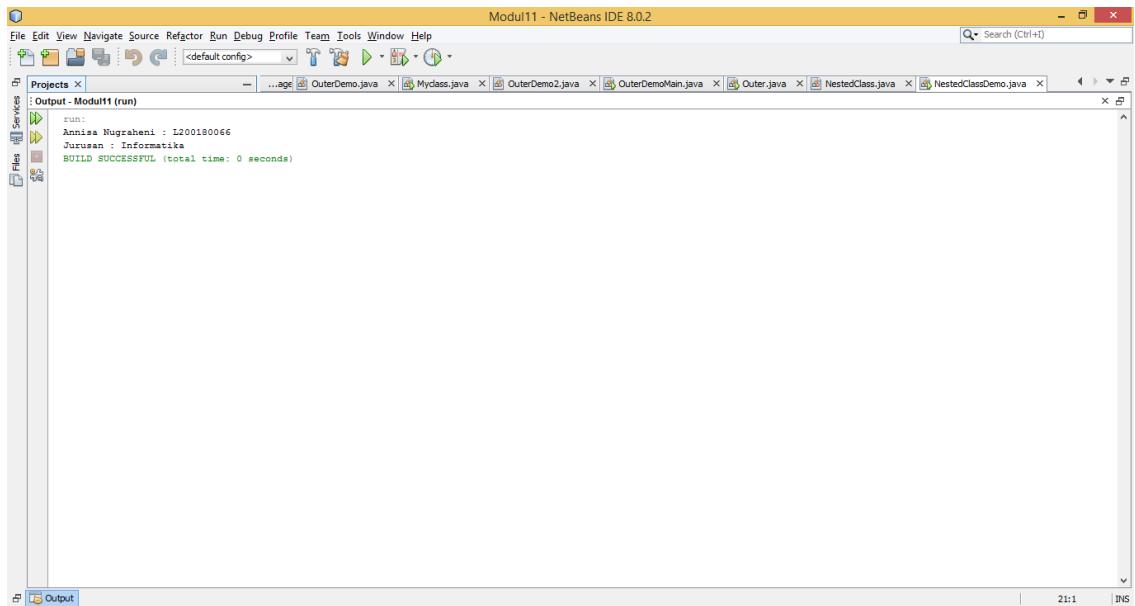
```
Modul11 - NetBeans IDE 8.0.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Source History ...
Projects X Modul11
  Source Packages
    <default package>
      Myclass.java
      Outer.java
      OuterDemo.java
      OuterDemo2.java
      OuterDemoMain.java
    Lathan
      NestedClass.java
      NestedClassDemo.java
  Test Packages
  Libraries
  Test Libraries
Modul 11
  Source Packages
    <default package>
      Outer.java
      OuterDemo.java
      OuterDemo2.java
      OuterDemoMain.java
      Outer_Demo.java
    Lathan
      NestedClass.java
      NewClass.java
  Test Packages
  Libraries
  Test Libraries
Source X NestedClass.java
7 /**
8  * 
9  * @author Win8
10 */
11
12 public class NestedClass {
13     String nama = "Annisa Nugraheni"; //lengkapi dengan nama saudara
14     String nim = "L200180066"; //lengkapi dengan nim saudara
15
16     public void printNama(){
17         System.out.println(nama + " : " + nim);
18     }
19
20     static class StaticNestedClass{
21         static String jurusan = "Informatika";
22
23         void cetakNama(){
24             //method di dalam class StaticNestedClass
25             NestedClass nc = new NestedClass();
26             nc.printNama();
27         }
28
29         class InnerClass{
30             void cetakJurusan(){
31                 //method didalam class InnerClass
32                 NestedClass.StaticNestedClass snc = new NestedClass.StaticNestedClass();
33                 System.out.println("Jurusan : " + snc.jurusan);
34             }
35         }
36     }
37 }
```

➤ Class NestedClassDemo (main class)



```
Modul11 - NetBeans IDE 8.0.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Source History ...
Projects X Modul11
  Source Packages
    <default package>
      Myclass.java
      Outer.java
      OuterDemo.java
      OuterDemo2.java
      OuterDemoMain.java
    Lathan
      NestedClass.java
      NestedClassDemo.java
  Test Packages
  Libraries
  Test Libraries
Modul 11
  Source Packages
    <default package>
      Outer.java
      OuterDemo.java
      OuterDemo2.java
      OuterDemoMain.java
      Outer_Demo.java
    Lathan
      NestedClass.java
      NewClass.java
  Test Packages
  Libraries
  Test Libraries
Source X NestedClassDemo.java
1 /*
2  * To change this license header, choose License Headers in Project Properties.
3  * To change this template file, choose Tools | Templates
4  * and open the template in the editor.
5  */
6 package Latihan;
7
8 /**
9  * 
10 * @author Win8
11 */
12
13 public class NestedClassDemo {
14     public static void main(String[] args){
15         NestedClass nc1 = new NestedClass();
16         NestedClass.StaticNestedClass snc1 = new NestedClass.StaticNestedClass();
17         NestedClass.InnerClass ici1 = nc1.new InnerClass();
18         snc1.cetakNama();
19         ici1.cetakJurusan();
20     }
21 }
```

➤ Output dari program pada latihan



The screenshot shows the NetBeans IDE 8.0.2 interface. The title bar reads "Modul11 - NetBeans IDE 8.0.2". The menu bar includes File, Edit, View, Navigate, Source, Refactor, Run, Debug, Profile, Team, Tools, Window, Help. The toolbar has icons for New Project, Open Project, Save, Undo, Redo, Cut, Copy, Paste, Find, Replace, and Run. The Projects tab is selected in the left sidebar. The Output tab is selected in the bottom-left corner. The Output window displays the following text:

```
run:  
Amniisa Nugraheni : L200180066  
Jurusan : Informatika  
BUILD SUCCESSFUL (total time: 0 seconds)
```

MODUL 12

GRAPHICAL USER INTERFACE (GUI)

PRAKTIKUM PEMROGRAMAN BERORIENTASI OBJEK

Nama : Annisa Nugraheni

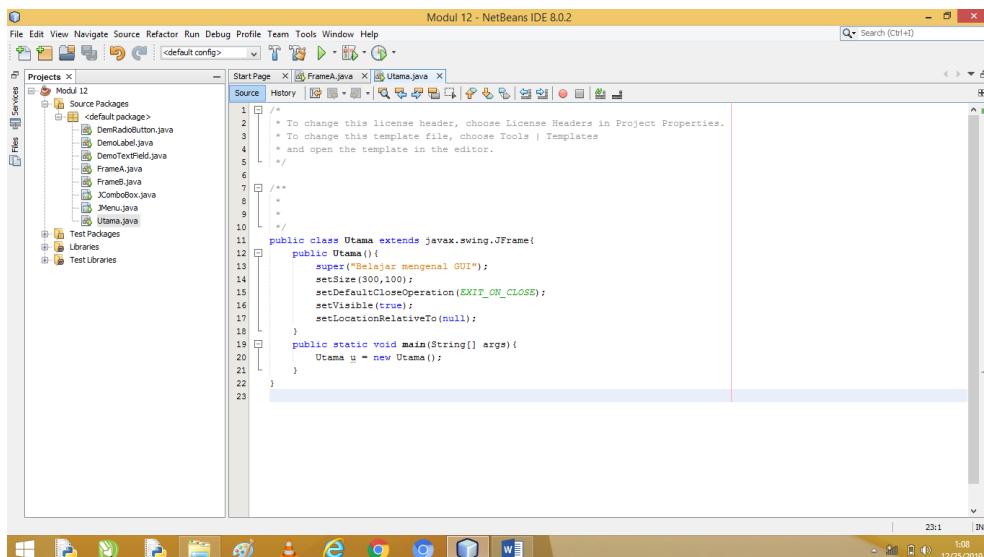
NIM : L200180066

Kelas : B

❖ 12.5. LATIHAN

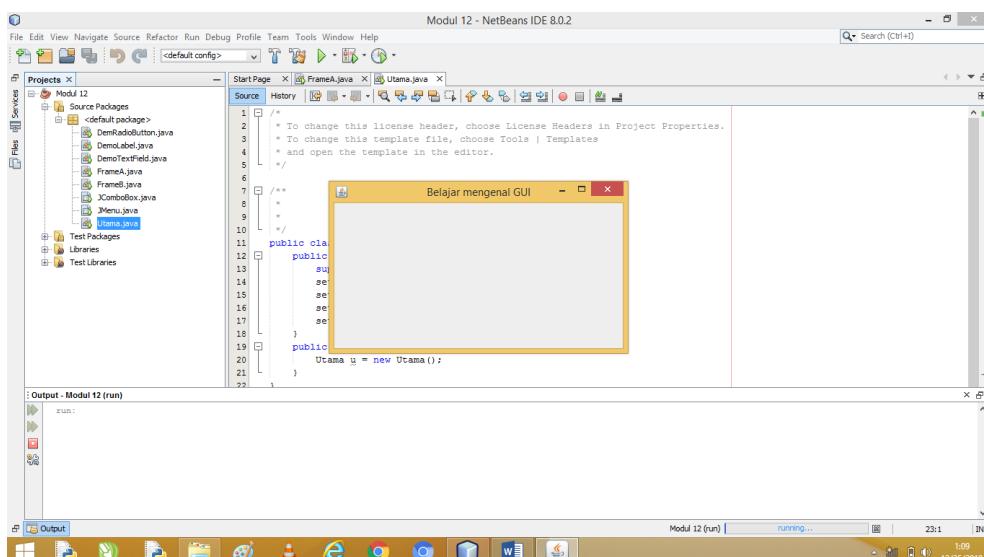
➤ 12.5.1. Frame

Program 1. Implementasi JFrame



```
Modul 12 - NetBeans IDE 8.0.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Projects Services
Modul 12
Source Packages
  <default package>
    DemoButton.java
    Demolabel.java
    DemoTextField.java
    FrameA.java
    FrameB.java
    JComboBox.java
    JMenu.java
    Utama.java
Test Packages
Libraries
Test Libraries
Start Page X FrameA.java X Utama.java X
Source History
1 /*
2  * To change this license header, choose License Headers in Project Properties.
3  * To change this template file, choose Tools | Templates
4  * and open the template in the editor.
5 */
6
7 /**
8  *
9  */
10
11 public class Utama extends javax.swing.JFrame{
12     public Utama(){
13         super("Belajar mengenal GUI");
14         setSize(300,100);
15         setDefaultCloseOperation(EXIT_ON_CLOSE);
16         setVisible(true);
17         setLocationRelativeTo(null);
18     }
19     public static void main(String[] args){
20         Utama u = new Utama();
21     }
22 }
```

Output dari program 1



```
Modul 12 - NetBeans IDE 8.0.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Projects Services
Modul 12
Source Packages
  <default package>
    DemoButton.java
    Demolabel.java
    DemoTextField.java
    FrameA.java
    FrameB.java
    JComboBox.java
    JMenu.java
    Utama.java
Test Packages
Libraries
Test Libraries
Start Page X FrameA.java X Utama.java X
Source History
1 /*
2  * To change this license header, choose License Headers in Project Properties.
3  * To change this template file, choose Tools | Templates
4  * and open the template in the editor.
5 */
6
7 /**
8  *
9  */
10
11 public class Utama extends javax.swing.JFrame{
12     public Utama(){
13         super("Belajar mengenal GUI");
14         setSize(300,100);
15         setDefaultCloseOperation(EXIT_ON_CLOSE);
16         setVisible(true);
17         setLocationRelativeTo(null);
18     }
19     public static void main(String[] args){
20         Utama u = new Utama();
21     }
22 }
```

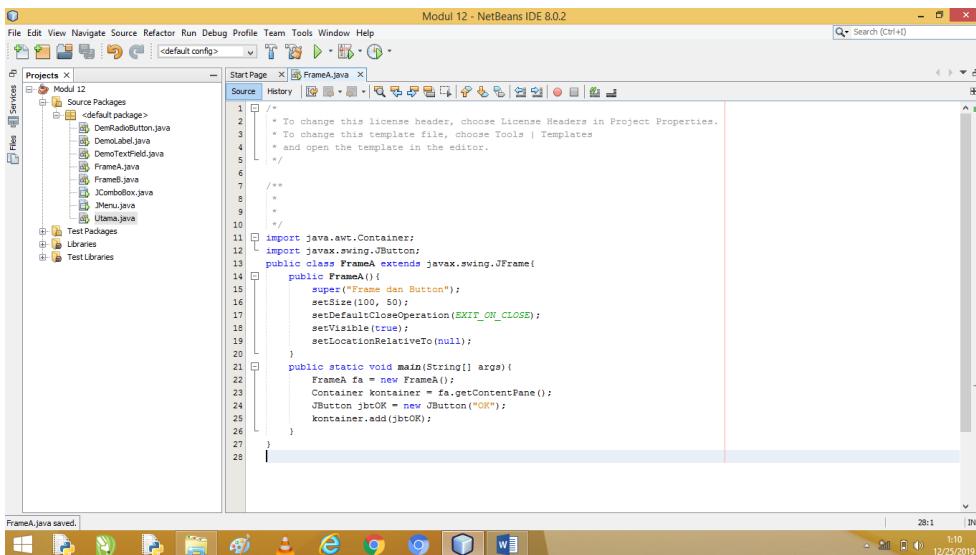
Output - Modul 12 (run)
run:
Output

Konstruktor	Keterangan
JFrame()	<ul style="list-style-type: none"> Jendela utama yang digunakan untuk menampilkan komponen yang kita inginkan. Membuat JFrame tanpa judul.
JFrame(String Judul)	<ul style="list-style-type: none"> Pemberian nama pada jendela utama yang ditampilkan. Membuat JFrame dengan judul.

Metode	Keterangan
void setSize(int lebar, int tinggi)	Mengatur ukuran frame.
void setLocation(int x, int y)	Mengatur lokasi frame dihitung dari kiri atas.
void setVisible(boolean)	Menentukan JFrame ditampilkan atau tidak.
void setLocationRelativeTo(Component)	Menentukan letak JFrame relative dengan komponen lainnya. Jika diset null, maka JFrame akan ditampilkan di tengah.

➤ 12.5.2 Button

Program 2. Implementasi JButton



The screenshot shows the NetBeans IDE interface with the title bar "Modul 12 - NetBeans IDE 8.0.2". The left sidebar displays the project structure under "Projects" for "Modul 12", showing various Java files like DemRadioButton.java, DemLabel.java, DemText.java, FrameA.java, FrameB.java, FrameD.java, JCombobox.java, JMenu.java, and Utama.java. The main editor window shows the source code for "FrameA.java".

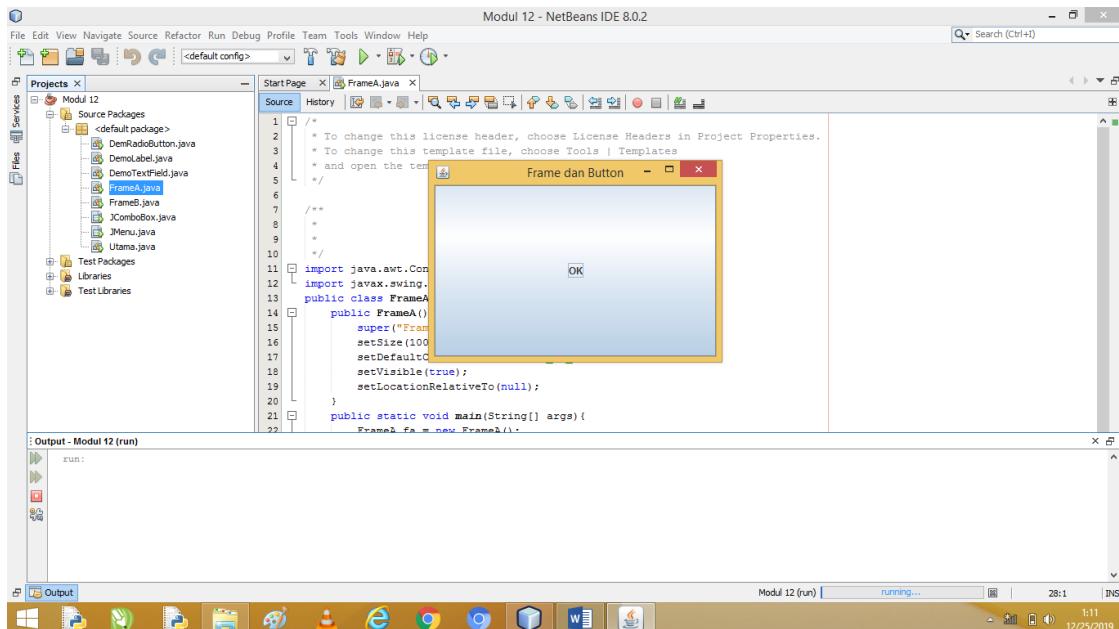
```

1  /*
2   * To change this license header, choose License Headers in Project Properties.
3   * To change this template file, choose Tools | Templates
4   * and open the template in the editor.
5   */
6
7  /**
8   *
9   */
10
11 import java.awt.Container;
12 import javax.swing.JButton;
13 public class FrameA extends javax.swing.JFrame{
14     public FrameA(){
15         super("Frame dan Button");
16         setSize(100, 50);
17         setDefaultCloseOperation(EXIT_ON_CLOSE);
18         setVisible(true);
19         setLocationRelativeTo(null);
20     }
21     public static void main(String[] args){
22         FrameA fa = new FrameA();
23         Container kontainer = fa.getContentPane();
24         JButton jbOK = new JButton("OK");
25         kontainer.add(jbOK);
26     }
27 }
28

```

The status bar at the bottom indicates "FrameA.java saved.", "28:1", "INS", and the date "12/25/2019".

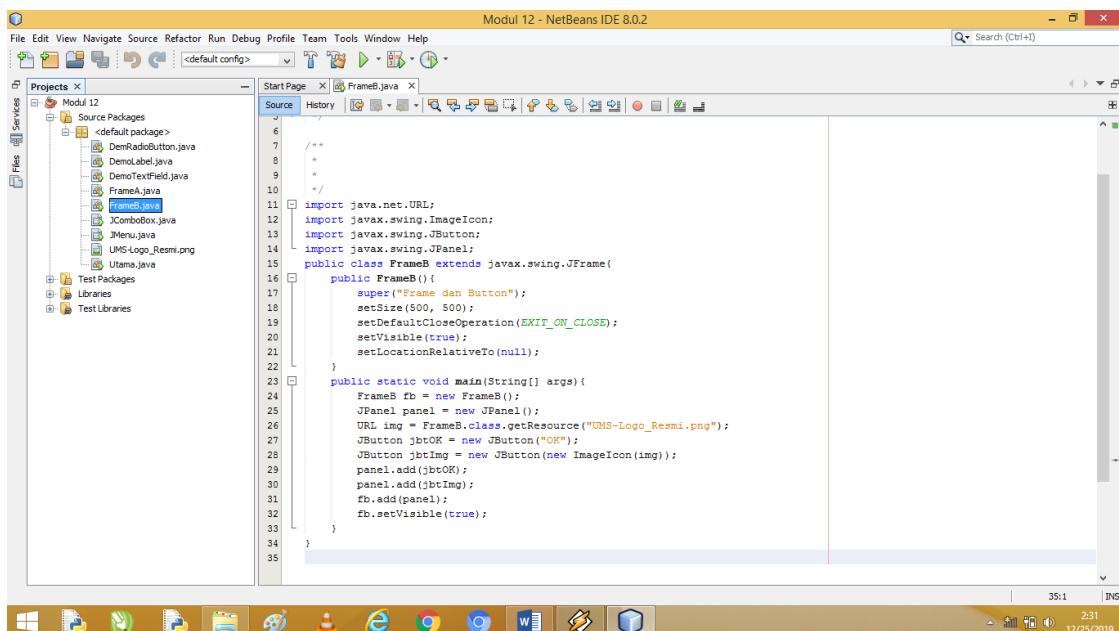
Output dari program 2



Konstruktor	Keterangan
JButton()	Membuat JButton tanpa teks maupun icon.
JButton(String teks)	Membuat JButton dengan teks.
JButton(Icon icon)	Membuat JButton dengan icon.
JButton(String teks, Icon icon)	Membuat JButton dengan teks dan icon.

➤ 12.5.3 Container

Program 3. Implementasi Container

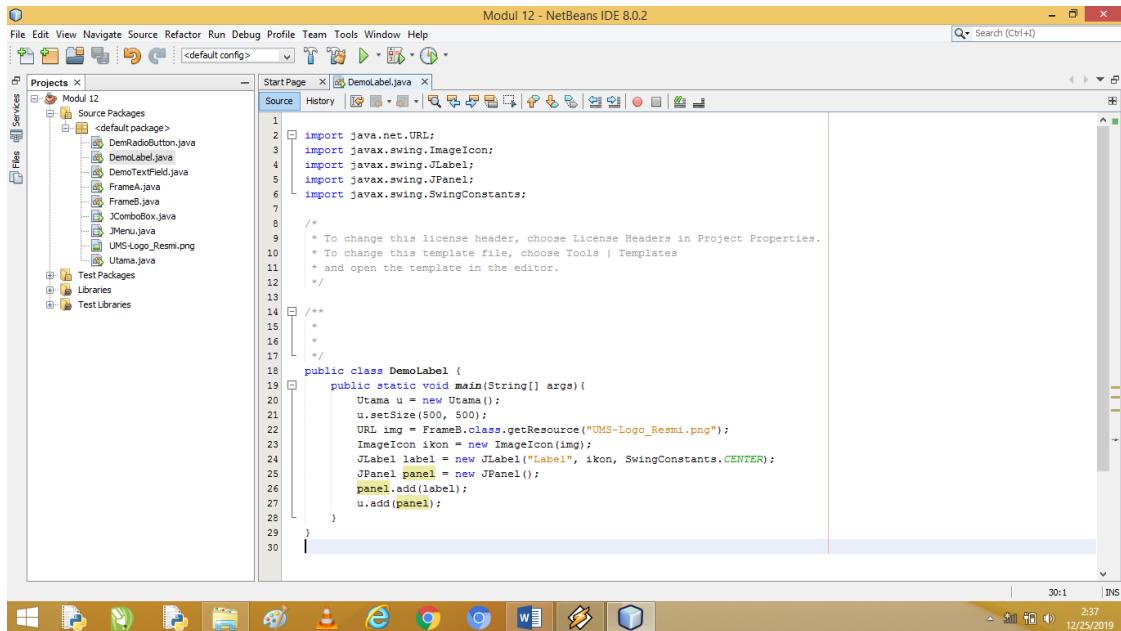


Output dari program 3



➤ 12.5.4 Label

Program 4. Implementasi JLabel



Output dari program 4



Konstruktor	Keterangan
JLabel(String teks)	Label dengan teks.
JLabel(String teks, int i)	Label dengan teks dan alignment (perataan). Terdapat tiga jenis alignment, yaitu LEFT, CENTER, dan RIGHT.
JLabel(String teks, Icon ic, int i)	Label dengan teks, icon, dan alignment.

➤ 12.5.5 TextField dan Password Field

Program 5. Implementasi JTextField dan JPasswordField

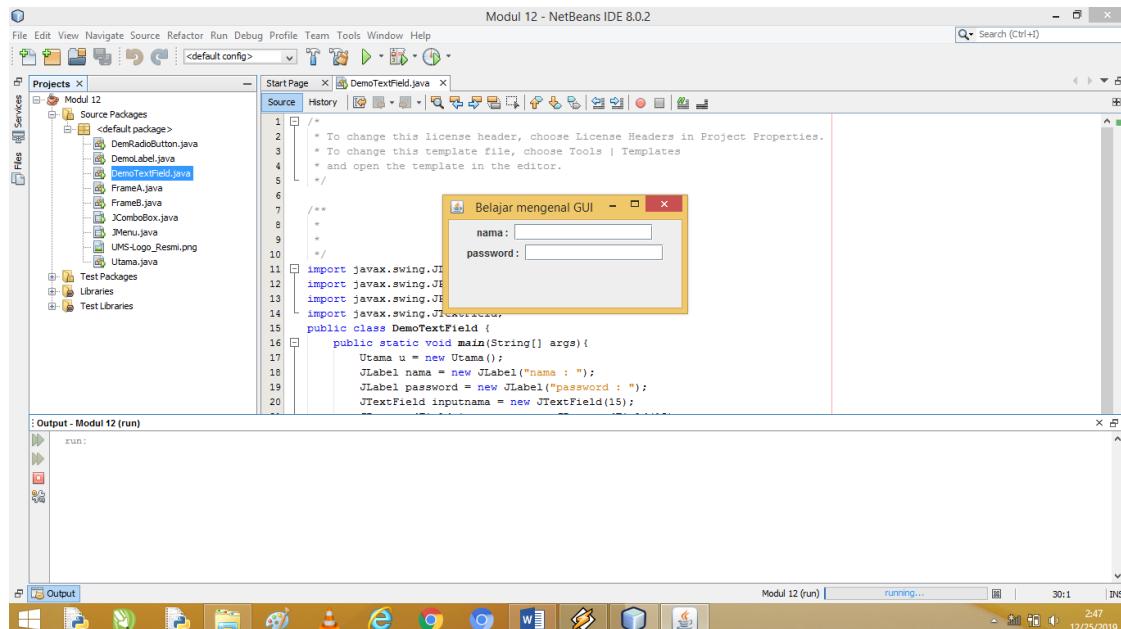
```

Modul 12 - NetBeans IDE 8.0.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Projects X Services Files
Modul 12
Source Packages <default package>
    DemRadioButton.java
    DemoLabel.java
    DemoTextField.java
    FrameA.java
    FrameB.java
    JComboBox.java
    JMenu.java
    UMS-Logo_Resmi.png
    Utama.java
Test Packages Libraries Test Libraries
Output - Modul 12 (run)
run:
Output
Modul 12 (run) running... 30:1 12/25/2019 2:36
Windows Taskbar

Modul 12 - NetBeans IDE 8.0.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Projects X Services Files
Modul 12
Source Packages <default package>
    DemoTextField.java
Start Page History ...
1 /* To change this license header, choose License Headers in Project Properties.
2 * To change this template file, choose Tools | Templates
3 * and open the template in the editor.
4 */
5 /**
6 */
7 /**
8 */
9 /**
10 */
11 import javax.swing.JLabel;
12 import javax.swing.JPanel;
13 import javax.swing.JPasswordField;
14 import javax.swing.JTextField;
15 public class DemoTextField {
16     public static void main(String[] args){
17         Utama u = new Utama();
18         JLabel nama = new JLabel("nama : ");
19         JLabel password = new JLabel("password : ");
20         JTextField inputnama = new JTextField(15);
21         JPasswordField inputpsw = new JPasswordField(15);
22         JPanel panel = new JPanel();
23         panel.add(nama);
24         panel.add(inputnama);
25         panel.add(password);
26         panel.add(inputpsw);
27         u.add(panel);
28     }
29 }

```

Output dari program 5



Konstruktur	Penjelasan
<code>JTextField()</code>	Text Field kosong tanpa tulisan.
<code>JTextField(int i)</code>	Text Field dengan panjang yang ditentukan.
<code>JTextField(String i)</code>	Teks Field dengan teks yang sudah ditentukan.
<code>JTextField(String teks, int i)</code>	Teks Field dengan teks dan panjang kolom yang sudah ditentukan

Parameter dalam class JTextField	Penjelasan
<code>String Text</code>	Teks dalam Text Field.
<code>Boolean Editable</code>	Menentukan bisa tidaknya teks dalam Text Field untuk diedit.
<code>Int columns</code>	Jumlah kolom pada Text Field.
<code>Int horizontalAlignment</code>	Perataan horizontal pada Text Field.

➤ 12.5.6 Radio Button dan Checkbox

Program 6. Implementasi JRadioButton

The screenshot shows the NetBeans IDE interface with the following details:

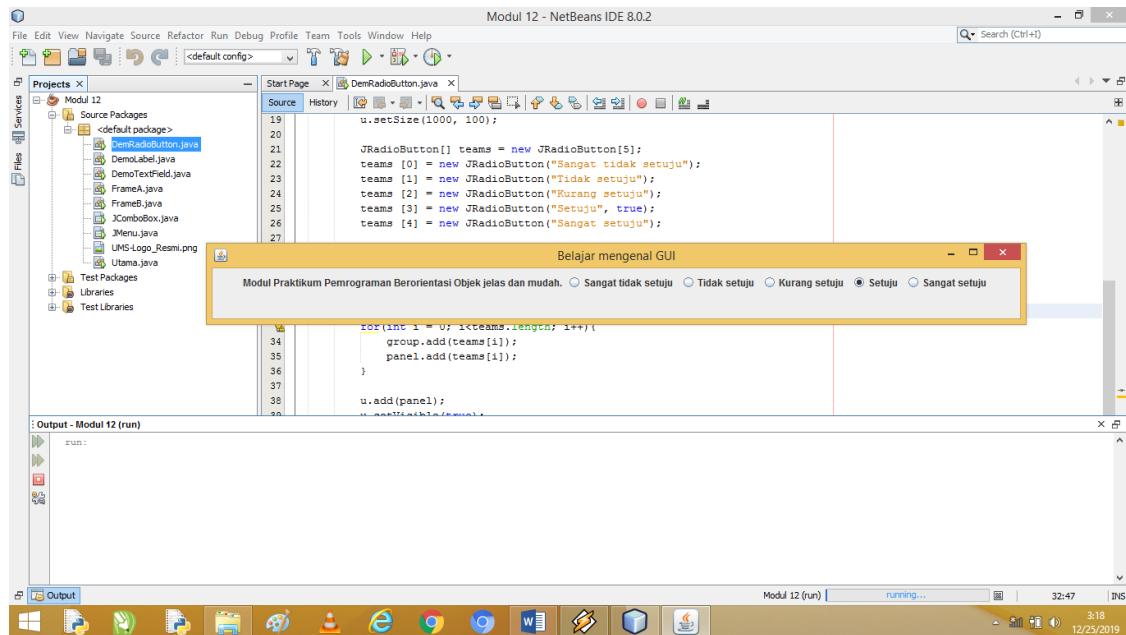
- MenuBar:** File, Edit, View, Navigate, Source, Refactor, Run, Debug, Profile, Team, Tools, Window, Help.
- Toolbar:** Standard Java development tools like New Project, Open, Save, Find, etc.
- Projects Tab:** Shows "Modul 12" with "Source Packages" containing files: DemRadioButton.java, DemoLabel.java, DemoTextField.java, FrameA.java, FrameB.java, JComboBox.java, JMenu.java, UMS-Logo.Resmi.png, Utama.java.
- Services Tab:** Placeholder for services.
- Files Tab:** Placeholder for files.
- Code Editor:** The main window displays the Java code for "DemRadioButton.java".

```
1 import javax.swing.JButtonGroup;
2 import javax.swing.JLabel;
3 import javax.swing.JPanel;
4 import javax.swing.JRadioButton;
5
6 /**
7 * To change this license header, choose License Headers in Project Properties.
8 * To change this template file, choose Tools | Templates
9 * and open the template in the editor.
10 */
11
12 /**
13 *
14 */
15
16 public class DemRadioButton {
17     public static void main(String[] args){
18         Utama u = new Utama();
19         u.setSize(1000, 100);
20
21         JRadioButton[] teams = new JRadioButton[5];
22         teams [0] = new JRadioButton("Sangat tidak setuju");
23         teams [1] = new JRadioButton("Tidak setuju");
24         teams [2] = new JRadioButton("Kurang setuju");
25         teams [3] = new JRadioButton("Setuju", true);
26         teams [4] = new JRadioButton("Sanjat setuju");
27
28         JPanel panel = new JPanel();
29         JLabel pernyataan = new JLabel("Modul Praktikum Pemrograman Berorientasi Objek jelas dan mudah.");
30         panel.add(pernyataan);
31
32         ButtonGroup group = new JButtonGroup();
```

The screenshot shows the NetBeans IDE interface with the following details:

- MenuBar:** File, Edit, View, Navigate, Source, Refactor, Run, Debug, Profile, Team, Tools, Window, Help.
- Toolbar:** Standard NetBeans icons for file operations like Open, Save, Find, etc.
- Project Explorer (Projects Tab):** Shows the project structure with a package named "Modul 12" containing source packages like "Default Packages" which includes "DemRadioButton.java", "DemoLabel.java", "DemoTextField.java", "Frame.java", "FrameB.java", "JComboBox.java", "JMenu.java", and "UMS-Logo_Resmi.png". It also lists "Test Packages", "Libraries", and "Test Libraries".
- Code Editor (DemRadioButton.java):** Displays Java code for creating a user interface with RadioButtons and a JPanel. The code includes imports for javax.swing, java.awt, and java.util. It creates five RadioButtons in a ButtonGroup and adds them to a JPanel, which is then added to a frame.
- Search Bar:** Located at the top right, labeled "Search (Ctrl+F)".
- Status Bar:** Shows the time as 3:18 and the date as 17/25/2010.

Output dari program 6



Konstruktor	Penjelasan
JCheckBox(String Tekst)	Check box dengan teks yang ditentukan.
JCheckBox(String, Boolean)	Check box dengan teks yang ditentukan, jika kondisi pada parameter kedua true, maka Check box ini akan dipilih.
JCheckBox(icon)	Check box dengan gambar icon.
JCheckBox(icon, Boolean)	Check box dengan gambar icon dan terpilih jika true.
JCheckBox(String, Icon)	Check box dengan tulisan dan gambar icon.
JCheckBox(String, Icon, Boolean)	Check box dengan tulisan dan gambar icon, akan dipilih secara default jika kondisi true.

❖ 12.6 TUGAS

Membuat program GUI berdasarkan output

1. Menggunakan class JComboBox untuk membuat program GUI berdasarkan gambar

The screenshot shows the NetBeans IDE interface with the title "Modul 12 - NetBeans IDE 8.0.2". The left sidebar displays the "Projects" view with a package named "Modul 12" containing several Java files like "DemoRadioButton.java", "DemoLabel.java", etc. The main editor area shows the Java code for "JComboBox.java". The code is as follows:

```
/*
 * To change this license header, choose License Headers in Project Properties.
 * To change this template file, choose Tools | Templates
 * and open the template in the editor.
 */
/*
 */
public class JComboBox extends javax.swing.JFrame {

    /**
     * Creates new form JComboBox
     */
    public JComboBox() {
        super("Tugas 1");
        initComponents();
    }

    JComboBox(String sangat_tidak_setuju) {
        throw new UnsupportedOperationException("Not supported yet."); //To change body of generated methods, choose Tools | Templates
    }

    /**
     * This method is called from within the constructor to initialize the form.
     * WARNING: Do NOT modify this code. The content of this method is always
     * regenerated by the Form Editor.
     */
    @SuppressWarnings("unchecked")
    // Generated Code
```

The screenshot shows the NetBeans IDE interface with the following details:

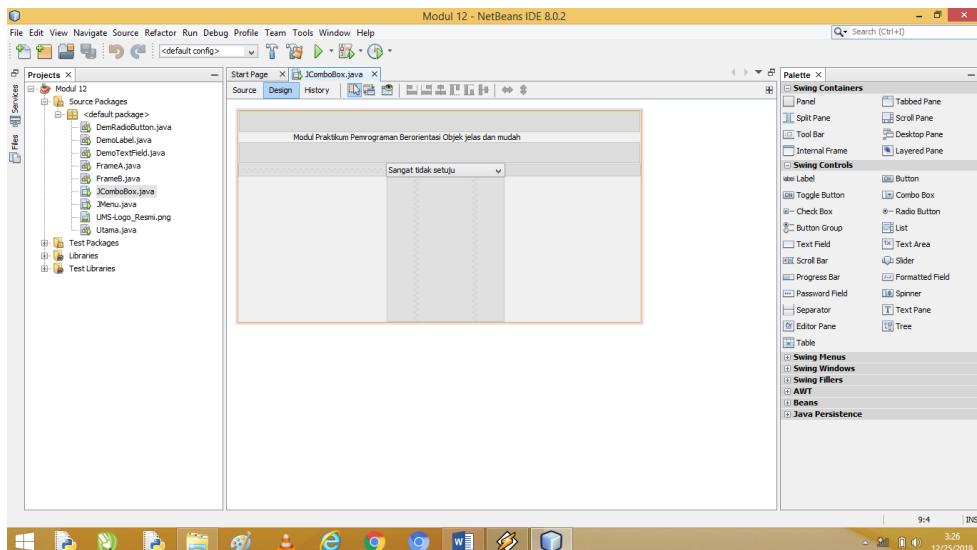
- Title Bar:** Modul 12 - NetBeans IDE 8.0.2
- Menu Bar:** File, Edit, View, Navigate, Source, Refactor, Run, Debug, Profile, Team, Tools, Window, Help
- Toolbar:** Standard NetBeans icons for file operations.
- Projects Tab:** Shows a project named "Modul 12" containing a "Source Packages" folder with files: DemoRadioButton.java, DemoLabel.java, DemoTextField.java, FrameA.java, FrameB.java, and JComboBox.java (selected). Other files listed are UMS-Logo_Reimi.png and Utama.java.
- Source Editor:** The "JComboBox.java" file is open. The code implements a main method and an actionPerformed event handler for a JComboBox. A tooltip "Look and feel setting code (optional)." is shown over the line "/* Set the Nimbus look and feel */".
- Bottom Status Bar:** Shows the time as 9:42 and various system icons.

```
private void jComboBox1ActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
}

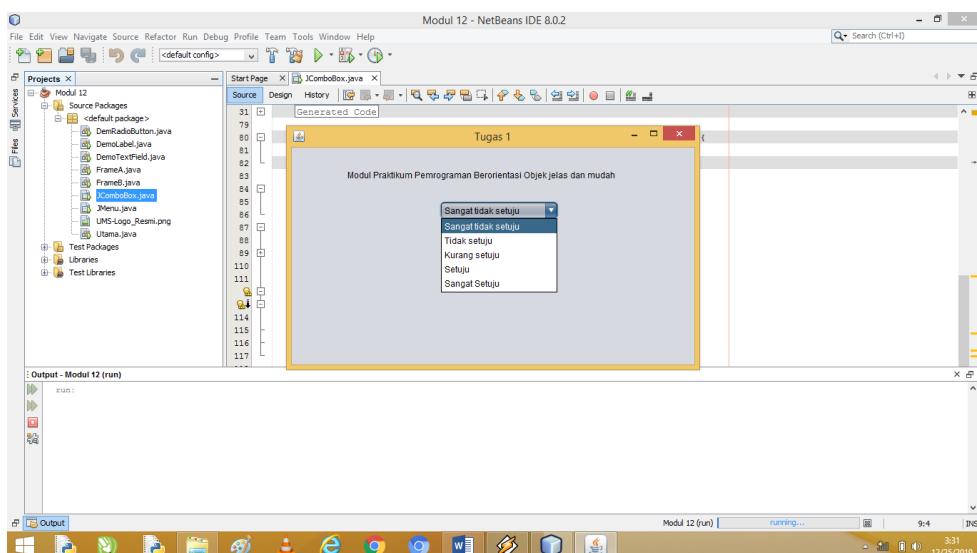
/*
 * @param args the command line arguments
 */
public static void main(String args[]) {
    /* Set the Nimbus look and feel */
    // Look and feel setting code (optional).

    /* Create and display the form */
    java.awt.EventQueue.invokeLater(new Runnable() {
        public void run() {
            new JComboBox().setVisible(true);
        }
    });
}

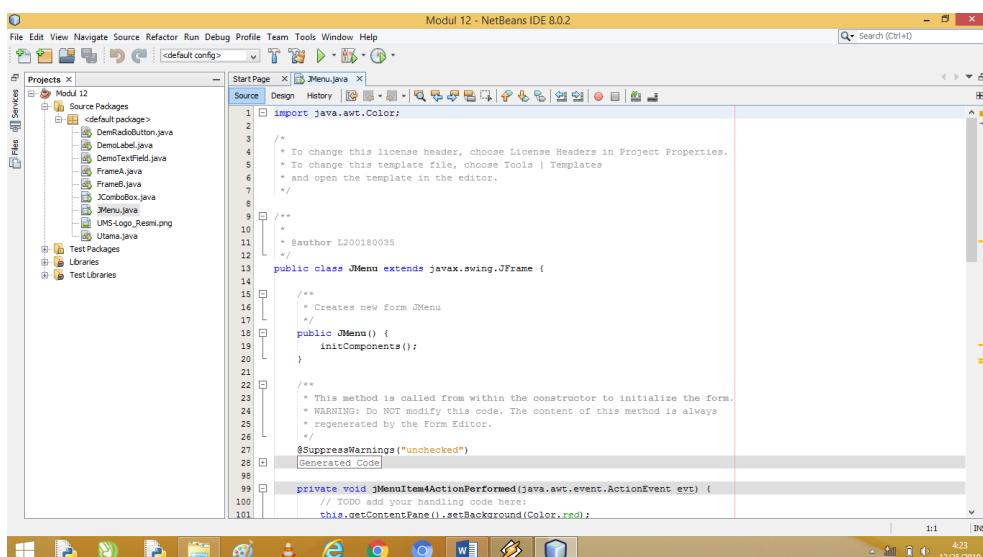
// Variables declaration - do not modify
private javax.swing.JComboBox<String> jComboBox1;
private javax.swing.JLabel jLabel1;
private java.awt.Menu menu1;
private java.awt.Menu menu2;
private java.awtMenuBar menuBar1;
// End of variables declaration
}
```



Output dari program diatas:



2. Membuat program GUI untuk menambah menu. Apabila salah satu menu dipilih maka akan mengubah warna background



Modul 12 - NetBeans IDE 8.0.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

<default config>

Projects Modul 12

Source Packages

Source Page X 3Menu.java

Source Design History

private void jMenuItem1ActionPerformed(java.awt.event.ActionEvent evt) {
 // TODO add your handling code here:
 this.getContentPane().setBackground(Color.red);
}

private void jMenuItem5ActionPerformed(java.awt.event.ActionEvent evt) {
 // TODO add your handling code here:
 this.getContentPane().setBackground(Color.yellow);
}

private void jMenuItem7ActionPerformed(java.awt.event.ActionEvent evt) {
 // TODO add your handling code here:
 this.getContentPane().setBackground(Color.green);
}

/*
 * @param args the command line arguments
 */
public static void main(String args[]) {
 /* Set the Nimbus look and feel */
 /* Look and feel setting code (optional)
 *
 * Create and display the form */
 java.awt.EventQueue.invokeLater(new Runnable() {
 public void run() {
 new JMenu().setVisible(true);
 }
 });
}

111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149

1:1 INS 4:24 12/25/2019

Modul 12 - NetBeans IDE 8.0.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

<default config>

Projects Modul 12

Source Packages

Source Page X 3Menu.java

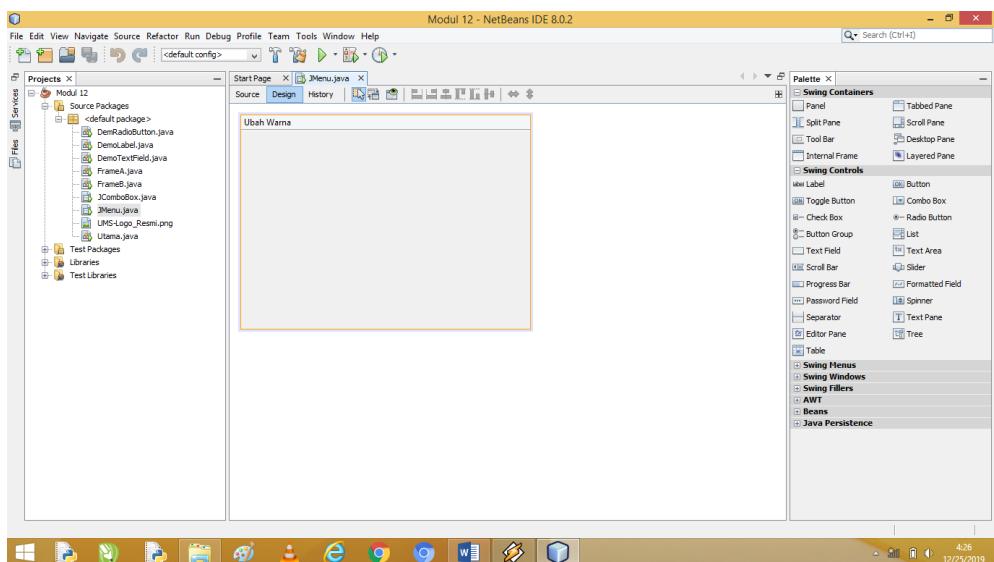
Source Design History

* @param args the command line arguments
*/
public static void main(String args[]) {
 /* Set the Nimbus look and feel */
 /* Look and feel setting code (optional)
 *
 * Create and display the form */
 java.awt.EventQueue.invokeLater(new Runnable() {
 public void run() {
 new JMenu().setVisible(true);
 }
 });

 // Variables declaration - do not modify
 private javax.swing.JMenu jMenu1;
 private javax.swing.JMenu jMenu2;
 private javax.swing.JMenu jMenu3;
 private javax.swing.JMenuBar jMenuBar1;
 private javax.swing.JMenuItem jMenuItem1;
 private javax.swing.JMenuItem jMenuItem2;
 private javax.swing.JMenuItem jMenuItem3;
 private javax.swing.JMenuItem jMenuItem4;
 private javax.swing.JMenuItem jMenuItem5;
 private javax.swing.JMenuItem jMenuItem7;
 private javax.swing.JPopupMenu jPopupMenu1;
 // End of variables declaration
}

111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164

1:1 INS 4:25 12/25/2019



Output dari program diatas:

