

Nama : Nur Taufiq Hidayat

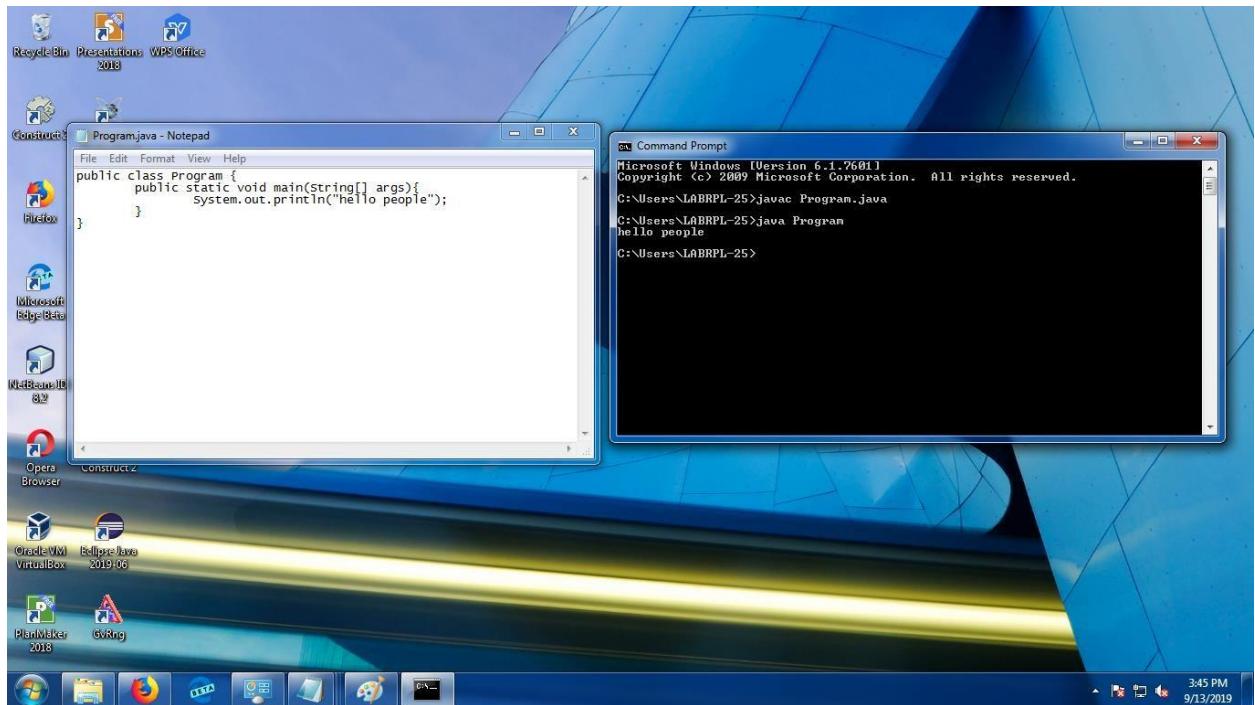
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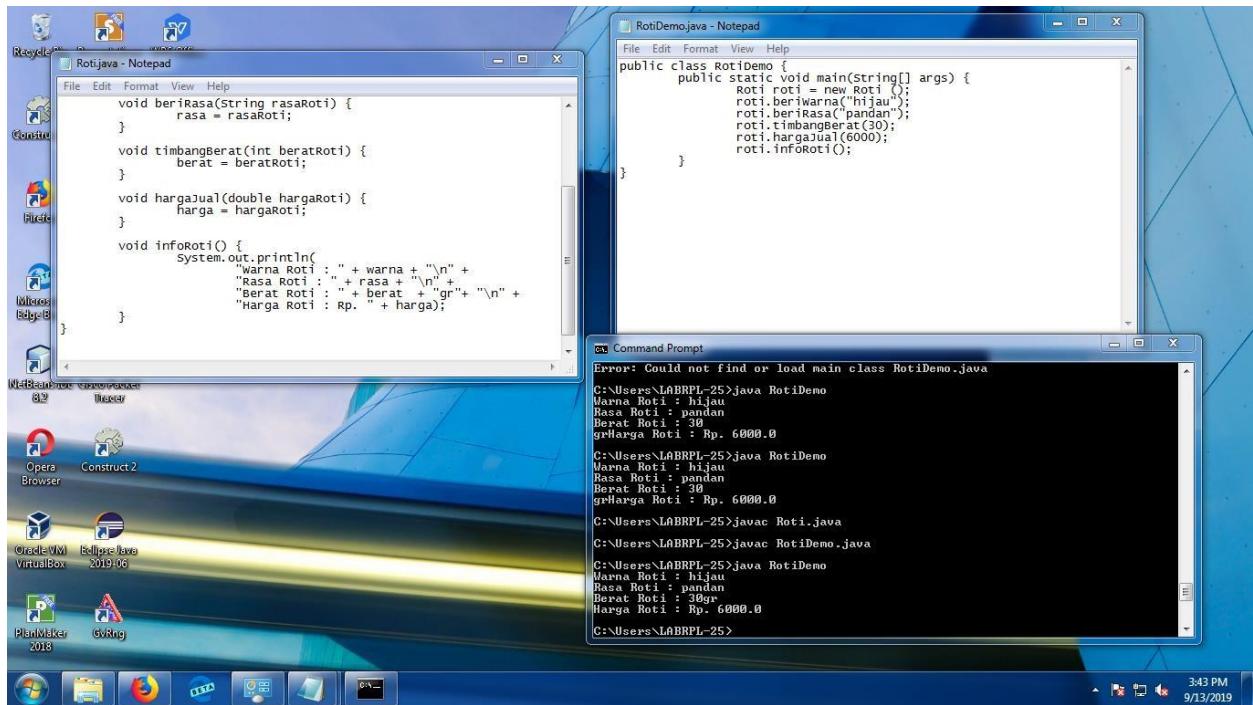
Laporan Praktikum

Modul 1

Modul 1



Modul 2



Modul 2

➤ CONTOH

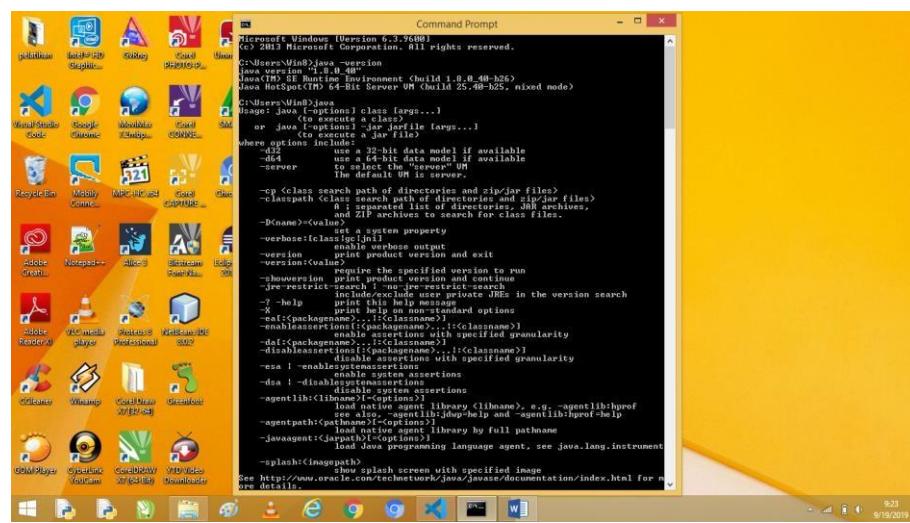
❖ Screenshot class Roti dan class RotiDemo

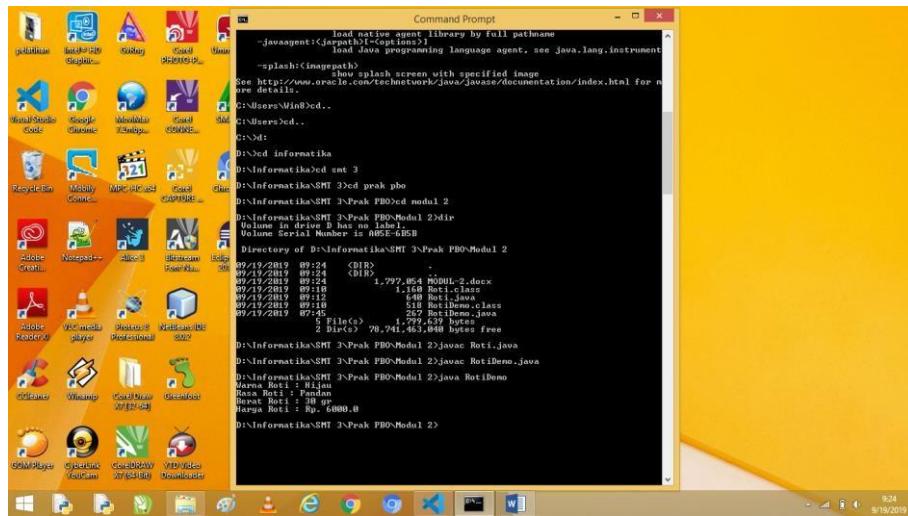
The screenshot shows the Visual Studio Code interface with the file `Roti.java` open. The code defines a class `Roti` with methods to set and get color, taste, weight, and price, and a method to print all information.

```
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. It creates a `Roti` object, sets its properties, and calls its `infoRoti` method.

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





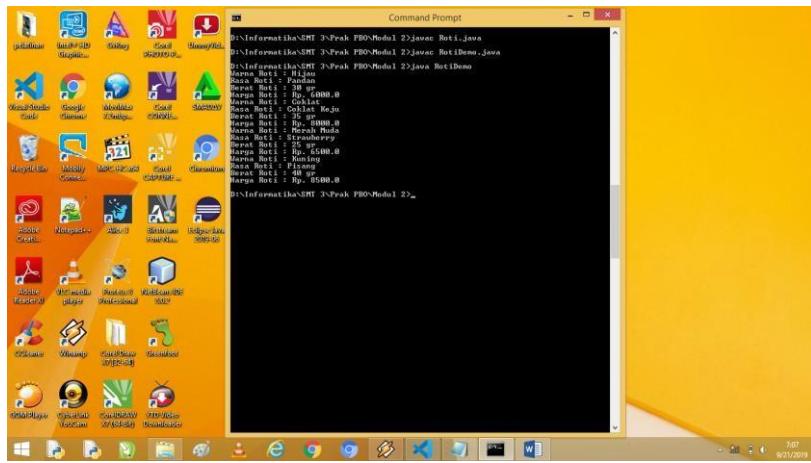
➤ LATIHAN

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

```

1  public class RotiDemo {
2      public static void main(String[] args){
3          Roti roti1 = new Roti();
4          roti1.berikan("Hijau");
5          roti1.beriRasa("Pandan");
6          roti1.tambahUrat(80);
7          roti1.hargaJual(6000);
8          roti1.infoRoti();
9
10         Roti roti2 = new Roti();
11         roti2.berikan("Coklat");
12         roti2.beriRasa("Coklat Keju");
13         roti2.tambahUrat(85);
14         roti2.hargaJual(8000);
15         roti2.infoRoti();
16
17         Roti roti3 = new Roti();
18         roti3.berikan("Wortel Huda");
19         roti3.beriRasa("Strawberry");
20         roti3.tambahUrat(25);
21         roti3.hargaJual(6500);
22         roti3.infoRoti();
23
24         Roti roti4 = new Roti();
25         roti4.berikan("Kuning");
26         roti4.beriRasa("Pisang");
27         roti4.tambahUrat(40);
28         roti4.hargaJual(8500);
29         roti4.infoRoti();
30     }
31 }

```



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

```

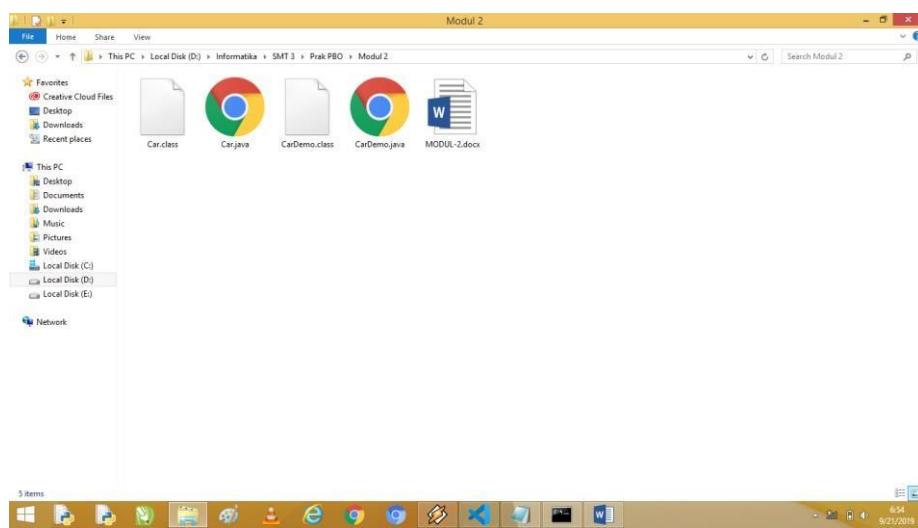
1 public class Car{
2     int cadence;
3     int speed;
4     int gear;
5
6     void changeCadence(int carCadence){
7         cadence = carCadence;
8     }
9
10    void speedUp(int carSpeed){
11        speed = carSpeed;
12    }
13
14    void changeGear(int carGear){
15        gear = carGear;
16    }
17
18    void printInfo(){
19        System.out.println(
20            "Car Cadence : " + cadence + "\n" +
21            "Car Speed : " + speed + "\n" +
22            "Car Gear : " + gear);
23    }
24

```

The screenshot shows the Visual Studio Code interface with the following details:

- File Menu:** File, Edit, Selection, View, Go, Debug, Terminal, Help.
- Editor:** The main area displays the Java code for `CarDemo.java`.

```
1 public class CarDemo{  
2     public static void main(String[] args){  
3         Car car1 = new Car();  
4         Car car2 = new Car();  
5  
6         car1.changeCadence(50);  
7         car1.speedUp(20);  
8         car1.changeGear(2);  
9         car1.printInfo();  
10  
11        car2.changeCadence(80);  
12        car2.speedUp(10);  
13        car2.changeGear(1);  
14        car2.printInfo();  
15    }  
16 }
```
- Status Bar:** Shows "Line 16, Col 2" and "9/21/2019".
- Bottom Bar:** Includes icons for various Windows applications like File Explorer, Task View, and Start.



```

Microsoft Windows [Version 6.3.9600]
(c) 2013 Microsoft Corporation. All rights reserved.

C:\Users\Win8>java -version
java version "1.8.0_26-b26"
Java(TM) SE Runtime Environment (Build 1.8.0_26-b26)
Java HotSpot(TM) 64-Bit Server VM (Build 25.40-b25, mixed mode)

C:\Users\Win8>javav
Usage: java <options> <class> [<args>...]
   or java <options> <jarfile> [<args>...]
      <class> <jarfile>
where options include:
   -cp <classpath> search path of directories and zip/jar files
   -classpath <classpath> search path of directories and zip/jar files
      A colon-separated list of directories, JAR archives,
      and ZIP archives to search for class files.
   -DName=<value>
      set a system property
   -verbose:[class|jni]
      show verbose output
   -version:<value>
      require the specified version to run
   -showversion
      print product version and exit
   -jre restrict to a specific Java Runtime Environment
   -include/exclude user private JREs in the version search
   -X
      print the help message
   -help
      print standard options
   -ea[lt;>]<classname>...<classname>
      enable assertions with specified granularity
   -esa[lt;>]<classname>...<classname>
      enable assertions with specified granularity
   -disableassertions[lt;>]<classname>...<classname>
      disable assertions with specified granularity
   -esa[!]
      enable system assertions
   -dxa[!]
      disable system assertions
   -agentlib:<library>[=<options>?]
      load native agent library <library>, e.g., -agentlib:hprof
      see also -agentlib:jdwp=help and -agentlib:hprof=help
   -agentpath:<path>[=<options>?]
      load native agent library by full pathname
   -javaagent:<jarpath>[=<options>?]
      load Java programming language agent, see java.lang.instrument
   -splash:<imagepath>
      show splash screen with specified image
See http://www.oracle.com/technetwork/java/javase/documentation/index.html for more details.

8:56
9/21/2019

```

```

Command Prompt
-javagent:<jarpath>[=<options>?]
   load Java programming language agent, see java.lang.instrument
   -splash:<imagepath>
      show splash screen with specified image
See http://www.oracle.com/technetwork/java/javase/documentation/index.html for more details.

C:\Users\Win8>cd..
C:\Users>cd.
C:\Users>cd informatika
D:\informatika>d snt 3
D:\informatika\3\PRAK PBO>cd modul 2
D:\informatika\3\PRAK PBO\Modul 2>dir
Volume in drive D has no label
Volume Serial Number is R05E-E05B

Directory of D:\informatika\3\PRAK PBO\Modul 2

09/21/2019 06:44    (DIR)    .
09/21/2019 06:48    (DIR)    ..
395 Car.java
09/21/2019 06:48    304 CarDemo.java
09/19/2019 09:24    1,706,685 MODEL-2.docx
09/19/2019 09:24    2 File(s)  1,706,685 bytes
09/19/2019 09:24    2 Dir(s)  70,596,217,798 bytes free

D:\informatika\3\PRAK PBO\Modul 2>javac Car.java
D:\informatika\3\PRAK PBO\Modul 2>javac CarDemo.java
D:\informatika\3\PRAK PBO\Modul 2>java CarDemo
Car Speed : 20
Car Gear : 1
Car Cadence : 30
Car Speed : 10
Car Gear : 1
D:\informatika\3\PRAK PBO\Modul 2>

6:57
9/21/2019

```

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

A screenshot of Visual Studio Code showing the file `Kucing.java`. The code defines a class `Kucing` with methods `umur` and `meong`.

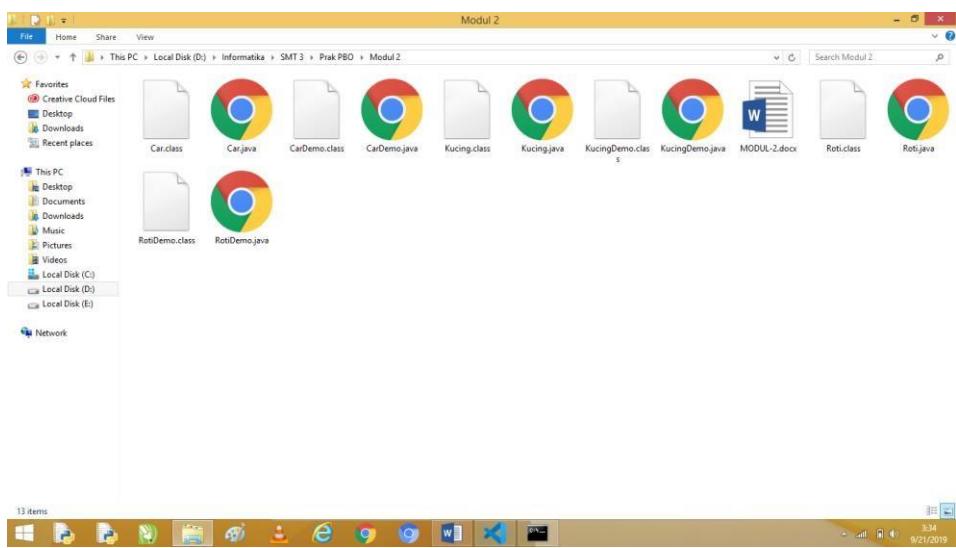
```
1 public class Kucing{  
2     int umur;  
3     String warnaBulu;  
4  
5     void umur(int umurBaru){  
6         umur = umurBaru;  
7     }  
8  
9     void meong(){  
10        System.out.println(  
11            "Umur Kucing : " + umur + " bulan");  
12    }  
13}
```

The status bar at the bottom shows: Ln 13, Col 2 Spaces: 4 UTF-8 CRLF Java 1 9/21/2019.

A screenshot of Visual Studio Code showing the file `KucingDemo.java`. The code creates an instance of `Kucing` and calls its methods.

```
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 status bar at the bottom shows: Ln 8, Col 2 Spaces: 4 UTF-8 CRLF Java 1 9/21/2019.



- ❖ Membuat class yang merepresentasikan rekening bank

A screenshot of Visual Studio Code showing the `Rekening.java` file. The code defines a class `Rekening` with methods for setting name, account number, and balance, and performing transactions like deposit, withdraw, and transfer.

```
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){  
33        no_rek_tujuan = no_tujuan;  
34    }  
35}
```

A screenshot of Visual Studio Code showing the `Rekening.java` file. The code now includes methods for depositing and withdrawing from a savings account, and a new `infoRekening()` method for printing transaction details.

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

A screenshot of the Visual Studio Code interface. The title bar says "RekeningDemo.java - Visual Studio Code". The code editor contains the following Java code:

```
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(1000000);  
10        rekening.transfer(5000000, 199887776);  
11        rekening.infoRekening();  
12    }  
13 }
```

The status bar at the bottom shows "Ln 10, Col 37" and "Java".

A screenshot of a Windows Command Prompt window titled "Command Prompt". The command entered is "java RekeningDemo". The output shows the execution of the Java program:

```
D:\Informatika\SMT\3\Prak PBO\Modul 2>java RekeningDemo.java  
D:\Informatika\SMT\3\Prak PBO\Modul 2>java RekeningDemo  
Nama : Aku  
No Rekening : 1234567890  
Menabung : Rp. 50000000  
Mengambil : Rp. 1000000  
Transfer :  
    No Rekening Tujuan : 199887776  
    Atas Nama : Rp. 5000000  
Saldo : Rp. 135000000
```

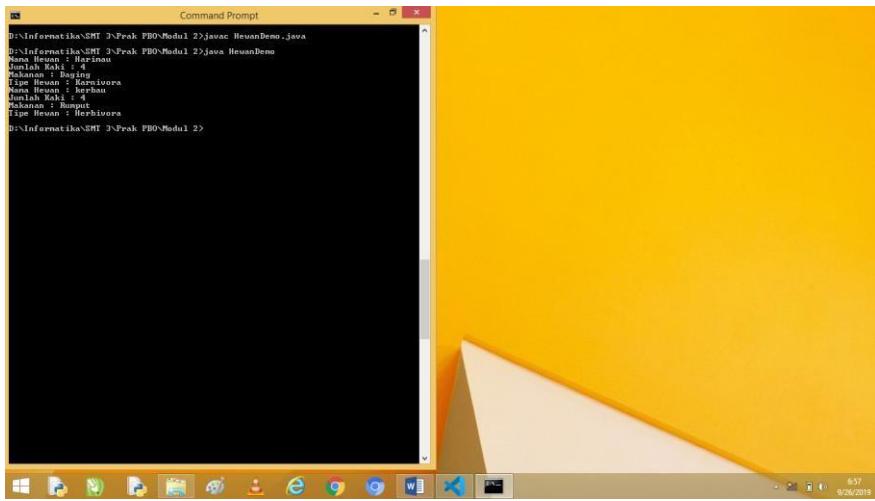
- PEKERJAAN RUMAH
 - ❖ Membuat class Hewan dan object didalamnya

```
File Edit Selection View Go Debug Terminal Help Hewan.java - Visual Studio Code
D:\Informatika>SMT 3>Prak PBO>Modul 2>Hewan.java
1 public class Hewan{
2     String nama;
3     int jml_kaki;
4     String makanan;
5     String tipe;
6
7     void berNama(String namaBaru){
8         nama = namaBaru;
9     }
10    void jumlahKaki(int jml){
11        jml_kaki = jml;
12    }
13    void berMakan(String makan){
14        makanan = makan;
15    }
16    void berTipe(String tipeBaru){
17        tipe = tipeBaru;
18    }
19
20    void infoHewan(){
21        System.out.println(
22            "Nama Hewan : " + nama + "\n" +
23            "Jumlah Kaki : " + jml_kaki + "\n" +
24            "Makanan : " + makanan + "\n" +
25            "Tipe Hewan : " + tipe);
26    }
27
28 }
29 }
```

Ln 28, Col 37 Spaces: 4 UTF-8 CRLF Java 654 9/26/2019

```
File Edit Selection View Go Debug Terminal Help HewanDemo.java - Visual Studio Code
D:\Informatika>SMT 3>Prak PBO>Modul 2>HewanDemo.java
1 public class HewanDemo{
2     public static void main(String[] args){
3         Hewan hewan1 = new Hewan();
4         Hewan hewan2 = new Hewan();
5
6         hewan1.berNama("Harimau");
7         hewan1.jumlahKaki(4);
8         hewan1.berMakan("Ongging");
9         hewan1.berTipe("Karnivora");
10        hewan1.infoHewan();
11
12        hewan2.berNama("Kerbau");
13        hewan2.jumlahKaki(4);
14        hewan2.berMakan("Rumput");
15        hewan2.berTipe("Herbivora");
16        hewan2.infoHewan();
17    }
18 }
```

Ln 16, Col 28 Spaces: 4 UTF-8 CRLF Java 657 9/26/2019



❖ Membuat class berdasarkan class diagram

- Class Dosen

```
File Edit Selection View Go Debug Terminal Help Dosen.java - Visual Studio Code
D:\Informatika > SMT 3 > Prak PBO > Modul 2 > 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 }
```

A screenshot of the Visual Studio Code interface. The title bar says "DosenDemo.java - Visual Studio Code". The editor window contains the following Java code:

```
1  public class DosenDemo{  
2      public static void main(String[] args){  
3          Dosen dosen = new Dosen();  
4  
5          dosen.tampilkanNama("Dosen");  
6          dosen.tampilkanGllahir("1 Januari 1988");  
7          dosen.tampilkanNik(1234567890);  
8          dosen.infoDosen();  
9      }  
10 }
```

The status bar at the bottom shows "Ln 8, Col 27" and "UTF-8".

A screenshot of a Windows Command Prompt window titled "Command Prompt". The command "java DosenDemo" is run, and the output is:

```
D:\Informatika\SMIT 3\Prak PBO>java Dosen.java  
D:\Informatika\SMIT 3\Prak PBO>java DosenDemo.java  
D:\Informatika\SMIT 3\Prak PBO>java DosenDemo  
Tanggal Lahir : 1 Januari 1988  
NIK : 1234567890  
D:\Informatika\SMIT 3\Prak PBO>
```

- Class Karyawan

File Edit Selection View Go Debug Terminal Help Karyawan.java - Visual Studio Code

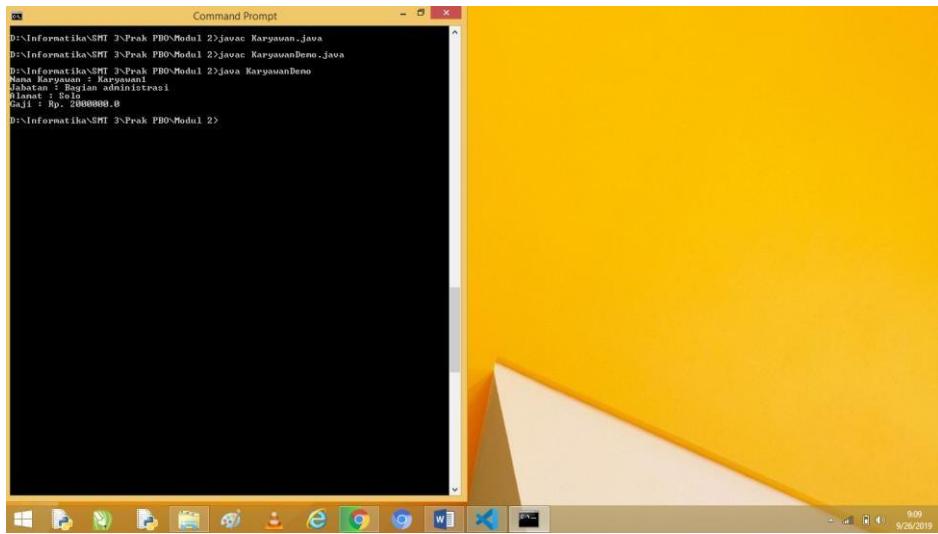
```
1 public class Karyawan{
2     String nama;
3     String alamat;
4     String jabatan;
5     double gaji;
6
7     void tampilkanNama(String namaBaru){
8         nama = namaBaru;
9     }
10    void tampilkanJabatan(String jabatanBaru){
11        jabatan = jabatanBaru;
12    }
13
14    void tampilkanAlamat(String alamatBaru){
15        alamat = alamatBaru;
16    }
17
18    void tampilkanGaji(double gajiBaru){
19        gaji = gajiBaru;
20    }
21
22    void infoKaryawan(){
23        System.out.println(
24            "Nama Karyawan : " + nama + "\n" +
25            "Jabatan : " + jabatan + "\n" +
26            "Alamat : " + alamat + "\n" +
27            "Gaji : Rp. " + gaji);
28    }
29 }
```

In 30, Col 2 Spaces: 4 UTF-8 CR LF Java 9:06 9/26/2019

File Edit Selection View Go Debug Terminal Help KaryawanDemo.java - Visual Studio Code

```
1 public class KaryawanDemo{
2     public static void main(String[] args){
3         Karyawan karyawan = new Karyawan();
4
5         karyawan.tampilkanNama("Karyawan");
6         karyawan.tampilkanJabatan("Bagian administrasi");
7         karyawan.tampilkanAlamat("Solo");
8         karyawan.tampilkanGaji(2000000);
9         karyawan.infoKaryawan();
10    }
11 }
```

In 11, Col 2 Spaces: 4 UTF-8 CR LF Java 9:08 9/26/2019



- Class Mahasiswa

```
File Edit Selection View Go Debug Terminal Help
Mahasiswa.java - Visual Studio Code
D:\Informatika\SMT\3\Prak PBO\Modul 2> Mahasiswa.java
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 }
```

A screenshot of Microsoft Visual Studio Code showing the code for `MahasiswaDemo.java`. The code defines a `Mahasiswa` class with a `main` method. It creates a `Mahasiswa` object, sets its name to "Mahasiswa1", ID to "L200188000", address to "Jakarta", and semester to 3, then prints all information.

```
1  public class Mahasiswa{  
2      public static void main(String[] args){  
3          Mahasiswa mahasiswa = new Mahasiswa();  
4  
5          mahasiswa.tampilkanNama("Mahasiswa1");  
6          mahasiswa.tampilkanNIM("L200188000");  
7          mahasiswa.tampilkanAlamat("Jakarta");  
8          mahasiswa.tampilkanSemester(3);  
9          mahasiswa.infoMahasiswa();  
10     }  
11 }
```

A screenshot of a Windows Command Prompt window titled "Command Prompt". The command `java MahasiswaDemo` is run, and the output shows the student's name, NIM, address, and semester.

```
D:\Informatika\SMIT 3\PRAK PBON\Modul 2>java MahasiswaDemo  
D:\Informatika\SMIT 3\PRAK PBON\Modul 2>Mahasiswa  
NIM : L200188000  
Alamat : Jakarta  
Semester : 3  
D:\Informatika\SMIT 3\PRAK PBON\Modul 2>
```

Laporan Modul ke-3

Latihan 1

The screenshot shows a Sublime Text interface with three tabs: PegawaiJava, LocalVariable.java, and MethodParameter.java. The LocalVariable.java tab contains the following code:

```
1 public class LocalVariable{
2
3     public void hitungUsia() {
4         int tahunSekarang = 2019;
5         int tahunLahir = 2000;
6         int usia = 0;
7
8         usia = tahunSekarang - tahunLahir;
9
10        System.out.println("Usia Saya :" + usia );
11    }
12
13    public void beratBadan(){
14        int beratLahir = 4;
15        int berat = 0;
16
17        berat = beratLahir + (usia/2);
18
19        System.out.println("Berat badan saya: " + berat + " Kg");
20    }
21
22    public static void main(String[] args){
23        LocalVariable usia = new LocalVariable();
24        usia.hitungUsia();
25        usia.beratBadan();
26    }
}
```

To the right of the editor is a Command Prompt window showing the output of running the code. It includes the compilation of LocalVariable.java and MethodParameter.java, followed by the execution of LocalVariable.java which prints the user's age and calculates their weight based on their age.

Tidak bisa berjalan karena local variable hanya dapat digunakan pada method tersebut saja.

Latihan 2.

The screenshot shows a Sublime Text interface with two tabs: 'PegawaiJava' and 'LocalVariable.java'. The 'LocalVariable.java' tab contains the following Java code:

```
1 public class LocalVariable{
2     int usia = 0;
3     public void hitungUsia() {
4         int tahunSekarang = 2019;
5         int tahunLahir = 2000;
6
7         usia = tahunSekarang - tahunLahir;
8
9         System.out.println("Usia Saya :" + usia );
10    }
11    public void beratBadan(){
12        int beratLahir = 4;
13        int berat = 0;
14
15        berat = beratLahir + (usia/2);
16
17        System.out.println("Berat badan saya: " + berat + " Kg");
18    }
19
20    public static void main(String[] args){
21        LocalVariable usia = new LocalVariable();
22        usia.hitungUsia();
23        usia.beratBadan();
24    }
25 }
```

To the right of the editor is a 'Command Prompt' window showing the output of running the Java code:

```
C:\Users\Ray~\Documents\Java>javac LocalVariable.java
C:\Users\Ray~\Documents\Java>java LocalVariable
Usia Saya :19
Berat badan saya: 13 Kg
C:\Users\Ray~\Documents\Java>
```

Latihan 3

The screenshot shows a Sublime Text interface with two tabs: 'Pegawai.java' and 'Command Prompt'. The 'Pegawai.java' tab contains Java code for a Pegawai class with methods setNama, setNip, and setGaji, and a main method creating five Pegawai objects. The 'Command Prompt' tab shows the output of running javac Pegawai.java and java Pegawai, displaying the properties of each object.

```
1 public class Pegawai{
2     String nama;
3     int nip;
4     double gaji;
5     public String setNama (String nama){
6         return this.nama = nama;
7     }
8     public int setNip (int nip){
9         return this.nip = nip;
10    }
11    public double setGaji (double gaji){
12        return this.gaji = gaji;
13    }
14    public static void main (String[] args){
15        Pegawai hiya1 = new Pegawai();
16        Pegawai hiya2 = new Pegawai();
17        Pegawai hiya3 = new Pegawai();
18        Pegawai hiya4 = new Pegawai();
19        Pegawai hiya5 = new Pegawai();
20
21        hiya1.setNama("Dia");
22        hiya1.setNip(112233);
23        hiya1.setGaji(1100000.0
24
25        hiya2.setNama("Aku");
26        hiya2.setNip(112234);
27        hiya2.setGaji(1200000.0
28
29        hiya3.setNama("Kamu");
30        hiya3.setNip(112235);
31        hiya3.setGaji(1300000.0
32
33        hiya4.setNama("Koe");
34        hiya4.setNip(112236);
35        hiya4.setGaji(1400000.0
36
37        hiya5.setNama("Cieeee");
}

```

```
Usage: javac <options> <source files>
use -help for a list of possible options
C:\Users\Ray~>cd C:\Users\Ray~\Documents\Java
C:\Users\Ray~\Documents\Java>javac Pegawai.java
C:\Users\Ray~\Documents\Java>java Pegawai
Nama : Dia
NIP : 112233
Gaji : 1100000.0
Nama: Aku
NIP : 112234
Gaji : 1200000.0
Nama : Kamu
NIP : 112235
Gaji : 1300000.0
Nama : Koe
NIP : 112236
Gaji : 1400000.0
Nama : Cieee
NIP : 112237
Gaji : 1500000.0
C:\Users\Ray~\Documents\Java>
```

Pekerjaan Rumah 1

The screenshot shows a Sublime Text interface with two tabs open: 'PegawaiJava' and 'Nilai.java'. The 'Nilai.java' tab contains the following Java code:

```
1 public class Nilai{
2     int nilaiUTS;
3     int nilaiUAS;
4     int nilaiTugas;
5
6     public int setUTS (int nilaiUTS){
7         return this.nilaiUTS = nilaiUTS;
8     }
9     public int setUAS (int nilaiUAS){
10        return this.nilaiUAS = nilaiUAS;
11    }
12    public int setTugas (int nilaiTugas){
13        return this.nilaiTugas = nilaiTugas;
14    }
15    public void info(){
16        System.out.println("nilai UTS : " + this.setUTS(70));
17        System.out.println("nilai UAS : " + this.setUAS(75));
18        System.out.println("nilai Tugas : " + this.setTugas(80));
19    }
20    public static void main(String[] args) {
21        Nilai hs = new Nilai();
22
23        hs.info();
24    }
25 }
```

Below the code editor is a status bar with 'Line 7, Column 41' and 'Tab Size: 4'. To the right of the code editor is a 'Command Prompt' window titled 'Command Prompt' with the following output:

```
Microsoft Windows [Version 10.0.17134.590]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\Ray->cd C:\Users\Ray\Documents\Java
C:\Users\Ray\Documents\Java>javac Nilai.java
C:\Users\Ray\Documents\Java>java Nilai
nilai UTS : 70
nilai UAS : 75
nilai Tugas : 80

C:\Users\Ray\Documents\Java>
```

Pekerjaan Rumah 2

The screenshot shows a Sublime Text interface with two tabs: 'Pegawai.java' and 'Nilai.java'. The 'Nilai.java' tab contains the following Java code:

```
1 public class Nilai{
2     double nilaiUTS;
3     double nilaiUAS;
4     double nilaiTugas;
5
6     public double setUTS (double nilaiUTS){
7         return this.nilaiUTS = nilaiUTS;
8     }
9     public double setUAS (double nilaiUAS){
10        return this.nilaiUAS = nilaiUAS;
11    }
12    public double setTugas (double nilaiTugas){
13        return this.nilaiTugas = nilaiTugas;
14    }
15    public void info(){
16        System.out.println("nilai UTS : " + this.setUTS(70));
17        System.out.println("nilai UAS : " + this.setUAS(75));
18        System.out.println("nilai Tugas : " + this.setTugas(80));
19    }
20    public void hitung(){
21        double nilaiTotal;
22
23        nilaiTotal = (nilaiUTS + nilaiUAS + nilaiTugas) / 3;
24
25        System.out.println("Nilai Total : " + nilaiTotal);
26    }
27    public static void main(String[] args) {
28        Nilai hs = new Nilai();
29
30        hs.info();
31        hs.hitung();
32    }
33 }
```

Below the code editor is a terminal window titled 'Command Prompt' showing the output of the Java application:

```
Microsoft Windows [Version 10.0.17134.598]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\Ray~\Documents>cd C:\Users\Ray~\Documents\Java

C:\Users\Ray~\Documents>javac Nilai.java

C:\Users\Ray~\Documents>java Nilai
nilai UTS : 70
nilai UAS : 75
nilai Tugas : 80

C:\Users\Ray~\Documents>javac Nilai.java

C:\Users\Ray~\Documents>java Nilai
nilai UTS : 70.0
nilai UAS : 75.0
nilai Tugas : 80.0
Nilai Total : 75.0

C:\Users\Ray~\Documents>
```

Laporan Praktikum PBO

Latihan 1.

Private Modifier tidak dapat diakses di class lain karena private modifier hanya dapat diakses pada class tersebut

PrivateModifier - NetBeans IDE 8.0.2

```

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 privatemodifier;
7
8 /**
9  *
10 * @author LABRPL
11 */
12 public class PrivateModifier {
13     private String nama;
14     private int umur;
15
16     public void printInfo() {
17         System.out.println("private modifier");
18     }
19
20     public static void main(String[] args) {
21         PrivateModifier p = new PrivateModifier();
22
23         p.printInfo();
24     }
25
26 }
27

```

PrivateModifier - NetBeans IDE 8.0.2

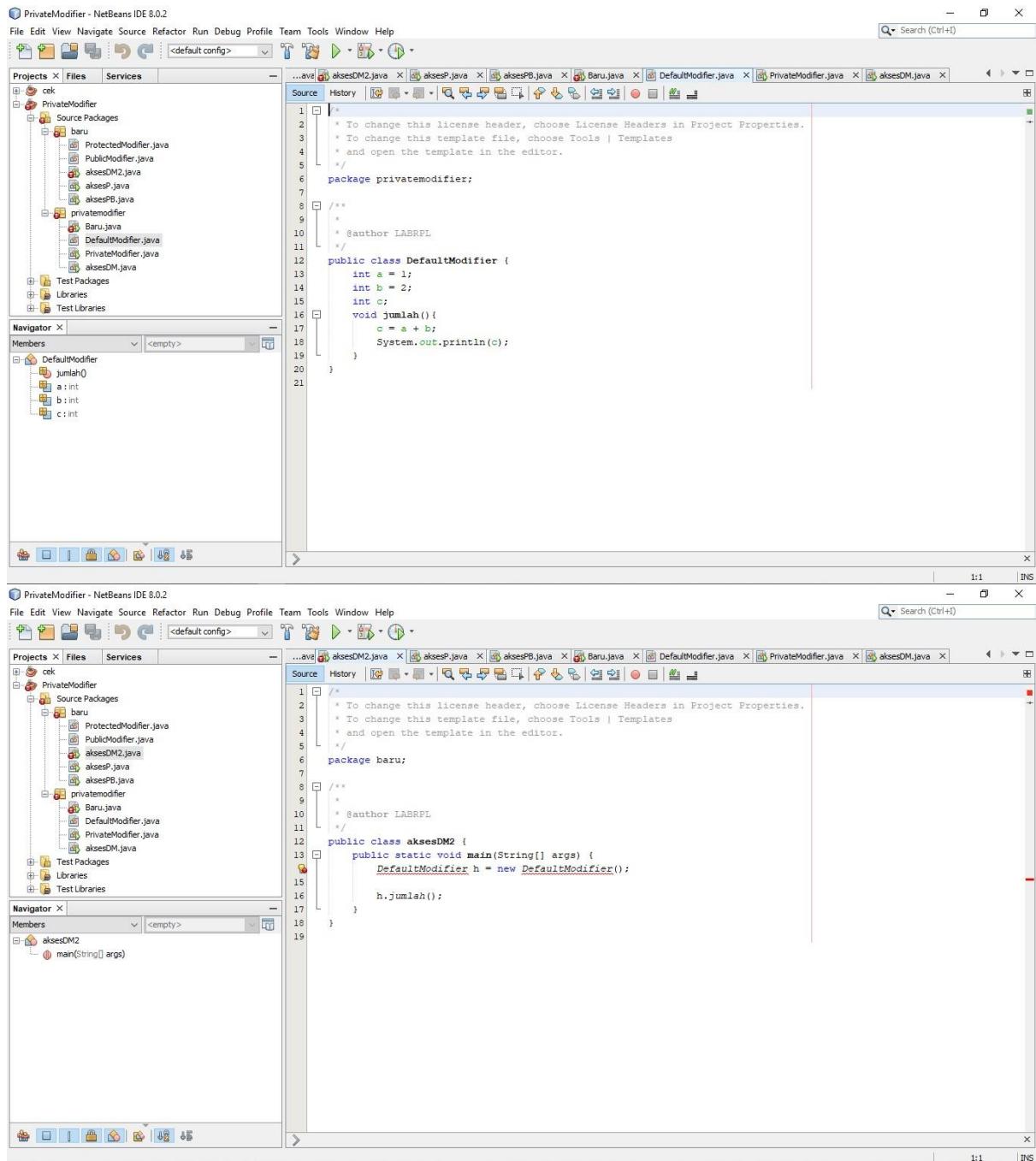
```

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 privatemodifier;
7
8 /**
9  *
10 * @author LABRPL
11 */
12 public class Baru {
13
14     public static void main (String[] args) {
15         PrivateModifier n = new PrivateModifier();
16
17         n.nama("Taufiq");
18         n.umur(19);
19     }
20 }
21

```

2.

Terjadi eror karena Default Modifier tidak dapat diakses pada package lain.



3

Jika program dijalankan akan keluar output protected modifier.

PrivateModifier - NetBeans IDE 8.0.2

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

Projects X Files Services

...age ProtectedModifier.java PublicModifier.java aksesDM2.java aksesP.java aksesPB.java Baru.java DefaultModifier.java

Source 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 package baru;
6
7 /**
8 * 
9 * 
10 * $author LABRPL
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 }
```

PrivateModifier - NetBeans IDE 8.0.2

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

Projects X Files Services

...age ProtectedModifier.java PublicModifier.java aksesDM2.java aksesP.java aksesPB.java Baru.java DefaultModifier.java

Source 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 package baru;
6
7 /**
8 * 
9 * 
10 * $author LABRPL
11 */
12 public class aksesP {
13     public static void main(String[] args){
14         ProtectedModifier z = new ProtectedModifier();
15         z.printInfo();
16         z.sendMessage();
17     }
18 }
```

4.

PrivateModifier - NetBeans IDE 8.0.2

```

5  L  /*
6   * package baru;
7
8   /**
9   *
10  * @author LABRPL
11  */
12 public class PublicModifier {
13     public int a = 2;
14     public int b = 5;
15     public int c = 9;
16     public void kali(){
17         int d = a*b*c;
18         System.out.println("Hasil Kali = " + d);
19     }
20     public void tambah(){
21         int z = a+b+c;
22         System.out.println("Hasil Tambah = " + z);
23     }
24     public void kurang(){
25         int x = a-b-c;
26         System.out.println("Hasil Kurang = " + x);
27     }
28     public void bagi(){
29         int v = a/b/c;
30         System.out.println("Hasil Bagi = " + v);
31     }
32     public void rata_rata(){
33         int f = (a+b+c)/3;
34         System.out.println("Hasil Rata-Rata = " + f);
35     }
36 }

```

PrivateModifier - NetBeans IDE 8.0.2

```

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 baru;
7
8  /**
9  *
10 * @author LABRPL
11 */
12 public class aksesPB {
13     public static void main(String[] args){
14         PublicModifier k = new PublicModifier();
15         k.kali();
16         k.tambah();
17         k.bagi();
18         k.rata_rata();
19     }
20 }

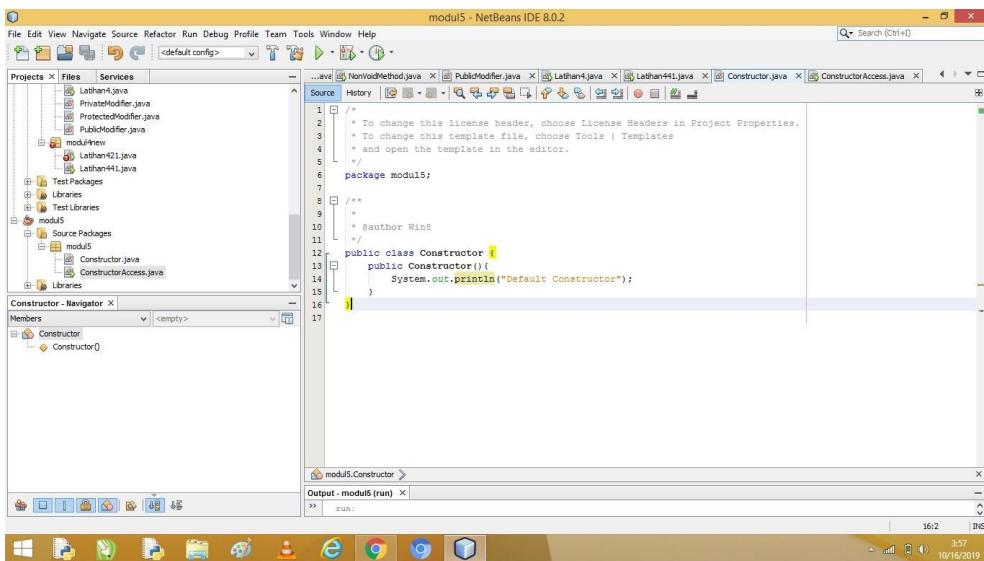
```

MODUL 5

CONSTRUCTOR

PRAKTIKUM PEMROGRAMAN BERORIENTASI OBJEK

- 5.1 DEFAULT CONSTRUCTOR
 - Program 1. Default Constructor



The screenshot shows the NetBeans IDE interface with the title bar "modul5 - NetBeans IDE 8.0.2". The menu bar includes File, Edit, View, Navigate, Source, Refactor, Run, Debug, Profile, Tools, Window, Help. The toolbar has various icons for file operations. The Projects tab shows a hierarchy of Java files: Lathan4.java, PrivateModifier.java, ProtectedModifier.java, PublicModifier.java, modul5.java, Lathan421.java, Lathan441.java, Test Packages, Libraries, Test Libraries, modul5, Source Packages, modul5, Constructor.java, and ConstructorAccess.java. The Files tab is selected, displaying the code for Constructor.java:

```
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  package modul5;
6
7  /**
8  *
9  * @author Wins
10 */
11 public class Constructor {
12     public Constructor() {
13         System.out.println("Default Constructor");
14     }
15 }
16
17
```

The Output tab shows the run command: "run". The status bar at the bottom right indicates "16:2 3:57 10/16/2019".

- Program 2. Mengakses default constructor

modul5 - NetBeans IDE 8.0.2

```

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 modul5;
7
8  /**
9   *
10  * @author Win8
11  */
12 public class ConstructorAccess {
13     public static void main(String[] args){
14         Constructor cons = new Constructor();
15     }
16 }
17

```

Output - modul5(run) x

```

run:
Default Constructor
BUILD SUCCESSFUL (total time: 3 seconds)

```

■ 5.1.1 Latihan 1

modul5 - NetBeans IDE 8.0.2

```

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 modul5;
7
8  /**
9   *
10  * @author Student
11  */
12 public class latihan1{
13
14     String nama = "Nur Taufiq Hidayat";
15     String nim = "L200180069";
16     String alamat = "Nganjuk";
17
18     public latihan1(){
19         System.out.println(
20             "Nama" + nama + "\n" +
21             "NIM" + nim + "\n" +
22             "Alamat" + alamat + "\n");
23     }
24 }

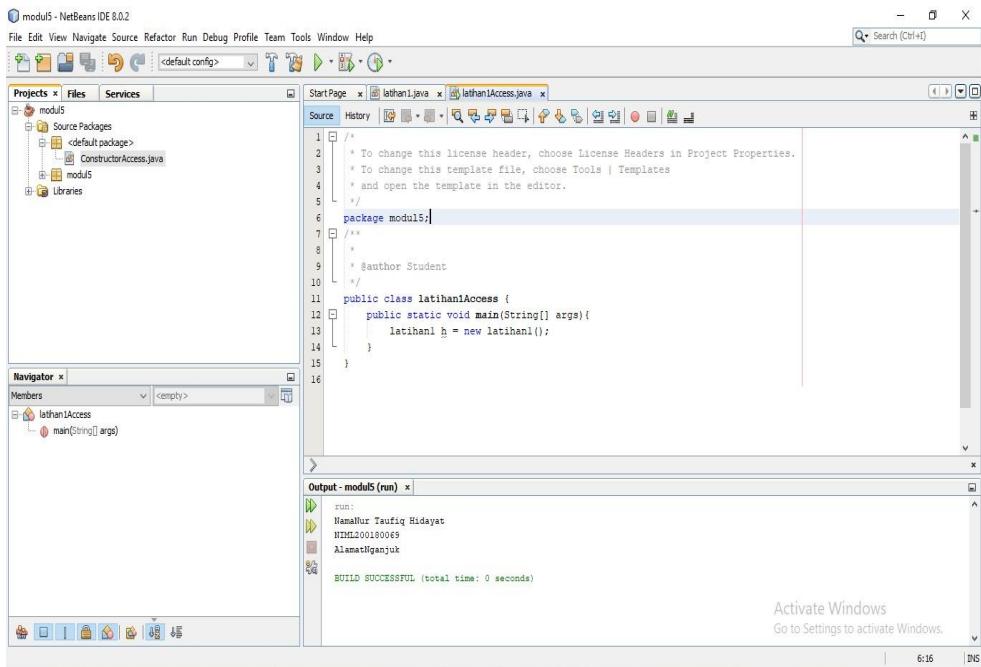
```

Output - modul5(run) x

```

run:
NamaNur Taufiq Hidayat
NIML200180069
AlamatNganjuk
BUILD SUCCESSFUL (total time: 0 seconds)

```

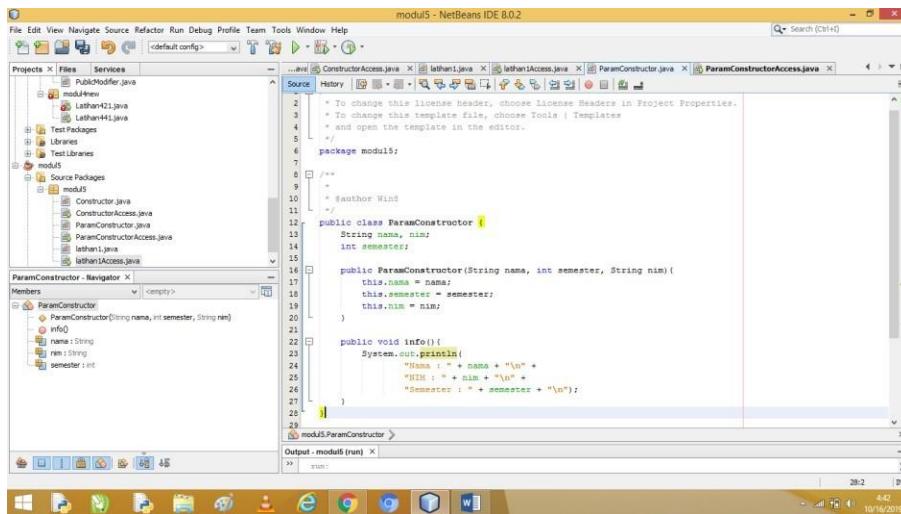


The screenshot shows the NetBeans IDE interface with the following details:

- Title Bar:** modul5 - NetBeans IDE 8.0.2
- Menu Bar:** File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
- Toolbar:** Standard NetBeans toolbar with icons for file operations.
- Projects Tab:** Shows the project structure with a single module named "modul5".
- Navigator Tab:** Shows the members of the "latihan1Access" class, specifically the main method.
- Source Editor:** Displays the Java code for "latihan1Access.java". The code defines a package "modul5" and a public class "latihan1Access" with a static main method that creates an instance of "latihan1".
- Output Tab:** Shows the build output with the message "BUILD SUCCESSFUL (total time: 0 seconds)".

• 5.2 PARAMETERIZED CONSTRUCTOR

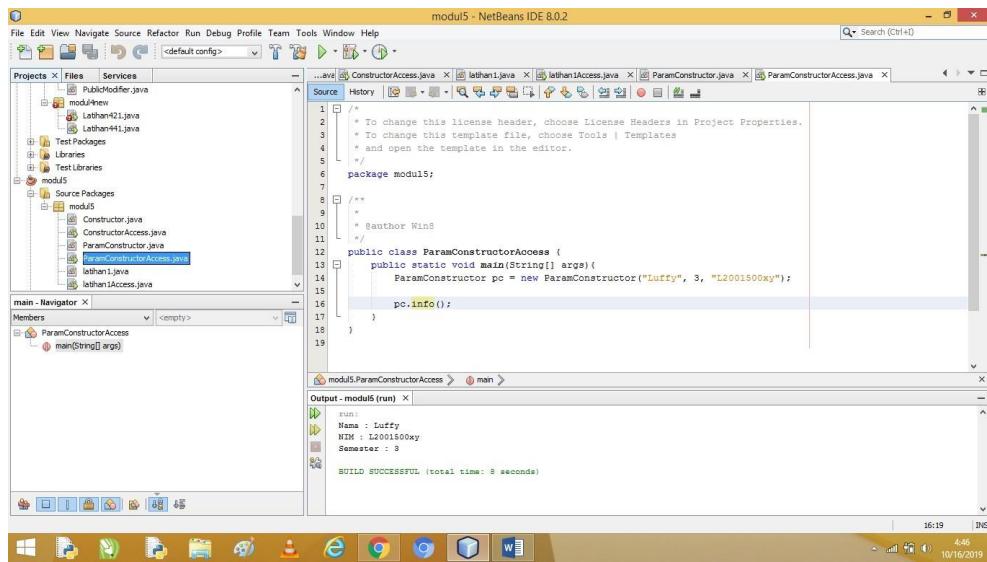
▪ Program 3. Parameterized Constructor



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

- Title Bar:** modul5 - NetBeans IDE 8.0.2
- Menu Bar:** File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
- Toolbar:** Standard NetBeans toolbar with icons for file operations.
- Projects Tab:** Shows the project structure with a single module named "modul5".
- Navigator Tab:** Shows the members of the "ParamConstructor" class, including its constructor and info method.
- Source Editor:** Displays the Java code for "ParamConstructorAccess.java". The code defines a package "modul5" and a public class "ParamConstructor" with a constructor that takes name, nim, and semester as parameters, and an info method that prints them.
- Output Tab:** Shows the run output with the message "BUILD SUCCESSFUL (total time: 0 seconds)".

- Program 4. Mengakses Parameterized Constructor



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

- File Menu:** File, Edit, View, Navigate, Source, Refactor, Run, Debug, Profile, Team, Tools, Window, Help.
- Toolbar:** Standard NetBeans toolbar icons.
- Project Explorer:** Shows a project named "modul5" containing packages "modul5" and "PublicModifier". The "modul5" package contains classes "ConstructorAccess.java", "Latihan1.java", "Latihan1Access.java", "ParamConstructor.java", and "ParamConstructorAccess.java".
- Source Editor:** Displays the code for "ParamConstructorAccess.java". The code defines a class "ParamConstructorAccess" with a static main method that creates an instance of "ParamConstructor" with parameters "Luffy", 3, and "L2001500xy", then calls its info() method.
- Output Window:** Shows the run output for "modul5 (run)". It displays the output: "Nama : Luffy", "NIM : L2001500xy", "Semester : 3", and "BUILD SUCCESSFUL (total time: 8 seconds)".
- Bottom Status Bar:** Shows the date and time as "10/16/2019 16:19".

- 5.2.1 Latihan 2

1. Screenshot untuk perintah pada nomor 1

```

modul5 - NetBeans IDE 8.0.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
.../av... lathan1.java lathanAccess.java ParamConstructor.java ParamConstructorAccess.java Buku.java BukuAccess.java
Projects Files Services
modul5
└─ modul5
    └─ Source Packages
        └─ modul5
            └─ Buku.java
modul5 - NetBeans IDE 8.0.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
.../av... lathan1.java lathanAccess.java ParamConstructor.java ParamConstructorAccess.java Buku.java BukuAccess.java
Projects Files Services
modul5
└─ modul5
    └─ Source Packages
        └─ modul5
            └─ Buku.java

```

Buku - Navigator

Buku

```

Buku(String namaPengarang, String judulBuku)
Buku(int tahunTerbit, int cetakanKe)
Buku(double hargaJual)
Buku(String namaPengarang, String judulBuku, int tahunTerbit, int cetakanKe)
cetakanKe : int
hargaJual : double
judulBuku : String
namaPengarang : String
tahunTerbit : int

```

Buku - Navigator

Buku

```

Buku(double hargaJual)
public Buku(double hargaJual) {
    this.hargaJual = hargaJual;
}
public Buku(String namaPengarang, String judulBuku, int tahunTerbit, int cetakanKe, double hargaJual) {
    this.namaPengarang = namaPengarang;
    this.judulBuku = judulBuku;
    this.tahunTerbit = tahunTerbit;
    this.cetakanKe = cetakanKe;
    this.hargaJual = hargaJual;
}
public void info() {
    System.out.println(
        "Nama Pengarang : " + namaPengarang + "\n" +
        "Judul Buku : " + judulBuku + "\n" +
        "Tahun Terbit : " + tahunTerbit + "\n" +
        "Cetakan ke : " + cetakanKe + "\n" +
        "Harga Jual : Rp. " + hargaJual + "\n"
    );
}

```

2. Screenshot untuk perintah pada nomor 2

The screenshot shows the NetBeans IDE interface with the title "modul5 - NetBeans IDE 8.0.2". The left pane displays the project structure under "Projects", showing files like Lathan1.java, Lathan2.java, Lathan4.java, and Lathan5.java. The right pane shows the code editor with the following Java code:

```
1 package modul5;
2
3 import java.util.Scanner;
4
5 public class BukuAccess {
6     public static void main(String[] args) {
7         Buku b1 = new Buku("B", "ALGORITM", 2019, 1, 200000);
8         Buku b2 = new Buku("B", "ALGORITM", 2018, 2, 150000);
9         Buku b3 = new Buku("C", "SISDID", 2017, 3, 175000);
10        Buku b4 = new Buku("D", "SD", 2019, 1, 250000);
11        Buku b5 = new Buku("E", "KALKULUS", 2018, 2, 300000);
12        Buku b6 = new Buku("F", "WILAYAH STATIS", 2017, 3, 180000);
13        Buku b7 = new Buku("G", "LOGARITM DAN TRIGONOMETRI", 2019, 1, 280000);
14        Buku b8 = new Buku("H", "PERSEGI PANJANG DAN KELILING", 2018, 2, 1450000);
15        Buku b9 = new Buku("I", "METODE NUMERIK", 2019, 1, 100000);
16        Buku b10 = new Buku("J", "MATHEMATICA DISKRIT", 2017, 2, 220000);
17
18        b1.info();
19        b2.info();
20        b3.info();
21        b4.info();
22        b5.info();
23        b6.info();
24        b7.info();
25        b8.info();
26        b9.info();
27        b10.info();
28    }
29 }
30
31
32
33
34
35
36 }
```

Outputnya:

modul5 - NetBeans IDE 8.0.2

Output - modul5 (run) :

```

Nama Pengarang : A
Judul Buku : PBO
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. 150000.0

Nama Pengarang : C
Judul Buku : KALKULUS
Tahun Terbit : 2018
Cetakan ke : 2
Harga Jual : Rp. 250000.0

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

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

Nama Pengarang : F
Judul Buku : WEB STATIS

```

modul5 - NetBeans IDE 8.0.2

Output - modul5 (run) :

```

Nama Pengarang : F
Judul Buku : WEB STATIS
Tahun Terbit : 2017
Cetakan ke : 1
Harga Jual : Rp. 180000.0

Nama Pengarang : G
Judul Buku : LOGIKA DAN KIMPIRAN
Tahun Terbit : 2019
Cetakan ke : 1
Harga Jual : Rp. 280000.0

Nama Pengarang : H
Judul Buku : PEMPROGRAMAN VISUAL
Tahun Terbit : 2018
Cetakan ke : 1
Harga Jual : Rp. 1480000.0

Nama Pengarang : I
Judul Buku : METODE NUMERIK
Tahun Terbit : 2017
Cetakan ke : 2
Harga Jual : Rp. 100000.0

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

BUILD SUCCESSFUL (total time: 2 seconds)

```

• 5.3 TUGAS

- 1) Screenshot untuk perintah pada nomor 1

The screenshot shows the NetBeans IDE interface with the title bar "modul5 - 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 project named "modul5" with several source files: Buku.java, BukuAccess.java, Constructor.java, ConstructorAccess.java, ParamConstructor.java, ParamConstructorAccess.java, latihan1.java, latihanAccess.java, tugas.java, and tugasAccess.java. The Source tab displays the Java code for "tugas.java". The code defines a class "tugas" with a constructor that takes four parameters (fakultas, jurusan, nama, nim) and prints a welcome message. It also has an "info()" method that prints the same four parameters. The Navigator tab shows the members of the "tugas" class: tugas(), tugas(String fakultas, String jurusan, String nama, String nim), info(), fakultas : String, jurusan : String, nama : String, and nim : String. The Output tab shows the run command and the output "run:". The status bar at the bottom right shows the time as 10:16:2019 and the date as 10/16/2019.

```
10  /* @author Win8
11 */
12  public class tugas {
13      String fakultas;
14      String jurusan;
15      String nama;
16      String nim;
17
18      public tugas(){
19          System.out.println("Selamat Datang Mahasiswa");
20      }
21
22      public tugas(String fakultas, String jurusan, String nama, String nim){
23          this.fakultas = fakultas;
24          this.jurusan = jurusan;
25          this.nama = nama;
26          this.nim = nim;
27      }
28
29      public void info(){
30          System.out.println(
31              "Fakultas : " + fakultas + "\n" +
32              "Jurusan : " + jurusan + "\n" +
33              "Nama : " + nama + "\n" +
34              "NIM : " + nim);
35      }
36
37 }
```

2) Screenshot untuk perintah pada nomor 2

The screenshot shows the NetBeans IDE interface with the title bar "modul5 - 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 project named "modul5" with several source files: Buku.java, BukuAccess.java, Constructor.java, ConstructorAccess.java, ParamConstructor.java, ParamConstructorAccess.java, latihan1.java, latihanAccess.java, tugas.java, and tugasAccess.java. The Source tab displays the Java code for "tugasAccess.java". The code defines a class "tugasAccess" with a static main method that creates two "tugas" objects and calls their "info()" methods. The Navigator tab shows the members of the "tugasAccess" class: main(String[] args). The Output tab shows the run command and the output of the program, which includes a welcome message and the details of the two created objects. The status bar at the bottom right shows the time as 10:16:2019 and the date as 10/16/2019.

```
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 package modul5;
7
8 /**
9  * 
10  * @author Win8
11  */
12 public class tugasAccess {
13     public static void main(String[] args){
14         tugas t1 = new tugas();
15         tugas t2 = new tugas("FKI", "Informatika", "Annisa Nugraheni", "L200180066");
16         t2.info();
17     }
18 }
```

Laporan Praktikum PBO

Latihan

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

- Title Bar:** Inheritance - NetBeans IDE 8.0.2
- 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 structure with packages like tugasbenaran, Test Packages, Libraries, Test Libraries, PrivateModifier, and Source Packages. Under Source Packages, there are files: BangunDatar.java, Persegi.java, PersegiPanjang.java, main.java, segITigSamakaki.java, segITigSamSisi.java, and segITiga.java.
- Source Editor:** Displays the code for the `Kendaraan` 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 LABRPL
11 */
12 public class Kendaraan {
13     String penggerak = "mesin";
14     String bahanBakar = "Fosil";
15     int kursi = 4;
16 }
```
- Navigator Tab:** Shows the members of the `Kendaraan` class: bahanBakar : String, kursi : int, and penggerak : String.
- Output Tab:** Shows the run output:

```
>>> run:
Mobil bermerk Honda
dan memiliki kursi berjumlah 4
Berbahan bakar dari Fosil
dengan jumlah penggerak 1 mesin
=====
Pesawat dengan maskapai garuda
Memiliki 3 buah sayap
dan memiliki kursi berjumlah 100
Berbahan bakar dari Fosil
```
- Status Bar:** Shows the time as 15:19 and the status as INS.

The image displays two screenshots of the NetBeans IDE interface, showing Java code for inheritance examples.

Top Screenshot (Mobil.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 LABRPL
11 */
12 public class Mobil extends Kendaraan {
13     String Merk = "Honda";
14     int kursi = 4;
15
16     public void info(){
17         System.out.println("Mobil bermerk " + Merk
18                             + "\n" + "dan memiliki kursi berjumlah " + kursi + "\n"
19                             + "Berbahan bakar dari " + super.bahanBakar + "\n" +
20                             "dengan jumlah penggerak [" + super.penggerak);
21     }
22 }
```

Bottom Screenshot (Pesawat.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 LABRPL
11 */
12 public class Pesawat extends Kendaraan{
13     String maskapai ="garuda";
14     int jumlahSayap = 2;
15     int kursi = 100;
16
17     public void info(){
18         System.out.println("Pesawat dengan maskapai " + maskapai + "\n" +
19                             "Memiliki " + jumlahSayap + " buah sayap"
20                             + "\n" + "dan memiliki kursi berjumlah " + kursi + "\n"
21                             + "Berbahan bakar dari " + super.bahanBakar + "\n" +
22                             "dengan jumlah penggerak [" + super.penggerak);
23     }
24 }
```

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

- Project Explorer:** Shows a project named "Inheritance" with several Java files under "tugas" and "tugasaneran" packages.
- Code Editor:** Displays the content of the file "main.java".
- Output Window:** Shows the console output of the program execution.

```
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
11 */
12 public class main {
13     public static void main(String[] args) {
14         Mobil m = new Mobil();
15         Pesawat p = new Pesawat();
16
17         m.info();
18         System.out.println("=====");
19         p.info();
20     }
21 }
22
```

Output - Inheritance (run) :

```
Mobil bermerk Honda
dan memiliki kursi berjumlah 4
Berbahan bakar dari Fosil
dengan jumlah penggerak 1 mesin
=====
Pesawat dengan maskapai garuda
Memiliki 2 buah sayap
dan memiliki kursi berjumlah 100
Berbahan bakar dari Fosil
dengan jumlah penggerak 4 mesin
=====
```

Tugas

NetBeans IDE 8.0.2

BangunDatar.java

```

1 package tugasbeneran;
2 public class BangunDatar {
3     protected double luas;
4     protected double keliling;
5
6     public void hitungLuas(){
7         Persegi per = new Persegi();
8         double luas1 = per.sisi*per.sisi;
9
10        PersegiPanjang perl = new PersegiPanjang();
11        double luas2 = perl.lebar*perl.panjang;
12
13        segitiga seg = new segitiga();
14        segitigaSamaKaki seg1 = new segitigaSamaKaki();
15        double luas3 = (seg.alas*seg1.sisiMiring)/2;
16        segitigaSamaSisi seg2 = new segitigaSamaSisi();
17        double luas4 = (seg.alas*seg2.sisi)/2;
18        System.out.println("luas persegi "+luas1+
19                    "\n"+ "luas persegi panjang "+luas2+
20                    "\n"+ "luas segitiga samakaki "+luas3+
21                    "\n"+ "luas segitiga samasisi "+luas4+"\n");
22    }
23
24
25    public void hitungKeliling(){
26        Persegi per = new Persegi();
27        double keliling1 =(per.sisi*per.sisi*per.sisi);
28
29        PersegiPanjang perl = new PersegiPanjang();
30        double keliling2 = 2*(perl.lebar+perl.panjang);
31
32        segitiga seg = new segitiga();
33        segitigaSamaKaki seg1 = new segitigaSamaKaki();
34
35    }
36
37}

```

Persegi.java

```

1 package tugasbeneran;
2 public class Persegi extends BangunDatar{
3     double sisi = 5;
4 }

```

The image displays two screenshots of the NetBeans IDE 8.0.2 interface, illustrating Java inheritance. Both screenshots show a project named 'Inheritance' with the following structure:

- Projects**: pegawai.java, teknik.java, tugas/Kendaraan.java, Mobil.java, Pesawat.java, main.java, tugasbenaran/BangunDatar.java, Persegi.java, PersegiPanjang.java, main.java, segiTigaSamaKaki.java, segiTigaSamaSisi.java, segitiga.java.
- Navigator**: Members (segitiga :: BangunDatar, alas : double) and (segiTigaSamaSisi :: segitiga, sisi : double).

Screenshot 1 (Top): The code editor shows the definition of the `segitiga` class in the `tugasbenaran` package: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 tugasbenaran;
7
8 /**
9 *
10 * @author LABRPL
11 */
12 public class segitiga extends BangunDatar{
13 double alas = 10;
14 }
15

Screenshot 2 (Bottom): The code editor shows the definition of the `segiTigaSamaSisi` class in the `tugasbenaran` package, which extends the `segitiga` 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 tugasbenaran;
7
8 /**
9 *
10 * @author LABRPL
11 */
12 public class segiTigaSamaSisi extends segitiga{
13 double sisi = 10;
14 }
15

The screenshot shows the NetBeans IDE interface with the title bar "Inheritance - 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 file operations like New, Open, Save, and Run. The Projects tab shows a package named "tugasbeneran" containing several Java files: pegawai.java, teknisi.java, tugas.java, Kendaraan.java, Mobil.java, Pesawat.java, main.java, and segiTigaSamaKaki.java. The Files tab shows the source code for segiTigaSamaKaki.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 tugasbeneran;
7
8  /**
9   *
10  * @author LABRPL
11  */
12 public class segiTigaSamaKaki extends segitiga{
13     double sisiMiring = 15;
14 }
15
```

The Navigator tab shows the members of the segiTigaSamaKaki class: segiTigaSamaKaki :: segitiga and sisiMiring : double.

The screenshot shows the NetBeans IDE interface with the title bar "Inheritance - 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 file operations like New, Open, Save, and Run. The Projects tab shows a package named "tugasbeneran" containing several Java files: main.java, BangunDatar.java, Persegi.java, PersegiPanjang.java, main.java, segiTigaSamaKaki.java, segiTigaSamaSisi.java, and segitiga.java. The Libraries tab shows "PrivateModifier" with sub-folders "baru" and "ProtectedModifier.java". The Files tab shows the source code for main.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 tugasbeneran;
7
8  /**
9   *
10  * @author LABRPL
11  */
12 public class main {
13     public static void main(String[] args) {
14         BangunDatar BD = new BangunDatar();
15         BD.hitungKeling();
16         BD.hitungLuas();
17     }
18 }
```

The Output tab shows the results of the run command:

```
run:
keliling persegi 125.0
keliling persegi panjang 60.0
keliling segitiga sama kaki 40.0
keliling segitiga sama sisi 30.0
luas persegi 25.0
luas persegi panjang 60.0
luas segitiga sama kaki 75.0
luas segitiga sama sisi 50.0
```

MODUL 7

ENCAPSULATION

PRAKTIKUM PEMROGRAMAN BERORIENTASI OBJEK

- 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 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 is selected, showing a list of Java files: C.java, InheritanceTest.java, Kendaraan.java, LathanDemo.java, Mobil.java, Pegawai.java, Pesawat.java, Programmer.java, Teknis.java, Tugas, BangunDatar.java, Persegi.java, PersegiPanjang.java, SegTiga.java, SegTigaSamakaki.java, SegTigaSamasejさい.java, mod6, Modul6.java, Test Packages, Libraries, Test Libraries, Modul7, Source Packages, <default package>, Karyawan.java, KaryawanDemo.java, Manager.java, ManagerDemo.java, mod7, Modul7.java, Test Packages, Libraries, Test Libraries. The Files tab is selected, showing the Karyawan.java code:

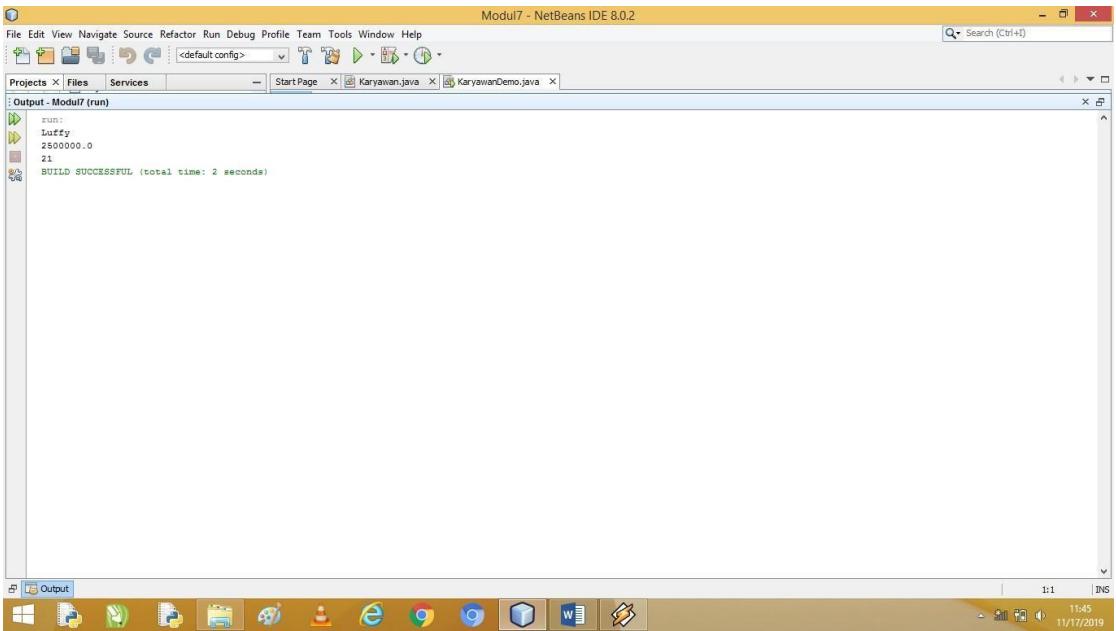
```
10  /*
11   * To change this license header, choose License Headers in Project Properties.
12   * To change this template file, choose Tools | Templates.
13   * To open this template in the editor, choose Tools | Templates.
14   */
15
16  public class Karyawan {
17      private String nama;
18      private float gaji;
19      private int usia;
20
21      public String getNama() {
22          return nama;
23      }
24
25      public void setNama(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

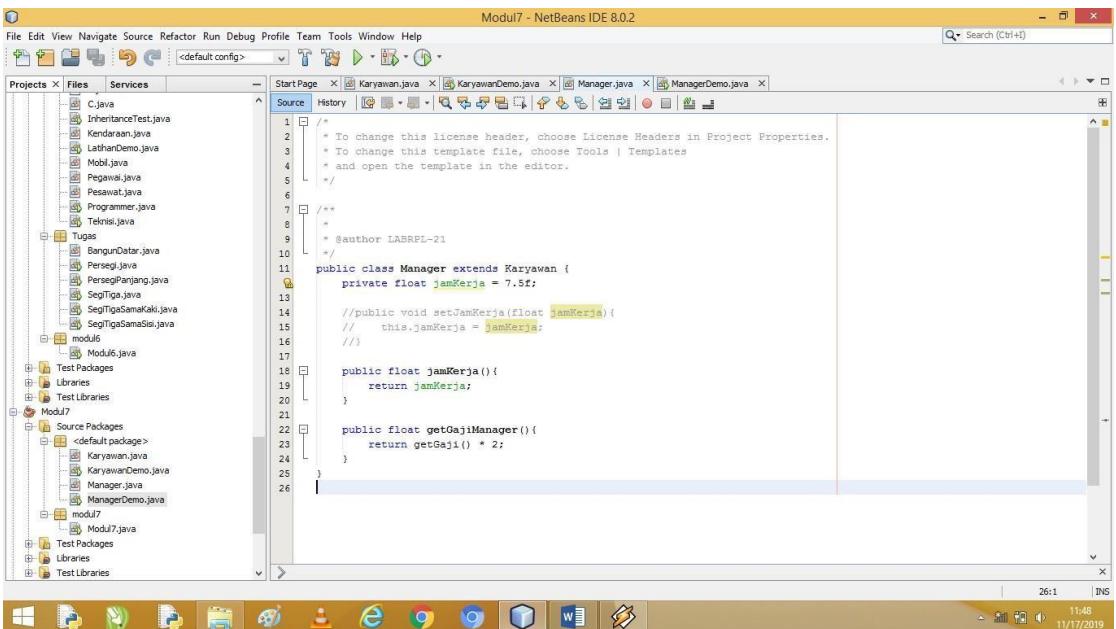
The screenshot shows the NetBeans IDE interface with the title bar "Modul7 - NetBeans IDE 8.0.2". The menu bar includes File, Edit, View, Navigate, Source, Refactor, Run, Debug, Profile, Team, Tools, Window, Help. The toolbar has icons for New Project, Open Project, Save, Cut, Copy, Paste, Find, Replace, Run, Stop, and Exit. The Projects tab is selected, showing a list of Java files: C.java, InheritanceTest.java, Kendaraan.java, LathanDemo.java, Mobil.java, Pegawai.java, Pesawat.java, Programmer.java, Teknis.java, Tugas, BangunDatar.java, Persegi.java, PersegiPanjang.java, SegTiga.java, SegTigaSamakaki.java, SegTigaSamasejさい.java, mod6, Modul6.java, Test Packages, Libraries, Test Libraries, Modul7, Source Packages, <default package>, Karyawan.java, KaryawanDemo.java, Manager.java, ManagerDemo.java, mod7, Modul7.java, Test Packages, Libraries, Test Libraries. The Files tab is selected, showing the KaryawanDemo.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  * To open this template in the editor, choose Tools | Templates.
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.setNama("Luffy");
15         k1.setGaji(2500000);
16         k1.setUsia(21);
17
18         System.out.println(k1.getNama());
19         System.out.println(k1.getGaji());
20         System.out.println(k1.getUsia());
21     }
22 }
```

❖ Output ketika program 2 atau class KaryawanDemo dijalankan



❖ Program 3. Contoh Program Single Inheritance



- ### 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

```

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(50000);
        m1.setName("Manager 1");
        m1.setUsia(30);
        //m1.setJamKerja(8.5f);

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

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

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

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

```

Modul7 - NetBeans IDE 8.0.2

```

m5.setUsia(28);

System.out.println("Nama 1 : " + m1.getName());
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.getName());
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.getName());
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.getName());
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.getName());
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");

//System.out.println("Jam kerja baru : " + m1.jamKerja());
}

```

❖ 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 Start Page 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 : 25

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)

```

Output

65:11 11:55 11/17/2019

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 Start Page 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 *
9 * @author LABRPL-21
10 */
11 public class Manager extends Karyawan {
12     private float jamKerja = 7.5;
13
14     public void setJamKerja(float jamKerja){
15         this.jamKerja = jamKerja;
16     }
17
18     public float jamKerja(){
19         return jamKerja;
20     }
21
22     public float getGajiManager(){
23         return getGaji() * 2;
24     }
25 }

```

Source Packages <default package> Karyawan.java KaryawanDemo.java Manager.java ManagerDemo.java

modul7 Modul7.java

Test Packages Libraries Test Libraries

Modul7 Source Packages <default package> Karyawan.java KaryawanDemo.java Manager.java ManagerDemo.java

modul7 Modul7.java

Test Packages Libraries Test Libraries

Windows Taskbar: File Explorer, Task View, Taskbar Icons, Taskbar Buttons, Taskbar Notifications, Taskbar Search, Taskbar Icons, Taskbar Buttons, Taskbar Notifications, Taskbar Search

26:1 11:57 11/17/2019

Modul7 - NetBeans IDE 8.0.2

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

<default config>

Projects Files Services

Start Page 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 *
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.setNama("Manager 1");
21         m1.setUsia(30);
22         m1.setJamKerja(8.5f);
23
24         m2.setGaji(100000);
25         m2.setNama("Manager 2");
26         m2.setUsia(25);
27         m2.setJamKerja(8.5f);
28
29         m3.setGaji(200000);
30         m3.setNama("Manager 3");
31         m3.setUsia(26);
32         m3.setJamKerja(8.5f);
33
34         m4.setGaji(300000);
35         m4.setNama("Manager 4");
36         m4.setUsia(27);
37         m4.setJamKerja(8.5f);
38
39         m5.setGaji(400000);
40         m5.setNama("Manager 5");
41         m5.setUsia(28);
42         m5.setJamKerja(8.5f);
43
44         System.out.println("Nama 1 : " + m1.getNama());
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.getNama());
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.getNama());
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.getNama());
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.getNama());
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 }
72 }
```

Modul7 - NetBeans IDE 8.0.2

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

<default config>

Projects Files Services

Start Page Karyawan.java KaryawanDemo.java Manager.java ManagerDemo.java

Source History

```
28
29         m3.setGaji(200000);
30         m3.setNama("Manager 3");
31         m3.setUsia(26);
32         m3.setJamKerja(8.5f);
33
34         m4.setGaji(300000);
35         m4.setNama("Manager 4");
36         m4.setUsia(27);
37         m4.setJamKerja(8.5f);
38
39         m5.setGaji(400000);
40         m5.setNama("Manager 5");
41         m5.setUsia(28);
42         m5.setJamKerja(8.5f);
43
44         System.out.println("Nama 1 : " + m1.getNama());
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.getNama());
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.getNama());
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.getNama());
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.getNama());
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 }
72 }
```

Modul7 - NetBeans IDE 8.0.2

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

<default config>

Projects Files Services

Start Page Karyawan.java KaryawanDemo.java Manager.java ManagerDemo.java

Source History

```
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.getNama());
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.getNama());
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.getNama());
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.getNama());
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 }
72 }
```

○ Output dari program diatas:

```

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 : 25

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)

```

LAPORAN MODUL KE-8

- 8.1.1. Overriding
- ❖ Program 1. Superclass yang akan diterapkan konsep overriding

```

/*
 * 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 modul8;

public class ParentClass {
    void printOut(){
        System.out.println("Ini adalah SuperClass");
    }
}

```

- ❖ Program 2. Penerapan overriding pada 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 LABRPL-2
10 */
11 public class Childclaz extends Parentclaz {
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

```

1 /**
2 *
3 * @author LABRPL-2
4 */
5
6
7 public class DemoOverriding {
8     public static void main(String[] ovz) {
9         Parentclaz pc = new Parentclaz();
10        Childclaz cc = new Childclaz();
11        pc.printOut();
12        cc.printOut();
13    }
14 }

```

♦ Program 4. Contoh overriding method

Modul8 - NetBeans IDE 8.0.2

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

Start Page Parentdas.java Childdas.java DemoOverriding.java Hewan.java

Projects Files Services <default config>

Source 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  * @author LABRPL-2
10 */
11 public class Hewan {
12     public void jalan() {
13         System.out.println("Hewan bisa berjalan");
14     }
15 }
```

mod8

Source Packages

- <default package>
 - Childdas.java
 - DemoOverriding.java
 - Hewan.java
 - Kucing.java
 - OverloadingConstructor.java
 - Parentdas.java
 - Sepeda.java
 - SepedaAir.java
- Lathan
 - Anjing.java
 - Kucing.java
 - Pet.java
 - TekPolymorphism.java
- Tugas
 - CustomerData.java
 - CustomerDataDemo.java
 - Elang.java
 - Hewan.java

Test Packages Libraries Test Libraries

ProjectPBO Source Packages

11:1 6:53 11/24/2019

Modul8 - NetBeans IDE 8.0.2

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

Start Page Parentdas.java Childdas.java DemoOverriding.java Hewan.java Kucing.java

Projects Files Services <default config>

Source 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  * @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 berulari");
15     }
16 }
```

mod8

Source Packages

- <default package>
 - Childdas.java
 - DemoOverriding.java
 - Hewan.java
 - Kucing.java
 - OverloadingConstructor.java
 - Parentdas.java
 - Sepeda.java
 - SepedaAir.java
- Lathan
 - Anjing.java
 - Kucing.java
 - Pet.java
 - TekPolymorphism.java
- Tugas
 - CustomerData.java
 - CustomerDataDemo.java
 - Elang.java
 - Hewan.java

Test Packages Libraries Test Libraries

ProjectPBO Source Packages

17:1 6:53 11/24/2019

8.1.2 Upcasting

- Program 5. Superclass yang akan diterapkan konsep upcasting

Modul8 - NetBeans IDE 8.0.2

```

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
cdefault config> Start Page Parentdaz.java Childdaz.java DemoOverriding.java Hewan.java Kucing.java Sepeda.java
Projects Files Services
Modul8 SegTigaSamaKaki.java SegTigaSamaSisi.java
modul6 Modul6.java
Test Packages Libraries Test Libraries
Modul8 Source Packages
<default package>
    Chiddaz.java
    DemoOverriding.java
    Hewan.java
    Kucing.java
    OverloadingConstructor.java
    Parentdaz.java
    Sepeda.java
    SepedaAr.java
    Lahan
        Anjing.java
        Kucing.java
        Pet.java
        TestPolymorphism.java
    Tugas
        CustomerData.java
        CustomerDataDemo.java
        Elang.java
        Hewan.java
    Test Packages
    Libraries
    Test Libraries
ProjectPBO Source Packages

```

```

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 Sepeda {
12     void run(){
13         System.out.println("Bisa berjalan");
14     }
15 }
16

```

1:1 657 11/24/2019

- Program 6. Penerapan upcasting pada subclass

Modul8 - NetBeans IDE 8.0.2

```

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
cdefault config> Start Page Parentdaz.java Childdaz.java DemoOverriding.java Hewan.java Kucing.java Sepeda.java SepedaAir.java
Projects Files Services
Modul8 SegTigaSamaKaki.java SegTigaSamaSisi.java
modul6 Modul6.java
Test Packages Libraries Test Libraries
Modul8 Source Packages
<default package>
    Chiddaz.java
    DemoOverriding.java
    Hewan.java
    Kucing.java
    OverloadingConstructor.java
    Parentdaz.java
    Sepeda.java
    SepedaAr.java
    Lahan
        Anjing.java
        Kucing.java
        Pet.java
        TestPolymorphism.java
    Tugas
        CustomerData.java
        CustomerDataDemo.java
        Elang.java
        Hewan.java
    Test Packages
    Libraries
    Test Libraries
ProjectPBO Source Packages

```

```

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 SepedaAir extends Sepeda{
12     @Override
13     void run(){
14         System.out.println("Hanya bisa Berjalan di atas" + "Air");
15     }
16     public static void main(String[] args){
17         Sepeda s = new SepedaAir(); //upcasting
18         s.run();
19     }
20 }
21

```

21:1 659 11/24/2019

8.1.3 Overloading

- Program 7. Overloading pada constructor

Modul8 - NetBeans IDE 8.0.2

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

Projects Files Services ...- avl Childdaz.java DemoOverriding.java Hewan.java Kucing.java Sepeda.java SepedaAir.java OverloadingConstructor.java

Source History

Modul8

SegTigaSamaKaki.java SegTigaSamaSisi.java

modul6.java

Test Packages Libraries Test Libraries

Modul8

Source Packages <default package>

Childdaz.java DemoOverriding.java Kucing.java OverloadingConstructor.java Parentdaz.java Sepeda.java SepedaAr.java

Lahan

Anjing.java Kucing.java Pet.java TestPolymorphism.java

Tugas

CustomerData.java CustomerDataDemo.java Elang.java Hewan.java

Test Packages Libraries Test Libraries

ProjectPBO

Source Packages

...- avl Childdaz.java DemoOverriding.java Hewan.java Kucing.java Sepeda.java SepedaAir.java OverloadingConstructor.java

Source History

Modul8

SegTigaSamaKaki.java SegTigaSamaSisi.java

modul6.java

Test Packages Libraries Test Libraries

Modul8

Source Packages <default package>

Childdaz.java DemoOverriding.java Kucing.java OverloadingConstructor.java Parentdaz.java Sepeda.java SepedaAr.java

Lahan

Anjing.java Kucing.java Pet.java TestPolymorphism.java

Tugas

CustomerData.java CustomerDataDemo.java Elang.java Hewan.java

Test Packages Libraries Test Libraries

ProjectPBO

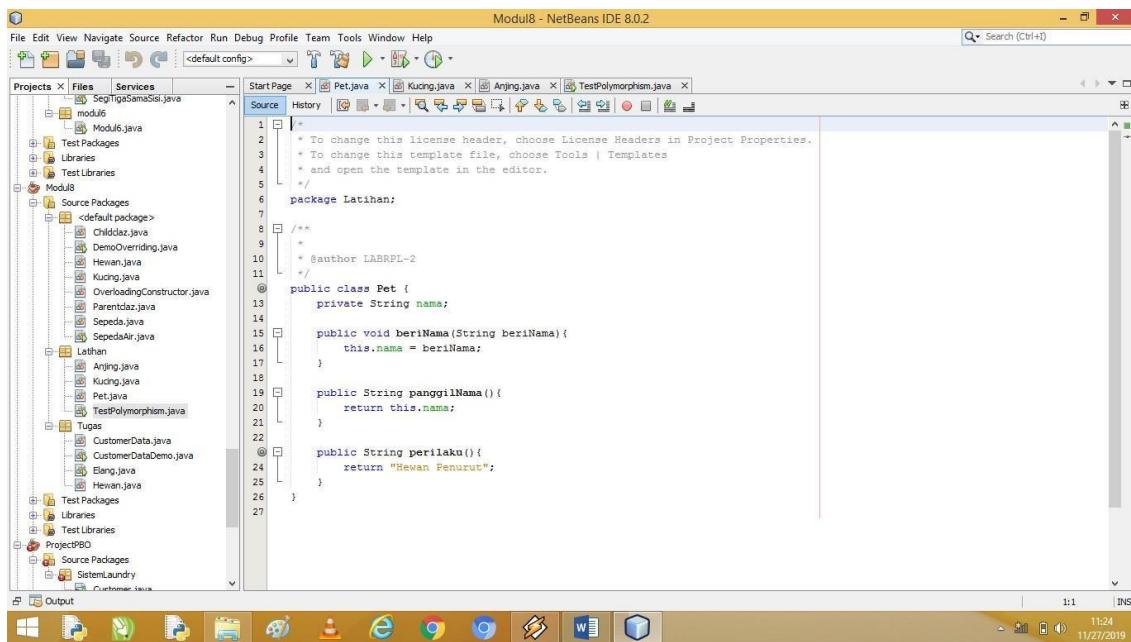
Source Packages

1 import java.util.Date;
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 *
10 * @author LABRPL-2
11 *
12 public class OverloadingConstructor {
13 int idUser;
14 String userName;
15 int level;
16 Date lastLogin;
17 public OverloadingConstructor(){
18 }
19 public OverloadingConstructor(int idUser, String userName){
20 this.idUser = idUser;
21 this.userName = userName;
22 }
23 public OverloadingConstructor(String userName){
24 this.userName = userName;
25 }
26 }

26:1 7:00 11/24/2019

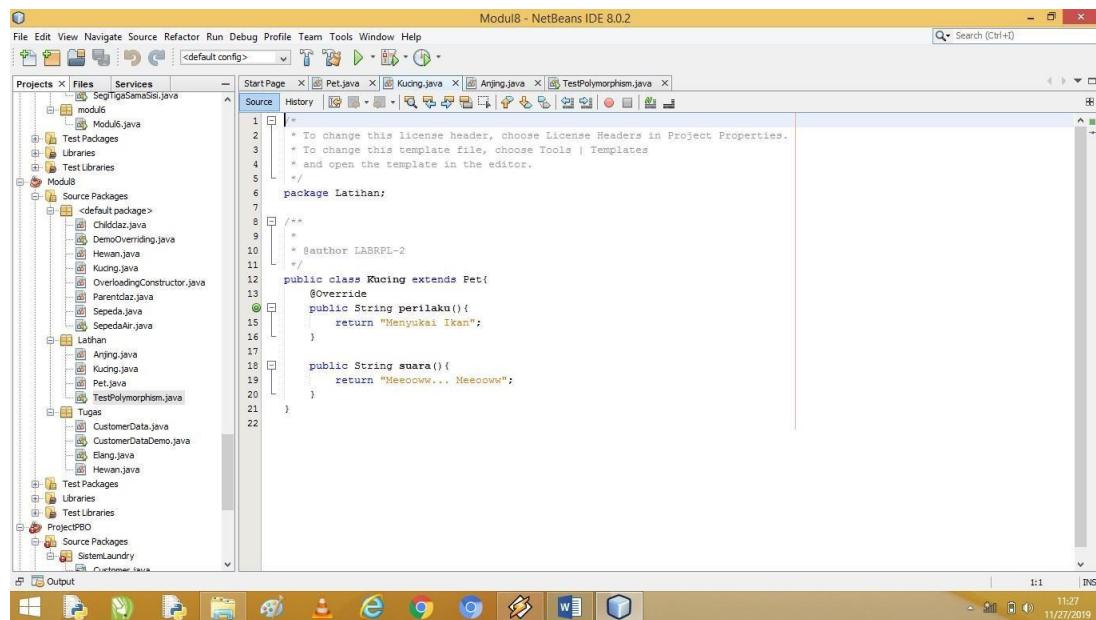
8.2 LATIHAN

- Program 8. Latihan menerapkan konsep polymorphism



```
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
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



```
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 "Meeooww... Meeooww";
20     }
21 }
22
```

- Class Anjing

Modul8 - NetBeans IDE 8.0.2

```

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Source History <default config> Search (Ctrl+F)
Projects Files Services Start Page Pet.java Kucing.java Anjing.java TestPolymorphism.java
modul6
  Modul6.java
  Test Packages
  Libraries
  Test Libraries
  Modul8
    Source Packages
      <default package>
        Chidatz.java
        DemoOverriding.java
        Hewan.java
        Kucing.java
        OverloadingConstructor.java
        Parentatz.java
        Sepeda.java
        SepedaAir.java
      Lathian
        Anjing.java
        Kucing.java
        Pet.java
        TestPolymorphism.java
      Tugas
        CustomerData.java
        CustomerDataDemo.java
        Elang.java
        Hewan.java
    Test Packages
    Libraries
    Test Libraries
  ProjectPBO
    Source Packages
      SistemLaundry
        Customer.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 }

```

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2. Membuat class TestPolymorphism

Modul8 - NetBeans IDE 8.0.2

```

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Source History <default config> Search (Ctrl+F)
Projects Files Services Start Page Pet.java Kucing.java Anjing.java TestPolymorphism.java
modul6
  Modul6.java
  Test Packages
  Libraries
  Test Libraries
  Modul8
    Source Packages
      <default package>
        Chidatz.java
        DemoOverriding.java
        Hewan.java
        Kucing.java
        OverloadingConstructor.java
        Parentatz.java
        Sepeda.java
        SepedaAir.java
      Lathian
        Anjing.java
        Kucing.java
        Pet.java
        TestPolymorphism.java
      Tugas
        CustomerData.java
        CustomerDataDemo.java
        Elang.java
        Hewan.java
    Test Packages
    Libraries
    Test Libraries
  ProjectPBO
    Source Packages
      SistemLaundry
        Customer.java

```

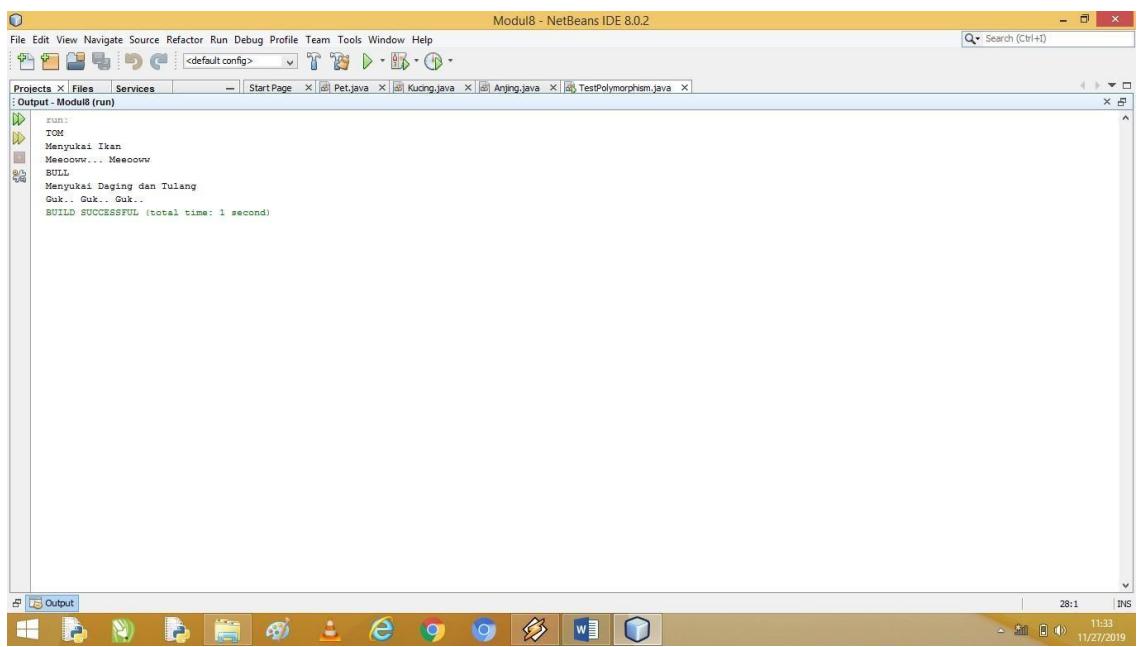
```

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 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 }

```

11:31 11/27/2019

- Output dari program diatas:



- **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 Files Services Start Page Hewan.java Elang.java Hewan.java Bang.java
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Projects Files Services Start Page Hewan.java Elang.java Hewan.java Bang.java
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Projects Files Services Start Page Hewan.java Elang.java Hewan.java Bang.java
Output

```

Hewan.java (Original Implementation)

```

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 }

```

Elang.java (Implementation with Overriding)

```

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 }

```

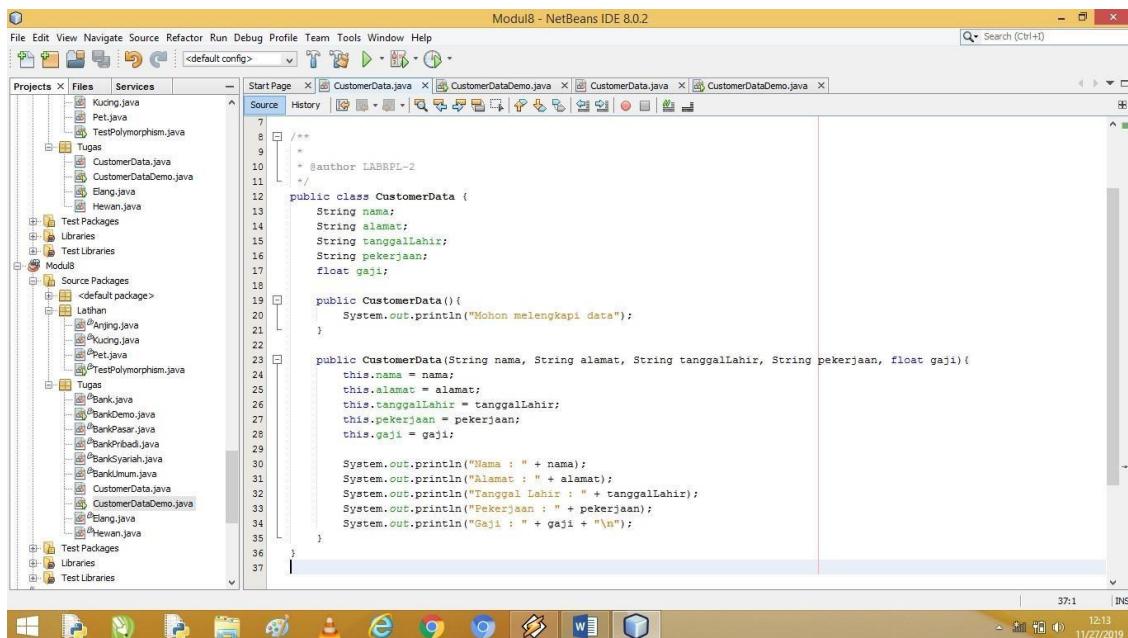
Output - Modul8 (run)

```

run:
Elang bisa berjalan dan terbang
BUILD SUCCESSFUL (total time: 3 second)

```

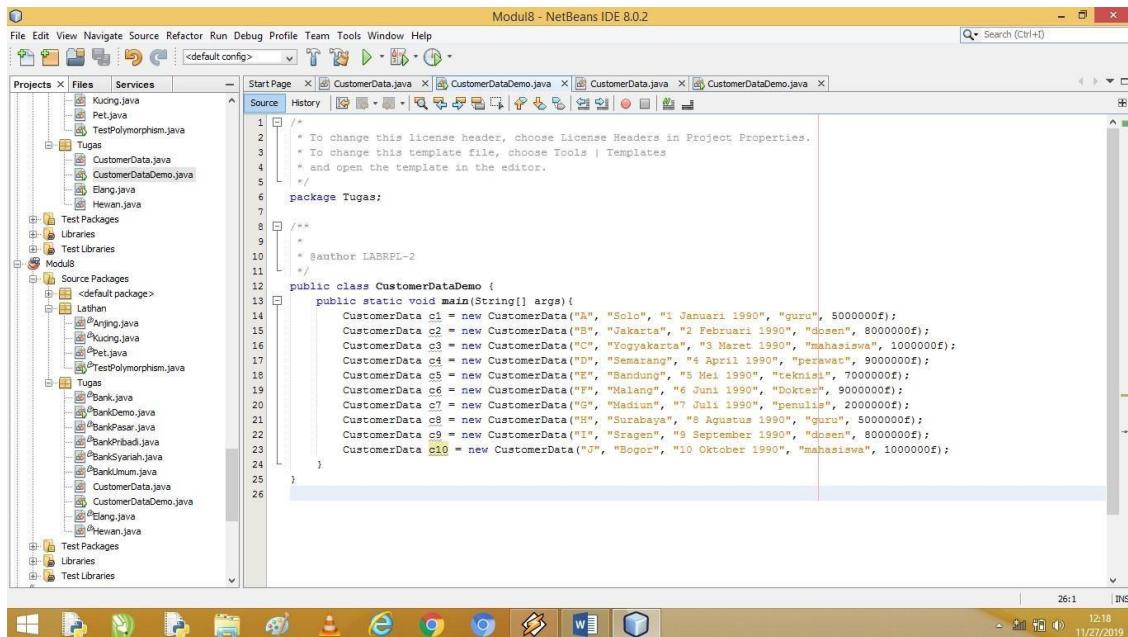
- 2) Membuat class baru dengan nama CustomerData, menambahkan variable nama, alamat, tanggal lahir, pekerjaan, dan gaji. Selanjutnya membuat overloading constructor dari class tersebut.



```

 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 melengkapi 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.



```

 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 CustomerDataDemo {
13     public static void main(String[] args) {
14         CustomerData c1 = new CustomerData("A", "Solo", "1 Januari 1990", "guru", 5000000f);
15         CustomerData c2 = new CustomerData("B", "Jakarta", "2 Februari 1990", "dosen", 8000000f);
16         CustomerData c3 = new CustomerData("C", "Yogyakarta", "3 Maret 1990", "mahasiswa", 1000000f);
17         CustomerData c4 = new CustomerData("D", "Semarang", "4 April 1990", "perawati", 9000000f);
18         CustomerData c5 = new CustomerData("E", "Bandung", "5 Mei 1990", "teknisi", 7000000f);
19         CustomerData c6 = new CustomerData("F", "Malang", "6 Juni 1990", "Dokter", 9000000f);
20         CustomerData c7 = new CustomerData("G", "Medan", "7 Juli 1990", "penulis", 2000000f);
21         CustomerData c8 = new CustomerData("H", "Surabaya", "8 Agustus 1990", "guru", 5000000f);
22         CustomerData c9 = new CustomerData("I", "Sragen", "9 September 1990", "dosen", 8000000f);
23         CustomerData c10 = new CustomerData("J", "Bogor", "10 Oktober 1990", "mahasiswa", 1000000f);
24     }
25 }
  
```

- Output dari program diatas:

```

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
Output - Modul8 (run)
Name : A
Alamat : Solo
Tanggal Lahir : 1 Januari 1990
Pekerjaan : guru
Gaji : 5000000.0

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

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

Name : D
Alamat : Semarang
Tanggal Lahir : 4 April 1990
Pekerjaan : perawat
Gaji : 9000000.0

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

Name : F
Alamat : Malang
Tanggal Lahir : 6 Juni 1990
Pekerjaan : Dokter
Gaji : 9000000.0

Name : G
Alamat : Medan
Tanggal Lahir : 7 Juli 1990
Pekerjaan : penulis
Gaji : 2000000.0

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

Name : I
Alamat : Sragen
Tanggal Lahir : 9 September 1990
Pekerjaan : ibu rumah tangga
Gaji : 8000000.0

BUILD SUCCESSFUL (total time: 0 seconds)

```

- 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 X Files Services - Start Page X Bank.java X BankPribadi.java X BankUmum.java X BankPasar.java X BankSyarah.java X BankDemo.java X
Source History Diff Find Replace Go To Typeahead ...
Bank.java
BankDemo.java
BankPribadi.java
BankPasar.java
BankUmum.java
BankPasar.java
BankSyarah.java
BankDemo.java
Bank.java
BankDemo.java
BankPribadi.java
BankPasar.java
BankUmum.java
BankSyarah.java
BankUmum.java
CustomerData.java
CustomerDataDemo.java
Elang.java
Hewan.java
Tugas.java
Bank.java
BankDemo.java
BankPribadi.java
BankPasar.java
BankUmum.java
BankSyarah.java
BankDemo.java
Bank.java
BankDemo.java
BankPribadi.java
BankPasar.java
BankUmum.java
BankSyarah.java
BankUmum.java
CustomerData.java
CustomerDataDemo.java
Elang.java
Hewan.java

```

```

/*
 * 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 Santher WinS
 */
public class Bank {
    protected int rasioBunga();
    return 5;
}

```

- Class BankPribadi

```

/*
 * 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 Win2
 */
public class BankPribadi extends Bank {
    @Override
    protected int rasioBunga(){
        return 7;
    }
}

```

- Class BankUmum

```

/*
 * 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 Win2
 */
public class BankUmum extends Bank{
    @Override
    protected int rasioBunga(){
        return 9;
    }
}

```

- Class BankPasar

```

/*
 * 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 Win2
 */
public class BankPasar extends BankUmum {
    @Override
    protected int rasioBunga(){
        return 3;
    }
}

```

Class BankSyariah

```

    /*
     * 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;

    /**
     * Another WinE
     */
    public class BankSyariah extends BankUmum {
        @Override
        protected int rasioBunga(){
            return 0;
        }
    }

```

- Class BankDemo (main class)

```

    /*
     * 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;

    /**
     * Another WinE
     */
    public class BankDemo {
        public static void main(String[] args){
            BankPribadi bpr = new BankPribadi();
            BankUmum bum = new BankUmum();
            BankPasar bps = new BankPasar();
            BankSyariah bsy = new BankSyariah();

            System.out.println(
                "Ratio Bunga Bank Pribadi : " + bpr.rasioBunga() + "\n" +
                "Ratio Bunga Bank Umum : " + bum.rasioBunga() + "\n" +
                "Ratio Bunga Bank Pasar : " + bps.rasioBunga() + "\n" +
                "Ratio Bunga Bank Syariah : " + bsy.rasioBunga());
        }
    }

```

- Output:

```

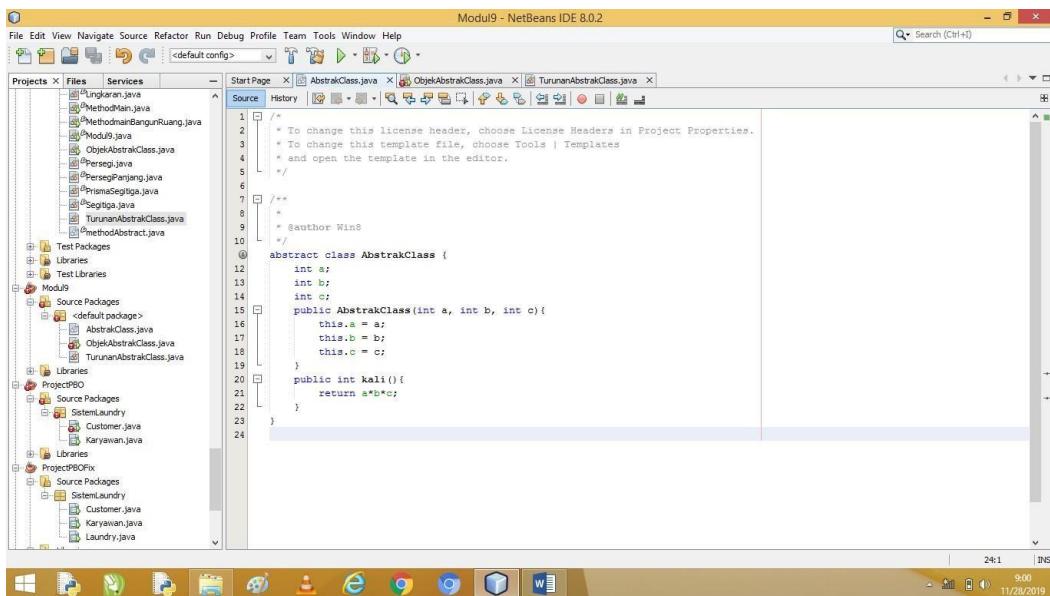
run:
Ratio Bunga Bank Pribadi : 9
Ratio Bunga Bank Umum : 3
Ratio Bunga Bank Pasar : 3
Ratio Bunga Bank Syariah : 0
BUILD SUCCESSFUL (total time: 0 seconds)

```

Modul 9

- 9.1 OBJECT CLASS ABSTRACT

■ Program 1. Contoh class abstract

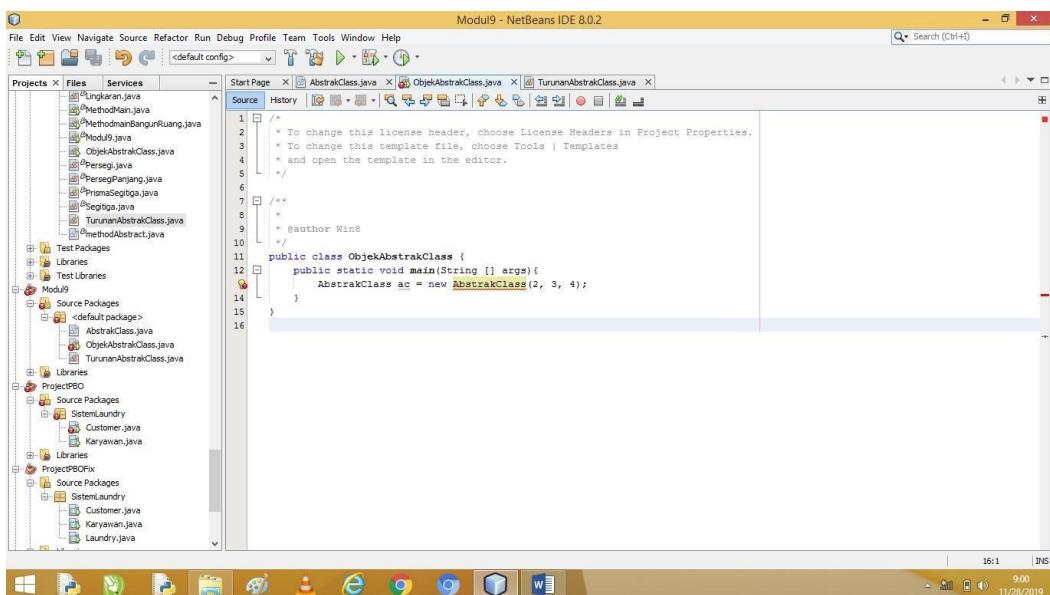


The screenshot shows the NetBeans IDE interface with the title bar "Modul9 - NetBeans IDE 8.0.2". The left sidebar displays a project structure with several Java files like Ingkaran.java, MethodMain.java, and various Geometrik classes. The main editor window shows the code for AbstrakClass.java:

```
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 abstract class AbstrakClass {
12     int a;
13     int b;
14     int c;
15     public AbstrakClass(int a, int b, int c){
16         this.a = a;
17         this.b = b;
18         this.c = c;
19     }
20     public int kali(){
21         return a*b*c;
22     }
23 }
24
```

The status bar at the bottom right shows the time as 11:28:2019.

■ 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 a project structure with Java files like Ingkaran.java, MethodMain.java, and various Geometrik classes. The main editor window shows the code for ObjekAbstrakClass.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 ObjekAbstrakClass {
12     public static void main(String [] args){
13         AbstrakClass ac = new AbstrakClass(2, 3, 4);
14     }
15 }
```

The status bar at the bottom right shows the time as 11:28:2019.

The screenshot shows the NetBeans IDE interface. The title bar reads "Modul9 - NetBeans IDE 8.0.2". The left sidebar displays a project structure for "Modul9" containing several Java files like "AbstrakClass.java", "ObjekAbstrakClass.java", and "TurunanAbstrakClass.java". 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.
 */
/**
 *
 * @author Win8
 */
public class AbstrakClass {
    /**
     * AbstrakClass is abstract; cannot be instantiated
     */
    public AbstrakClass() {
        System.out.println("AbstrakClass");
    }
}

```

A yellow tooltip box appears over the line "AbstrakClass ac = new AbstrakClass();", stating "AbstrakClass is abstract; cannot be instantiated". The status bar at the bottom right shows the time as 16:11 and the 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 same project structure. The main editor window now contains 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.
 */
/**
 *
 * @author Win8
 */
public class TurunanAbstrakClass extends AbstrakClass {
    int x;
    public TurunanAbstrakClass (int a, int b, int c){
        super(a,b,c);
        x = a+b+c;
    }
    public void printX(){
        System.out.println(x);
    }
}

```

The status bar at the bottom right shows the time as 22:11 and the 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 is selected, showing a tree view of projects: Modul9, ProjectPO, and ProjectPBfix. Under Modul9, there are Source Packages (AbstrakClass.java, ObjekAbstrakClass.java, TurunanAbstrakClass.java) and Libraries. Under ProjectPO and ProjectPBfix, there are also Source Packages and Libraries. The main editor window displays the code for ObjekAbstrakClass.java:

```
/*
 * 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.kals());
    }
}
```

The status bar at the bottom shows the time as 18:11 and 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 is selected. The main editor window is now the Output window, titled "Output - Modul9 (run)". It shows the command "run:" followed by two question marks ("?") and the number "12". Below that, it says "BUILD SUCCESSFUL (total time: 0 seconds)". The status bar at the bottom shows the time as 18:11 and 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  * @author Win8
9  */
10 public abstract class methodAbstract {
11     public abstract int luas();
12     public abstract int keliling();
13 }
14
15 /**
16  * @author Win8
17  */
18 public class Persegi extends methodAbstract {
19     public int getLuas(){
20         return 10*10;
21     }
22     public int getKelling(){
23         return 4*10;
24     }
25 }

```

■ 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  * @author Win8
9  */
10 public class Persegi extends methodAbstract {
11     int sisi=5;
12
13     @Override
14     public int luas() {
15         return sisi*sisi;
16     }
17
18     @Override
19     public int keliling(){
20         return 4*sisi;
21     }
22 }

```

■ 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  * @author Win8
9  */
10 public class MethodMan {
11     public static void main(String[] args){
12         Persegi pg = new Persegi();
13         System.out.println("Keliling = " + pg.getKelling());
14         System.out.println("Luas = " + pg.getLuas());
15     }
16 }

```

● 9.3 LATIHAN

■ Class PersegiPanjang

```

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 Win8
9 */
10 public class PersegiPanjang extends methodAbstract {
11     int panjang = 20;
12     int lebar = 15;
13
14     @Override
15     public int luas() {
16         return panjang*lebar;
17     }
18
19     @Override
20     public int keliling(){
21         return 2*(panjang + lebar);
22     }
23 }

```

■ Class JajarGenjang

```

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 Win8
9 */
10 public class JajarGenjang extends methodAbstract {
11     int alas = 10;
12     int tinggi = 4;
13     int sisi_miring = 5;
14
15     @Override
16     public int luas() {
17         return alas*tinggi;
18     }
19
20     @Override
21     public int keliling(){
22         return (2*alas) + (2*sisi_miring);
23     }
24 }

```

■ Class Lingkaran

```

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 Win8
9 */
10 public class Lingkaran extends methodAbstract {
11     int r = 7;
12
13     @Override
14     public int luas() {
15         return ((22*r*r)/7);
16     }
17
18     @Override
19     public int keliling(){
20         return (2*22*r)/7;
21     }
22 }

```

■ Class Segitiga

```

    /*
     * 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 Win8
     */
    public class Segitiga extends methodAbstract {
        int alas = 6;
        int tinggi = 8;
        int sisiMiring = 10;

        @Override
        public int alas() {
            return (alas*tinggi)/2;
        }

        @Override
        public int keliling(){
            return alas + tinggi + sisiMiring;
        }
    }

```

■ Class latihanDemo (main class)

```

    /*
     * @author Win8
     */
    public class latihanDemo {
        public static void main(String[] args){
            Persegi psg = new Persegi();
            System.out.println("Keliling Persegi = " + psg.getKell());
            System.out.println("Luas Persegi = " + psg.getLuas()+"\n");

            PersegiPanjang pp = new PersegiPanjang();
            System.out.println("Keliling Persegi Panjang = " + pp.getKell());
            System.out.println("Luas Persegi Panjang = " + pp.getLuas()+"\n");

            JajarGenjang jg = new JajarGenjang();
            System.out.println("Keliling Jajar Genjang = " + jg.getKell());
            System.out.println("Luas Jajar Genjang = " + jg.getLuas()+"\n");

            Segitiga sg = new Segitiga();
            System.out.println("Keliling Segitiga = " + sg.getKell());
            System.out.println("Luas Segitiga = " + sg.getLuas()+"\n");

            Lingkaran lkr = new Lingkaran();
            System.out.println("Keliling Lingkaran = " + lkr.getKell());
            System.out.println("Luas Lingkaran = " + lkr.getLuas());
        }
    }

```

■ Output:

```

run:
Keliling Persegi = 20
Luas Persegi = 28

Keliling Persegi Panjang = 70
Luas Persegi Panjang = 300

Keliling Jajar Genjang = 30
Luas Jajar Genjang = 40

Keliling Segitiga = 24
Luas Segitiga = 24

Keliling Lingkaran = 44
Luas Lingkaran = 154
BUILD SUCCESSFUL (total time: 0 seconds)

```

● 9.4 TUGAS

■ Class BangunRuang (Abstract Class)

Modul9 - NetBeans IDE 8.0.2

```

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
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

```

Projects Start Page

- 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
 - Perseri.java
 - PerseriPanjang.java
 - PrismaSegitiga.java
 - Segitiga.java
 - TurunanAbstrakClass.java
 - IsthanDemo.java
 - methodAbstract.java
 - Libraries
- ProjectPBO
 - Source Packages
 - SistemLaundry
 - Customer.java
 - Karyawan.java

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

Search (Ctrl+F)

23:1 7:02 11/29/2019

■ Class Balok

Modul9 - NetBeans IDE 8.0.2

```

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
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

```

Projects Start Page

- 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
 - Perseri.java
 - PerseriPanjang.java
 - PrismaSegitiga.java
 - Segitiga.java
 - TurunanAbstrakClass.java
 - IsthanDemo.java
 - methodAbstract.java
 - Libraries
- ProjectPBO
 - Source Packages
 - SistemLaundry
 - Customer.java
 - Karyawan.java

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

Search (Ctrl+F)

26:1 7:04 11/29/2019

■ Class Kubus

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 BangurRuangDemo.java
Projects Files Services Source History < > Search (Ctrl+F)
Modul9
  Source Packages
    <default package>
      AbstractClass.java
      Balok.java
      BangurRuang.java
      BangurRuangDemo.java
      Bola.java
      JajarGenggam.java
      Kerucut.java
      Kubus.java
      Lingkaran.java
      MethodMan.java
      ObjekAbstrakClass.java
      Persegi.java
      PersegiPanjang.java
      PrismaSegitiga.java
      Segitiga.java
      TurunanAbstrakClass.java
      IatharDemo.java
      methodAbstract.java
  Libraries
  ProjectPBO
  Source Packages
    SistemLaundry
      Customer.java
      Karyawan.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 WinS
10 */
11 public class Kubus extends BangunRuang {
12     int sisi = 10;
13
14     @Override
15     public int volume(){
16         return sisi*sisi*sisi;
17     }
18
19     @Override
20     public int luasPermukaan(){
21         return 6*(sisi*sisi);
22     }
23 }
24

```

24:1 INS 7:05 11/29/2019

■ Class Bola

Modul9 - NetBeans IDE 8.0.2

```

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
<default config> Start Page BangurRuang.java Balok.java Kubus.java Bola.java Kerucut.java PrismaSegitiga.java BangurRuangDemo.java
Projects Files Services Source History < > Search (Ctrl+F)
Modul9
  Source Packages
    <default package>
      AbstractClass.java
      Balok.java
      BangurRuang.java
      BangurRuangDemo.java
      Bola.java
      JajarGenggam.java
      Kerucut.java
      Kubus.java
      Lingkaran.java
      MethodMan.java
      ObjekAbstrakClass.java
      Persegi.java
      PersegiPanjang.java
      PrismaSegitiga.java
      Segitiga.java
      TurunanAbstrakClass.java
      IatharDemo.java
      methodAbstract.java
  Libraries
  ProjectPBO
  Source Packages
    SistemLaundry
      Customer.java
      Karyawan.java

```

```

1 /*
2  * 
3  * @author WinS
4  */
5
6 /**
7  * 
8  * @author WinS
9  */
10 public class Bola extends BangunRuang {
11     int r = 21;
12
13     @Override
14     public int volume(){
15         return ((4*22*r*r*r)/7)/3;
16     }
17
18     @Override
19     public int luasPermukaan(){
20         return (4*22*r*r)/7;
21     }
22 }
23
24

```

24:1 INS 7:06 11/29/2019

■ Class Kerucut

Modul9 - NetBeans IDE 8.0.2

```

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
<default config> Start Page BangurRuang.java Balok.java Kubus.java Bola.java Kerucut.java PrismaSegitiga.java BangurRuangDemo.java
Projects Files Services Source History < > Search (Ctrl+F)
Modul9
  Source Packages
    <default package>
      AbstractClass.java
      Balok.java
      BangurRuang.java
      BangurRuangDemo.java
      Bola.java
      JajarGenggam.java
      Kerucut.java
      Kubus.java
      Lingkaran.java
      MethodMan.java
      ObjekAbstrakClass.java
      Persegi.java
      PersegiPanjang.java
      PrismaSegitiga.java
      Segitiga.java
      TurunanAbstrakClass.java
      IatharDemo.java
      methodAbstract.java
  Libraries
  ProjectPBO
  Source Packages
    SistemLaundry
      Customer.java
      Karyawan.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 WinS
10 */
11 public class Kerucut extends BangunRuang {
12     int r = 21;
13     int t = 50;
14     int g = 30;
15
16     @Override
17     public int volume(){
18         return ((22*r*r*t)/7)/3;
19     }
20
21     @Override
22     public int luasPermukaan(){
23         return ((22*r*g)/7)*(t+g);
24     }
25 }
26

```

26:1 INS 7:06 11/29/2019

■ Class PrismaSegitiga

```

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 luarAlas = 96;
13     int kelilingAlas = 32;
14     int tinggi = 30;
15
16     @Override
17     public int volume(){
18         return luarAlas*tinggi;
19     }
20
21     @Override
22     public int luasPermukaan(){
23         return (2*luarAlas)+(kelilingAlas*tinggi);
24     }
25 }

```

■ Class BangunRuangDemo (Main Class)

```

4  /*
5   * To change this license header, choose License Headers in Project Properties.
6   * To change this template file, choose Tools | Templates
7   * and open the template in the editor.
8   */
9
10 public class BangunRuangDemo {
11     public static void main(String[] args){
12         Balok blk = new Balok();
13         System.out.println("Volume Balok = " + blk.getVolume());
14         System.out.println("Luas Permukaan Balok = " + blk.getLuasPermukaan() + "\n");
15
16         Kubus kbs = new Kubus();
17         System.out.println("Volume Kubus = " + kbs.getVolume());
18         System.out.println("Luas Permukaan Kubus = " + kbs.getLuasPermukaan() + "\n");
19
20         Bola bl = new Bola();
21         System.out.println("Volume Bola = " + bl.getVolume());
22         System.out.println("Luas Permukaan Bola = " + bl.getLuasPermukaan() + "\n");
23
24         Kerucut krc = new Kerucut();
25         System.out.println("Volume Kerucut = " + krc.getVolume());
26         System.out.println("Luas Permukaan Kerucut = " + krc.getLuasPermukaan() + "\n");
27
28         PrismaSegitiga prsg = new PrismaSegitiga();
29         System.out.println("Volume Prisma Segitiga = " + prsg.getVolume());
30         System.out.println("Luas Permukaan Prisma Segitiga = " + prsg.getLuasPermukaan());
31
32     }
33 }

```

■ Output:

```

run:
Volume Balok = 3000
Luas Permukaan Balok = 1300

Volume Kubus = 1000
Luas Permukaan Kubus = 600

Volume Bola = 38808
Luas Permukaan Bola = 5544

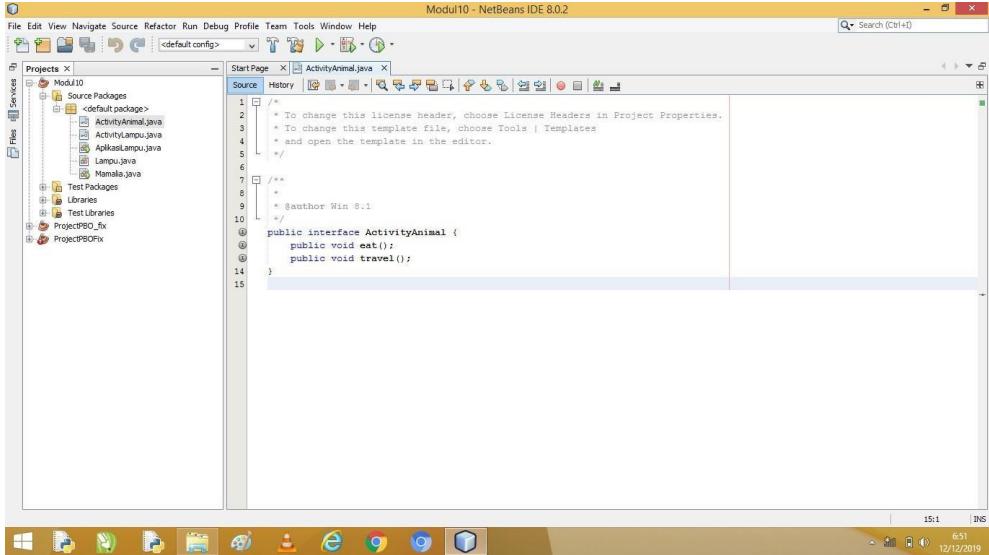
Volume Kerucut = 23100
Luas Permukaan Kerucut = 3366

Volume Prisma Segitiga = 2880
Luas Permukaan Prisma Segitiga = 1162
BUILD SUCCESSFUL (total time: 0 seconds)

```

- 10.1 DEKLARASI INTERFACE

- Program 2. Contoh Sebuah Interface Sederhana

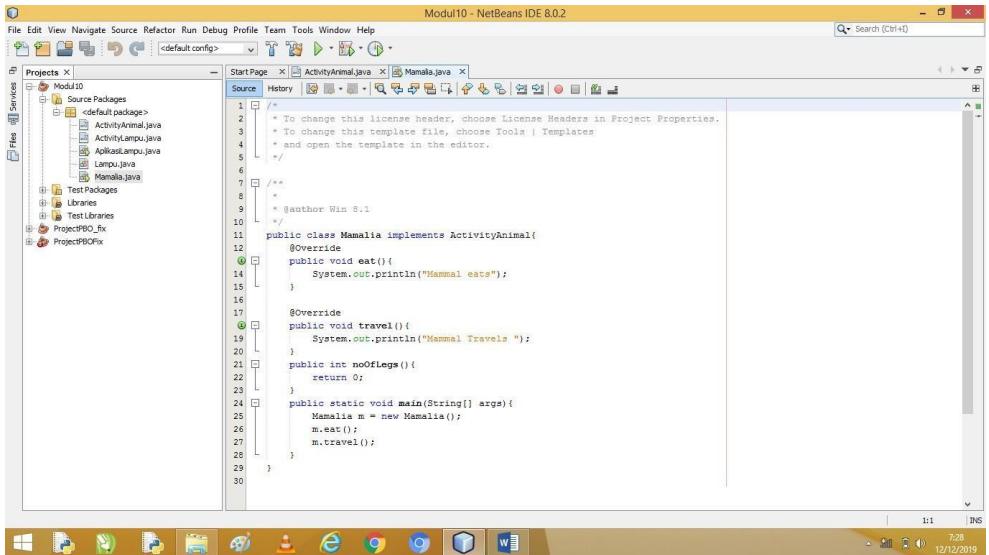


The screenshot shows the NetBeans IDE interface with the title bar "Modul10 - NetBeans IDE 8.0.2". The left sidebar displays the project structure under "Projects" for "Modul10", showing files like ActivityAnimal.java, ActivityLampu.java, ApikasiLampu.java, and Lampu.java. The main editor window shows the code for "ActivityAnimal.java":

```
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  * @author Win 8.1
10 */
11 public interface ActivityAnimal {
12     public void eat();
13     public void travel();
14 }
15
```

- 10.2 IMPLEMENTASI INTERFACE

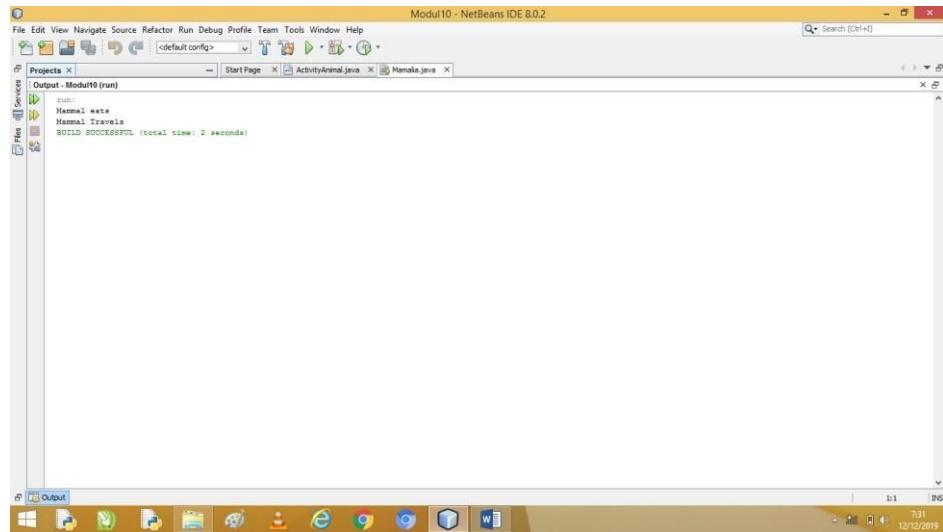
- Program 3. Class yang mengimplementasikan sebuah interface



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", showing files like ActivityAnimal.java, ActivityLampu.java, ApikasiLampu.java, and Lampu.java. The main editor window shows the code for "Mamala.java":

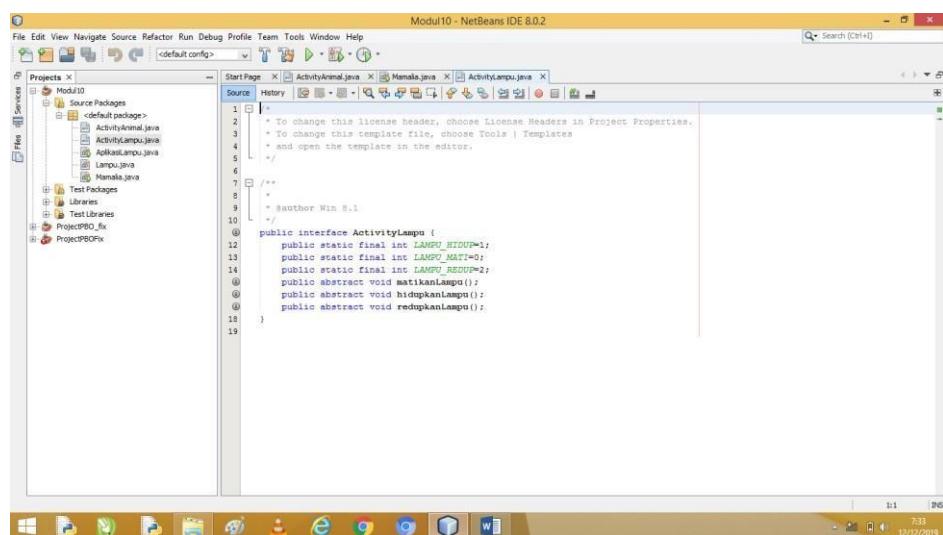
```
1 /*
2  * To change this license header, choose License Headers in Project Properties.
3  * To change this template file, choose Tools | Templates
4  * and open the template in the editor.
5 */
6 /**
7  */
8 /**
9  * @author Win 8.1
10 */
11 public class Mamala implements ActivityAnimal {
12    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

- Output:



- 10.2.1 PERCOBAAN

- Program 4. Interface ActivityLampu dengan Method dan Variabelnya



- Program 5. Class Lampu Mengimplementasikan Interface

```

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

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 Win 8.1
9  */
10 public class Lampu implements ActivityLampu{
11     public int statusLampu;
12
13     @Override
14     public void matikanLampu(){
15         if(statusLampu == 0){
16             System.out.println("Lampu sudah dalam kondisi mati");
17         }else if(statusLampu == 1){
18             statusLampu -= 1;
19             System.out.println("Lampu sudah dimatikan");
20         }
21     }
22
23     @Override
24     public void hidupkanLampu(){
25         if(statusLampu == 0){
26             System.out.println("Lampu sudah dinyalakan\n***");
27         }else{
28             statusLampu += 1;
29             System.out.println("Lampu sudah dalam kondisi menyala");
30         }
31     }
32 }

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

Source History
18 /**
19  * @author Win 8.1
20  */
21
22     else if(statusLampu == 1){
23         statusLampu -= 1;
24         System.out.println("Lampu sudah dimatikan");
25     }
26
27     @Override
28     public void hidupkanLampu(){
29         if(statusLampu == 0){
30             System.out.println("Lampu sudah dinyalakan\n***");
31         }else{
32             statusLampu += 1;
33             System.out.println("Lampu sudah dalam kondisi menyala");
34         }
35
36     public int setSaklar(int saklar){
37         return statusLampu = saklar;
38     }
39
40     @Override
41     public void redupukanLampu(){
42         if(statusLampu == 2){
43             System.out.println("Lampu telah diredupuhan");
44         }else{
45             statusLampu +=1;
46             System.out.println("Kedipan Lampu telah ditambah");
47         }
48     }
49 }

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

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 Win 8.1
9  */
10 public class AplikasiLampu {
11     public static void main(String[] args){
12         Lampu lampu = new Lampu();
13         Scanner sc = new Scanner(System.in);
14         lampu.statusLampu = lampu.setSaklar(0);
15         System.out.println("Status Lampu = " + lampu.statusLampu + "\n Ketikkan");
16         System.out.println("1 Untuk menyalaikan Lampu\n0 Untuk mematikan Lampu\n2 Untuk meredupkan Lampu");
17
18         if(lampu.setSaklar(sc.nextInt()) == 0){
19             lampu.matikanLampu();
20         }else if(lampu.statusLampu == 1){
21             lampu.hidupkanLampu();
22         }else{
23             lampu.redupukanLampu();
24         }
25     }
26
27 }
28
29 }
30 }


```

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

```

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

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 Win 8.1
9  */
10 public class AplikasiLampu {
11     public static void main(String[] args){
12         Lampu lampu = new Lampu();
13         Scanner sc = new Scanner(System.in);
14         lampu.statusLampu = lampu.setSaklar(0);
15         System.out.println("Status Lampu = " + lampu.statusLampu + "\n Ketikkan");
16         System.out.println("1 Untuk menyalaikan Lampu\n0 Untuk mematikan Lampu\n2 Untuk meredupkan Lampu");
17
18         if(lampu.setSaklar(sc.nextInt()) == 0){
19             lampu.matikanLampu();
20         }else if(lampu.statusLampu == 1){
21             lampu.hidupkanLampu();
22         }else{
23             lampu.redupukanLampu();
24         }
25     }
26
27 }
28
29 }


```

■ Output:

```

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)

```



```

Status Lampu = 0
Ketikkan
1 Untuk menyalaikan Lampu
0 Untuk mematikan Lampu
2 Untuk meredupkan 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)**

Modul10 - NetBeans IDE 8.0.2

```
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 * Author: Win S.I.
7 */
8 
9 public class Lampu implements ActivityLampu{
10     public int statusLampu;
11 
12     @Override
13     public void matikanLampu(){
14         if(statusLampu == 0){
15             System.out.println("Lampu sudah dalam kondisi mati");
16         }else if(statusLampu == 1){
17             statusLampu -= 1;
18             System.out.println("Lampu sudah dimatikan");
19         }
20     }
21 
22     @Override
23     public void hidupkanLampu(){
24         if(statusLampu == 1){
25             System.out.println("Lampu sudah dinyalakan\n***");
26         }else{
27             statusLampu += 1;
28             System.out.println("Lampu sudah dalam kondisi menyala");
29         }
30     }
31 }
32 
```

Modul10 - NetBeans IDE 8.0.2

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

- Class AplikasiLampu (main class)

The screenshot shows the NetBeans IDE interface with the title "Modul10 - NetBeans IDE 8.0.2". The left sidebar displays the project structure under "Projects X" for "Modul10", including "Source Packages" like "ActivityLampu" and "AplikasiLampu", and "Test Packages" like "Lampu". The main editor window shows the Java code for the "AplikasiLampu.java" file. The code implements a command-line application that reads a user's choice from the console and controls a lamp based on that input. The code includes imports for Scanner, a license header, and a copyright notice for Win 8.1. It defines a main method that creates a Lampu object, initializes a Scanner, and then enters a loop where it prints the current lamp status, asks for a new status, and updates the lamp accordingly.

```
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Modul10 - NetBeans IDE 8.0.2
Search (Ctrl+F)
<default config>
Start Page ActivityAnimal.java Mammal.java ActivityLampu.java Lampu.java AplikasiLampu.java
Source History
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
10 /**
11 *
12 * @author Win 8.1
13 */
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("\n1 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.setSaklar == 1){
26             lampu.hidupkanLampu();
27         }else{
28             lampu.redupukanLampu();
29         }
30     }
31 }
```

- **Output:**

```
run:
Status Lampu = 0
Metrikka:
1 Untuk menyalaikan Lampu
0 Untuk mematikan Lampu
2 Untuk meredupkan Lampu
2
Lampu telah diendapkan
BUILD SUCCESSFUL (total time: 49 seconds)
```

Modul 11

- 11.1 INNER CLASS (NON-STATIC NESTED CLASS)
 - Program 2. Pengaksesan Properties pada Inner Class

```
/*
 * 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 OuterDemo {
    int num;

    //inner class
    private class InnerDemo{
        private void print(){
            System.out.println("Ini merupakan method inner class");
        }
    }

    //akses method inner class dari method outer class
    void displayInner(){
        InnerDemo inner = new InnerDemo();
        inner.print();
    }
}
```

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

```

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

```

il mengakses method inner class
BUILD SUCCESSFUL (total time: 0 seconds)

```

- 11.2 MENGAKSES PRIVATE MEMBER

- Program 4. Mengakses Variable Private

```

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

The screenshot shows the NetBeans IDE interface with the title "Modul11 - NetBeans IDE 8.0.2". The left sidebar displays the project structure under "Projects X" for "Modul11", including files like OuterDemo.java, Myclass.java, OuterDemo2.java, OuterDemoMain.java, and Outer.java. The main editor window 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 * @author Win S.I.
9 */
10 public class OuterDemoMain {
11     public static void main(String[] args){
12         //membuat object outerDemo
13         OuterDemo2 outer = new OuterDemo2();
14
15         //membuat object InnerDemo
16         OuterDemo2.Inner_Demo inner = outer.new Inner_Demo();
17         System.out.println(inner.getNum());
18     }
19 }
20
21

```

◆ Output Program 5

The screenshot shows the NetBeans IDE interface with the title "Modul11 - NetBeans IDE 8.0.2". The left sidebar displays the project structure under "Projects X" for "Modul11", including files like OuterDemo.java, Myclass.java, OuterDemo2.java, OuterDemoMain.java, Outer.java, NestedClass.java, and NestedClassDemo.java. The main editor window shows the output of the run command:

```

run:
Ini adalah nilai dari variable Private outerDemo
178
BUILD SUCCESSFUL (total time: 0 seconds)

```

- **11.3 STATIC NESTED CLASS**

- **Program 6. Membuat Instance dari Static Nested Class**

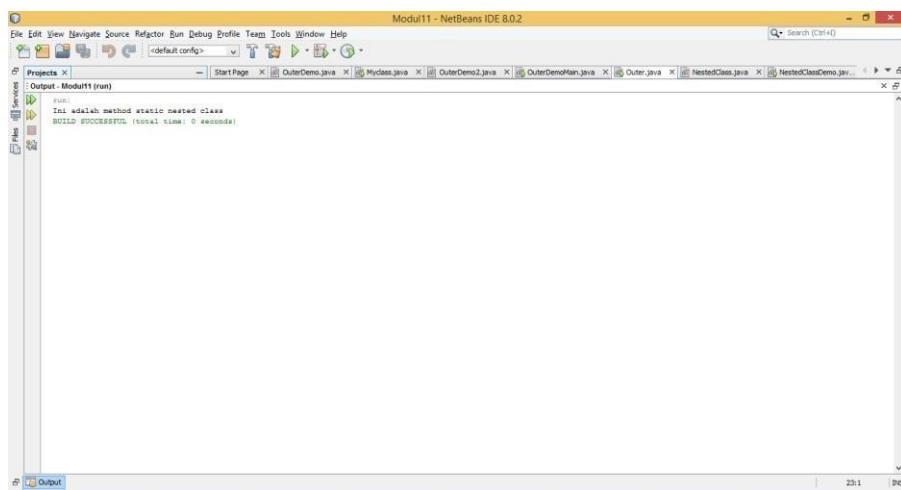
The screenshot shows the NetBeans IDE interface with the title "Modul11 - NetBeans IDE 8.0.2". The left sidebar displays the project structure under "Projects X" for "Modul11", including files like OuterDemo.java, Myclass.java, OuterDemo2.java, OuterDemoMain.java, Outer.java, NestedClass.java, and NestedClassDemo.java. The main editor window 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 * @author Win S.I.
9 */
10 public class Outer {
11     static class NestedDemo{
12         public void myMethod(){
13             System.out.println("Ini adalah method " + "static nested class");
14         }
15     }
16
17     public static void main(String[] args){
18         Outer.NestedDemo nested = new Outer.NestedDemo();
19         nested.myMethod();
20     }
21 }
22

```

◆ 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**

```

    7  /*
8   * @author Win8
9   */
10
11 public class NestedClass {
12     String nama = "Anissa Nugraheni"; // lengkapi dengan nama saudara
13     String nim = "L200180066"; // lengkapi dengan nim saudara
14
15     public void printNama() {
16         System.out.println(nama + " : " + nim);
17     }
18
19     static class StaticNestedClass{
20         static String jurusan = "Informatika";
21
22         void cetakNama() { // method di dalam class StaticNestedClass
23             NestedClass nc = new NestedClass();
24             nc.printNama();
25         }
26     }
27
28     class InnerClass{
29         void cetakJurusan() { // method didalam class InnerClass
30             NestedClass.StaticNestedClass snc = new NestedClass.StaticNestedClass();
31             System.out.println("Jurusan : " + snc.jurusan);
32         }
33     }
34 }
35
36

```

- **Class NestedClassDemo (main class)**

```

Modul11 - NetBeans IDE 8.0.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
...age OuterDemo.java Myclass.java OuterDemo2.java OuterDemoMain.java Outer.java NestedClass.java NestedClassDemo.java
Projects 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
  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
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 Wims
11 */
12 public class NestedClassDemo {
13     public static void main(String[] args){
14         NestedClass ncl = new NestedClass();
15         NestedClass.StaticNestedClass snc1 = new NestedClass.StaticNestedClass();
16         NestedClass.InnerClass ici1 = ncl.new InnerClass();
17         snc1.cetakNama();
18         ici1.cetakJurusan();
19     }
20 }

```

■ Output dari program pada latihan

```

Modul11 - NetBeans IDE 8.0.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
...age OuterDemo.java Myclass.java OuterDemo2.java OuterDemoMain.java Outer.java NestedClass.java NestedClassDemo.java
Projects Modul11 (run)
  Output - Modul11 (run)
run:
  Annisa Nugraheni : I200180066
  Jurusan : Informatika
  BUILD SUCCESSFUL (total time: 0 seconds)
Output

```

Modul 12

- **12.5. LATIHAN**

- **12.5.1. Frame**

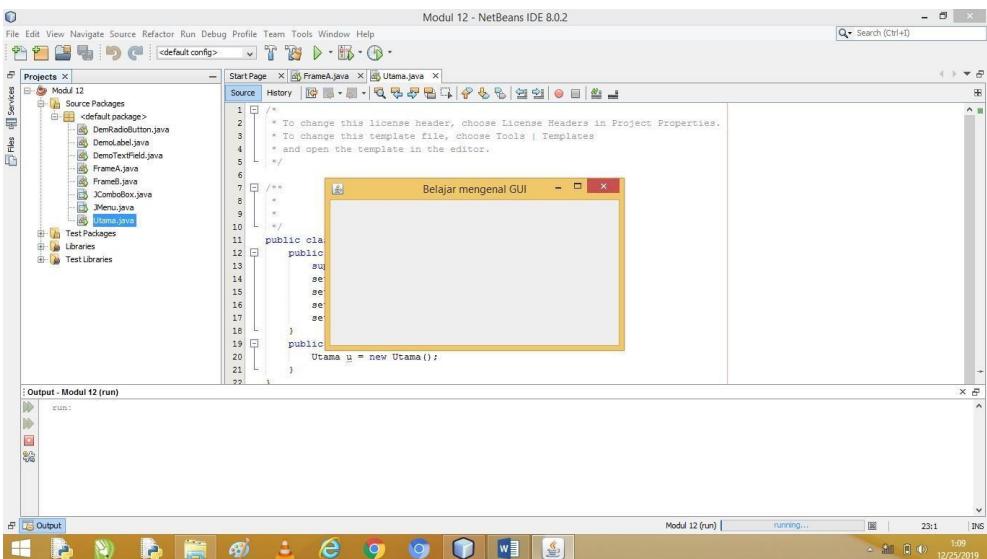
Program 1. Implementasi JFrame

```

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



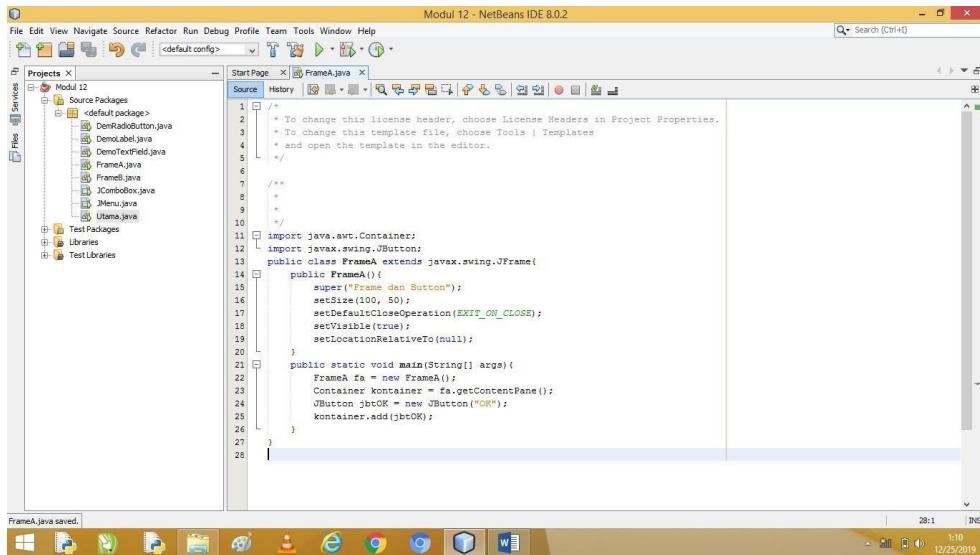
| Konstruktor | Keterangan |
|----------------------|--|
| JFrame() | <ul style="list-style-type: none"> Jendela utama yang digunakan untuk menampilkan komponen yang kita inginkan. Membuat JFrame tanpa judul. |
| JFrame(String Judul) | <ul style="list-style-type: none"> Pemberian nama pada jendela utama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

| Metode | Keterangan |
|--------|------------|
| | |

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

■ 12.5.2 Button

Program 2. Implementasi JButton



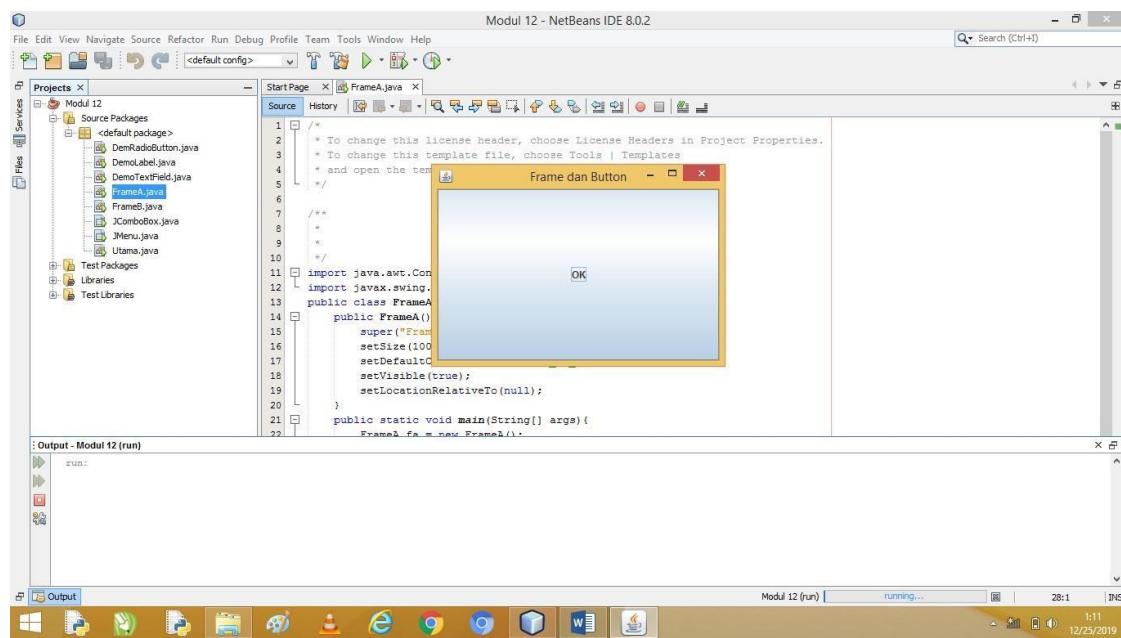
```

Module 12 - NetBeans IDE 8.0.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Modul 12 - FrameA.java
Projects Services
Modul 12
Source Packages
<default package>
    DemoRadioButton.java
    DemoLabel.java
    DemoTextField.java
    FrameA.java
    FrameB.java
    JComboBoxes.java
    JMenu.java
    Utama.java
Test Packages
Libraries Test Libraries
FrameA.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  *
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(300, 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 jbtOK = new JButton("OK");
25         kontainer.add(jbtOK);
26     }
27 }
28

```

The screenshot shows the NetBeans IDE interface with the title bar "Module 12 - NetBeans IDE 8.0.2". The left sidebar displays the project structure under "Projects" with files like DemoRadioButton.java, DemoLabel.java, etc., and "Test Packages", "Libraries", and "Test Libraries". The main area shows the code editor for "FrameA.java". The code implements a JFrame with a button. It includes imports for java.awt.Container and javax.swing.JButton, defines a constructor for FrameA that sets the window title to "Frame dan Button", specifies a size of 300x50 pixels, sets the default close operation to EXIT_ON_CLOSE, makes the frame visible, and centers it relative to its parent component. The main method creates an instance of FrameA and adds a JButton labeled "OK" to its content pane.

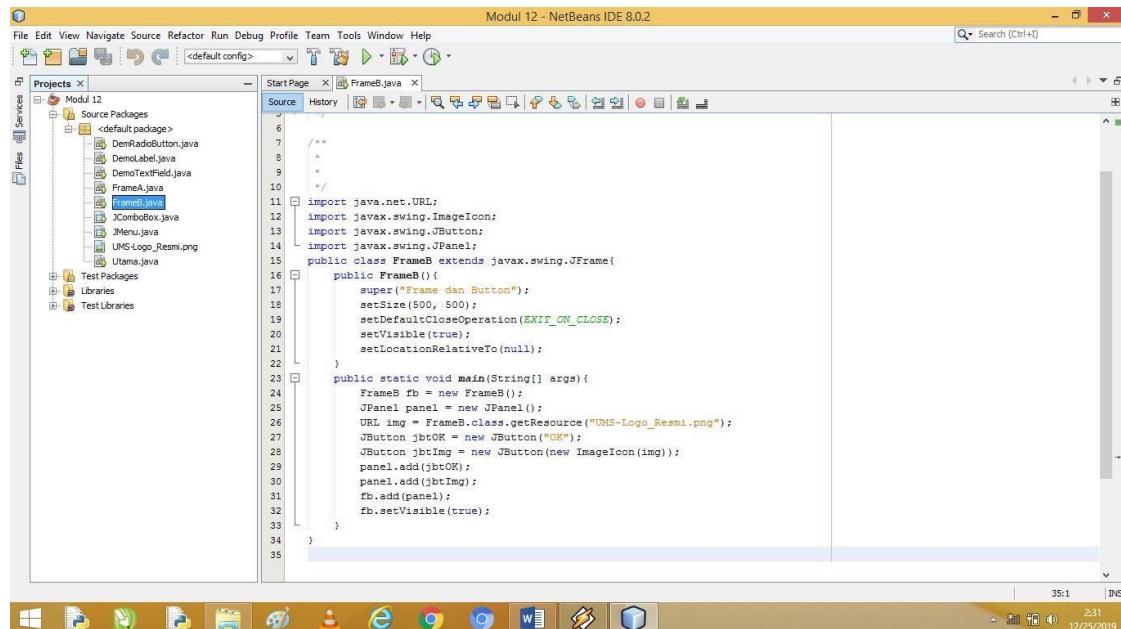
Output dari program 2



| 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

```
Modul 12 - NetBeans IDE 8.0.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Projects X Services
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
Start Page X DemoLabel.java X
Source History
1 import java.net.URL;
2 import javax.swing.ImageIcon;
3 import javax.swing.JLabel;
4 import javax.swing.JPanel;
5 import javax.swing.SwingConstants;
6
7 /*
8 * To change this license header, choose License Headers in Project Properties.
9 * To change this template file, choose Tools | Templates.
10 * and open the template in the editor.
11 */
12
13 /**
14 * 
15 * 
16 * 
17 */
18 public class DemoLabel {
19     public static void main(String[] args){
20         Utama u = new Utama();
21         u.setSize(500, 500);
22         URL img = FrameB.class.getResource("UMS-Logo_Resmi.png");
23         ImageIcon ikon = new ImageIcon(img);
24         JLabel label = new JLabel("Label", ikon, SwingConstants.CENTER);
25         JPanel panel = new JPanel();
26         panel.add(label);
27         u.add(panel);
28     }
29 }
30
```

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 JTextField dan Password Field

Program 5. Implementasi JTextField dan JPasswordField

Output dari program 5

The screenshot shows two instances of the NetBeans IDE. The top instance displays the code for `DemoTextField.java` in the editor. The code creates a simple GUI with two text fields for 'nama' and 'password'. The bottom instance shows the running application titled 'Belajar mengenal GUI'. It features a window with two text input fields labeled 'nama:' and 'password:'.

```

/*
 * 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 <default package>;
import javax.swing.JLabel;
import javax.swing.JPanel;
import javax.swing.JPasswordField;
import javax.swing.JTextField;
public class DemoTextField {
    public static void main(String[] args){
        Utama u = new Utama();
        JLabel nama = new JLabel("nama : ");
        JLabel password = new JLabel("password : ");
        JTextField inputnama = new JTextField(15);
        JPasswordField inputpsw = new JPasswordField(15);
        JPanel panel = new JPanel();
        panel.add(nama);
        panel.add(inputnama);
        panel.add(password);
        panel.add(inputpsw);
        u.add(panel);
    }
}

```

| 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 |

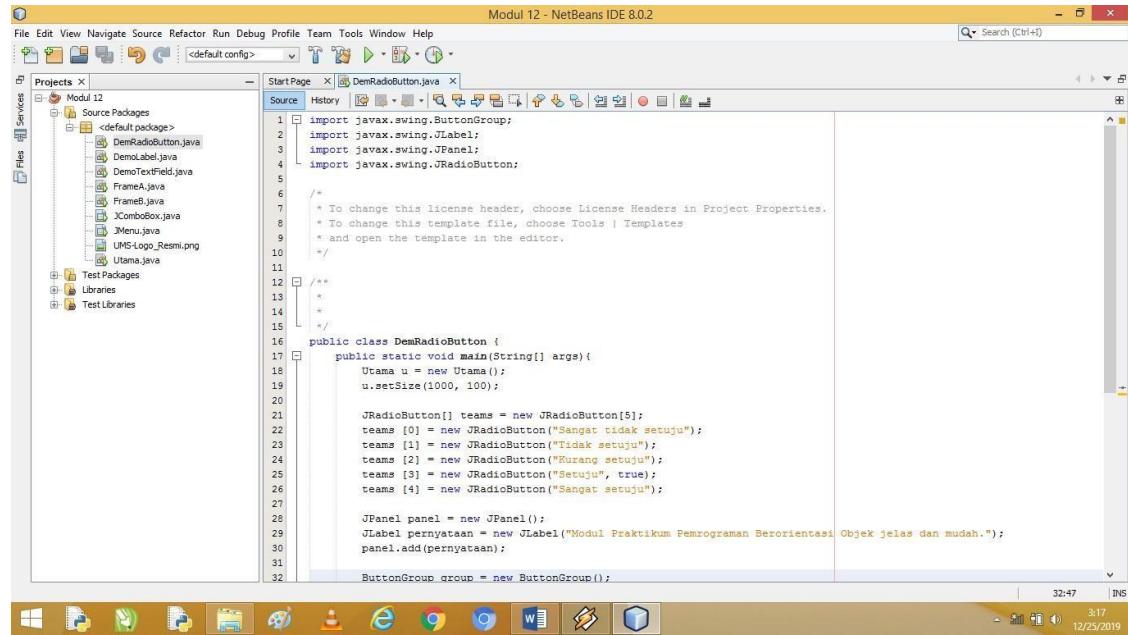
Output dari program 6

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

Output dari program 7

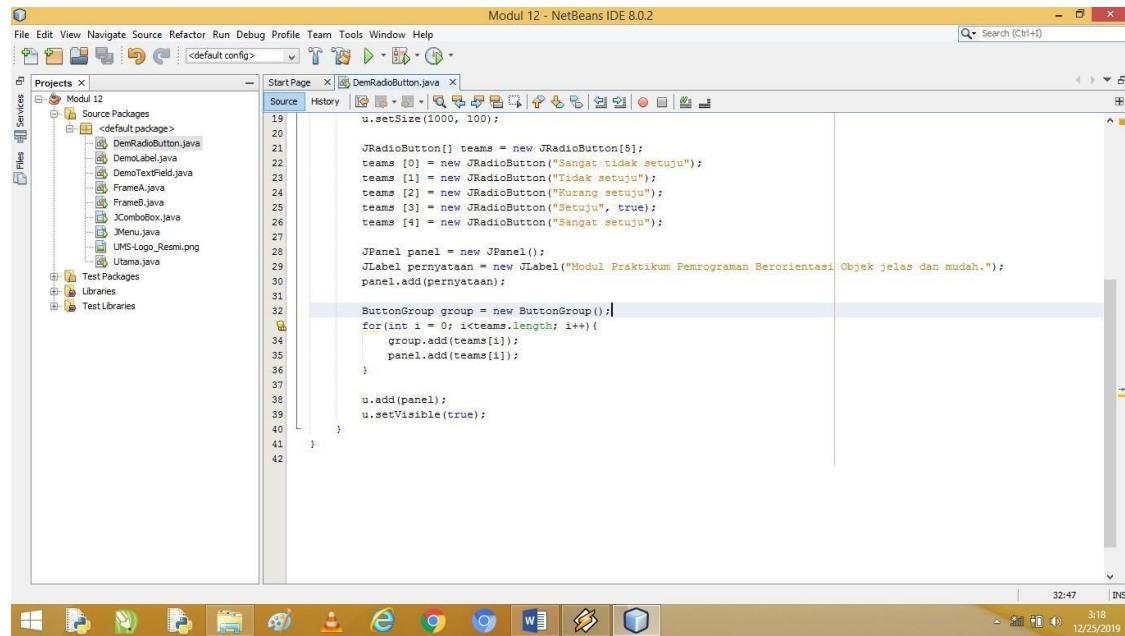
■ 12.5.6 Radio Button dan Checkbox

Program 6. Implementasi JRadioButton



```
Modul 12 - NetBeans IDE 8.0.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
File Services Projects Start Page DemRadioButton.java
Source Packages <default package>
    DemRadioButton.java
    DemoLabel.java
    DemoTextField.java
    FrameA.java
    FrameB.java
    JComboBox.java
    JMenu.java
    UMS-Logo_Resmi.png
    Utama.java
Text Packages Libraries Test Libraries
1 import javax.swing.ButtonGroup;
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("Sangat 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 ButtonGroup();
```

Output dari program 8



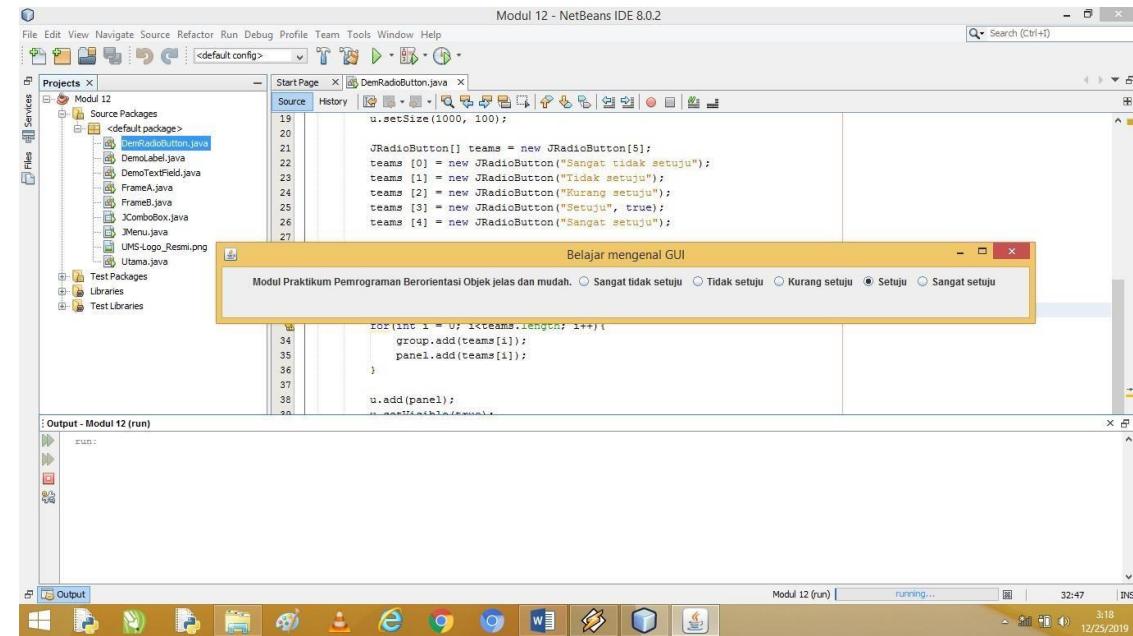
The screenshot shows the NetBeans IDE interface with the title "Modul 12 - NetBeans IDE 8.0.2". The left pane displays the "Projects" view for a project named "Modul 12", which contains several Java files like DemRadioButton.java, DemLabel.java, DemoTextField.java, FrameA.java, FrameB.java, JCombobox.java, JMenu.java, and Utama.java. The right pane shows the "Source" editor for the DemRadioButton.java file. The code is as follows:

```
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("Sangat 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 ButtonGroup();
33 for(int i = 0; i < teams.length; i++) {
34     group.add(teams[i]);
35     panel.add(teams[i]);
36 }
37
38 u.add(panel);
39 u.setVisible(true);
40 }
41 }
42 }
```

The status bar at the bottom indicates the time as 32:47 and the date as 12/25/2019.

Output dari program 6

Output dari program 9



| Konstruktor | Penjelasan |
|---|---|
| <code>JCheckBox(String Teks)</code> | Check box dengan teks yang ditentukan. |
| <code>JCheckBox(String, Boolean)</code> | Check box dengan teks yang ditentukan, jika kondisi pada parameter kedua true, maka Check box ini akan dipilih. |
| <code>JCheckBox(icon)</code> | Check box dengan gambar icon. |
| <code>JCheckBox(icon, Boolean)</code> | Check box dengan gambar icon dan terpilih jika true. |
| <code>JCheckBox(String, Icon)</code> | Check box dengan tulisan dan gambar icon. |

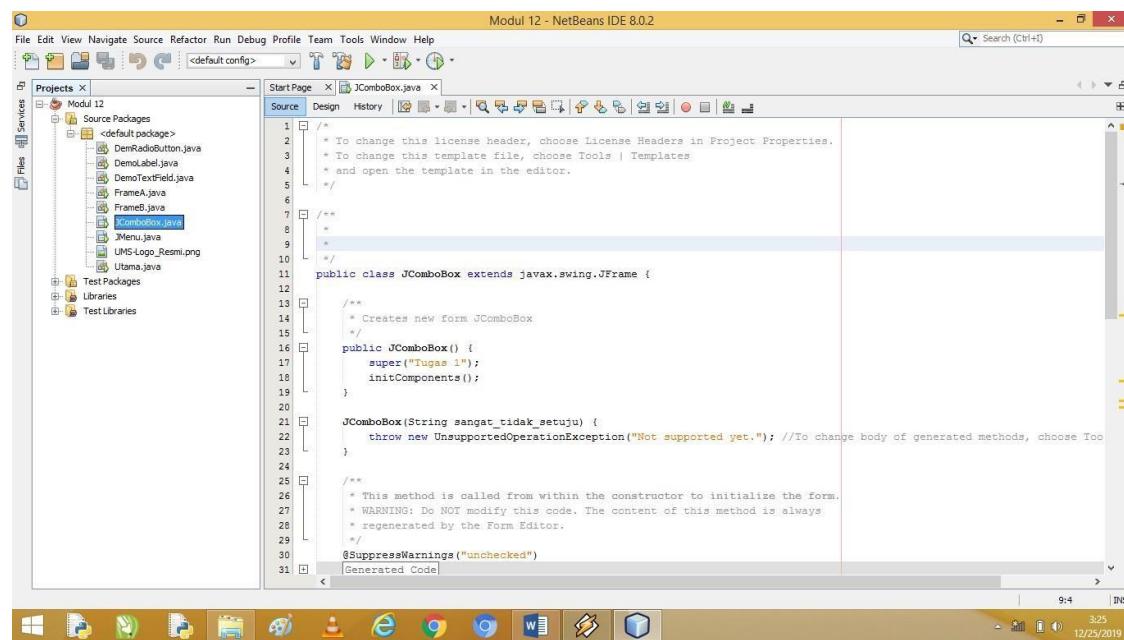
Output dari program 10

| | |
|----------------------------------|--|
| JCheckBox(String, Icon, Boolean) | Check box dengan tulisan dan gambar icon, akan dipilih secara default jika kondisi true. |
|----------------------------------|--|

• 12.6 TUGAS

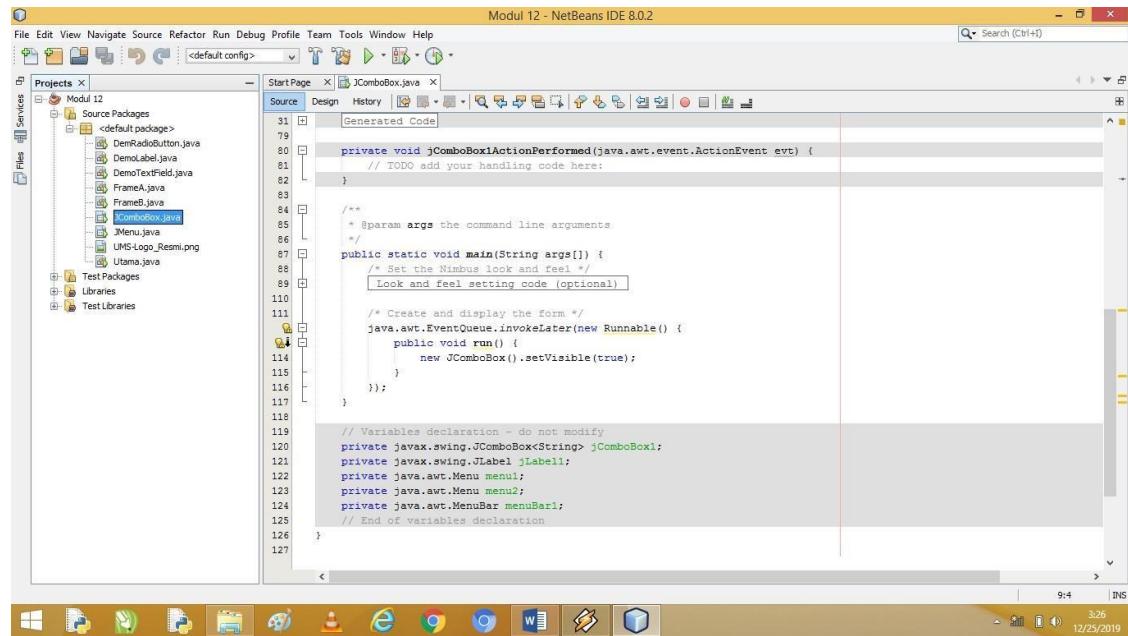
Membuat program GUI berdasarkan output

1. Menggunakan class JComboBox untuk membuat program GUI berdasarkan gambar



```
Modul 12 - NetBeans IDE 8.0.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Projects X Start Page X JcomboBox.java X
File Services
Projects X 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
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 JcomboBox extends javax.swing.JFrame {
12
13     /**
14      * Creates new form JcomboBox
15      */
16     public JcomboBox() {
17         super("Tugas 1");
18         initComponents();
19     }
20
21     /**
22      * This method is called from within the constructor to initialize the form.
23      * WARNING: Do NOT modify this code. The content of this method is always
24      * regenerated by the Form Editor.
25      */
26     @SuppressWarnings("unchecked")
27     // Generated Code
28 }
```

Output dari program 11



The screenshot shows the NetBeans IDE interface with the title "Modul 12 - NetBeans IDE 8.0.2". The left pane displays the "Projects" view for "Modul 12", showing several Java files under "Source Packages" and "Test Packages". The right pane shows the source code for "JComboBox.java". The code is as follows:

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

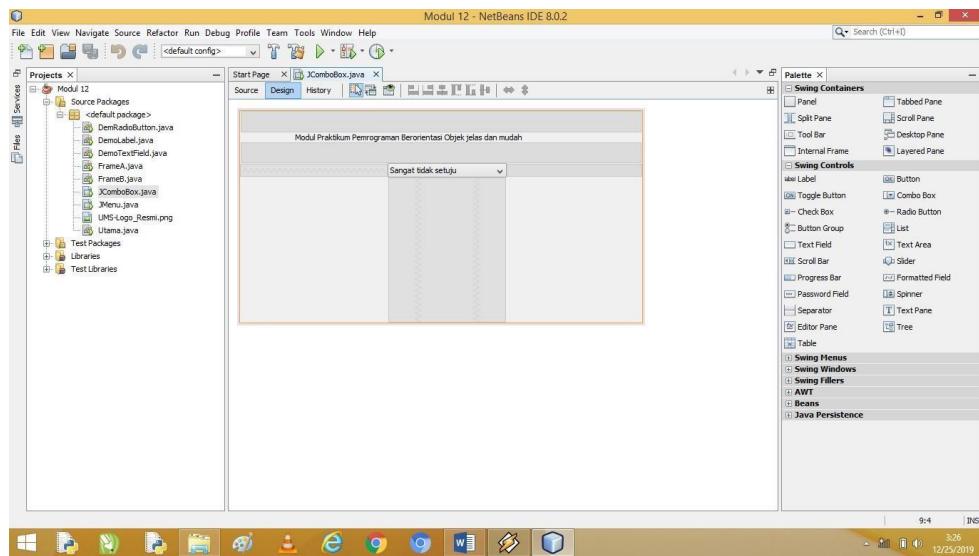
/*
 * @param args the command line arguments
 */
public static void main(String args[]) {
    /* Set the Nimbus look and feel */
    // Look and feel setting code (optional)

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

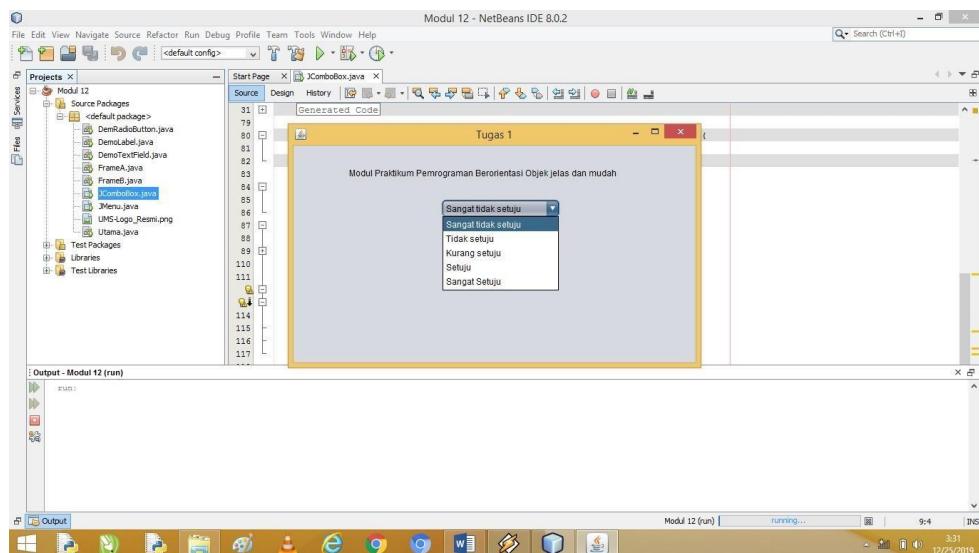
// Variables declaration - do not modify
private javax.swing.JComboBox<String> jComboBox1;
private javax.swing.JLabel jLabel1;
private java.awt.Menu menu1;
private java.awt.Menu menu2;
private java.awtMenuBar menuBar;
```

The code includes comments explaining the purpose of each section: the event handler, the main method, and the variable declarations.

Output dari program 12

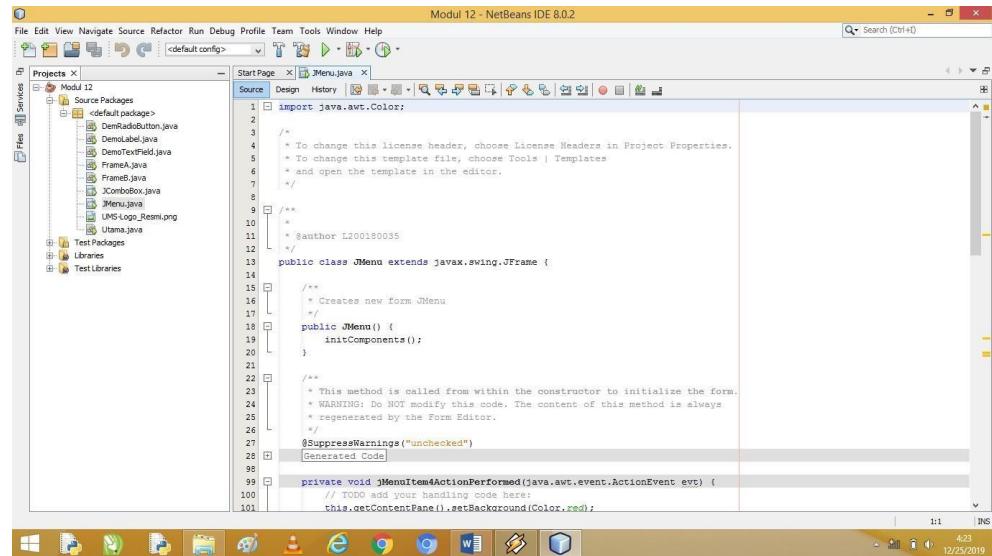


Output dari program diatas:



Output dari program 13

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



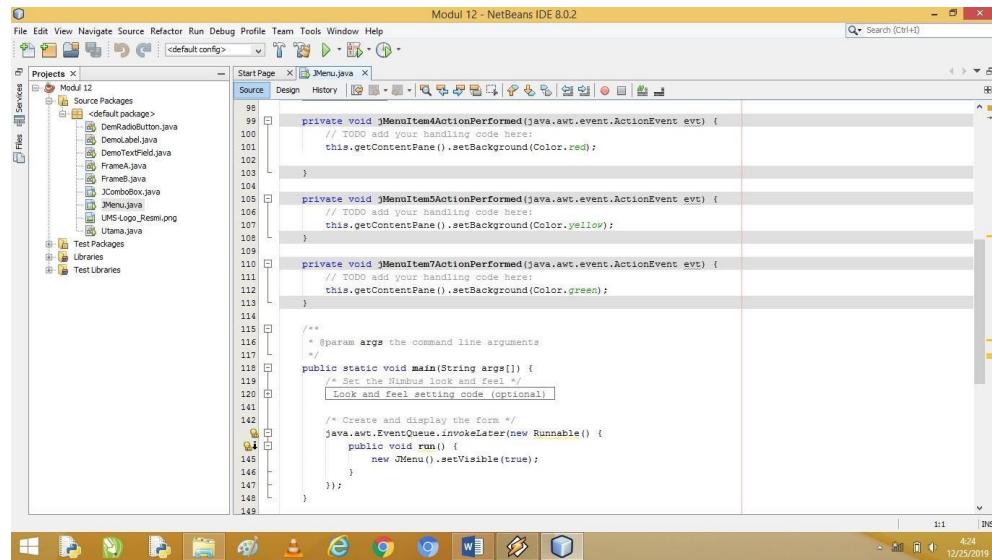
The screenshot shows the NetBeans IDE interface with the title bar "Modul 12 - NetBeans IDE 8.0.2". The left sidebar displays the "Projects" view for "Modul 12" with several Java files listed under "Source Packages". The main editor window shows the source code for "JMenu.java". The code defines a class "JMenu" that extends "javax.swing.JFrame". It includes a constructor "JMenu()" and a private method "jMenuItem1ActionPerformed(ActionEvent evt)". The code uses annotations like "/* To change this license header, choose License Headers in Project Properties. To change this template file, choose Tools | Templates. */" and "@SuppressWarnings("unchecked")". The code editor has syntax highlighting and a toolbar above it.

```
import java.awt.Color;
/*
 * 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 L200180035
 */
public class JMenu extends javax.swing.JFrame {

    /**
     * Creates new form JMenu
     */
    public JMenu() {
        initComponents();
    }

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

Output dari program 14



Modul 12 - NetBeans IDE 8.0.2

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

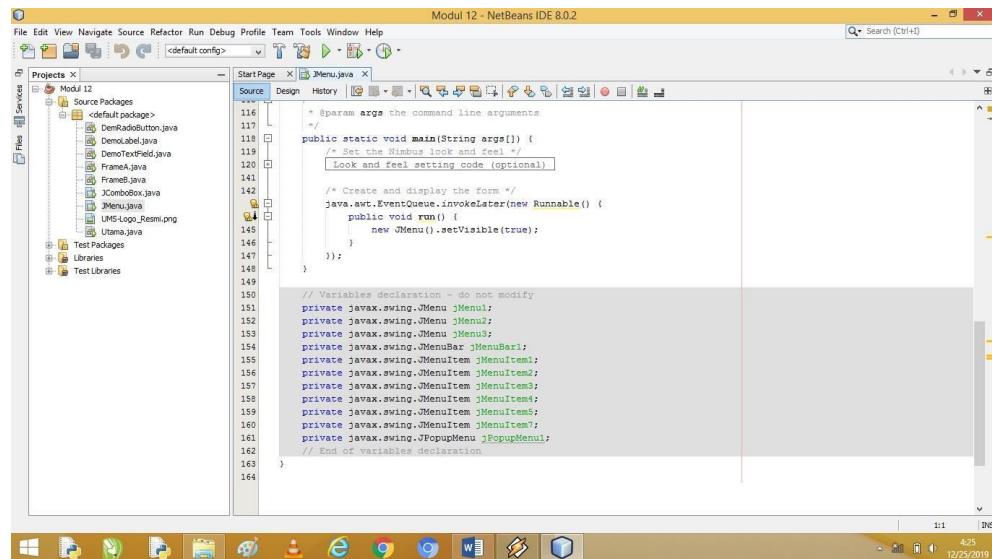
private void jMenuItem2ActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
    this.getContentPane().setBackground(Color.yellow);
}

private void jMenuItem3ActionPerformed(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);
        }
    });
}

// Variables declaration - do not modify
private javax.swing.JMenuBar jMenuBar;
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 jMenuItem6;
private javax.swing.JMenuItem jMenuItem7;
private javax.swing.JPopupMenu jPopupMenu1;
// End of variables declaration
}
```

11:1 4:24 12/25/2019



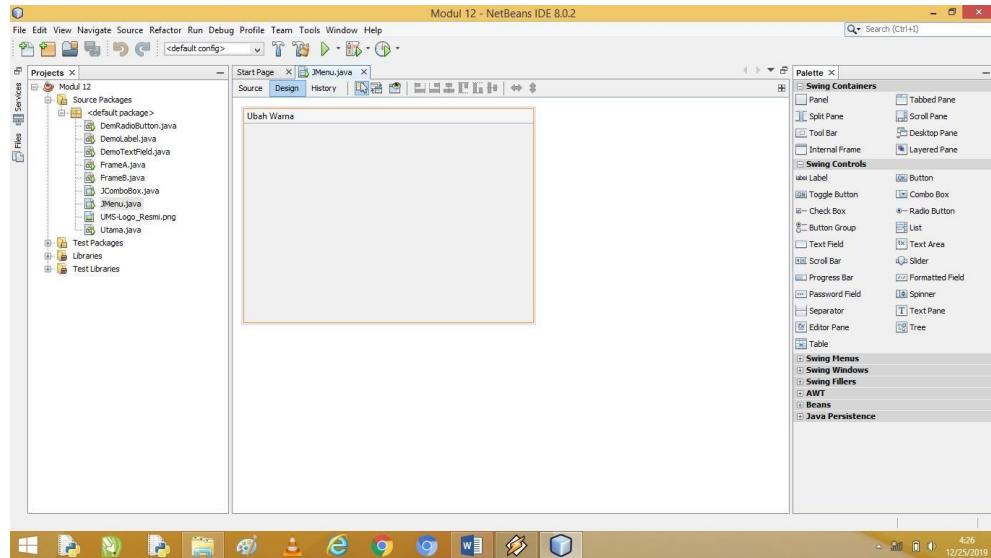
Modul 12 - NetBeans IDE 8.0.2

```
/*
 * @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.JMenuBar jMenuBar;
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 jMenuItem6;
private javax.swing.JMenuItem jMenuItem7;
private javax.swing.JPopupMenu jPopupMenu1;
// End of variables declaration
}
```

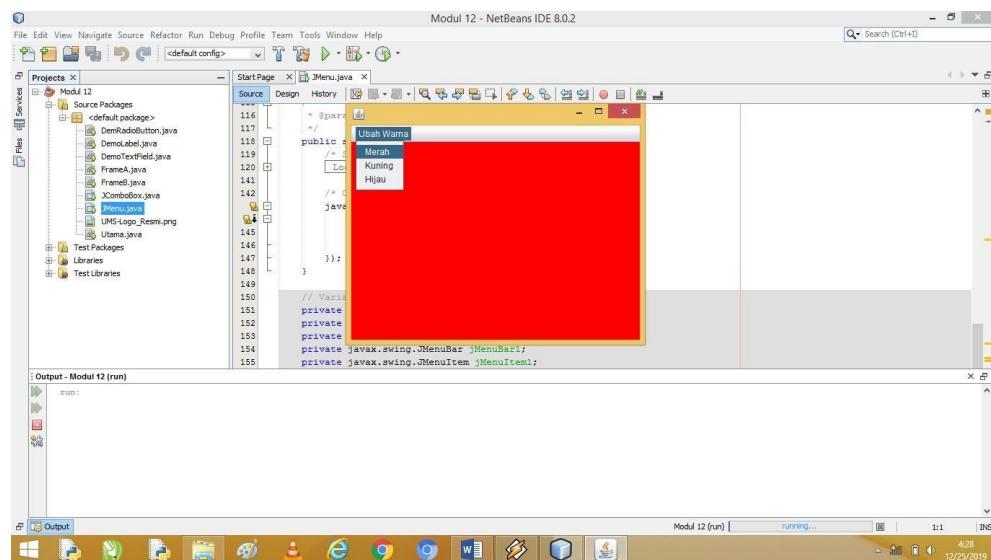
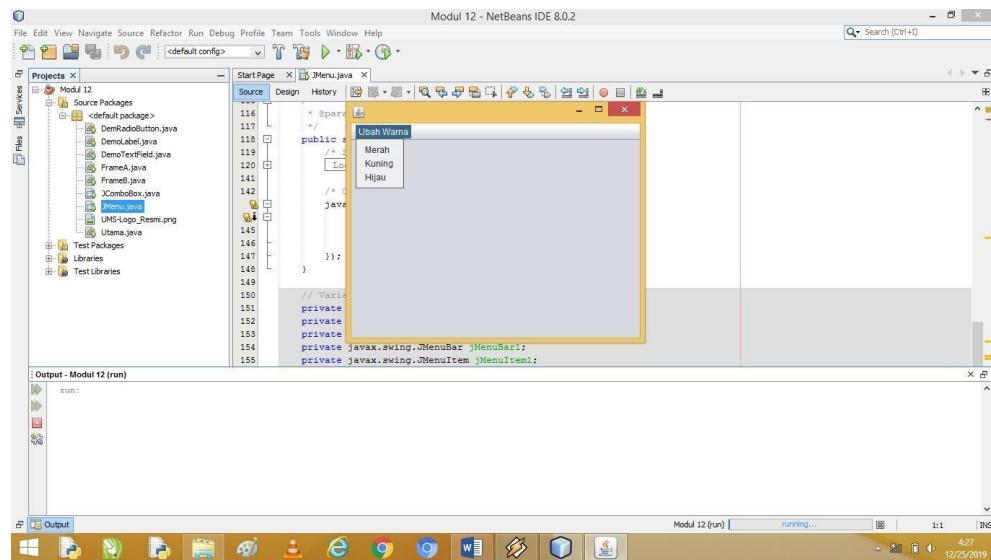
11:1 4:25 12/25/2019

Output dari program 15



Output dari program diatas:

Output dari program 16



Output dari program 17

