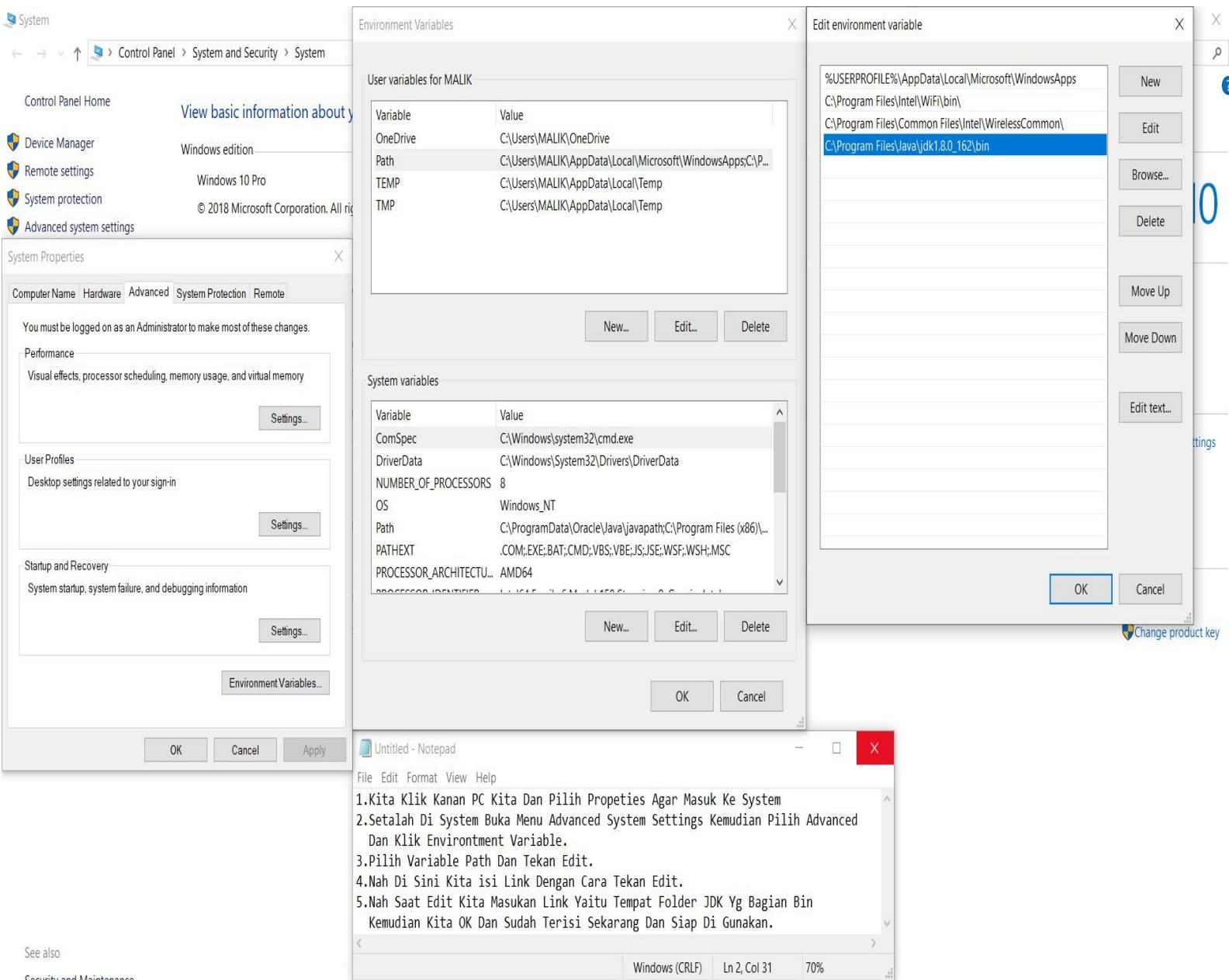


MODUL 1

NAMA: MALIK MUHAMMAD

NIM : L200180072

KELAS : B



Command Prompt

```
Microsoft Windows [Version 10.0.17763.737]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\MALIK>java -version
java version "1.8.0_162"
Java(TM) SE Runtime Environment (build 1.8.0_162-b12)
Java HotSpot(TM) 64-Bit Server VM (build 25.162-b12, mixed mode)

C:\Users\MALIK>d:
```

D:\>dir

```
Volume in drive D is Data Disk
Volume Serial Number is C2AA-1B7E

Directory of D:\

13/06/2019 14:33    <DIR>        Anime
24/08/2019 14:30    <DIR>        Data Game
19/06/2019 11:52    <DIR>        Document
13/09/2019 21:42    <DIR>        Malik
26/06/2019 12:11    <DIR>        Software
15/09/2019 22:53    <DIR>        Tugas Kuliah
02/01/2019 20:15    <DIR>        YouTube
          0 File(s)      0 bytes
          7 Dir(s)   686.335.811.584 bytes free
```

D:\>cd Malik

D:\Malik>javac Program.java

D:\Malik>java Program
Hello World

D:\Malik>javac Roti.java

D:\Malik>javac RotiDemo.java

D:\Malik>java RotiDemo
Warna Roti : Hijau
Rasa Roti : Pandan
Berat Roti : 30
grHarga Roti : Rp. 6000.0

D:\Malik>

Program - Notepad

```
public class Program{
    public static void main (String[] args) {
        System.out.println("Hello World");
    }
}
```

Roti - Notepad

```
public class Roti {
    String warna;
    String rasa;
    int berat;
    double harga;

    void beriWarna(String warnaRoti) {
        warna = warnaRoti;
    }
    void beriRasa(String rasaRoti) {
        rasa = rasaRoti;
    }
    void timbangBerat(int beratRoti) {
        berat = beratRoti;
    }
    void hargaJual(double hargaRoti) {
        harga = hargaRoti;
    }
    void infoRoti() {
        System.out.println(
            "Warna Roti : " + warna + "\n" +
            "Rasa Roti : " + rasa + "\n" +
            "Berat Roti : " + berat + "\n" +
            "Harga Roti : Rp. " + harga);
    }
}
```

RotiDemo - Notepad

```
public class RotiDemo{
    public static void main(String[]);
        Roti roti = new Roti();
        roti.beriWarna("Hijau");
        roti.beriRasa("Pandan");
        roti.timbangBerat(30);
        roti.hargaJual(6000);
        roti.infoRoti();
    }
}
```

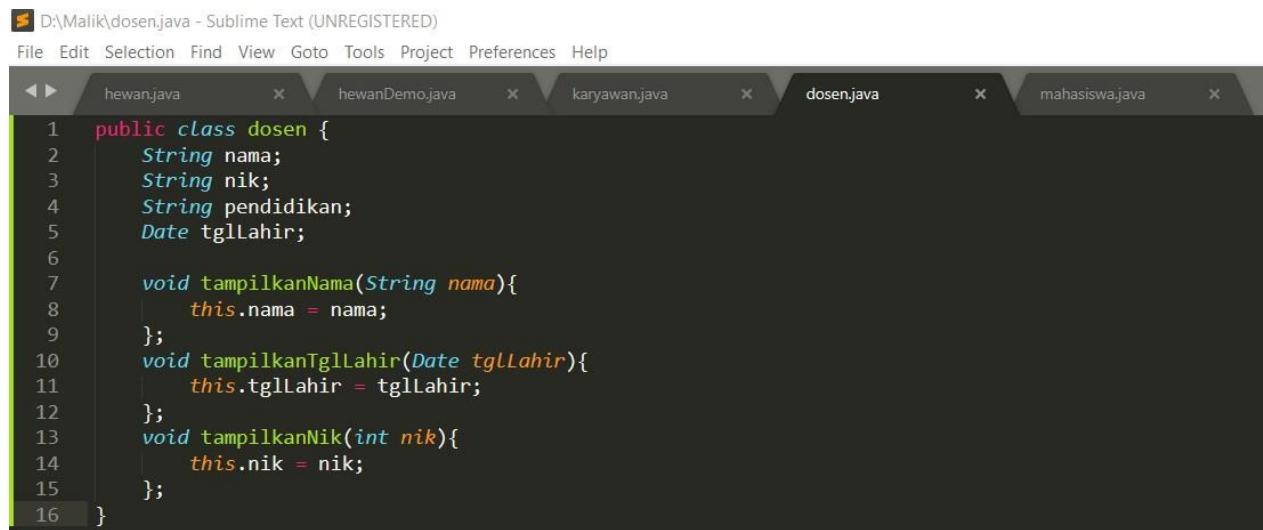
MODUL-2

NAMA: MALIK MUHAMMAD

NIM : L200180072

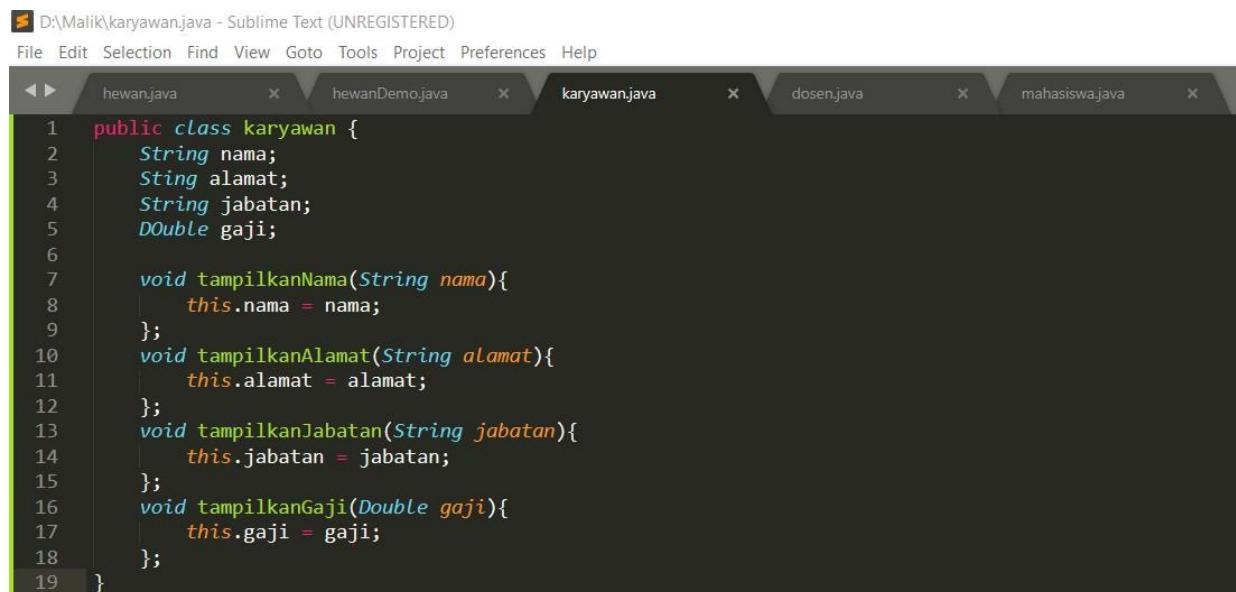
KELAS : B

CLASS DOSEN



```
D:\Malik\dosen.java - Sublime Text (UNREGISTERED)
File Edit Selection Find View Goto Tools Project Preferences Help
◀ ▶ hewan.java x hewanDemo.java x karyawan.java x dosen.java x mahasiswa.java x
1 public class dosen {
2     String nama;
3     String nik;
4     String pendidikan;
5     Date tglLahir;
6
7     void tampilkanNama(String nama){
8         this.nama = nama;
9     };
10    void tampilkanTglLahir(Date tglLahir){
11        this.tglLahir = tglLahir;
12    };
13    void tampilkanNik(int nik){
14        this.nik = nik;
15    };
16 }
```

CLASS KARYAWAN



```
D:\Malik\karyawan.java - Sublime Text (UNREGISTERED)
File Edit Selection Find View Goto Tools Project Preferences Help
◀ ▶ hewan.java x hewanDemo.java x karyawan.java x dosen.java x mahasiswa.java x
1 public class karyawan {
2     String nama;
3     String alamat;
4     String jabatan;
5     Double gaji;
6
7     void tampilkanNama(String nama){
8         this.nama = nama;
9     };
10    void tampilkanAlamat(String alamat){
11        this.alamat = alamat;
12    };
13    void tampilkanJabatan(String jabatan){
14        this.jabatan = jabatan;
15    };
16    void tampilkanGaji(Double gaji){
17        this.gaji = gaji;
18    };
19 }
```

CLASS MAHASISWA

D:\Malik\mahasiswa.java - Sublime Text (UNREGISTERED)

```
File Edit Selection Find View Goto Tools Project Preferences Help
```

```
hewanjava      x  hewanDemo.java      x  karyawan.java      x  dosen.java      x  mahasiswa.java      x
```

```
1 public class mahasiswa {  
2     String nama;  
3     String nim;  
4     String alamat;  
5     int semester;  
6  
7     void tampilNama (String nama){  
8         this.nama = nama;  
9     };  
10    void tampilNim (String nim){  
11        this.nim = nim;  
12    };  
13    void tampilAlamat (String alamat){  
14        this.alamat = alamat;  
15    };  
16    void tampilSemester (int semester){  
17        this.semester = semester  
18    };  
19 }
```

CLASS Hewan

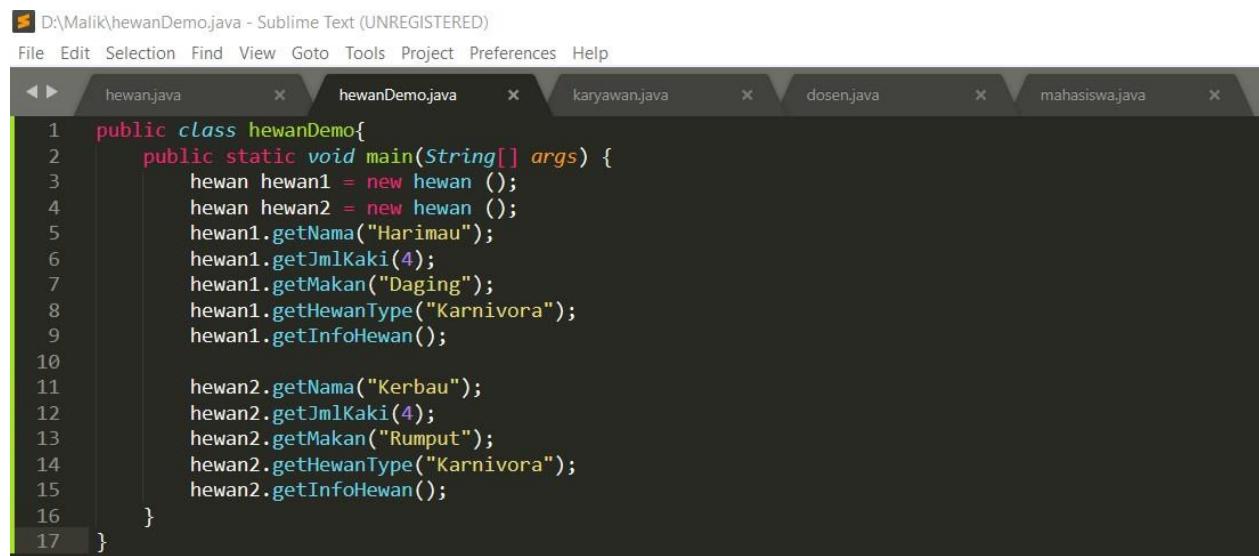
D:\Malik\hewan.java - Sublime Text (UNREGISTERED)

```
File Edit Selection Find View Goto Tools Project Preferences Help
```

```
hewan.java      x  hewanDemo.java      x  karyawan.java      x  dosen.java      x  mahasiswa.java      x
```

```
1 public class hewan {  
2     String nama;  
3     int jmlKaki;  
4     String makan;  
5     String hewantype;  
6  
7     void getNama(String nama){ this.nama = nama; }  
8     void getJmlKaki(int jmlKaki){ this.jmlKaki = jmlKaki; }  
9     void getMakan(String makan){ this.makan = makan; }  
10    void getHewanType(String hewantype){ this.hewantype = hewantype; }  
11  
12    void getInfoHewan(){  
13        System.out.println(  
14            "Nama Hewan : " + nama + "\n" +  
15            "Jumlah Kaki : " + jmlKaki + "\n" +  
16            "Makanan : " + makan + "\n" +  
17            "Hewan Type : " + hewantype + "\n\n"  
18        );  
19    }  
20 }
```

CLASS HewanDemo



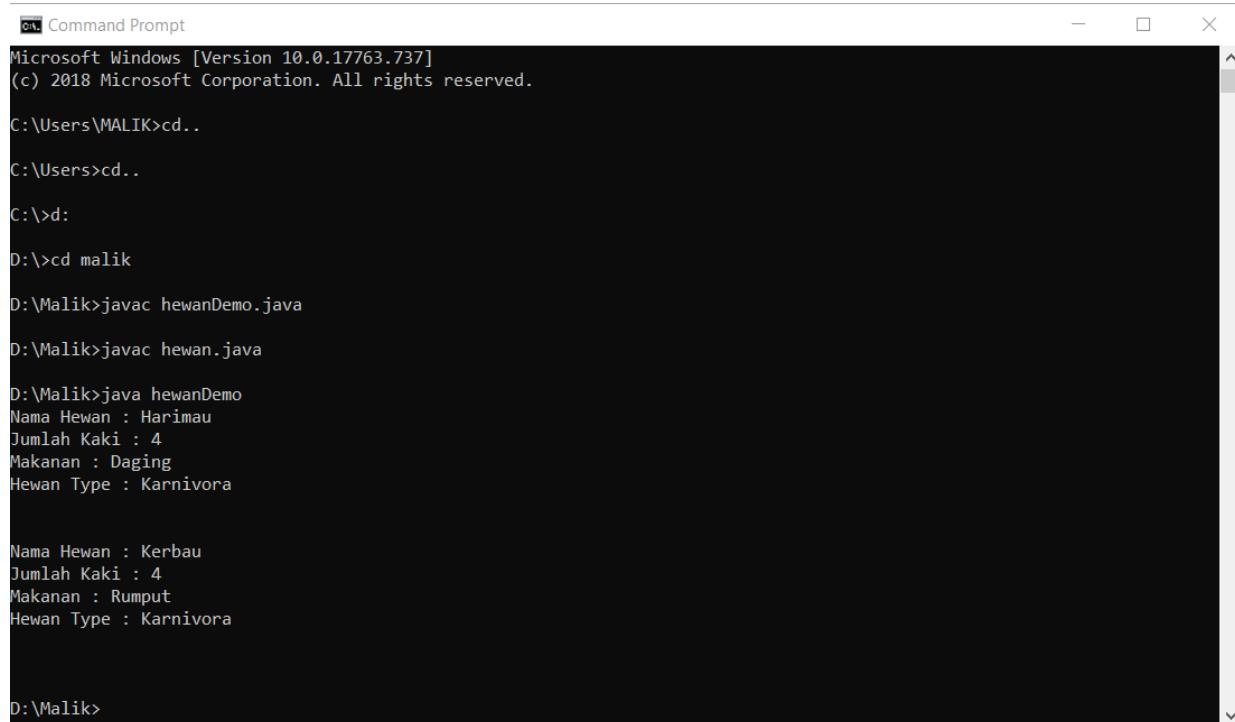
D:\Malik\hewanDemo.java - Sublime Text (UNREGISTERED)

File Edit Selection Find View Goto Tools Project Preferences Help

hewanjava hewanDemo.java karyawan.java dosen.java mahasiswa.java

```
1 public class hewanDemo{  
2     public static void main(String[] args) {  
3         hewan hewan1 = new hewan ();  
4         hewan hewan2 = new hewan ();  
5         hewan1.getNama("Harimau");  
6         hewan1.getJmlKaki(4);  
7         hewan1.getMakan("Daging");  
8         hewan1.getHewanType("Karnivora");  
9         hewan1.getInfoHewan();  
10  
11         hewan2.getNama("Kerbau");  
12         hewan2.getJmlKaki(4);  
13         hewan2.getMakan("Rumput");  
14         hewan2.getHewanType("Karnivora");  
15         hewan2.getInfoHewan();  
16     }  
17 }
```

Hasil



Command Prompt

Microsoft Windows [Version 10.0.17763.737]
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C:\Users\MALIK>cd..

C:\Users>cd..

C:\>d:

D:\>cd malik

D:\Malik>javac hewanDemo.java

D:\Malik>javac hewan.java

D:\Malik>java hewanDemo

Nama Hewan : Harimau
Jumlah Kaki : 4
Makanan : Daging
Hewan Type : Karnivora

Nama Hewan : Kerbau
Jumlah Kaki : 4
Makanan : Rumput
Hewan Type : Karnivora

D:\Malik>

MODUL-3

NAMA: MALIK MUHAMMAD

NIM : L200180072

KELAS : B

LATIHAN 1

Kode Dan Hasil Nya Saat Di JalanKan

D:\Malik\Praktikum PBO\LocalVariable.java - Sublime Text (UNREGISTERED)

File Edit Selection Find View Goto Tools Project Preferences Help

LocalVariable.java NilaiJava PegawaiJava DemoPegawaiJava

1 public class LocalVariable{
2 public void hitungUsia(){
3 int tahunSekarang = 2019;
4 int tahunLahir = 1999;
5
6 usia = tahunSekarang - tahunLahir;
7
8 System.out.println("Usia saya : " + usia);
9 }
10 public void beratBadan(){
11 this.usia = usia;
12 int beratLahir = 4;
13 int umur = usia;
14
15 int beratBadan = beratLahir + (umur / 2);
16
17 System.out.println("Berat badan saya : " + beratBadan);
18 //tidak bisa atau error karena termasuk variable lokal
19 }
20
21
22 public static void main(String[] args){
23 LocalVariable Local = new LocalVariable();
24 Local.hitungUsia();
25 Local.beratBadan();
26 }
27 }

Microsoft Windows [Version 10.0.17763.737]
(c) 2018 Microsoft Corporation. All rights reserved.
C:\Users\MALIK>cd..
C:\Users>cd..
C:\>D:
D:\>cd Malik
D:\Malik>cd Praktikum PBO
D:\Malik\Praktikum PBO>javac LocalVariable.java
LocalVariable.java:7: error: cannot find symbol
 usia = tahunSekarang - tahunLahir;
 ^
 symbol: variable usia
 location: class LocalVariable
LocalVariable.java:9: error: cannot find symbol
 System.out.println("Usia saya : " + usia);
 ^
 symbol: variable usia
 location: class LocalVariable
LocalVariable.java:12: error: cannot find symbol
 this.usia = usia;
 ^
 symbol: variable usia
 location: class LocalVariable
LocalVariable.java:12: error: cannot find symbol
 this.usia = usia;
 ^
 symbol: variable usia
 location: class LocalVariable
LocalVariable.java:14: error: cannot find symbol
 int umur = usia;
 ^
 symbol: variable usia
 location: class LocalVariable
5 errors
D:\Malik\Praktikum PBO>

Line 27, Column 2 Tab Size: 4 Java

Windows Taskbar icons: File Explorer, Google Chrome, FileZilla, File Manager, Paint, Notepad, Task View, Taskbar Icons.

LATIHAN 2

Kode Dan Hasil Nya Saat Di JalanKan

The screenshot shows a Sublime Text interface with multiple tabs open. The active tab contains Java code for a class named LocalVariable. The code includes methods for calculating age and weight, and a main method that creates an instance of LocalVariable and calls its methods. To the right of the code editor is a terminal window showing the command prompt, the operating system version, copyright information, and a series of directory changes and Java command executions. The terminal output shows the expected results for the code.

```
D:\Malik\Praktikum PBO\LocalVariable.java - Sublime Text (UNREGISTERED)
File Edit Selection Find View Goto Tools Project Preferences Help
LocalVariable.java Nilai.java Pegawai.java DemoPegawai.java
1 public class LocalVariable{
2     int usia = 0;
3     public void hitungUsia(){
4
5         int tahunSekarang = 2019;
6         int tahunLahir = 1999;
7
8         usia = tahunSekarang - tahunLahir;
9
10        System.out.println("Usia saya : " + usia);
11    }
12    public void beratBadan(){
13        this.usia = usia;
14        int beratLahir = 4;
15        int umur = usia;
16
17        int beratBadan = beratLahir + (umur / 2);
18
19        System.out.println("Berat badan saya : " + beratBadan);
20        //tidak bisa atau error karena termasuk variable lokal
21    }
22
23    public static void main(String[] args){
24        LocalVariable Local = new LocalVariable();
25        Local.hitungUsia();
26        Local.beratBadan();
27    }
28 }

D:\Malik\Praktikum PBO>javac LocalVariable.java
D:\Malik\Praktikum PBO>java LocalVariable
Usia saya : 20
Berat badan saya : 14

Line 28, Column 2
Tab Size: 4
Java
22:50
03/10/2019
```

LATIHAN 3

Kode Dan Hasil Nya Saat Di JalanKan

D:\Malik\Praktikum PBO\Pegawai.java - Sublime Text (UNREGISTERED)

File Edit Selection Find View Goto Tools Project Preferences Help

LocaVariable.java Nilai.java Pegawai.java DemoPegawai.java

```
1 public class Pegawai {
2     String nama;
3     int nip;
4     double gaji;
5
6     void beriNama(String nama){
7         this.nama = nama;
8     }
9     void beriNip(int nip_peg){
10        nip = nip_peg;
11    }
12    void tambahGaji(double gaji_peg){
13        gaji = gaji_peg;
14    }
15
16    void cetakPegawai(){
17        System.out.println(
18            "Nama Pegawai : " + nama + "\n" +
19            "NIP Pegawai : " + nip + "\n" +
20            "Gaji Pegawai : " + gaji + "\n"
21        );
22    }
23 }
```

Line 23, Column 6

Tab Size: 4 Java

22:54 03/10/2019

LocalVariable.java Nilai.java Pegawai.java DemoPegawai.java

```
1 public class DemoPegawai{
2     public static void main(String[] args){
3         Pegawai pgw1 = new Pegawai ();
4         pgw1.beriNama ("Malik");
5         pgw1.beriNip (600180072);
6         pgw1.tambahGaji (9000000);
7         pgw1.cetakPegawai ();
8
9         Pegawai pgw2 = new Pegawai ();
10        pgw2.beriNama ("Naruto");
11        pgw2.beriNip (600180073);
12        pgw2.tambahGaji (6000000);
13        pgw2.cetakPegawai ();
14
15        Pegawai pgw3 = new Pegawai ();
16        pgw3.beriNama ("Hinata");
17        pgw3.beriNip (600180074);
18        pgw3.tambahGaji (8000000);
19        pgw3.cetakPegawai ();
20
21        Pegawai pgw4 = new Pegawai ();
22        pgw4.beriNama ("Sasuke");
23        pgw4.beriNip (600180075);
24        pgw4.tambahGaji (3000000);
25        pgw4.cetakPegawai ();
26
27        Pegawai pgw5 = new Pegawai ();
28        pgw5.beriNama ("Sakura");
29        pgw5.beriNip (600180076);
30        pgw5.tambahGaji (1000000);
31        pgw5.cetakPegawai ();
32    }
33 }
```

Command Prompt

```
Microsoft Windows [Version 10.0.17763.737]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\MALIK>cd..
C:\Users>cd..

C:\>D:
D:\>cd Malik
D:\Malik>cd Praktikum PBO
D:\Malik\Praktikum PBO>javac Pegawai.java
D:\Malik\Praktikum PBO>javac DemoPegawai.java
D:\Malik\Praktikum PBO>java DemoPegawai
Nama Pegawai : Malik
NIP Pegawai : 600180072
Gaji Pegawai : 9000000.0

Nama Pegawai : Naruto
NIP Pegawai : 600180073
Gaji Pegawai : 6000000.0

Nama Pegawai : Hinata
NIP Pegawai : 600180074
Gaji Pegawai : 8000000.0

Nama Pegawai : Sasuke
NIP Pegawai : 600180075
Gaji Pegawai : 3000000.0

Nama Pegawai : Sakura
NIP Pegawai : 600180076
Gaji Pegawai : 1000000.0

D:\Malik\Praktikum PBO>
```

TUGAS RUMAH

Kode Dan Hasil Nya Saat Di JalanKan

The screenshot shows a Sublime Text interface with four tabs: LocalVariable.java, Nilai.java, Pegawai.java, and DemoPegawai.java. The Nilai.java tab is active, displaying the following Java code:

```
1 public class Nilai{
2     double nilaiUTS;
3     double nilaiUAS;
4     double nilaiTugas;
5     double nilaiTotal;
6
7     void n_uts(double UTS){
8         nilaiUTS = UTS;
9     }
10    void n_uas(double UAS){
11        nilaiUAS = UAS;
12    }
13    void n_tug(double Tugas){
14        nilaiTugas = Tugas;
15    }
16    void cetakNilai(){
17        nilaiTotal = ((nilaiUTS + nilaiUAS + nilaiTugas) / 3);
18        System.out.println(
19            "Nilai UTS : " + nilaiUTS + "\n" +
20            "Nilai UAS : " + nilaiUAS + "\n" +
21            "Nilai Tugas : " + nilaiTugas + "\n" +
22            "Nilai Total : " + nilaiTotal + "\n");
23    }
24    public static void main (String[] args){
25        Nilai nilai1 = new Nilai();
26        nilai1.n_uts(70);
27        nilai1.n_uas(60);
28        nilai1.n_tug(100);
29        nilai1.cetakNilai();
30    }
31 }
```

To the right of the code editor is a terminal window titled "Command Prompt" showing the execution of the Java code:

```
Microsoft Windows [Version 10.0.17763.737]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\MALIK>cd..
C:\Users>cd..
C:\>D:
D:\>cd Malik
D:\Malik>cd Praktikum PBO
D:\Malik\Praktikum PBO>javac Nilai.java
D:\Malik\Praktikum PBO>java Nilai
Nilai UTS : 70.0
Nilai UAS : 60.0
Nilai Tugas : 100.0
Nilai Total : 76.66666666666667
```

The bottom of the screen shows the Windows taskbar with various icons and the date/time: 03/10/2019, 23:11.

MODUL-4

NAMA: MALIK MUHAMMAD

NIM : L200180072

KELAS : B

1. Private Modifier

D:\Malik\MODUL-4\privateModifier.java - Sublime Text (UNREGISTERED)

File Edit Selection Find View Goto Tools Project Preferences Help

```
privateModifier.java demoPrivateModifier.java defaultModifier.java defaultModifierDemo.java protectedModifier.java protectedModifierDemo.java publicModifier.java publicModifierDemo.java
```

```
1 class privateModifier {
2     private String nama;
3     private int umur;
4
5     private void printInfo(){
6         System.out.println("Private modifier");
7     }
8 }
```

D:\Malik\MODUL-4\demoPrivateModifier.java - Sublime Text (UNREGISTERED)

File Edit Selection Find View Goto Tools Project Preferences Help

```
privateModifier.java demoPrivateModifier.java defaultModifier.java defaultModifierDemo.java protectedModifier.java protectedModifierDemo.java publicModifier.java publicModifierDemo.java
```

```
1 class demoPrivateModifier {
2     public static void main(String[] args){
3         privateModifier pm = new privateModifier();
4         pm.printInfo();
5     }
6 }
```

Tidak dapat diakses karena hanya dapat diakses di dalam package dan class yang sama.

D:\Malik\MODUL-4\demoPrivateModifier.java - Sublime Text (UNREGISTERED)

File Edit Selection Find View Goto Tools Project Preferences Help

privateModifier.java demoPrivateModifier.java defaultModifier.java defaultModifierDemo.java protectedModifier.java protectedModifierDemo.java publicModifier.java publicModifierDemo.java

1 Command Prompt

2 Microsoft Windows [Version 10.0.17763.737]

3 (c) 2018 Microsoft Corporation. All rights reserved.

4

5 C:\Users\MALIK>cd..

6

C:\Users>cd..

C:\>D:

D:\>cd Malik

D:\Malik>cd MODUL-4

D:\Malik\MODUL-4>javac privateModifier.java

D:\Malik\MODUL-4>java privateModifier

Error: Main method not found in class privateModifier, please define the main method as:
public static void main(String[] args)

or a JavaFX application class must extend javafx.application.Application

D:\Malik\MODUL-4>javac demoPrivateModifier.java

demoPrivateModifier.java:4: error: printInfo() has private access in privateModifier
pm.printInfo();
^

1 error

D:\Malik\MODUL-4>

2. Default Modifier

D:\Malik\MODUL-4\defaultModifier.java - Sublime Text (UNREGISTERED)

File Edit Selection Find View Goto Tools Project Preferences Help

privateModifier.java demoPrivateModifier.java defaultModifier.java defaultModifierDemo.java protectedModifier.java protectedModifierDemo.java publicModifier.java publicModifierDemo.java

1 class defaultModifier{

2 int a = 1;

3 int b = 2;

4 int c;

5 void jumlah(){

6 c = a + b;

7 System.out.println(c);

8 }

9 }

D:\Mali\MODUL 4\defavltMoaietDerrojavz SvLlime Tel(LLFEGISTELED) File Edit

Election bird Via Goto Tools Project Preferences Help

```
privateModifier.java x demoPrivateModifier.java x defaultModifier.java x defaultModifierDemo.java x protectedModifier.java x protectedModifierDemo.java x publicModifier.java x publicModifierDemo.java x
1 class defaultModifierDemo{
2     public static void main(String[] args){
3         defaultModifier dm = new defaultModifier();
4         dm.jumlah();
5     }
6 }
```

File Edit Selection Find View Goto Tools Project Preferences Help

```
privateModifier.java x demoPrivateModifier.java x defaultModifier.java x defaultModifierDemo.java x protectedModifier.java x protectedModifierDemo.java x publicModifier.java x publicModifierDemo.java x
1 Command Prompt
2
3 D:\Malik\MODUL-4>java privateModifier
4 Error: Main method not found in class privateModifier, please define the main method as:
5     public static void main(String[] args)
6 or a JavaFX application class must extend javafx.application.Application

D:\Malik\MODUL-4>javac demoPrivateModifier.java
demoPrivateModifier.java:4: error: printInfo() has private access in privateModifier
        pm.printInfo();
               ^
1 error

D:\Malik\MODUL-4>javac defaultModifier.java

D:\Malik\MODUL-4>java defaultModifier
Error: Main method not found in class defaultModifier, please define the main method as:
     public static void main(String[] args)
or a JavaFX application class must extend javafx.application.Application

D:\Malik\MODUL-4>javac defaultModifierDemo.java

D:\Malik\MODUL-4>java defaultModifierDemo
3

D:\Malik\MODUL-4>
```

Tidak dapat diakses karena default modifier hanya dapat diakses dalam class berbeda namun dalam package yang sama.

D:\Malik\MODUL-4\defaultModifier.java - Sublime Text (UNREGISTERED)

File Edit Selection Find View Goto Tools Project Preferences Help

privateModifier.java x demoPrivateModifier.java x defaultModifier.java x defaultModifierDemo.java x protectedModifier.java x protectedModifierDemo.java x publicModifier.java x publicModifierDemo.java x

```
1 Command Prompt
2
3 D:\Malik\MODUL-4>javac defaultModifier.java
4
5 D:\Malik\MODUL-4>java defaultModifier
6 Error: Main method not found in class defaultModifier, please define the main method as:
7     public static void main(String[] args)
8 or a JavaFX application class must extend javafx.application.Application
9
D:\Malik\MODUL-4>
```

3. Protected Modifier

D:\Malik\MODUL-4\protectedModifier.java - Sublime Text (UNREGISTERED)

File Edit Selection Find View Goto Tools Project Preferences Help

privateModifier.java x demoPrivateModifier.java x defaultModifier.java x defaultModifierDemo.java x protectedModifier.java x protectedModifierDemo.java x publicModifier.java x publicModifierDemo.java x

```
1 class protectedModifier{
2     protected void printInfo(){
3         System.out.println("Protected Modifier");
4     }
5     protected void sendMessage(){
6         System.out.println("This is message");
7     }
8 }
```

D:\Malik\MODUL-4\protectedModifierDemo.java - Sublime Text (UNREGISTERED)

File Edit Selection Find View Goto Tools Project Preferences Help

privateModifier.java x demoPrivateModifier.java x defaultModifier.java x defaultModifierDemo.java x protectedModifier.java x protectedModifierDemo.java x publicModifier.java x publicModifierDemo.java x

```
1 class protectedModifierDemo{
2     public static void main(String[] args){
3         protectedModifier pro = new protectedModifier();
4         pro.printInfo();
5         pro.sendMessage();
6     }
7 }
```

Command Prompt

```
Microsoft Windows [Version 10.0.17763.737]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\MALIK>cd..

C:\Users>cd..

C:>D:

D:>cd Malik

D:\Malik>cd MODUL-4

D:\Malik\MODUL-4>javac protectedModifierDemo.java

D:\Malik\MODUL-4>java protectedModifierDemo
Protected Modifier
This is message

D:\Malik\MODUL-4>
```

4. Public Modifier

D:\Malik\MODUL-4\publicModifier.java - Sublime Text (UNREGISTERED)

File Edit Selection Find Goto Tools Project Preferences Help

```
privateModifier.java x demoPrivateModifier.java x defaultModifier.java x defaultModifierDemo.java x protectedModifier.java x protectedModifierDemo.java x publicModifier.java x publicModifierDemo.java x
```

```
1 class publicModifier{
2     public int a = 2;
3     public int b = 5;
4     public int c = 9;
5     public void kali(){
6         int d = a*b*c;
7         System.out.println("Hasil Kali = " + d);
8     }
9 }
```

D:\Malik\MODUL-4\publicModifierDemo.java * - Sublime Text (UNREGISTERED)

File Edit Selection Find Goto Tools Project Preferences Help

```
privateModifier.java x demoPrivateModifier.java x defaultModifier.java x defaultModifierDemo.java x protectedModifier.java x protectedModifierDemo.java x publicModifier.java x publicModifierDemo.java ●
```

```
1 class publicModifierDemo{
2     public static void main(String[] args){
3         publicModifier pub = new publicModifier();
4         pub.kali();
5     }
6 }
```

D:\Malik\MODUL-4\publicModifierDemo.java - Sublime Text (UNREGISTERED)

File Edit Selection Find Goto Tools Project Preferences Help

```
privateModifier.java x demoPrivateModifier.java x defaultModifier.java x defaultModifierDemo.java x protectedModifier.java x protectedModifierDemo.java x publicModifier.java x publicModifierDemo.java x
```

```
1 Command Prompt
2 D:\Malik\MODUL-4>java protectedModifierDemo
3 Protected Modifier
4 This is message
5
6 D:\Malik\MODUL-4>javac publicModifier.java

D:\Malik\MODUL-4>java publicModifier
Error: Main method not found in class publicModifier, please define the main method as:
  public static void main(String[] args)
or a JavaFX application class must extend javafx.application.Application

D:\Malik\MODUL-4>javac publicModifierDemo.java

D:\Malik\MODUL-4>java publicModifierDemo
Hasil Kali = 90

D:\Malik\MODUL-4>
```

Kali, Tambah, Kurang, Bagi, Dan Rata-Rata.

D:\Malik\MODUL-4\publicModifier.java - Sublime Text (UNREGISTERED)

File Edit Selection Find View Goto Tools Project Preferences Help

privateModifier.java x demoPrivateModifier.java x defaultModifier.java x defaultModifierDemo.java x protectedModifier.java x protectedModifierDemo.java x publicModifier.java x publicModifierDemo.java x

```
1 class publicModifier{
2     public int a = 2;
3     public int b = 5;
4     public int c = 9;
5     public void kali(){
6         int d = a*b*c;
7         System.out.println("Hasil Kali = " + d);
8     }
9     public void tambah(){
10        int d = a+b+c;
11        System.out.println("Hasil Tambah = " + d);
12    }
13    public void kurang(){
14        int d = a-b-c;
15        System.out.println("Hasil Kurang = " + d);
16    }
17    public void bagi(){
18        int d = a/b/c;
19        System.out.println("Hasil Bagi = " + d);
20    }
21    public void ratarata(){
22        int d = (a+b+c)/3;
23        System.out.println("Hasil Rata-rata = " + d);
24    }
25 }
```

D:\Malik\MODUL-4\publicModifierDemo.java - Sublime Text (UNREGISTERED)

File Edit Selection Find View Goto Tools Project Preferences Help

privateModifier.java x demoPrivateModifier.java x defaultModifier.java x defaultModifierDemo.java x protectedModifier.java x protectedModifierDemo.java x publicModifier.java x publicModifierDemo.java x

```
1 class publicModifierDemo{
2     public static void main(String[] args){
3         publicModifier pub = new publicModifier();
4         pub.kali();
5         pub.tambah();
6         pub.kurang();
7         pub.bagi();
8         pub.ratarata();
9     }
10 }
```

Command Prompt

```
D:\Malik\MODUL-4>javac publicModifierDemo.java

D:\Malik\MODUL-4>java publicModifierDemo
Hasil Kali = 90
Hasil Tambah = 16
Hasil Kurang = -12
Hasil Bagi = 0
Hasil Rata-rata = 5

D:\Malik\MODUL-4>
```

MODUL-5

NAMA: MALIK MUHAMMAD

NIM : L200180072

KELAS : B

LATIHAN 1

The screenshot shows a Sublime Text interface with three tabs open: 'contructoraccess.java', 'Buku.java', and 'Constructor.java'. The 'Constructor.java' tab is active and contains the following Java code:

```
1 public class Constructor {
2     String nama = "Malik Muhammad";
3     String nim = "L200180072";
4     String alamat = "Makamhaji RT=05/RW=22, Sukkoharjo";
5     public Constructor(){
6         System.out.println(
7             "nama = " + nama +"\n"+
8             "nim = " + nim +"\n"+
9             "alamat = " + alamat +"\n"
10        );
11    }
12 }
```

LATIHAN 2

D:\Tugas Kuliah\Semester 3\Praktikum PBO\MODUL-5\Buku.java - Sublime Text (UNREGISTERED)

File Edit Selection Find View Goto Tools Project Preferences Help

Constructor.java Buku.java contructoraccess.java

```
1 public class Buku {
2     String namapengarang;
3     String judulBuku;
4     int tahunTerbit;
5     int cetakanke;
6     double hargajual;
7
8     public Buku(String namapengarang, String judulBuku){
9         this.namapengarang = namapengarang;
10        this.judulBuku = judulBuku;
11    }
12
13    public Buku(int tahunTerbit, int cetakanke){
14        this.tahunTerbit = tahunTerbit;
15        this.cetakanke = cetakanke;
16    }
17
18    public Buku(double hargajual){
19        this.hargajual = hargajual;
20    }
21
22    public void info(){
23        System.out.println(
24            "Nama Pengarang = " + namapengarang + "\n" +
25            "Judul Buku = " + judulBuku + "\n");
26    }
27
28    public void infoterbit(){
29        System.out.println(
30            "Tahun Terbit = " + tahunTerbit + "\n" +
31            "Cetakan Ke = " + cetakanke + "\n");
32    }
33
34    public void infoharga(){
35        System.out.println(
36            "Harga = " + hargajual + "\n");
37    }
38
39 }
40 }
```

D:\Tugas Kuliah\Semester 3\Praktikum PBO\MODUL-5\constructoraccess.java - Sublime Text (UNREGISTERED)

File Edit Selection Find View Goto Tools Project Preferences Help

Constructor.java X Buku.java X constructoraccess.java X

```
1 public class constructoraccess {
2     public static void main(String[] args) {
3         Constructor Cons = new Constructor();
4         Buku B = new Buku ("illana tan", "Sunshine Becomes You");
5         Buku B1 = new Buku (2012, 4);
6         Buku B2 = new Buku (1000);
7         B.info();
8         B1.infoterbit();
9         B2.infoharga();
10    }
11   }
12 }
```

Command Prompt

```
Microsoft Windows [Version 10.0.17763.805]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\MALIK>cd..
C:\Users>cd..
C:\>D:

D:\>cd Tugas Kuliah/Semester 3/Praktikum PBO/MODUL-5>javac Constructor.java

D:\Tugas Kuliah\Semester 3\Praktikum PBO\MODUL-5>javac constructoraccess.java

D:\Tugas Kuliah\Semester 3\Praktikum PBO\MODUL-5>java constructoraccess
nama = Malik Muhammad
nim = L200180072
alamat = Makamhaji RT=05/RW=22, Sukkoharjo

Nama Pengarang = illana tan
Judul Buku = Sunshine Becomes You

Tahun Terbit = 2012
Cetakan Ke = 4

Harga = 1000.0

D:\Tugas Kuliah\Semester 3\Praktikum PBO\MODUL-5>
```

TUGAS

D:\Tugas Kuliah\Semester 3\Praktikum PBO\MODUL-5\tugas5.java - Sublime T

File Edit Selection Find View Goto Tools Project Preferences Help

tugas5.java X aksesDataDiri.java X

```
1 public class tugas5 {
2     String nama = "Malik";
3     int nim;
4
5     public tugas5(){
6         System.out.println("Nama = " + nama);
7     }
8
9     public tugas5(int nim){
10        this.nim = nim;
11    }
12
13     public void info(){
14         System.out.println("NIM = " + nim);
15     }
16 }
```

The screenshot shows a Sublime Text interface with two open files: `tugas5.java` and `aksesDataDiri.java`. The `tugas5.java` file contains the following Java code:

```
1 public class aksesDataDiri {  
2     public static void main(String[] args){  
3         tugas5 data1 = new tugas5();  
4         tugas5 data2 = new tugas5(200180072);  
5  
6         data2.info();  
7     }  
8 }
```

The `aksesDataDiri.java` file contains the following Java code:

```
1 package aksesDataDiri;  
2  
3 public class tugas5 {  
4     String name;  
5     int NIM;  
6  
7     public tugas5(){  
8         name = "Malik";  
9         NIM = 200180072;  
10    }  
11  
12    public void info(){  
13        System.out.println("Nama = " + name);  
14        System.out.println("NIM = " + NIM);  
15    }  
16  
17    public static void main(String[] args){  
18        tugas5 data1 = new tugas5();  
19        tugas5 data2 = new tugas5(200180072);  
20  
21        data2.info();  
22    }  
23}
```

To the right of the code editor is a terminal window titled "Command Prompt" showing the execution of the Java code:

```
C:\ Command Prompt  
Microsoft Windows [Version 10.0.17763.805]  
(c) 2018 Microsoft Corporation. All rights reserved.  
C:\Users\MALIK>cd..  
C:\Users>cd..  
C:\>D:  
D:\>cd Tugas Kuliah/Semester 3/Praktikum PBO/MODUL-5  
D:\Tugas Kuliah\Semester 3\Praktikum PBO\MODUL-5>javac tugas5.java  
D:\Tugas Kuliah\Semester 3\Praktikum PBO\MODUL-5>javac aksesDataDiri.java  
D:\Tugas Kuliah\Semester 3\Praktikum PBO\MODUL-5>java aksesDataDiri  
Nama = Malik  
NIM = 200180072  
D:\Tugas Kuliah\Semester 3\Praktikum PBO\MODUL-5>
```

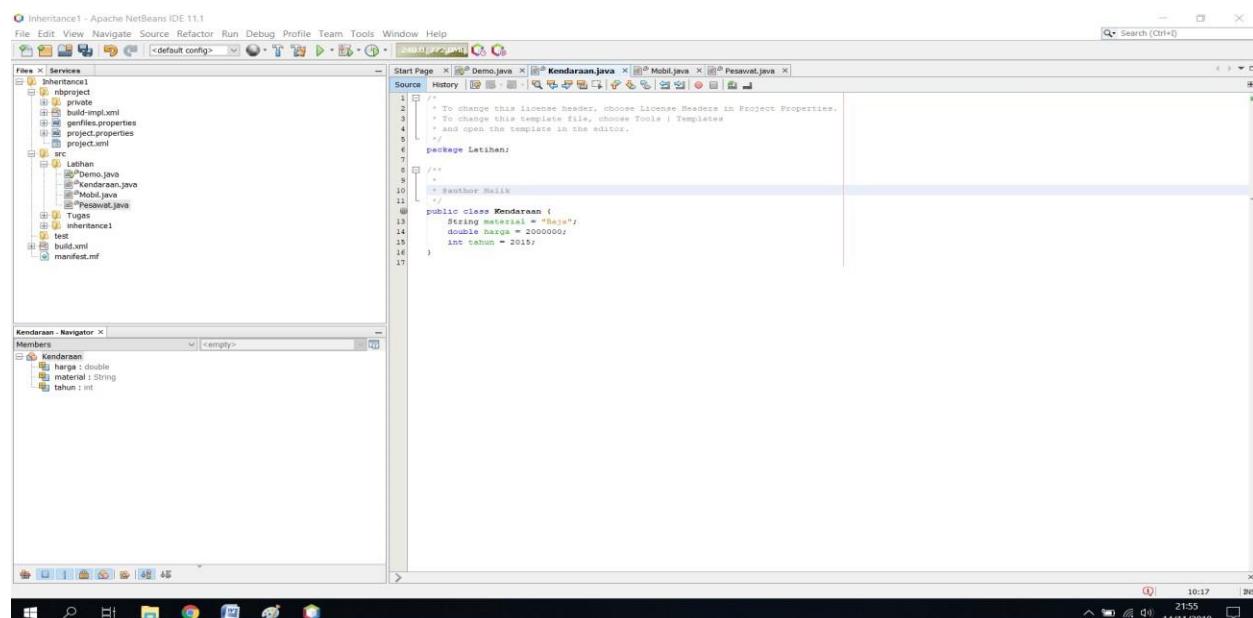
MODUL-6

NAMA = MALIK MUHAMMAD

NIM = L200180072

LATIHAN

CLASS KENDARAAN



Inheritance1 - Apache NetBeans IDE 11.1

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

Start Page Demo.java Kendaraan.java Mobil.java Pesawat.java

Source History

Files Services

Inheritance1

src Latihan

Demo.java Kendaraan.java Mobil.java Pesawat.java

Tugas inheritance1 test build.xml manifest.mf

Kendaraan.java - Navigator

Members

Kendaraan

harga : double

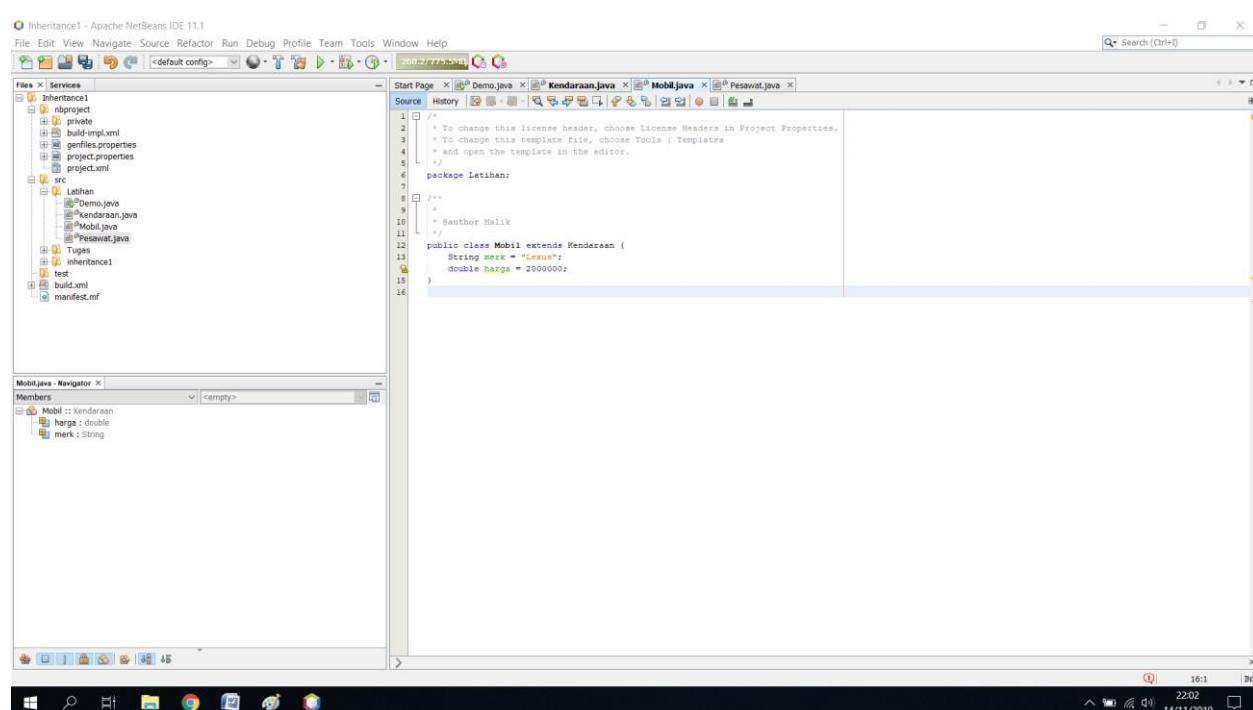
material : String

tehun : int

```
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 Latihan;
6
7 /**
8 * 
9 */
10 /*
11 * Author: Malik
12 */
13 public class Kendaraan {
14     String material = "Raja";
15     double harga = 2000000;
16     int tehun = 2037;
17 }
```

21:55 14/11/2019

CLASS MOBIL



Inheritance1 - Apache NetBeans IDE 11.1

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

Start Page Demo.java Kendaraan.java Mobil.java Pesawat.java

Source History

Files Services

Inheritance1

src Latihan

Demo.java Kendaraan.java Mobil.java Pesawat.java

Tugas inheritance1 test build.xml manifest.mf

Mobil.java - Navigator

Members

Mobil :: Kendaraan

harga : double

merk : String

```
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 Latihan;
6
7 /**
8 * 
9 */
10 /*
11 * Author: Malik
12 */
13 public class Mobil extends Kendaraan {
14     String merk = "Lexus";
15     double harga = 2000000;
16 }
```

16:1 14/11/2019

CLASS PESAWAT

The screenshot shows the Apache NetBeans IDE 11.1 interface. The top menu bar includes File, Edit, View, Navigate, Source, Refactor, Run, Debug, Profile, Team, Tools, Window, and Help. The title bar says "Inheritance1 - Apache NetBeans IDE 11.1". The left sidebar displays the project structure under "Inheritance1" with packages "Lahan" and "test", and files like "Demo.java", "Kendaraan.java", "Mobil.java", and "Pesawat.java". The main editor window shows the "Pesawat.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  package Latihan;
7
8  /**
9   * @author Malik
10  */
11 public class Pesawat extends Kendaraan {
12     String pabrik = "Lockheed Martin";
13     String material = "Baja";
14 }

```

The Navigator pane below shows members of the "Pesawat" class: "material : String" and "pabrik : String". The status bar at the bottom right shows the date as 14/11/2019 and the time as 22:02.

CLASS DEMO

The screenshot shows the Apache NetBeans IDE 11.1 interface. The top menu bar includes File, Edit, View, Navigate, Source, Refactor, Run, Debug, Profile, Team, Tools, Window, and Help. The title bar says "Inheritance1 - Apache NetBeans IDE 11.1". The left sidebar displays the project structure under "Inheritance1" with packages "Lahan" and "test", and files like "Demo.java", "Kendaraan.java", "Mobil.java", and "Pesawat.java". The main editor window shows the "main(String[] args)" method in the "Demo.java" file:

```
1  /*
2   * To change this license header, choose License Headers in Project Properties.
3   * To change this template file, choose Tools | Templates
4   * and open the template in the editor.
5   */
6  package Latihan;
7
8  /**
9   * @author Malik
10  */
11 public class Demo {
12     public static void main(String[] args) {
13         Kendaraan ki = new Kendaraan();
14         Pesawat pi = new Pesawat();
15         Mobil mi = new Mobil();
16
17         System.out.println("Harga pesawat rata2 = " + pi.harga + " USD");
18         System.out.println("Material pesawat pada umumnya = " + pi.material);
19         System.out.println("Fabrik pesawat = " + pi.pabrik);
20         System.out.println("Tahun pembuatan pesawat = " + pi.tahun + "\n");
21
22         System.out.println("Harga mobil rata2 = " + mi.harga);
23         System.out.println("Bahan mobil pada umumnya = " + mi.material);
24         System.out.println("Merk mobil = " + mi.merk);
25         System.out.println("Tahun buat mobil = " + mi.tahun);
26     }
27 }

```

The Navigator pane below shows members of the "Demo" class: "main(String[] args)". The Output pane at the bottom shows the command-line output of the run-single command:

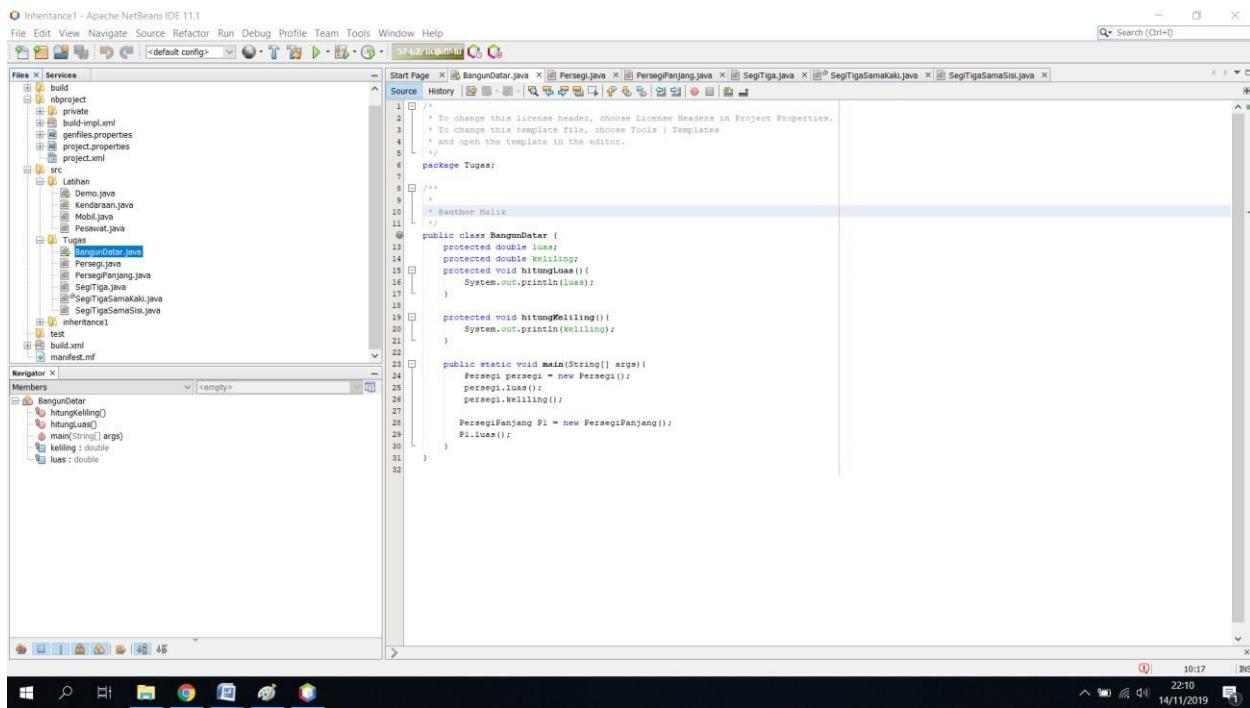
```
run -F C:\Users\MALIK\Downloads\modul8\Inheritance1 -Djavac.includes=Latihan\Demo.java -Dnb.internal.action.name=run-single -Drun.class=Latihan.Demo run-single
[INFO] Compiling 1 source file to C:\Users\MALIK\Downloads\modul8\Inheritance1\build\classes
compile-single:
[Hauswerk] Hauswerk stat1 = 2000000.0 USD
Material pesawat pada umumnya = Baja
Fabrik pesawat = Lockheed Martin
Tahun pembuatan pesawat = 2015

[Hauswerk] Harga mobil rata2 = 2000000.0
[Bahan] Bahan mobil pada umumnya = Baja
[Merk] Merk mobil = Lexus
[Tahun] Tahun buat mobil = 2015
BUILD SUCCESSFUL (total time: 1 second)
```

The status bar at the bottom right shows the date as 14/11/2019 and the time as 22:04.

TUGAS

CLASS BANGUN DATAR

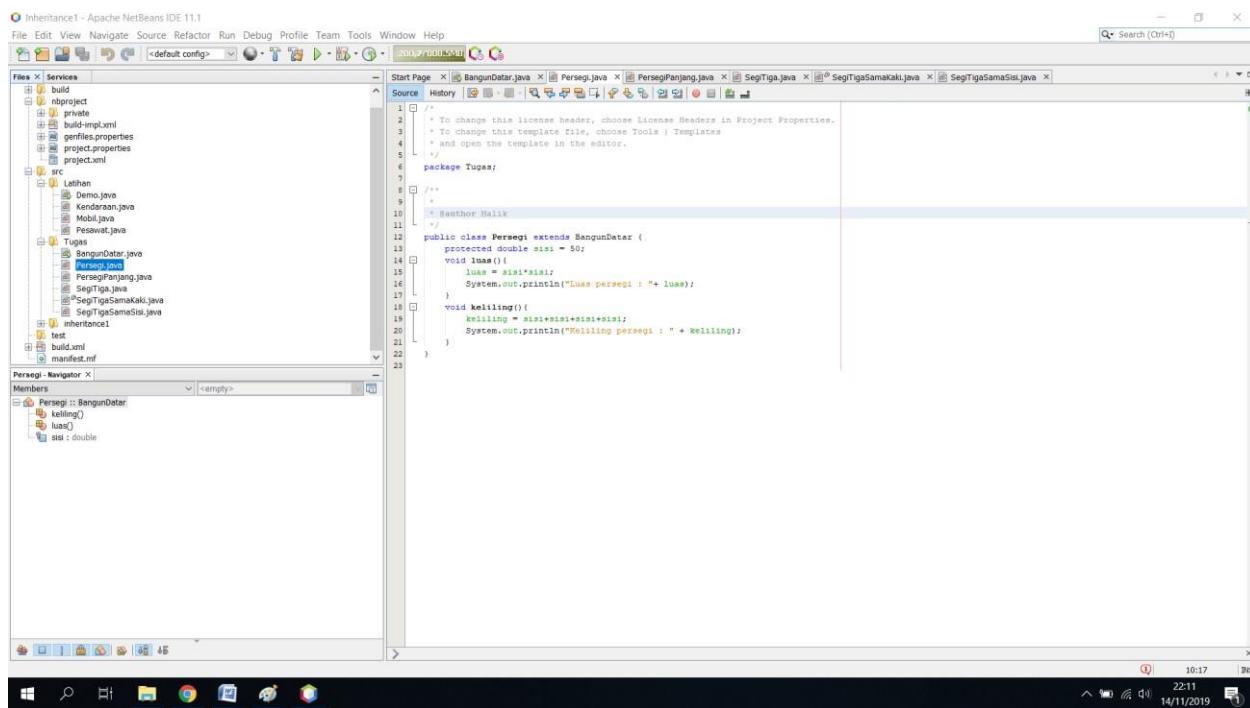


```
/*
 * To change this license header, choose License Headers in Project Properties.
 * To change this template file, choose Tools | Templates
 * and open the template in the editor.
 */
package Tugas;

/**
 *
 * @author Malik
 */
public class BangunDatar {
    protected double latus;
    protected double keliling;
    protected void hitungLatus(){
        System.out.println(latus);
    }
    protected void hitungKeliling(){
        System.out.println(keliling());
    }
    public static void main(String[] args){
        Persegi persegi = new Persegi();
        persegi.latas();
        persegi.keliling();

        PersegiPanjang P1 = new PersegiPanjang();
        P1.latas();
    }
}
```

CLASS PERSEGI



```
/*
 * 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 Malik
 */
public class Persegi extends BangunDatar {
    protected double sisi = 50;
    void lata(){
        latus = sisi*sisi;
        System.out.println("latus persegi : " + latus);
    }
    void keliling(){
        keliling = sisi+sisi+sisi+sisi;
        System.out.println("keliling persegi : " + keliling);
    }
}
```

CLASS PERSEGI PANJANG

The screenshot shows the Apache NetBeans IDE 11.1 interface. The left pane displays the project structure under 'Files > Services'. The 'src' folder contains packages 'Lathen' and 'Tugas'. The 'Tugas' package contains classes: BangunDatar.java, Persegi.java, PersegiPanjang.java, SegiTiga.java, SegiTigaSamaKali.java, and SegiTigaSamaSisi.java. The 'PersegiPanjang.java' file is open in the editor, showing the following 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  package Tugas;
7
8  /**
9   * 
10  * @author Malik
11  */
12 public class PersegiPanjang extends BangunDatar {
13     protected int panjang = 10;
14     protected double lebar = 20;
15     void luas(){
16         luas = panjang*lebar;
17         System.out.println("Luas: "+luas+"cm");
18     }
19 }
20 
```

The 'PersegiPanjang - Navigator' panel on the left shows the members of the class: luas(), lebar : double, and panjang : int.

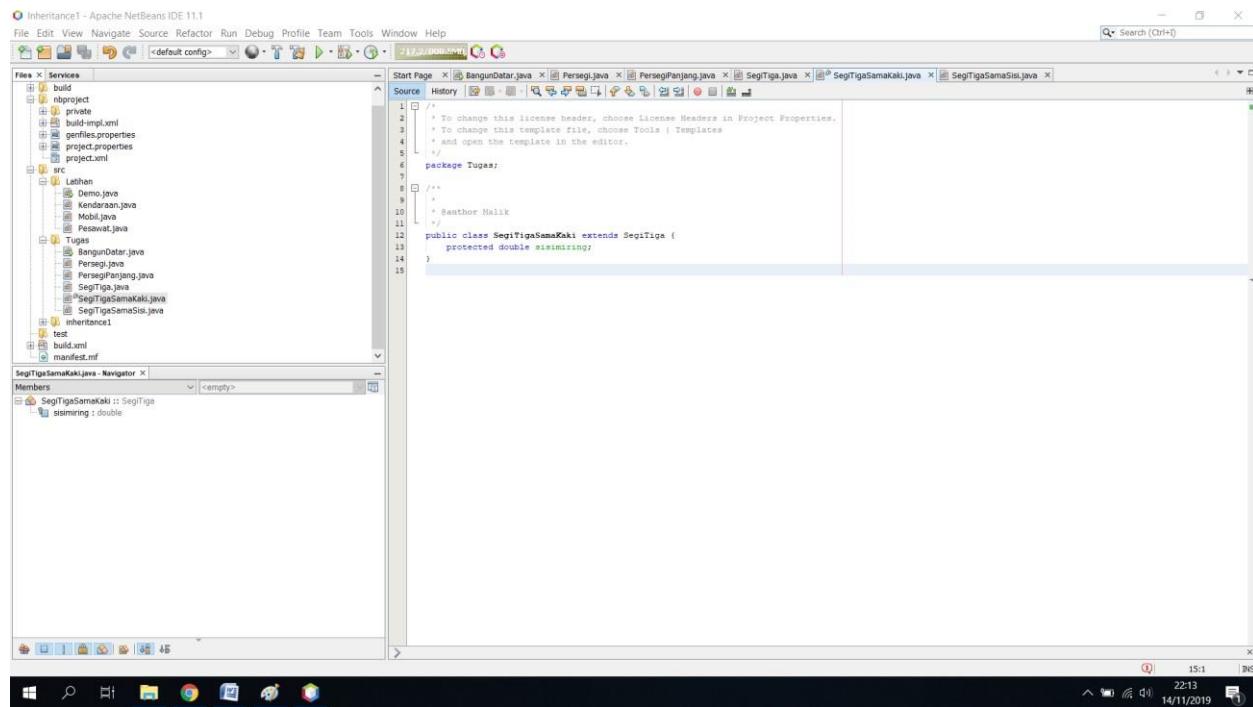
CLASS SegiTiga

The screenshot shows the Apache NetBeans IDE 11.1 interface. The left pane displays the project structure under 'Files > Services'. The 'src' folder contains packages 'Lathen' and 'Tugas'. The 'Tugas' package contains classes: BangunDatar.java, Persegi.java, PersegiPanjang.java, SegiTiga.java, SegiTigaSamaKali.java, and SegiTigaSamaSisi.java. The 'SegiTiga.java' file is open in the editor, showing the following 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  package Tugas;
7
8  /**
9   * 
10  * @author Malik
11  */
12 public class SegiTiga extends BangunDatar{
13     protected double alas;
14 }
15 
```

The 'SegiTiga - Navigator' panel on the left shows the members of the class: alas : double.

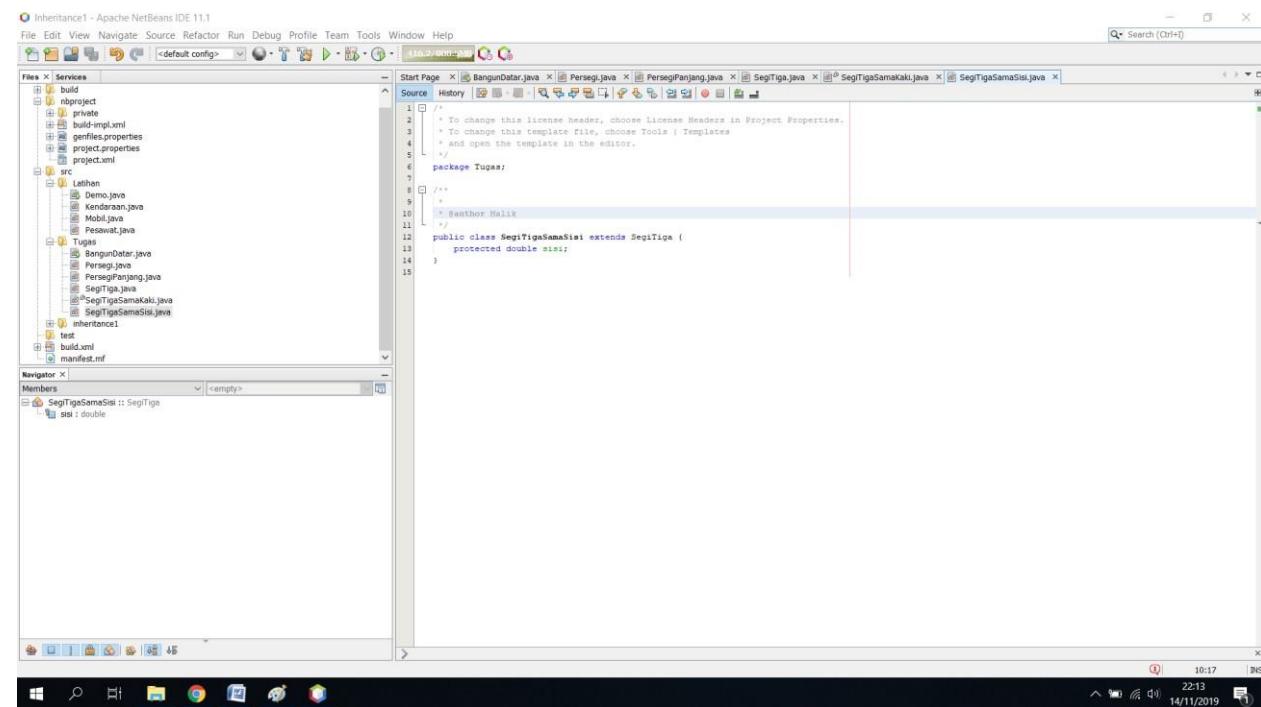
CLASS SegiTiga Sama Kaki



The screenshot shows the Apache NetBeans IDE 11.1 interface. The left pane displays the project structure under 'Files > Services'. The right pane shows the source code for `SegiTigaSamaKaki.java`. The code defines a class `SegiTigaSamaKaki` that extends `SegiTiga` and has a protected double variable `sismiring`.

```
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 Malik
11  */
12 public class SegiTigaSamaKaki extends SegiTiga {
13     protected double sismiring;
14 }
15
```

CLASS SegiTiga Sama Sisi



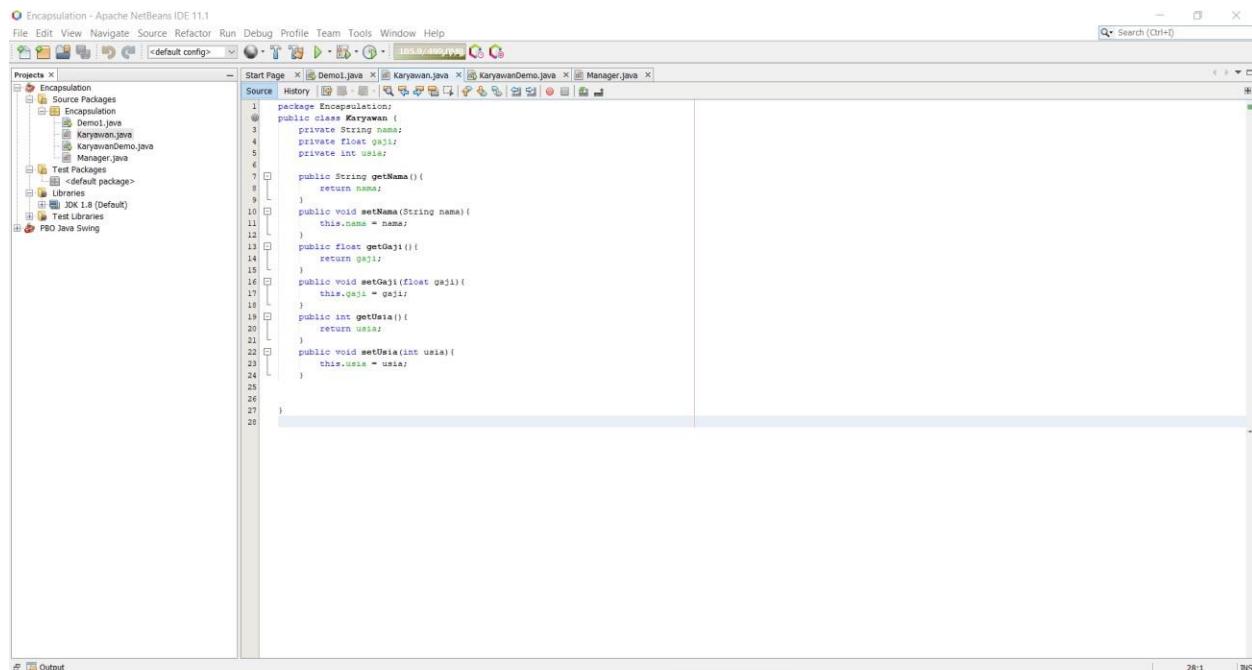
The screenshot shows the Apache NetBeans IDE 11.1 interface. The left pane displays the project structure under 'Files > Services'. The right pane shows the source code for `SegiTigaSamaSisi.java`. The code defines a class `SegiTigaSamaSisi` that extends `SegiTiga` and has a protected double variable `sisi`.

```
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 Malik
11  */
12 public class SegiTigaSamaSisi extends SegiTiga {
13     protected double sisi;
14 }
15
```

MODUL-7

NAMA: MALIK MUHAMMAD
NIM : L200180072

Kelas Karyawan

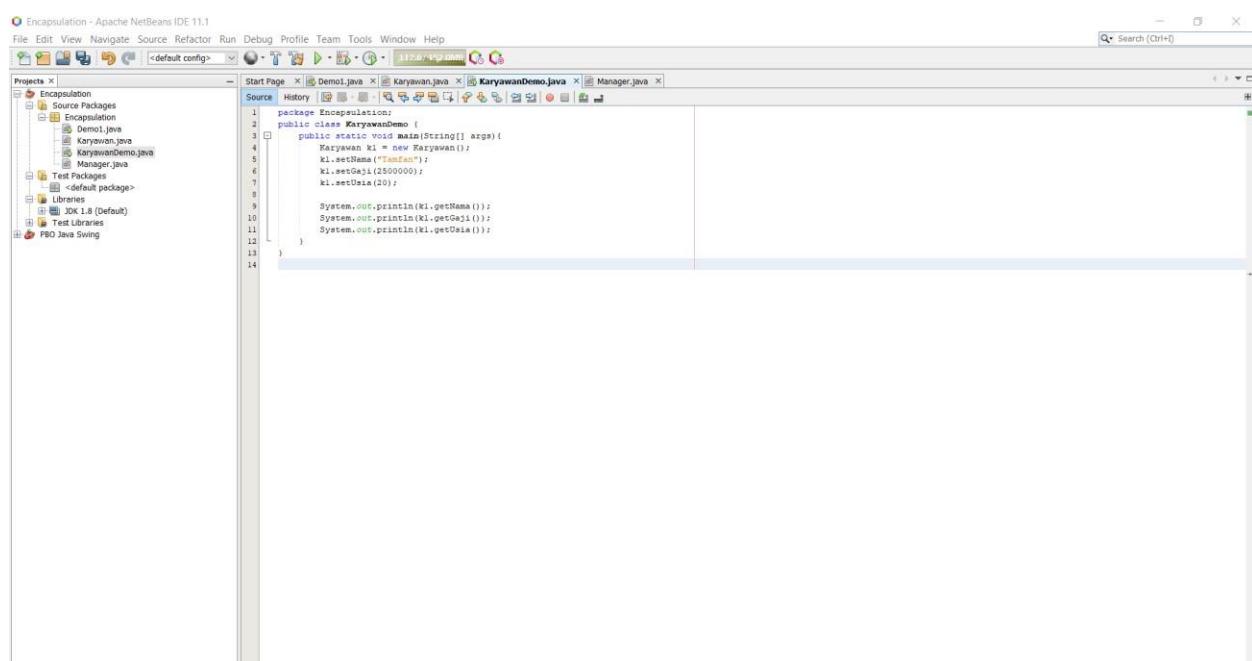


The screenshot shows the Apache NetBeans IDE interface with the title "Encapsulation - Apache NetBeans IDE 11.1". The left pane displays the project structure under the "Source Packages" node, which contains packages like "Encapsulation" and "Test Packages". The right pane shows the source code for the "Karyawan.java" file. The code defines a class "Karyawan" with private attributes "name", "gaji", and "usia", and corresponding public getters and setters.

```
package Encapsulation;
public class Karyawan {
    private String name;
    private float gaji;
    private int usia;
    public String getName() {
        return name;
    }
    public void setName(String name) {
        this.name = name;
    }
    public float getGaji() {
        return gaji;
    }
    public void setGaji(float gaji) {
        this.gaji = gaji;
    }
    public int getUsia() {
        return usia;
    }
    public void setUsia(int usia) {
        this.usia = usia;
    }
}
```

The status bar at the bottom indicates the date as 21/11/2019 and the time as 22:04.

Kelas Karyawan Demo

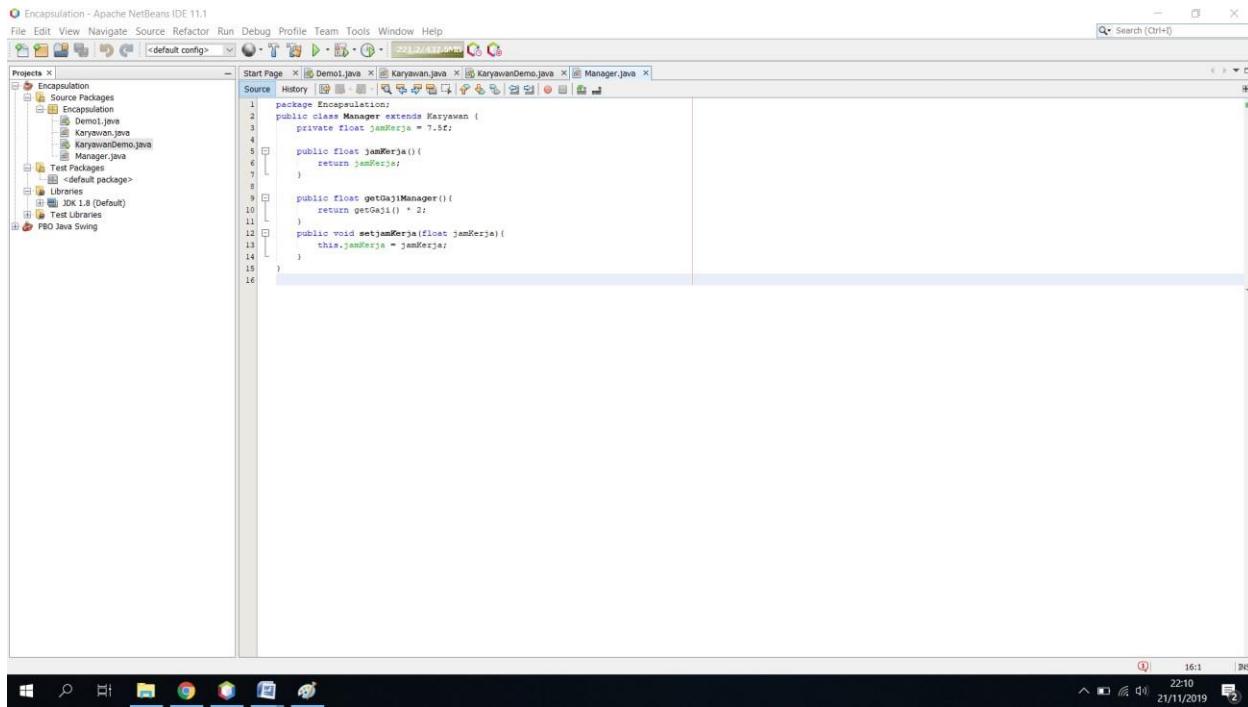


The screenshot shows the Apache NetBeans IDE interface with the title "Encapsulation - Apache NetBeans IDE 11.1". The left pane displays the project structure under the "Source Packages" node. The right pane shows the source code for the "KaryawanDemo.java" file. The code defines a class "KaryawanDemo" with a main method that creates a "Karyawan" object named "kl", sets its name to "Taufan", its salary to 2500000, and its age to 20, and then prints out these values.

```
package Encapsulation;
public class KaryawanDemo {
    public static void main(String[] args) {
        Karyawan kl = new Karyawan();
        kl.setName("Taufan");
        kl.setGaji(2500000);
        kl.setUsia(20);
        System.out.println(kl.getName());
        System.out.println(kl.getGaji());
        System.out.println(kl.getUsia());
    }
}
```

The status bar at the bottom indicates the date as 21/11/2019 and the time as 22:08.

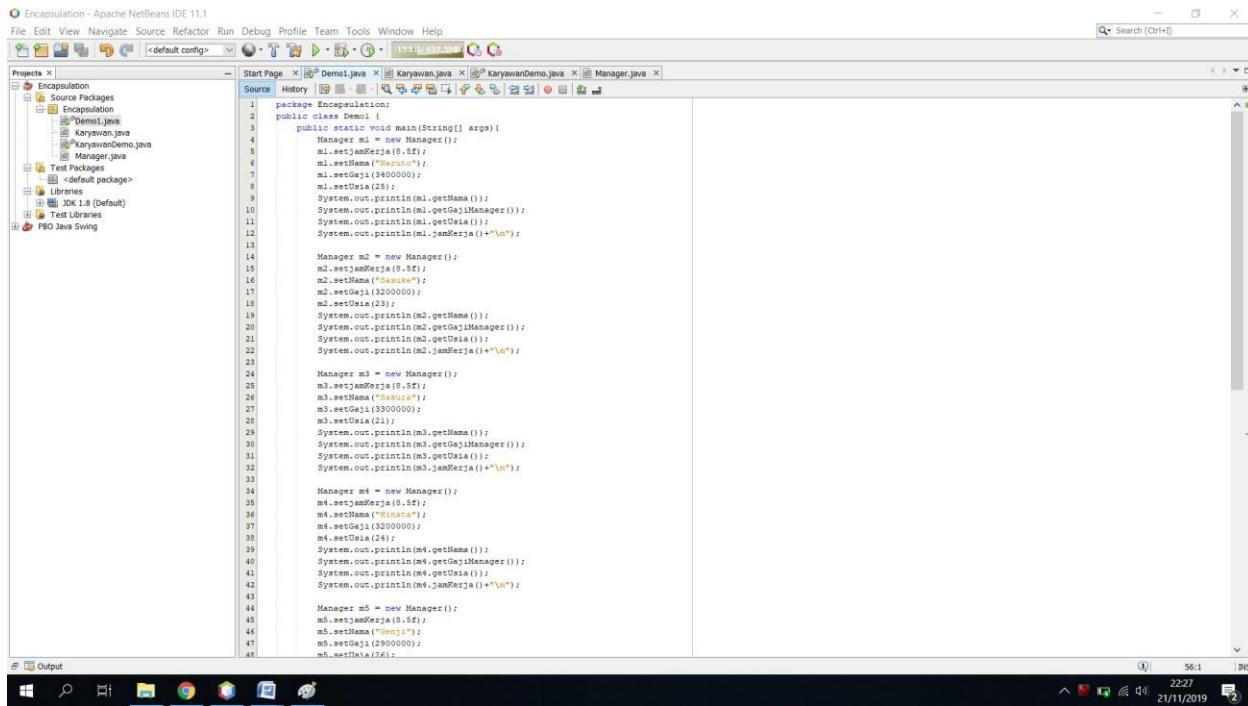
Kelas Manager



The screenshot shows the Apache NetBeans IDE 11.1 interface. The title bar reads "Encapsulation - Apache NetBeans IDE 11.1". The menu bar includes File, Edit, View, Navigate, Source, Refactor, Run, Debug, Profile, Team, Tools, Window, Help. The toolbar has icons for New, Open, Save, Cut, Copy, Paste, Find, Replace, Run, Stop, and Help. The Projects tab shows a single project named "Encapsulation" with a source package "Encapsulation" containing four files: Demo1.java, Karyawan.java, KaryawanDemo.java, and Manager.java. The Manager.java file is open in the Source editor, displaying the following code:

```
1 package Encapsulation;
2 public class Manager extends Karyawan {
3     private float jamKerja = 7.5f;
4
5     public float getJamKerja(){
6         return jamKerja;
7     }
8
9     public float getGajiManager(){
10    return getGaji() * 2;
11 }
12 public void setJamKerja(float jamKerja){
13     this.jamKerja = jamKerja;
14 }
15
16 }
```

Kelas Demo Dan Output Nya



The screenshot shows the Apache NetBeans IDE 11.1 interface. The title bar reads "Encapsulation - Apache NetBeans IDE 11.1". The menu bar includes File, Edit, View, Navigate, Source, Refactor, Run, Debug, Profile, Team, Tools, Window, Help. The toolbar has icons for New, Open, Save, Cut, Copy, Paste, Find, Replace, Run, Stop, and Help. The Projects tab shows a single project named "Encapsulation" with a source package "Encapsulation" containing four files: Demo1.java, Karyawan.java, KaryawanDemo.java, and Manager.java. The Manager.java file is open in the Source editor, displaying the following code:

```
1 package Encapsulation;
2 public class Manager extends Karyawan {
3     public static void main(String[] args) {
4         Manager m1 = new Manager();
5         m1.setJamKerja(8.5f);
6         m1.setName("Reuto");
7         m1.setGaji(3000000);
8         m1.setUraia(23);
9         System.out.println(m1.getName());
10        System.out.println(m1.getGajiManager());
11        System.out.println(m1.getUraia());
12        System.out.println(m1.jamKerja()+"\n");
13
14        Manager m2 = new Manager();
15        m2.setJamKerja(8.5f);
16        m2.setName("Suseko");
17        m2.setGaji(3200000);
18        m2.setUraia(23);
19        System.out.println(m2.getName());
20        System.out.println(m2.getGajiManager());
21        System.out.println(m2.getUraia());
22        System.out.println(m2.jamKerja()+"\n");
23
24        Manager m3 = new Manager();
25        m3.setJamKerja(8.5f);
26        m3.setName("Nata");
27        m3.setGaji(3300000);
28        m3.setUraia(21);
29        System.out.println(m3.getName());
30        System.out.println(m3.getGajiManager());
31        System.out.println(m3.getUraia());
32        System.out.println(m3.jamKerja()+"\n");
33
34        Manager m4 = new Manager();
35        m4.setJamKerja(8.5f);
36        m4.setName("Nata");
37        m4.setGaji(3000000);
38        m4.setUraia(24);
39        System.out.println(m4.getName());
40        System.out.println(m4.getGajiManager());
41        System.out.println(m4.getUraia());
42        System.out.println(m4.jamKerja()+"\n");
43
44        Manager m5 = new Manager();
45        m5.setJamKerja(8.5f);
46        m5.setName("Nata");
47        m5.setGaji(2900000);
48        m5.setUraia(26);
```

Encapsulation - Apache NetBeans IDE 11.1

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

Search (Ctrl+F)

Projects X Start Page X Demo1.java X Karyawan.java X KaryawanDemo.java X Manager.java X

Source History

```
44     Manager m5 = new Manager();
45     m5.setJamKerja(8.5f);
46     m5.setName("Genji");
47     m5.setGaji(2900000);
48     m5.setUsia(26);
49     System.out.println(m5.getName());
50     System.out.println(m5.getGajiManager());
51     System.out.println(m5.getUsia());
52     System.out.println(m5.jamKerja()+"\n");
53 }
54 }
55 }
```

:Output - Encapsulation (run-single)

```
ant -f "D:\Tugas Kuliah\Semester 3\Praktikum PBO\MODUL-7\Encapsulation" -Djavac.includes=Encapsulation/Demo1.java -Dnb.internal.action.name=run.single -Drun.class=Encapsulation.Demo1 run-single
init:
Deleting: D:\Tugas Kuliah\Semester 3\Praktikum PBO\MODUL-7\Encapsulation\build\built-jar.properties
deps-jar:
Updating property file: D:\Tugas Kuliah\Semester 3\Praktikum PBO\MODUL-7\Encapsulation\build\built-jar.properties
Compiling 1 source file to D:\Tugas Kuliah\Semester 3\Praktikum PBO\MODUL-7\Encapsulation\build\classes
compile-single:
run-single:
Naruto
6800000.0
25
8.5

Sasuke
6400000.0
23
8.5

Sakura
6600000.0
21
8.5

Hinata
6400000.0
24
8.5

Genji
8800000.0
26
8.5

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

56:1 INS

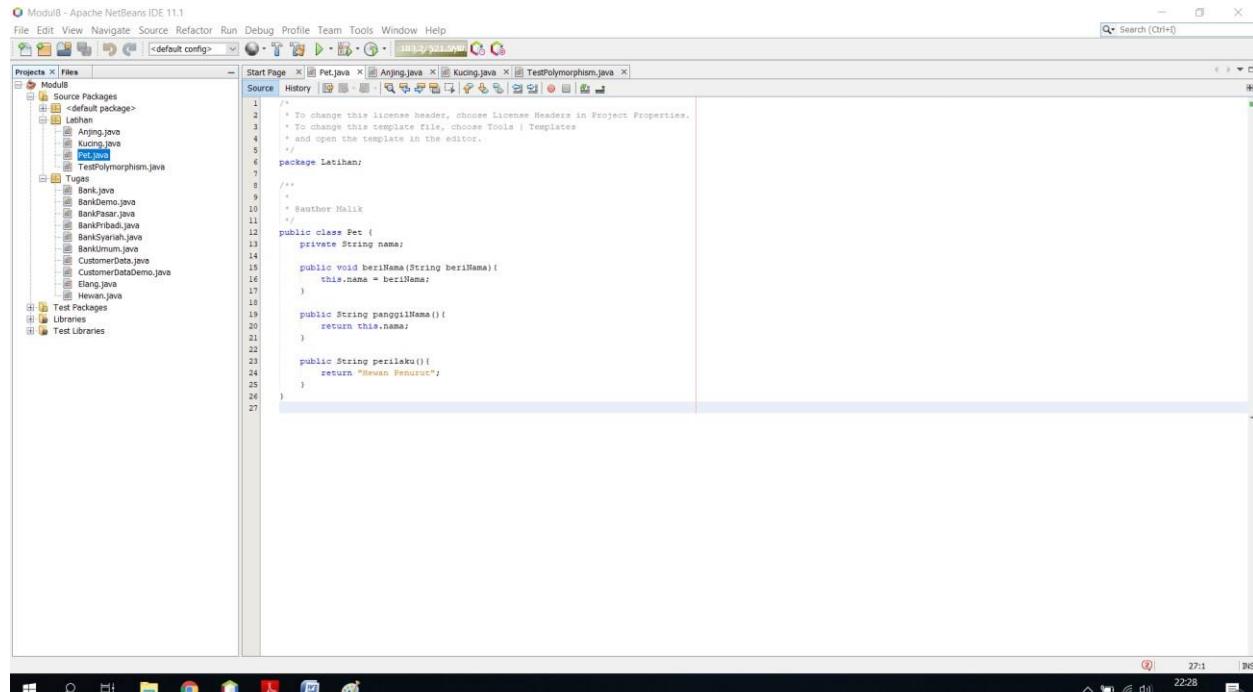
22:29 21/11/2019

MODUL-8

NAMA: MALIK MUHAMMAD
NIM : L200180072

Latihan 8.2

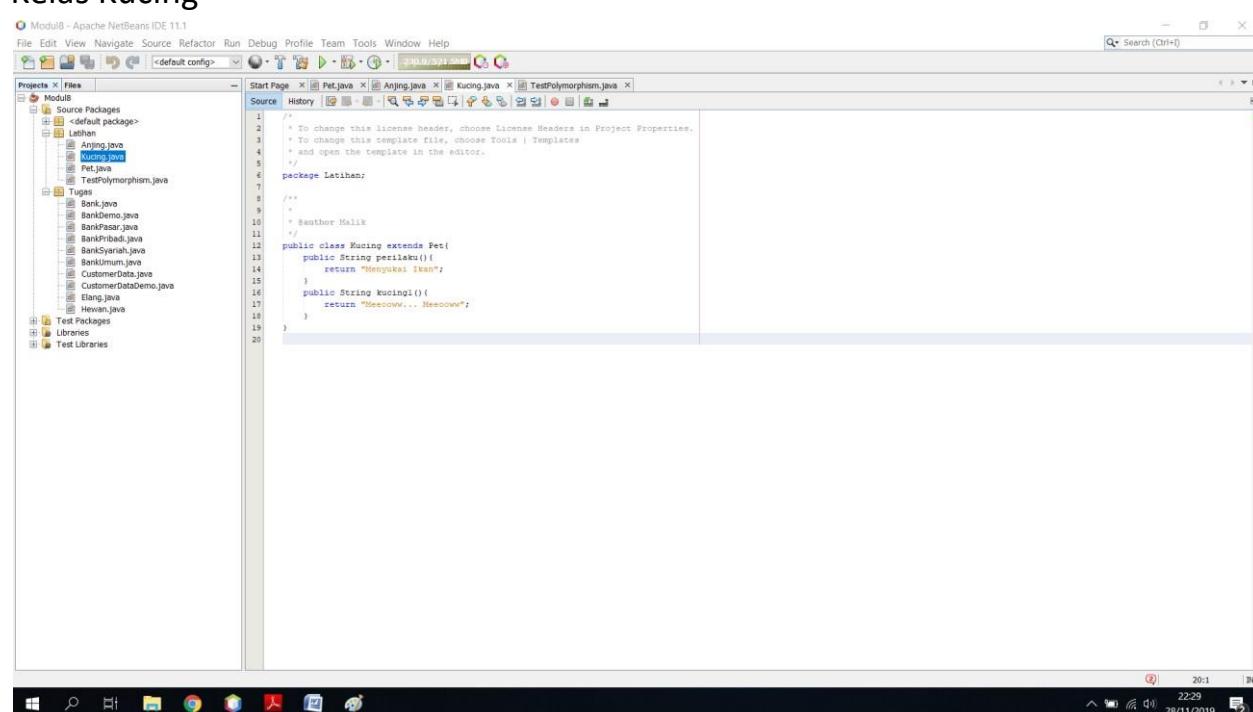
Kelas Pet



The screenshot shows the Apache NetBeans IDE interface with the title "Modul8 - Apache NetBeans IDE 11.1". The "Projects" tab is selected, displaying a project named "Modul8" with several source packages: "Source Packages", "Lethan", "Anjing", "Kucing", and "Pet". The "Pet.java" file is open in the editor, showing the following 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 package Latihan;
7
8 /**
9 * 
10 * @author Malik
11 */
12 public class Pet {
13     private String nama;
14
15     public void beriNama(String beriNama) {
16         this.nama = beriNama;
17     }
18
19     public String panggilNama() {
20         return this.nama;
21     }
22
23     public String perilaku(){
24         return "Hewan Penurut";
25     }
26 }
27
```

Kelas Kucing



The screenshot shows the Apache NetBeans IDE interface with the title "Modul8 - Apache NetBeans IDE 11.1". The "Projects" tab is selected, displaying a project named "Modul8" with several source packages: "Source Packages", "Lethan", "Anjing", "Kucing", and "Pet". The "Kucing.java" file is open in the editor, showing the following 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 package Latihan;
7
8 /**
9 * 
10 * @author Malik
11 */
12 public class Kucing extends Pet{
13     public String perilaku(){
14         return "Menjatuhkan Telinga";
15     }
16     public String kucungi(){
17         return "Meowwww... Meowwww";
18     }
19 }
20
```

Kelas Anjing

The screenshot shows the Apache NetBeans IDE 11.1 interface. The left sidebar displays the project structure under 'Modul8' with packages like 'Source Packages', 'Tugas', and 'Test Packages'. The main editor window shows the Java code for the 'Anjing.java' class:

```
1  /*
2   * To change this license header, choose License Headers in Project Properties.
3   * To change this template file, choose Tools | Templates
4   * and open the template in the editor.
5   */
6  package Latihan;
7
8  /**
9   * 
10  * @author Santher Malik
11  */
12 public class Anjing extends Pet{
13     public String perilaku(){
14         return "Menyukai Daging dan Tulang";
15     }
16
17     public String anjing1(){
18         return "Guk..Guk..Guk..";
19     }
20 }
21
```

The status bar at the bottom right shows the date as 26/11/2019 and the time as 21:11.

Kelas TestPolymorphism

The screenshot shows the Apache NetBeans IDE 11.1 interface. The left sidebar displays the project structure under 'Modul8' with packages like 'Source Packages', 'Tugas', and 'Test Packages'. The main editor window shows the Java code for the 'TestPolymorphism.java' class:

```
1  /*
2   * To change this license header, choose License Headers in Project Properties.
3   * To change this template file, choose Tools | Templates
4   * and open the template in the editor.
5   */
6  package Latihan;
7
8  /**
9   * 
10  * @author Santher Malik
11  */
12 public class TestPolymorphism {
13     public static void main(String[] args) {
14         Kucing k = new Kucing();
15         k.beriName("TOP");
16         System.out.println(k.panggilName());
17         System.out.println(k.perilaku());
18         System.out.println(k.kucing1());
19
20         Anjing a = new Anjing();
21         a.beriName("BULL");
22         System.out.println(a.panggilName());
23         System.out.println(a.perilaku());
24         System.out.println(a.anjing1());
25     }
26 }
27
```

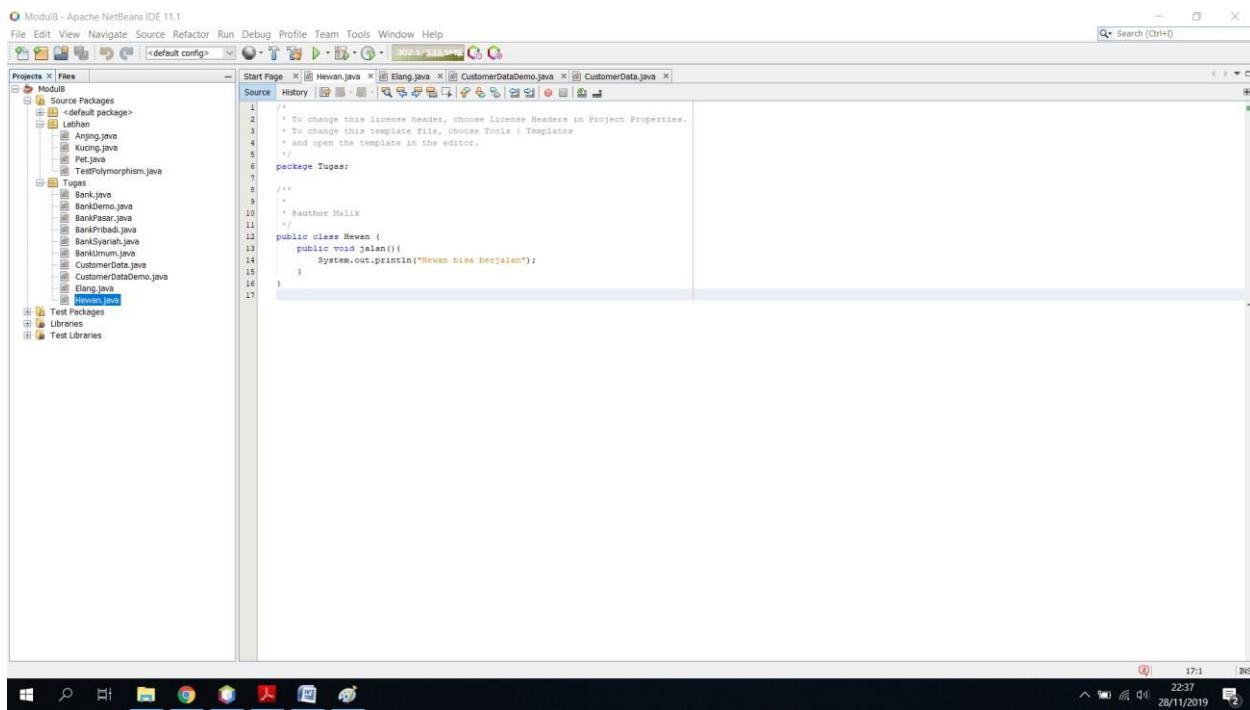
The 'Output - Modul8 (run-single)' tab at the bottom shows the build and run process:

```
ant -f "D:\\\\Tugas Kuliah\\\\Semester 3\\\\Praktikum PBO\\\\HOUSE-F\\\\Modul8" -Djavac.includes=Latihan/TestPolymorphism.java -Dnb.internal.action.name=run-single -Drun.class=Latihan.TestPolymorphism run-single
init:
[copy]
Deleting: D:\\Tugas Kuliah\\\\Semester 3\\\\Praktikum PBO\\\\HOUSE-F\\\\Modul8\\build\\built-jar.properties
Updating property file: D:\\Tugas Kuliah\\\\Semester 3\\\\Praktikum PBO\\\\HOUSE-F\\\\Modul8\\build\\built-jar.properties
Compiling 1 source file to D:\\Tugas Kuliah\\\\Semester 3\\\\Praktikum PBO\\\\HOUSE-F\\\\Modul8\\build\\classes
compile-single:
run-single:
TOP
Menyukai Ikan
Pewoo... Pewoo...
BULL
Menyukai Daging dan Tulang
Guk..Guk..Guk..
BUILD SUCCESSFUL (total time: 0 seconds)
```

The status bar at the bottom right shows the date as 26/11/2019 and the time as 22:47.

Tugas 8.3

Kelas Hewan



ModulB - Apache NetBeans IDE 11.1

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

Search (Ctrl+F)

Project Files Start Page Hewan.java Elang.java CustomerDataDemo.java CustomerData.java

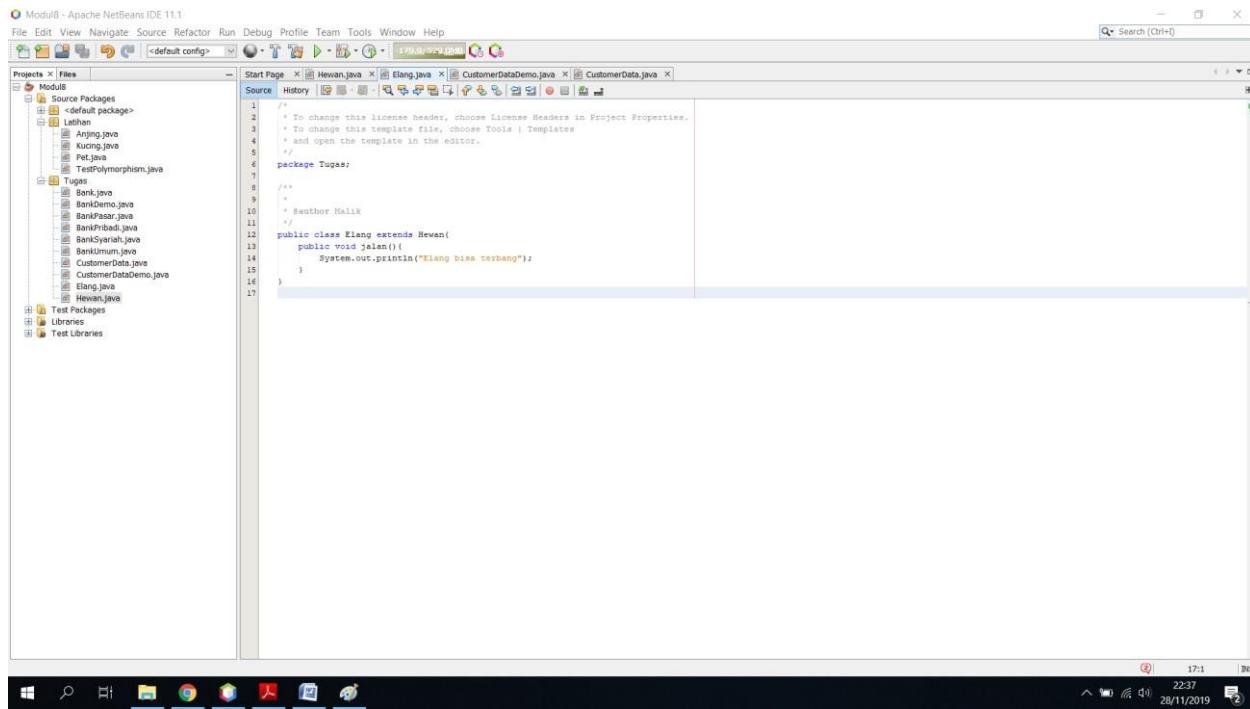
Source History

```
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 package Tugas;
7
8 /**
9  *
10 * @author Malik
11 */
12 public class Hewan {
13     public void jalan(){
14         System.out.println("Hewan bisa berjalan");
15     }
16 }
17
```

ModulB

- Source Packages
 - <default package>
 - Leluhur
 - Anjing.java
 - Kucing.java
 - Pet.java
 - TestPolymorphism.java
 - Tugas
 - Bonk.java
 - BankDemo.java
 - BankPasar.java
 - BankPrabadi.java
 - BankSyarikh.java
 - BankUruman.java
 - CustomerData.java
 - CustomerDataDemo.java
 - Elang.java
 - Hewan.java
- Test Packages
- Libraries
- Test Libraries

Kelas Elang



ModulB - Apache NetBeans IDE 11.1

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

Search (Ctrl+F)

Project Files Start Page Hewan.java Elang.java CustomerDataDemo.java CustomerData.java

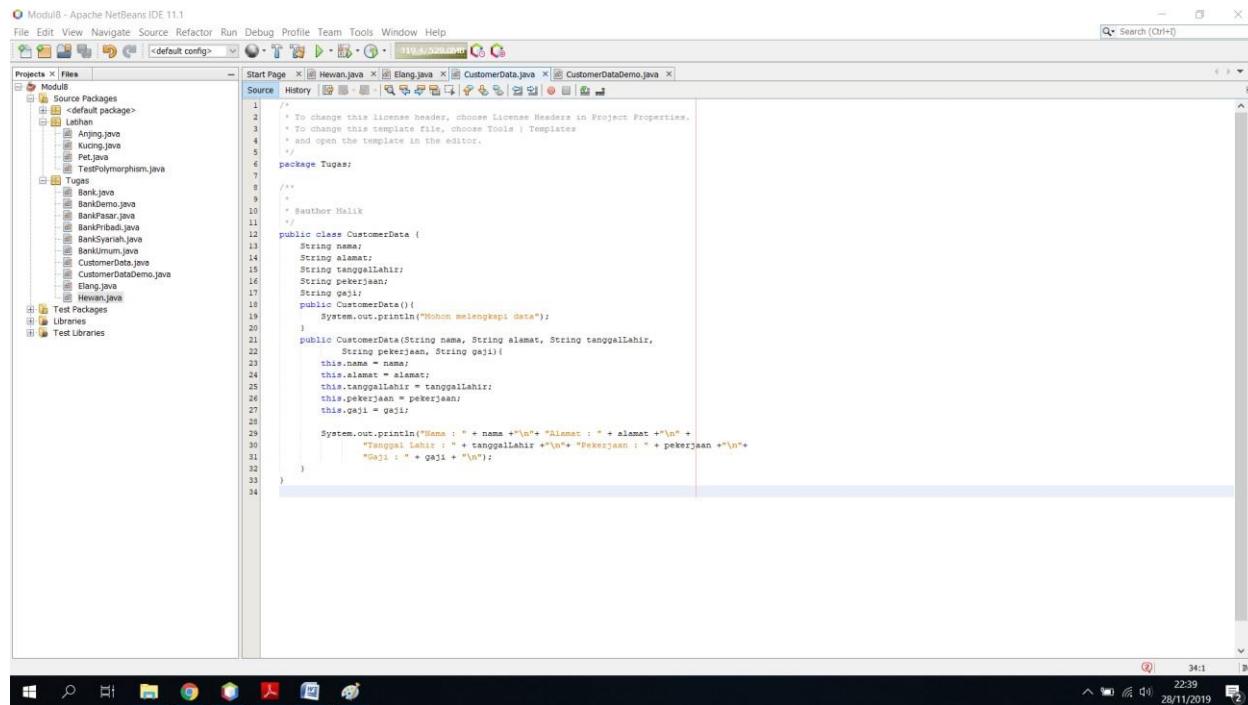
Source History

```
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 package Tugas;
7
8 /**
9  *
10 * @author Malik
11 */
12 public class Elang extends Hewan{
13     public void jalan(){
14         System.out.println("Elang bisa terbang");
15     }
16 }
17
```

ModulB

- Source Packages
 - <default package>
 - Leluhur
 - Anjing.java
 - Kucing.java
 - Pet.java
 - TestPolymorphism.java
 - Tugas
 - Bonk.java
 - BankDemo.java
 - BankPasar.java
 - BankPrabadi.java
 - BankSyarikh.java
 - BankUruman.java
 - CustomerData.java
 - CustomerDataDemo.java
 - Elang.java
 - Hewan.java
- Test Packages
- Libraries
- Test Libraries

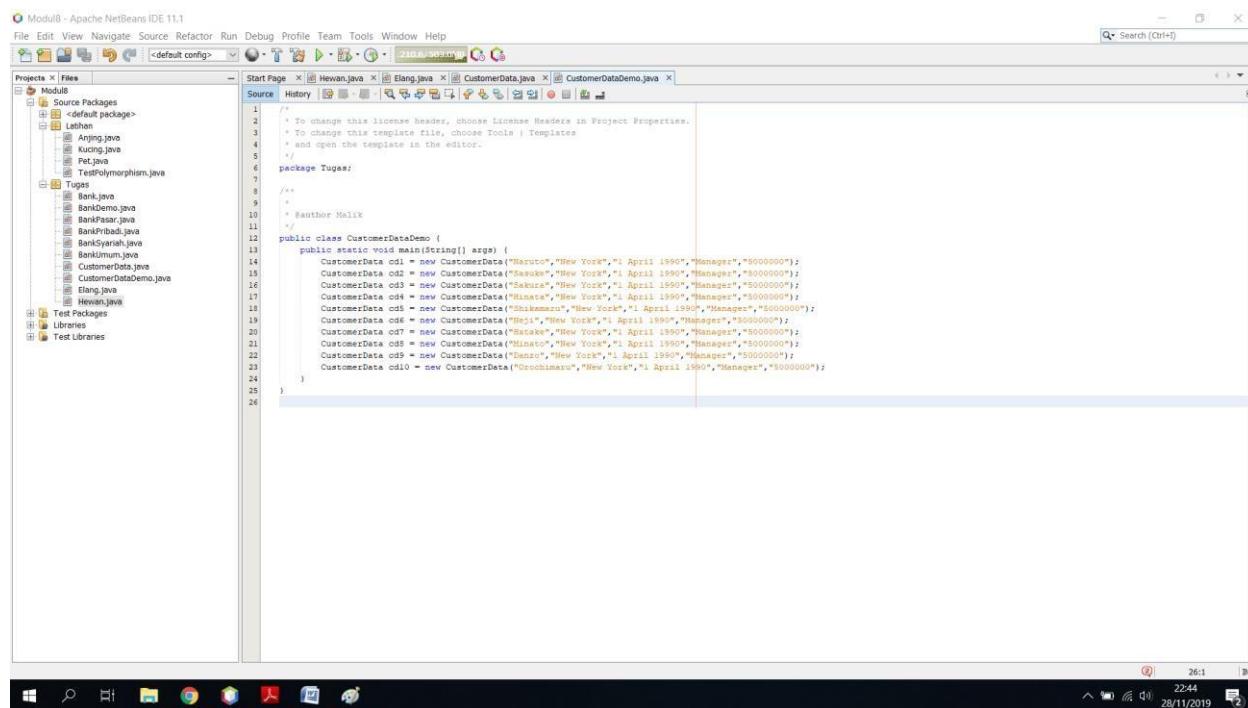
Kelas Costumer Data



The screenshot shows the Apache NetBeans IDE 11.1 interface. The title bar reads "Modull - Apache NetBeans IDE 11.1". The menu bar includes File, Edit, View, Navigate, Source, Refactor, Run, Debug, Profile, Team, Tools, Window, Help. The toolbar has icons for New, Open, Save, Cut, Copy, Paste, Find, Replace, and others. The bottom status bar shows the date and time: 28/11/2019, 22:39. The code editor displays 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 package Tugas;
7
8 /**
9  *
10 * @author Halik
11 */
12 public class CustomerData {
13     String nama;
14     String alamat;
15     String tanggalLahir;
16     String pekerjaan;
17     String gaji;
18
19     public CustomerData(){
20         System.out.println("Mohon melengkapi data");
21     }
22     public CustomerData(String nama, String alamat, String tanggalLahir,
23                         String pekerjaan, String 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 + "\n" + "Alamat : " + alamat + "\n" +
31                           "Tanggal Lahir : " + tanggalLahir + "\n" + "Pekerjaan : " + pekerjaan + "\n" +
32                           "Gaji : " + gaji + "\n");
33     }
34 }
```

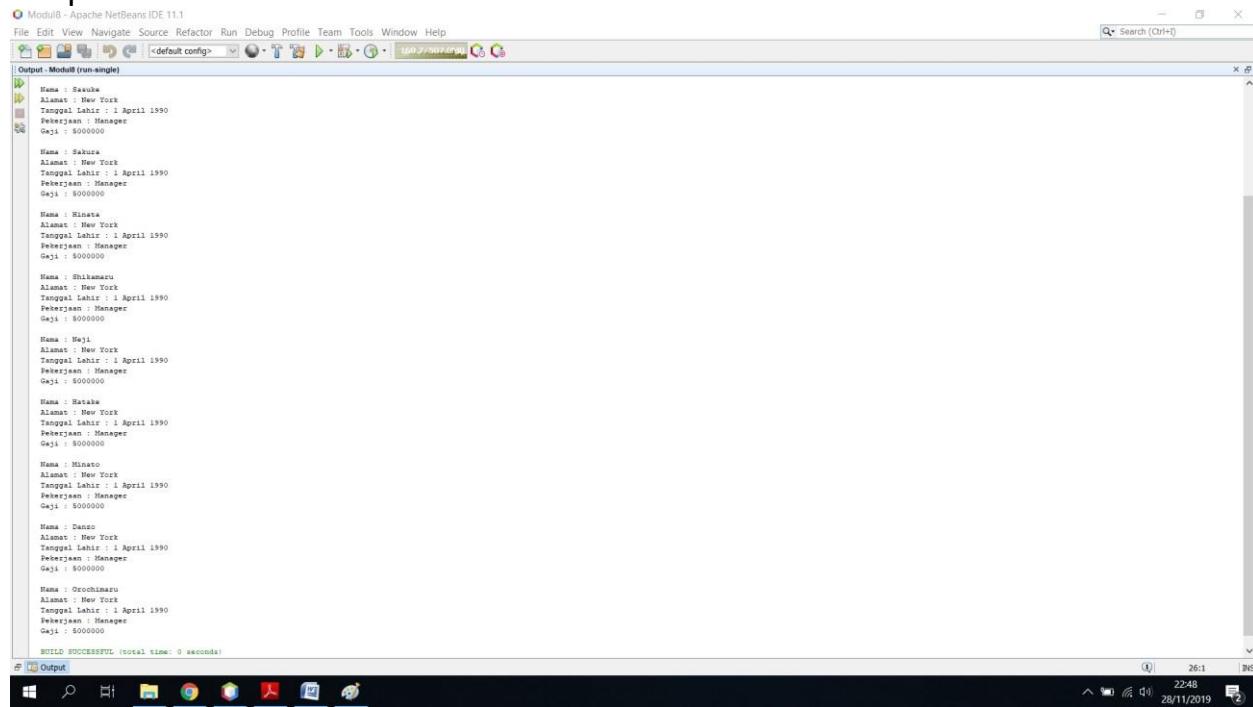
Kelas CostumerDataDemo



The screenshot shows the Apache NetBeans IDE 11.1 interface. The title bar reads "Modull - Apache NetBeans IDE 11.1". The menu bar includes File, Edit, View, Navigate, Source, Refactor, Run, Debug, Profile, Team, Tools, Window, Help. The toolbar has icons for New, Open, Save, Cut, Copy, Paste, Find, Replace, and others. The bottom status bar shows the date and time: 28/11/2019, 22:44. The code editor displays 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 package Tugas;
7
8 /**
9  *
10 * @author Halik
11 */
12 public class CustomerDataDemo {
13     public static void main(String[] args) {
14         CustomerData cd1 = new CustomerData("Maruto","New York","1 April 1990","Manager","$900000");
15         CustomerData cd2 = new CustomerData("Sakura","New York","1 April 1990","Manager","$500000");
16         CustomerData cd3 = new CustomerData("Sakura","New York","1 April 1990","Manager","$500000");
17         CustomerData cd4 = new CustomerData("Linata","New York","1 April 1990","Manager","$500000");
18         CustomerData cd5 = new CustomerData("Rizki","New York","1 April 1990","Manager","$1000000");
19         CustomerData cd6 = new CustomerData("Rizki","New York","1 April 1990","Manager","$800000");
20         CustomerData cd7 = new CustomerData("Rizka","New York","1 April 1990","Manager","$500000");
21         CustomerData cd8 = new CustomerData("Minato","New York","1 April 1990","Manager","$500000");
22         CustomerData cd9 = new CustomerData("Dianci","New York","1 April 1990","Manager","$500000");
23         CustomerData cd10 = new CustomerData("Orochimaru","New York","1 April 1990","Manager","$800000");
24     }
25 }
```

Output Kelas Costumer Data Demo



```
Moudib - Apache NetBeans IDE 11.1
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Output - Modib (run-single)
Search (Ctrl+F) 26:1 22:48 28/11/2019
Output
Name : Sakura
Alamat : New York
Tanggal Lahir : 1 April 1990
Pekerjaan : Manager
Gaji : $000000

Name : Minato
Alamat : New York
Tanggal Lahir : 1 April 1990
Pekerjaan : Manager
Gaji : $000000

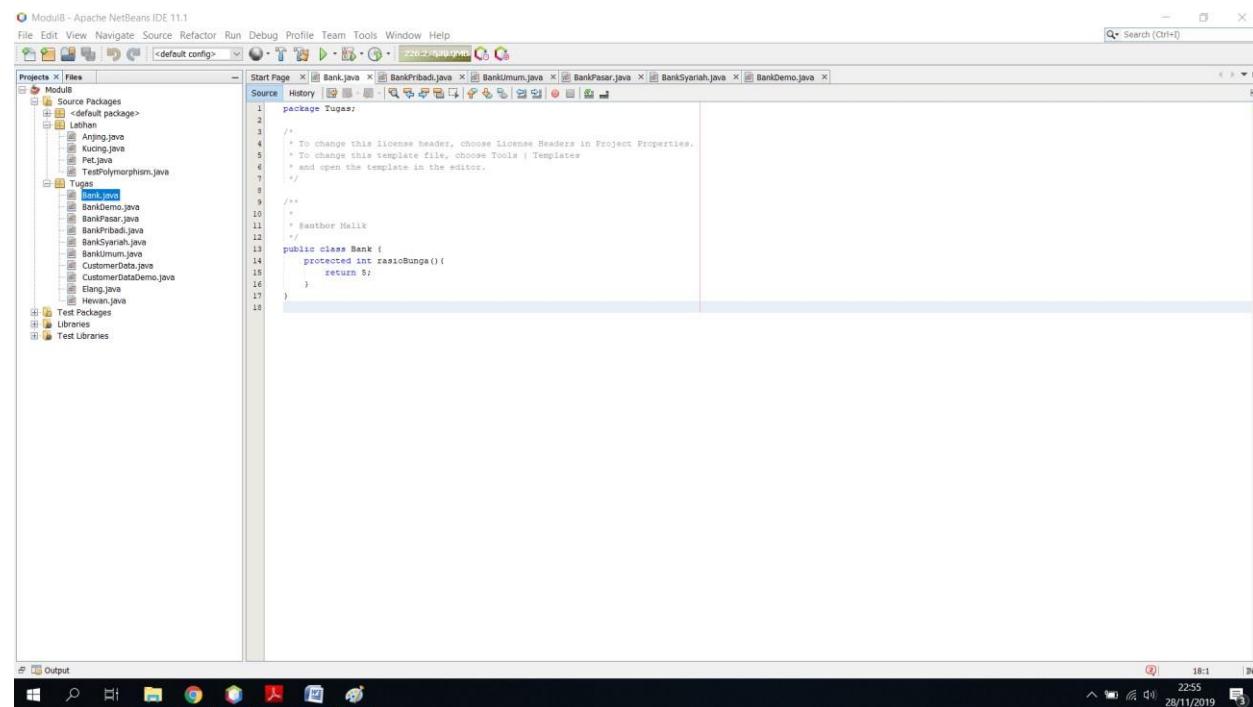
Name : Hatake
Alamat : New York
Tanggal Lahir : 1 April 1990
Pekerjaan : Manager
Gaji : $000000

Name : Minato
Alamat : New York
Tanggal Lahir : 1 April 1990
Pekerjaan : Manager
Gaji : $000000

Name : Orochimaru
Alamat : New York
Tanggal Lahir : 1 April 1990
Pekerjaan : Manager
Gaji : $000000

BUILD SUCCESSFUL (total time: 0 seconds)
26:1 22:48 28/11/2019
```

Kelas Bank



```
Modib - Apache NetBeans IDE 11.1
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Output - Modib (run-single)
Search (Ctrl+F) 18:1 22:55 28/11/2019
Output
Project: Modib  File: Bank.java
Source Packages
  + Source Packages
    + default package
      + Lahan
        - Argo.java
        - Jaring.java
        - Pet.java
        - TestPolymorphism.java
      + Tugas
        - Bank.java
        - BankDemo.java
        - BankPribadi.java
        - BankUmum.java
        - BankPasar.java
        - BankSyariah.java
        - BankDemo.java
      + Test Packages
      + Libraries
      + Test Libraries

Start Page | Bank.java | BankPribadi.java | BankUmum.java | BankPasar.java | BankSyariah.java | BankDemo.java |
Source History | 1 package Tugas;
  2
  3 /*
  4  * To change this license header, choose License Headers in Project Properties.
  5  * To change this template file, choose Tools | Templates
  6  * and open the template in the editor.
  7 */
  8
  9 /**
 10  * @author Malik
 11  */
 12 public class Bank {
 13     protected int basicBunga(){
 14         return 5;
 15     }
 16 }
 17
 18

22:55 28/11/2019
```

Kelas Bang Pribadi

The screenshot shows the NetBeans IDE interface with the title "Modul8 - Apache NetBeans IDE 11.1". The left sidebar displays the project structure under "Modul8" with packages like "Lebihan" and "Tugas". The main editor window shows the "BankPribadi.java" file with the following code:

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

The status bar at the bottom right shows the date and time as "28/11/2019 22:57".

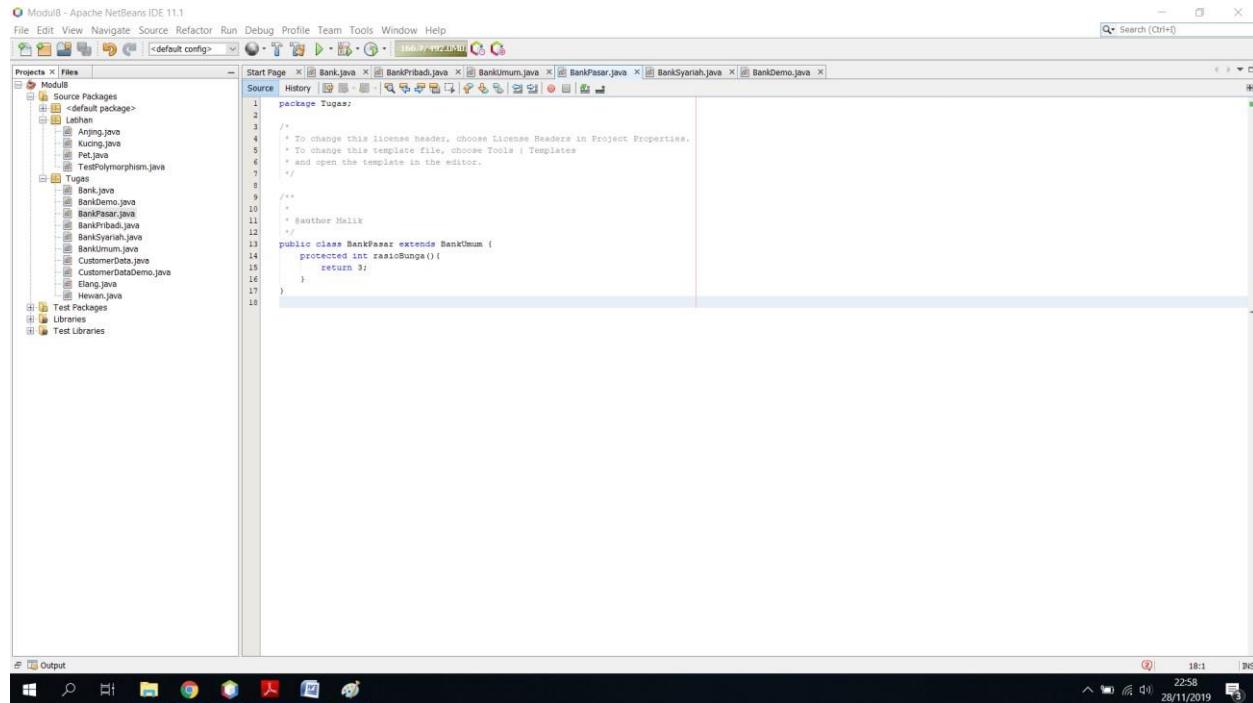
Kelas Bang Umum

The screenshot shows the NetBeans IDE interface with the title "Modul8 - Apache NetBeans IDE 11.1". The left sidebar displays the project structure under "Modul8" with packages like "Lebihan" and "Tugas". The main editor window shows the "BankUmum.java" file with the following code:

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

The status bar at the bottom right shows the date and time as "28/11/2019 22:57".

KELAS Bank Pasar



Modul8 - Apache NetBeans IDE 11.1

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

Search (Ctrl+F)

Projects Files

Start Page Bank.java BankPribadi.java BankUmum.java BankPasar.java BankSyariah.java BankDemo.java

Source History

Bank.java

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

Test Packages

Libraries

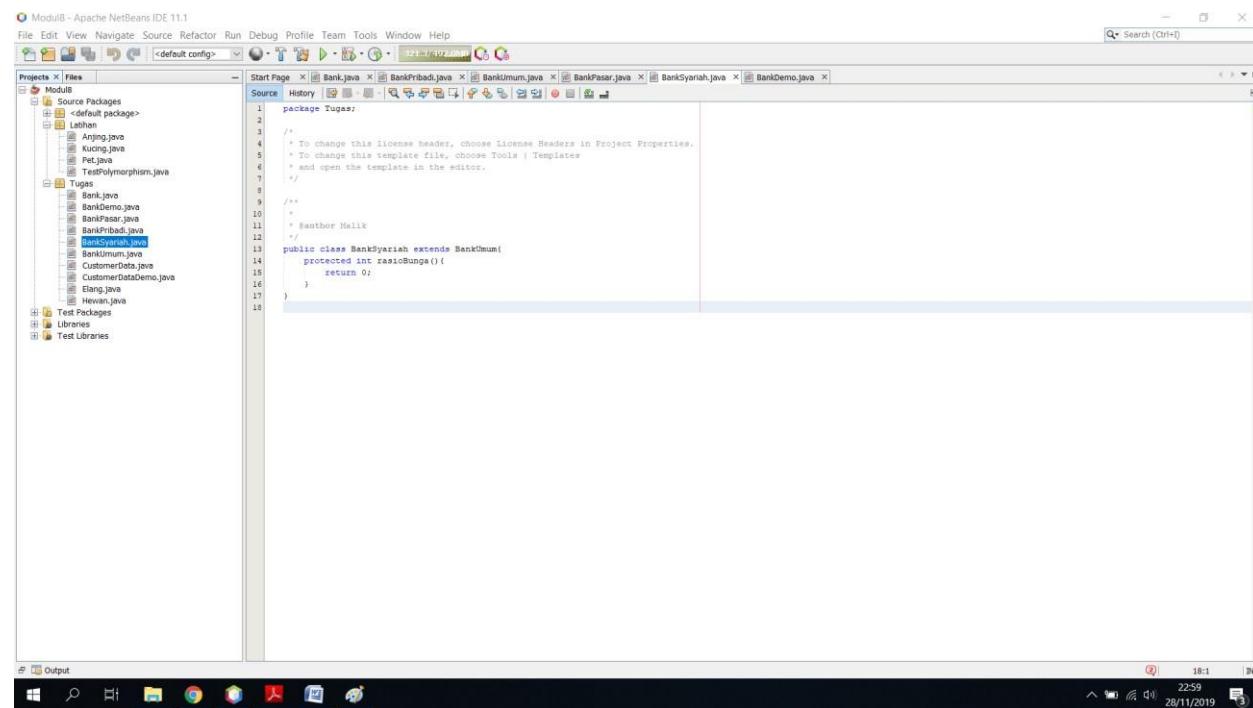
Test Libraries

Output

22:58 28/11/2019

This screenshot shows the Apache NetBeans IDE interface with the 'BankPasar.java' file open. The code defines a class 'BankPasar' that extends 'BankUmum'. It contains a single method 'raasioBunga()' which returns the value 3.

Kelas BankSyariah



Modul8 - Apache NetBeans IDE 11.1

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

Search (Ctrl+F)

Projects Files

Start Page Bank.java BankPribadi.java BankUmum.java BankPasar.java BankSyariah.java BankDemo.java

Source History

Bank.java

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

Test Packages

Libraries

Test Libraries

Output

22:59 28/11/2019

This screenshot shows the Apache NetBeans IDE interface with the 'BankSyariah.java' file open. The code defines a class 'BankSyariah' that extends 'BankUmum'. It contains a single method 'raasioBunga()' which returns the value 0.

Kelas Bank Demo Dan Output

The screenshot shows the Apache NetBeans IDE 11.1 interface. The top menu bar includes File, Edit, View, Navigate, Source, Refactor, Run, Debug, Profile, Team, Tools, Window, and Help. The title bar says "Modul8 - Apache NetBeans IDE 11.1". The left sidebar displays the "Projects" and "Files" tabs, with "Modul8" selected. Under "Source Packages", there are several Java files: Arjung.java, Kucing.java, Pet.java, TestPolymorphism.java, Bank.java, BankDemo.java, BankPribadi.java, BankUmum.java, BankSyariah.java, BankKumum.java, CustomerData.java, CustomerDataDemo.java, Elang.java, and Hewan.java. The "Test Packages", "Libraries", and "Test Libraries" sections are also visible. The main workspace shows the "BankDemo.java" file open. The code is as follows:

```
package Tugas;
/*
 * 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 BankDemo {
    public static void main(String[] args){
        Bank bpr = new BankPribadi();
        Bank bu = new BankUmum();
        Bank bp = new BankPasar();
        Bank bs = new BankSyariah();

        System.out.println(
            "Bank Pribadi :"+ bpr.rasioBunga() +"\n"+
            "Bank Umum :" + bu.rasioBunga() +"\n"+
            "Bank Pasar :" + bp.rasioBunga() +"\n"+
            "Bank Syariah :" + bs.rasioBunga()
        );
        BankKumum bkpr = new BankPasar();
        BankUmum bksy = new BankSyariah();

        System.out.println(
            "Bank Pasar :" + bkpr.rasioBunga() +"\n"+
            "Bank Syariah :" + bksy.rasioBunga()
        );
    }
}
```

The bottom pane shows the "Output" tab with the following log:

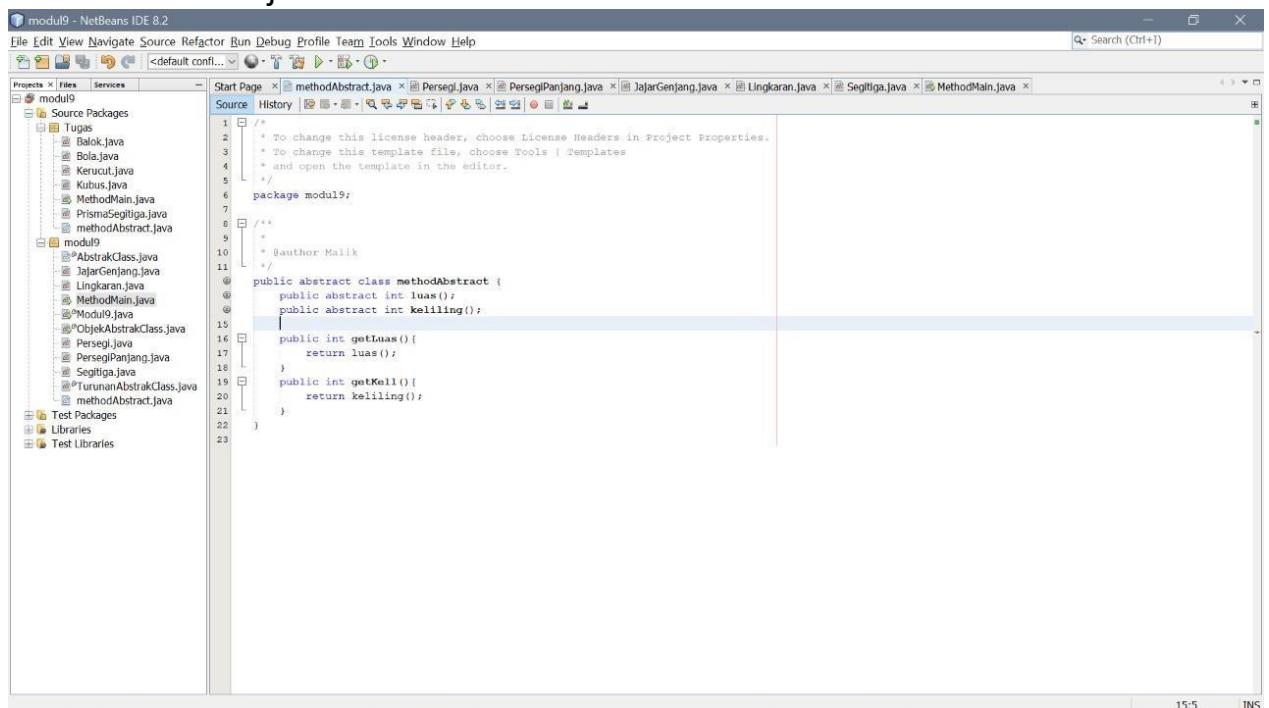
```
Updating property file: D:\Tugas Kuliah\Semester 3\Praktikum PROJ\Modul8\run-single.properties
Compiling 1 source file to D:\Tugas Kuliah\Semester 3\Praktikum PROJ\Modul8\build\classes
run-single:
Bank Pribadi :7
Bank Umum :9
Bank Pasar :3
Bank Syariah :0
Bank Pasar :3
Bank Syariah :0
BUILD SUCCESSFUL (total time: 0 seconds)
```

The system tray at the bottom right shows icons for network, battery, volume, and date/time (26/11/2019, 23:00).

MODUL-9

NAMA : MALIK MUHAMMAD
NIM : L200180072
KELAS : B

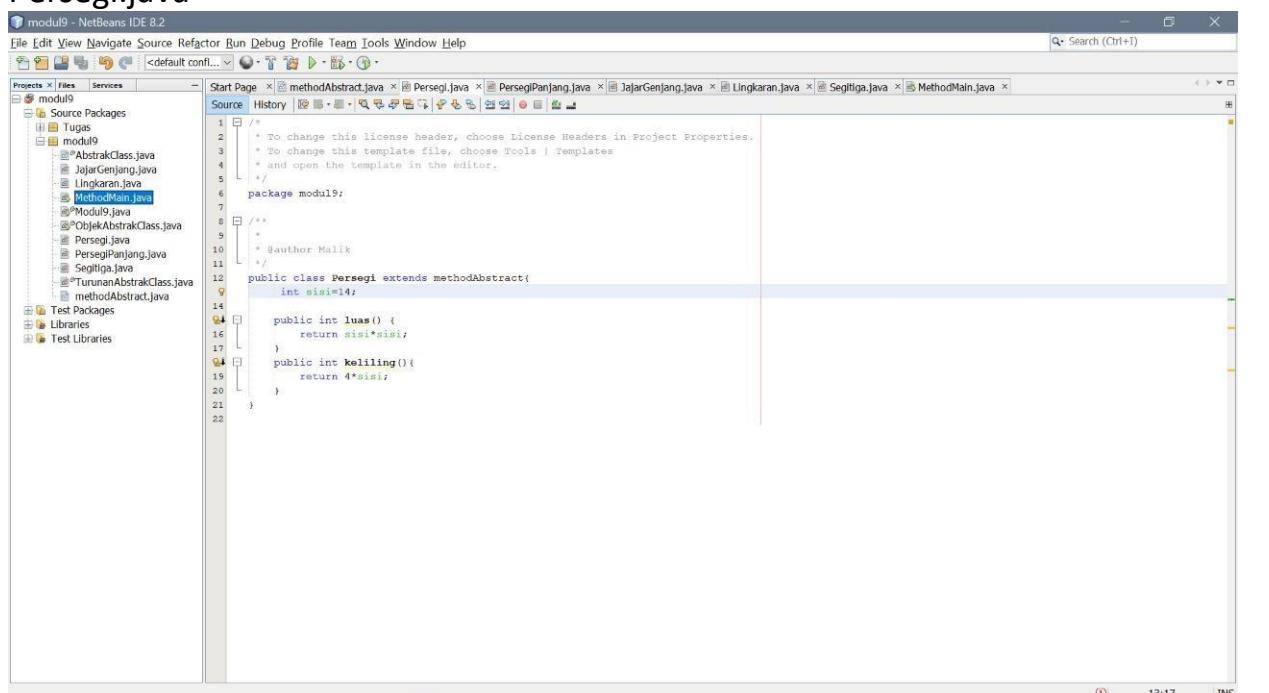
MethodAbstract.java



The screenshot shows the NetBeans IDE interface with the title bar "modul9 - NetBeans IDE 8.2". The menu bar includes File, Edit, View, Navigate, Source, Refactor, Run, Debug, Profile, Team, Tools, Window, Help. The toolbar has icons for New Project, Open Project, Save, Undo, Redo, Cut, Copy, Paste, Find, Replace, and others. The Projects tab shows a project named "modul9" with several source packages: "Tugas", "modul9", and "MethodMain". The "modul9" package contains files like "AbstrakClass.java", "JajarGenjang.java", "Lingkaran.java", "Modul9.java", "ObyekAbstrakClass.java", "Persegi.java", "PersegiPanjang.java", "Segitiga.java", and "TuturanAbstrakClass.java". The "methodAbstract.java" file is open in the editor, showing its 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 package modul9;  
7  
8 /**  
9  * @author Malik  
10 */  
11 public abstract class methodAbstract {  
12     public abstract int luas();  
13     public abstract int keliling();  
14     public int getLuas(){  
15         return luas();  
16     }  
17     public int getKeliling(){  
18         return keliling();  
19     }  
20 }  
21  
22 }
```

Persegi.java



The screenshot shows the NetBeans IDE interface with the title bar "modul9 - NetBeans IDE 8.2". The menu bar includes File, Edit, View, Navigate, Source, Refactor, Run, Debug, Profile, Team, Tools, Window, Help. The toolbar has icons for New Project, Open Project, Save, Undo, Redo, Cut, Copy, Paste, Find, Replace, and others. The Projects tab shows a project named "modul9" with several source packages: "Tugas", "modul9", and "MethodMain". The "modul9" package contains files like "AbstrakClass.java", "JajarGenjang.java", "Lingkaran.java", "Modul9.java", "ObyekAbstrakClass.java", "Persegi.java", "PersegiPanjang.java", "Segitiga.java", and "TuturanAbstrakClass.java". The "methodAbstract.java" file is open in the editor, showing its 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 package modul9;  
7  
8 /**  
9  * @author Malik  
10 */  
11 public class Persegi extends methodAbstract{  
12     int sisi=14;  
13     public int luas(){  
14         return sisi*sisi;  
15     }  
16     public int keliling(){  
17         return 4*sisi;  
18     }  
19 }  
20  
21 }
```

PersegiPanjang.java

The screenshot shows the NetBeans IDE interface with the title bar "modul9 - NetBeans IDE 8.2". The left sidebar displays the project structure under "modul9" with packages like Tugas, modul9, and various Java files. The main editor area shows the code for PersegiPanjang.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 modul9;
7
8  /**
9   * @author Malik
10  */
11 public class PersegiPanjang extends methodAbstract{
12     int panjang =26;
13     int lebar = 17;
14
15     public int luas() {
16         return panjang*lebar;
17     }
18
19     public int keliling(){
20         return 2*(panjang+lebar);
21     }
22 }
```

JajarGenjang.java

The screenshot shows the NetBeans IDE interface with the title bar "modul9 - NetBeans IDE 8.2". The left sidebar displays the project structure under "modul9" with packages like Tugas, modul9, and various Java files. The main editor area shows the code for JajarGenjang.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 modul9;
7
8  /**
9   * @author Malik
10  */
11 public class JajarGenjang extends methodAbstract{
12     int alas =22;
13     int tinggi = 10;
14     int sisiMiring = 14;
15
16     public int luas() {
17         return alas * tinggi;
18     }
19
20     public int keliling(){
21         return 2 * (alas + sisiMiring);
22     }
23 }
```

Lingkaran.java

The screenshot shows the NetBeans IDE interface with the title bar "modul9 - NetBeans IDE 8.2". The left sidebar displays the project structure under "modul9" with packages like Tugas, modul9, and Source Packages containing various Java files. The main editor area shows the code for Lingkaran.java:

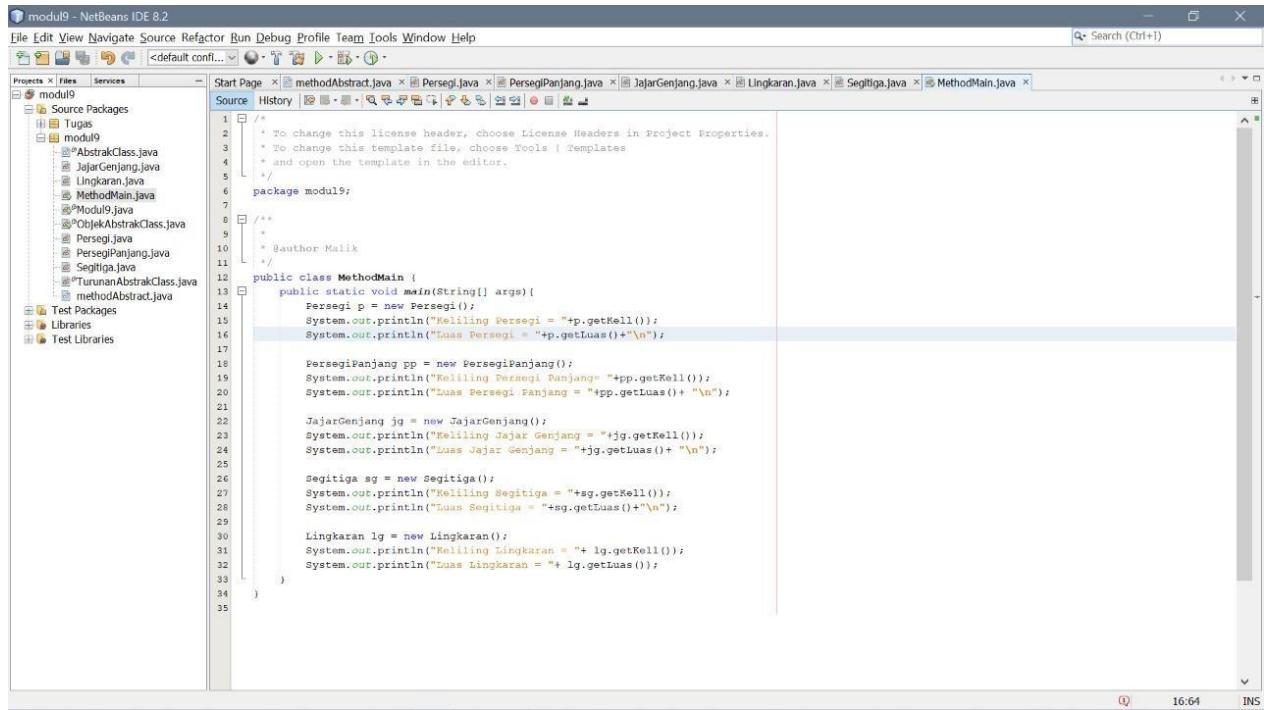
```
1  /*
2  * To change this license header, choose License Headers in Project Properties.
3  * To change this template file, choose Tools | Templates
4  * and open the template in the editor.
5  */
6  package modul9;
7
8  /**
9  *
10 * @author Malik
11 */
12 public class Lingkaran extends methodAbstract{
13     int diameter =16;
14     int phi = 22/7;
15
16     public int jariJari(){
17         return diameter/2;
18     }
19
20     public int luas(){
21         return phi * (jariJari())*jariJari();
22     }
23     public int keliling(){
24         return phi * diameter;
25     }
26 }
27
```

Segitiga.java

The screenshot shows the NetBeans IDE interface with the title bar "modul9 - NetBeans IDE 8.2". The left sidebar displays the project structure under "modul9" with packages like Tugas, modul9, and Source Packages containing various Java files. The main editor area shows the code for Segitiga.java:

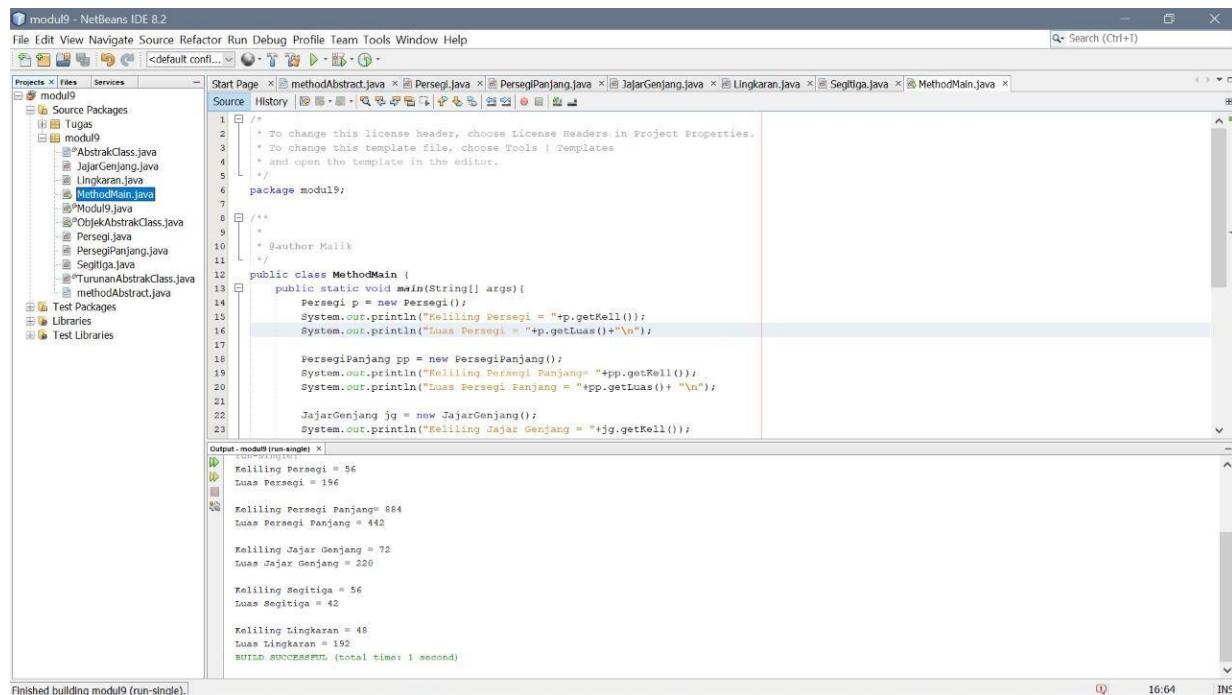
```
1  /*
2  * To change this license header, choose License Headers in Project Properties.
3  * To change this template file, choose Tools | Templates
4  * and open the template in the editor.
5  */
6  package modul9;
7
8  /**
9  *
10 * @author Malik
11 */
12 public class Segitiga extends methodAbstract{
13     int alas = 12;
14     int tinggi = 7;
15     int sisi1 = 12;
16     int sisi2 = 22;
17     int sisi3 = 23;
18
19     public int luas(){
20         return (alas*tinggi)/2;
21     }
22     public int keliling(){
23         return (sisi1+sisi2+sisi3);
24     }
25 }
26
27
```

Demo



The screenshot shows the NetBeans IDE interface with the title "modul9 - NetBeans IDE 8.2". 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 left sidebar shows the project structure under "modul9" with packages like Tugas, modul9, and source files like AbstrakClass.java, JajarGenjang.java, Lingkaran.java, MethodMain.java, Modul9.java, ObjekAbstrakClass.java, Persegi.java, PersegiPanjang.java, Segitiga.java, and TurunanAbstrakClass.java. The main editor window displays the code for MethodMain.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 modul9;
6
7 /**
8 */
9 /*
10  * @author Malik
11 */
12 public class MethodMain {
13     public static void main(String[] args) {
14         Persegi p = new Persegi();
15         System.out.println("Kelling Persegi = "+p.getKell());
16         System.out.println("Luas Persegi = "+p.getLuas()+"\n");
17
18         PersegiPanjang pp = new PersegiPanjang();
19         System.out.println("Kelling Persegi Panjang= "+pp.getKell());
20         System.out.println("Luas Persegi Panjang = "+pp.getLuas());
21
22         JajarGenjang jg = new JajarGenjang();
23         System.out.println("Kelling Jajar Genjang = "+jg.getKell());
24         System.out.println("Luas Jajar Genjang = "+jg.getLuas()+"\n");
25
26         Segitiga sg = new Segitiga();
27         System.out.println("Kelling Segitiga = "+sg.getKell());
28         System.out.println("Luas Segitiga = "+sg.getLuas()+"\n");
29
30         Lingkaran lg = new Lingkaran();
31         System.out.println("Kelling Lingkaran = "+ lg.getKell());
32         System.out.println("Luas Lingkaran = "+ lg.getLuas());
33     }
34 }
35
```



The screenshot shows the NetBeans IDE interface with the title "modul9 - NetBeans IDE 8.2". The menu bar and toolbar are identical to the previous screenshot. The left sidebar shows the project structure under "modul9" with packages like Tugas, modul9, and source files like AbstrakClass.java, JajarGenjang.java, Lingkaran.java, MethodMain.java, Modul9.java, ObjekAbstrakClass.java, Persegi.java, PersegiPanjang.java, Segitiga.java, and TurunanAbstrakClass.java. The main editor window displays the same code for MethodMain.java as the previous screenshot. The output window at the bottom shows the results of the run:

```
Kelling Persegi = 56
Luas Persegi = 196

Kelling Persegi Panjang= 884
Luas Persegi Panjang = 442

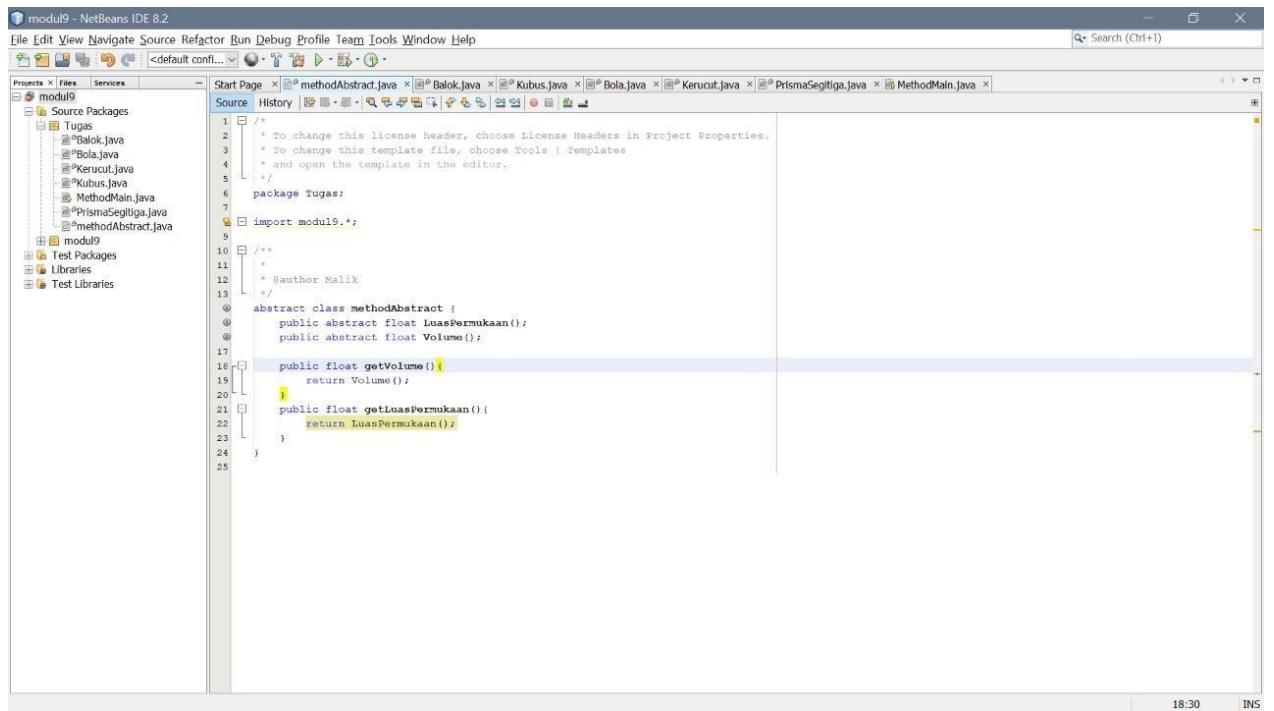
Kelling Jajar Genjang = 72
Luas Jajar Genjang = 220

Kelling Segitiga = 56
Luas Segitiga = 42

Kelling Lingkaran = 48
Luas Lingkaran = 192
BUILD SUCCESSFUL (total time: 1 second)
```

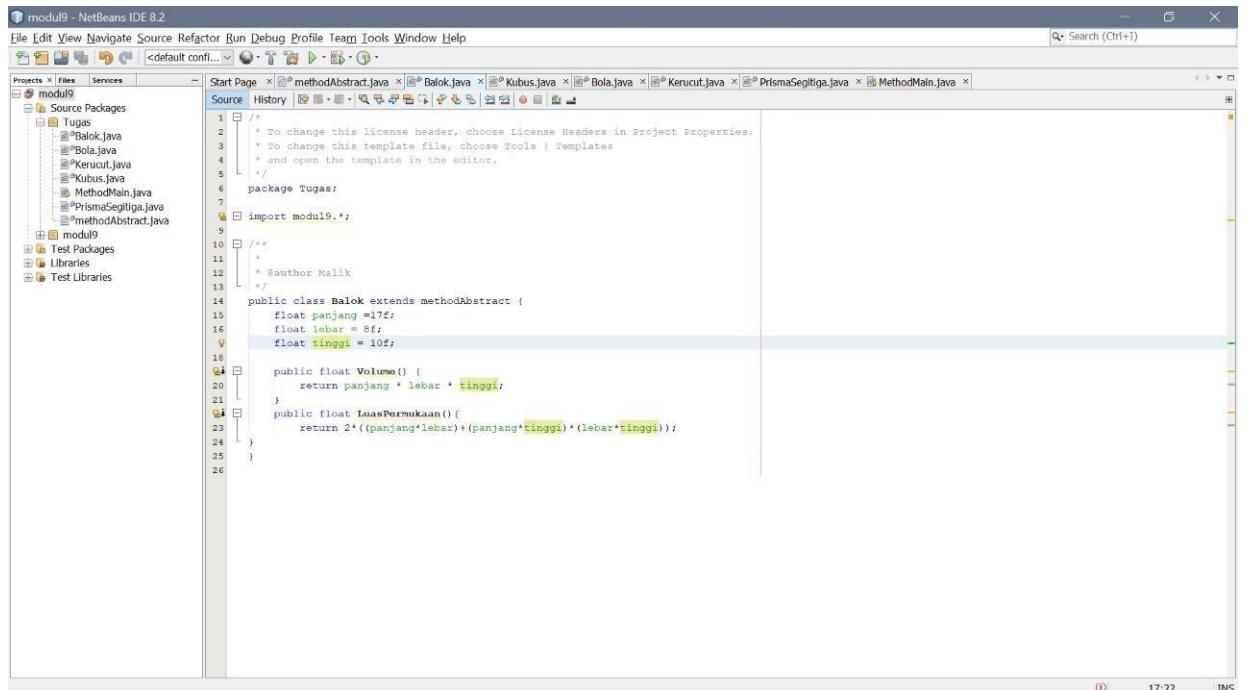
At the bottom left, it says "Finished building modul9 (run-single)". The status bar at the bottom right shows "16:64 INS".

Tugas Kelas methodAbstrack



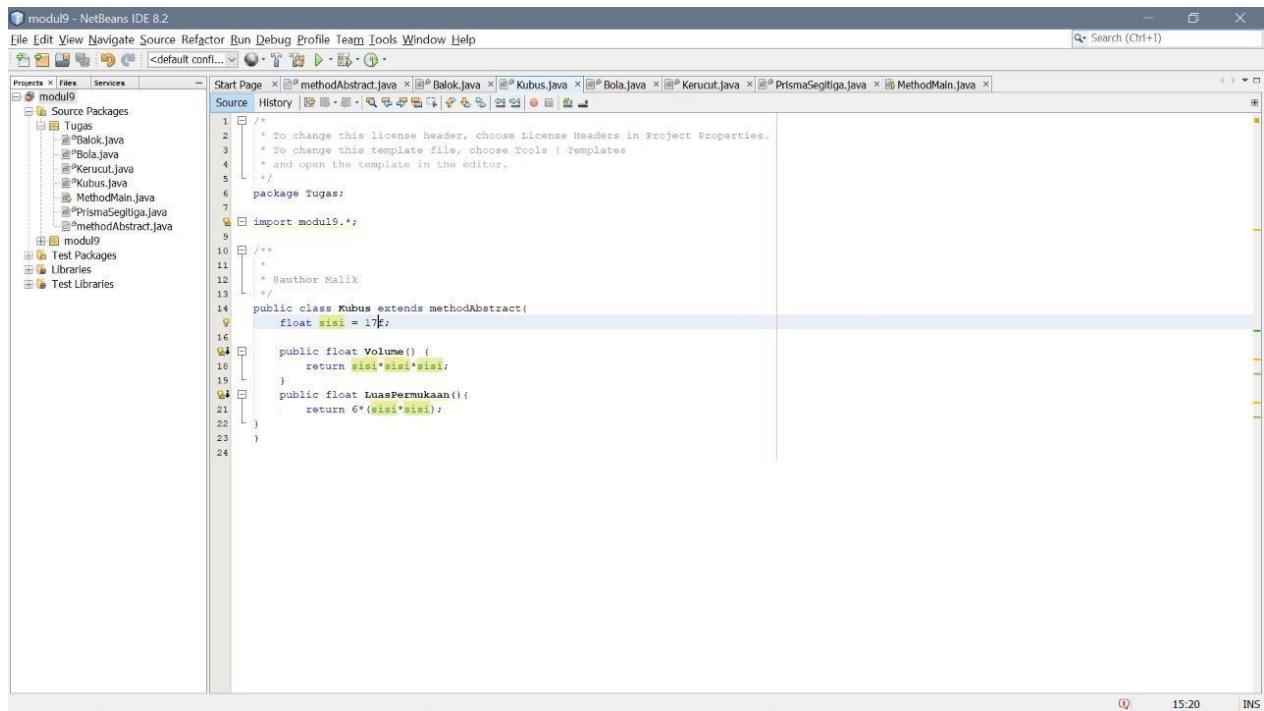
```
modul9 - NetBeans IDE 8.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Projects Files Services Source Packages Tugas methodAbstract.java Balok.java Kubus.java Bola.java Kerucut.java PrismaSegitiga.java MethodMain.java
Source History <default config... > Search (Ctrl+F)
1 /**
2  * To change this license header, choose License Headers in Project Properties.
3  * To change this template file, choose Tools | Templates
4  * and open the template in the editor.
5 */
6 package Tugas;
7
8 import modul9.*;
9
10 /**
11  *
12  * @author Malik
13  */
14 abstract class methodAbstract {
15     public abstract float LuasPermukaan();
16     public abstract float Volume();
17
18     public float getVolume() {
19         return Volume();
20     }
21
22     public float getLuasPermukaan() {
23         return LuasPermukaan();
24     }
25 }
```

Kelas Balok



```
modul9 - NetBeans IDE 8.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Projects Files Services Source Packages Tugas methodAbstract.java Balok.java Kubus.java Bola.java Kerucut.java PrismaSegitiga.java MethodMain.java
Source History <default config... > Search (Ctrl+F)
1 /**
2  * To change this license header, choose License Headers in Project Properties.
3  * To change this template file, choose Tools | Templates
4  * and open the template in the editor.
5 */
6 package Tugas;
7
8 import modul9.*;
9
10 /**
11  *
12  * @author Malik
13  */
14 public class Balok extends methodAbstract {
15     float panjang = 17f;
16     float lebar = 8f;
17     float tinggi = 10f;
18
19     public float Volume() {
20         return panjang * lebar * tinggi;
21     }
22
23     public float LuasPermukaan() {
24         return 2*((panjang*lebar)+(panjang*tinggi)+(lebar*tinggi));
25     }
26 }
```

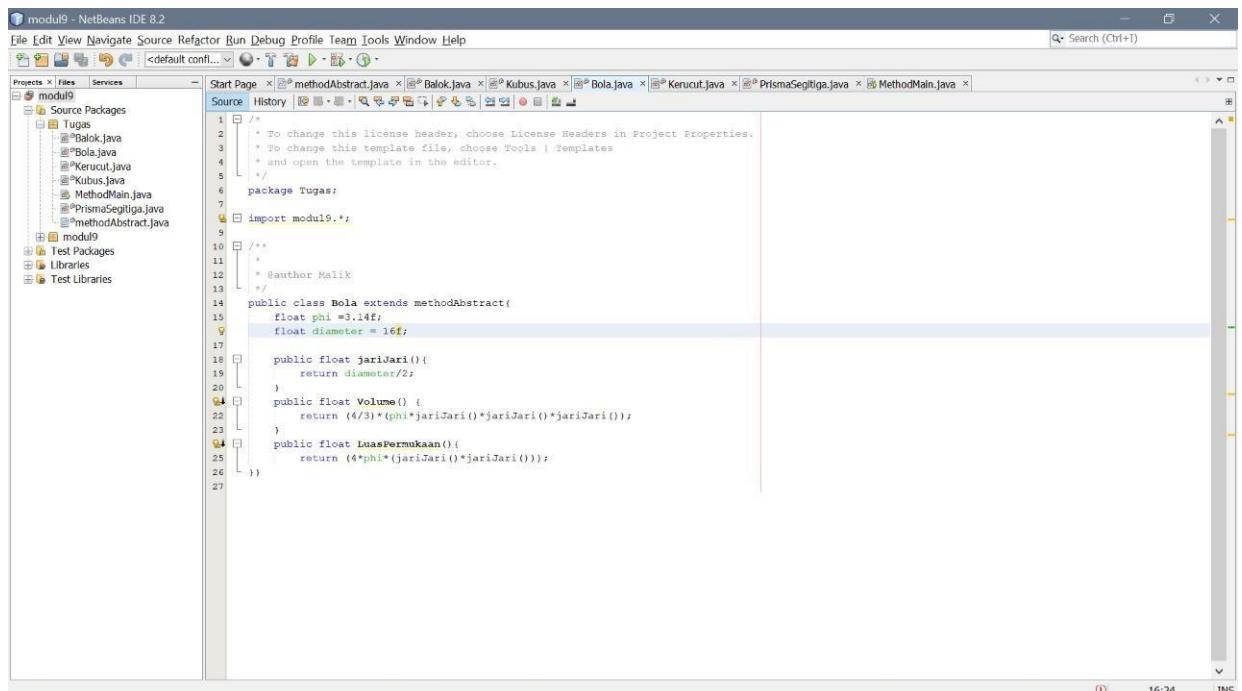
Kelas Kubus



The screenshot shows the NetBeans IDE interface with the title bar "modul9 - NetBeans IDE 8.2". The left sidebar displays the project structure under "modul9" with packages "Tugas" containing files like "Balok.java", "Bola.java", "Kerucut.java", "Kubus.java", "MethodMain.java", "PrismaSegitiga.java", and "methodAbstract.java". The main editor area shows the Kubus.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  package Tugas;
7
8  import modul9.*;
9
10 /**
11  * @author Malik
12  */
13 public class Kubus extends methodAbstract{
14     float sisi = 1.0f;
15
16     public float Volume() {
17         return sisi*sisi*sisi;
18     }
19
20     public float LuasPermukaan(){
21         return 6*(sisi*sisi);
22     }
23 }
24
```

Kelas Bola



The screenshot shows the NetBeans IDE interface with the title bar "modul9 - NetBeans IDE 8.2". The left sidebar displays the project structure under "modul9" with packages "Tugas" containing files like "Balok.java", "Bola.java", "Kerucut.java", "Kubus.java", "MethodMain.java", "PrismaSegitiga.java", and "methodAbstract.java". The main editor area shows the Bola.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  package Tugas;
7
8  import modul9.*;
9
10 /**
11  * @author Malik
12  */
13 public class Bola extends methodAbstract{
14     float phi = 3.14f;
15     float diameter = 16;
16
17     public float jariJari(){
18         return diameter/2;
19     }
20
21     public float Volume() {
22         return (4/3)*(phi*jariJari()*jariJari()*jariJari());
23     }
24
25     public float LuasPermukaan(){
26         return (4*phi*(jariJari()*jariJari()));
27     }
28 }
```

Kelas Krucut

The screenshot shows the NetBeans IDE interface with the title bar "modul9 - NetBeans IDE 8.2". The left sidebar shows a project named "modul9" with a "Source Packages" node expanded, containing files like Balok.java, Bola.java, Kerucut.java, Kubus.java, MethodMain.java, and PrismaSegitiga.java. The main editor area displays the following Java code:

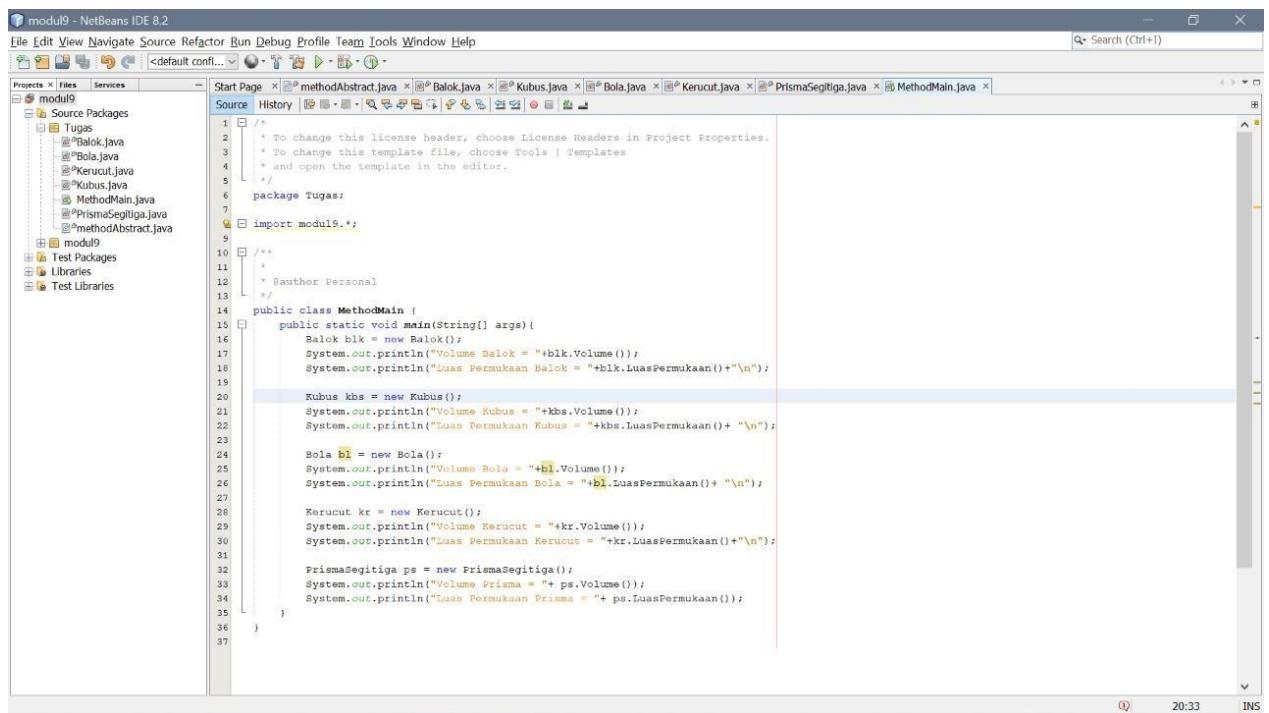
```
1 /*
2  * To change this license header, choose License Headers in Project Properties.
3  * To change this template file, choose Tools | Templates
4  * and open the template in the editor.
5  */
6 package Tugas;
7
8 import modul9.*;
9
10 /**
11  * @author Malik
12  */
13 public class Kerucut extends methodAbstract{
14     float phi = 3.14f;
15     float diameter = 10f;
16     float tinggi = 22f;
17     float sisi = 14f;
18
19     public float jariJari(){
20         return diameter/2;
21     }
22
23     public float Volume(){
24         return (phi*jariJari())*jariJari()*tinggi)/3;
25     }
26
27     public float LuasPermukaan(){
28         return phi*jariJari()*sisi;
29     }
30 }
31
```

Kelas Prisma Segitiga

The screenshot shows the NetBeans IDE interface with the title bar "modul9 - NetBeans IDE 8.2". The left sidebar shows a project named "modul9" with a "Source Packages" node expanded, containing files like Balok.java, Bola.java, Kerucut.java, Kubus.java, MethodMain.java, and PrismaSegitiga.java. The main editor area displays 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 package Tugas;
7
8 import modul9.*;
9
10 /**
11  * @author Malik
12  */
13 public class PrismaSegitiga extends methodAbstract{
14     float panjangAlas = 0f;
15     float tinggiAlas = 12f;
16     float tinggiPrisma = 14f;
17
18     public float Volume(){
19         return ((panjangAlas*tinggiAlas)/2)*tinggiPrisma;
20     }
21
22     public float LuasPermukaan(){
23         return (2*((panjangAlas*tinggiAlas)/2))+(3*(panjangAlas*tinggiPrisma));
24     }
25 }
```

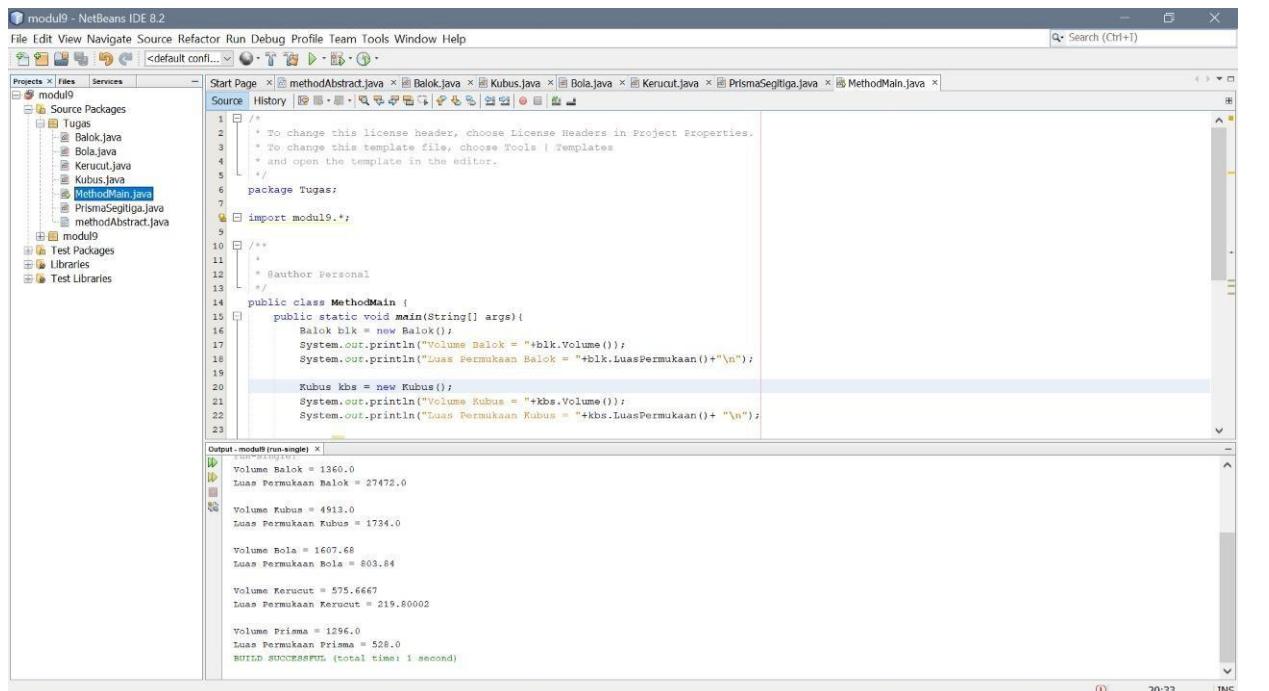
Kelas MethodMain



The screenshot shows the NetBeans IDE interface with the title bar "modul9 - NetBeans IDE 8.2". 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 left sidebar shows the project structure under "modul9" with packages "Tugas" containing "Balok.java", "Bola.java", "Kerucut.java", "Kubus.java", "MethodMain.java", "PrismaSegitiga.java", and "methodAbstract.java". The "Source Packages" section also lists "modul9" and "methodAbstract.java". The main editor area displays the "MethodMain.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  package Tugas;
7
8  import modul9.*;
9
10 /**
11  *
12  * @author Personal
13  */
14 public class MethodMain {
15     public static void main(String[] args){
16         Balok blk = new Balok();
17         System.out.println("Volume Balok = "+blk.Volume());
18         System.out.println("Luas Permukaan Balok = "+blk.LuasPermukaan()+"\n");
19
20         Kubus kbs = new Kubus();
21         System.out.println("Volume Kubus = "+kbs.Volume());
22         System.out.println("Luas Permukaan Kubus = "+kbs.LuasPermukaan()+"\n");
23
24         Bola bl = new Bola();
25         System.out.println("Volume Bola = "+bl.Volume());
26         System.out.println("Luas Permukaan Bola = "+bl.LuasPermukaan()+"\n");
27
28         Kerucut kr = new Kerucut();
29         System.out.println("Volume Kerucut = "+kr.Volume());
30         System.out.println("Luas Permukaan Kerucut = "+kr.LuasPermukaan()+"\n");
31
32         PrismaSegitiga ps = new PrismaSegitiga();
33         System.out.println("Volume Prisma = "+ps.Volume());
34         System.out.println("Luas Permukaan Prisma = "+ps.LuasPermukaan());
35     }
36 }
37
```

Output



The screenshot shows the NetBeans IDE interface with the title bar "modul9 - NetBeans IDE 8.2". The menu bar and toolbar are identical to the previous screenshot. The left sidebar shows the project structure under "modul9" with packages "Tugas" containing "Balok.java", "Bola.java", "Kerucut.java", "Kubus.java", "MethodMain.java", "PrismaSegitiga.java", and "methodAbstract.java". The "Source Packages" section also lists "modul9" and "methodAbstract.java". The main editor area displays the "MethodMain.java" code, and the output window below shows the results of the run:

```
Output: modul9[run-single] x
1 Volume Balok = 1360.0
2 Luas Permukaan Balok = 27472.0
3
4 Volume Kubus = 4913.0
5 Luas Permukaan Kubus = 1734.0
6
7 Volume Bola = 1607.68
8 Luas Permukaan Bola = 803.84
9
10 Volume Kerucut = 575.6667
11 Luas Permukaan Kerucut = 219.80002
12
13 Volume Prisma = 1296.0
14 Luas Permukaan Prisma = 528.0
15 BUILD SUCCESSFUL (total time: 1 second)
```

MODUL-10

Nama : Malik Muhammad

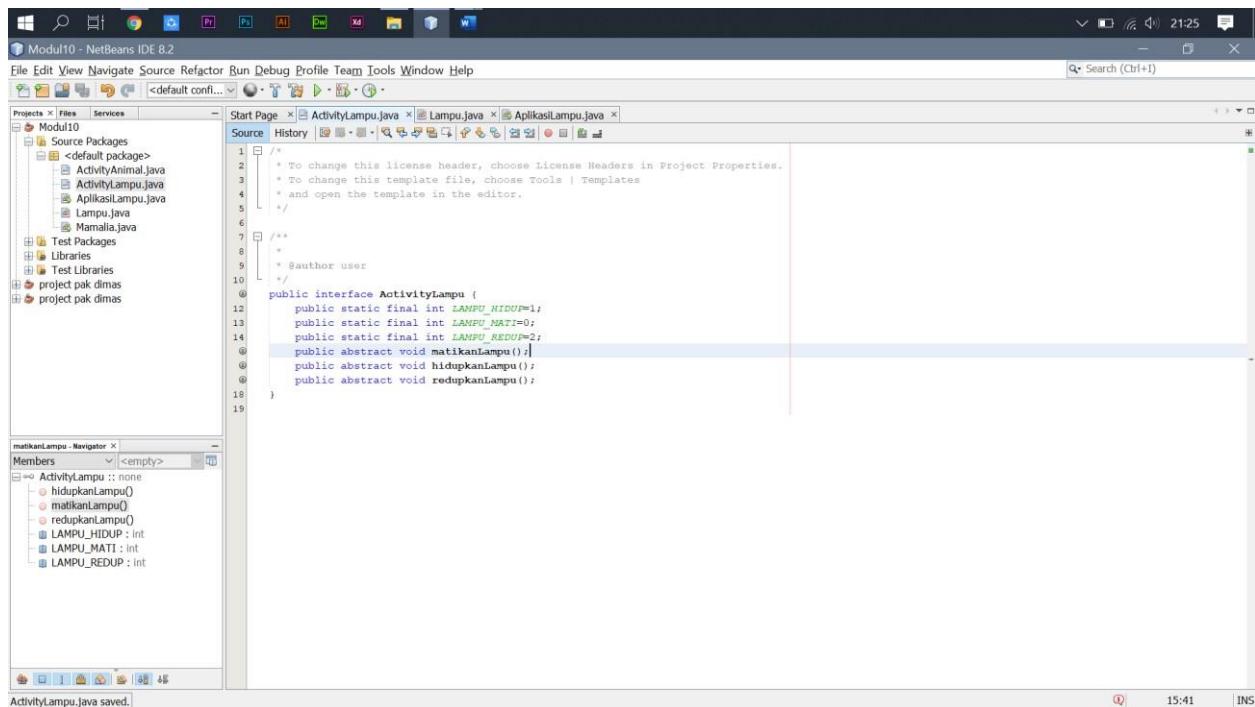
NIM : L200180072

Kelas : B

MODUL 10 – INTERFACE

Tugas

Interface Activity Lampu



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

- Title Bar:** Modul10 - NetBeans IDE 8.2
- Menu Bar:** File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
- Toolbar:** Standard NetBeans toolbar icons.
- Project Explorer:** Shows a project named "Modul10" with packages "Source Packages" and "Test Packages". Under "Source Packages", there are files: ActivityAnimal.java, ActivityLampu.java, AplikasiLampu.java, Lampu.java, and Mamalia.java.
- Code Editor:** The main editor window displays the code for the `ActivityLampu` interface. The code is as follows:1 /**
 * To change this license header, choose License Headers in Project Properties.
 * To change this template file, choose Tools | Templates
 * and open the template in the editor.
 */
2 /**
 *
 * @author user
 */
3 public interface ActivityLampu {
4 public static final int LAMPU_HIDUP=1;
5 public static final int LAMPU_MATI=0;
6 public static final int LAMPU_REDUP=2;
7 public abstract void matikanLampu();
8 public abstract void hidupkanLampu();
9 public abstract void redupkanLampu();
10 }
11
- Navigator:** A panel on the left showing the members of the `ActivityLampu` interface: hidupkanLampu(), matikanLampu(), redupkanLampu(), LAMPU_HIDUP, LAMPU_MATI, and LAMPU_REDUP.
- Status Bar:** Shows "ActivityLampu.java saved.", the current time (15:41), and the current mode (INS).

Kelas Lampu

The screenshot shows the NetBeans IDE interface with the title "Modul10 - NetBeans IDE 8.2". The main window displays the source code for the `Lampu.java` file. The code implements the `ActivityLampu` interface, defining methods for turning the lamp on, off, and setting the switch state. A navigation pane on the left shows the project structure and the members of the `Lampu` class.

```
public class Lampu implements ActivityLampu{
    public int statusLampu;
    @Override
    public void matikanLampu(){
        if(statusLampu == 0){
            System.out.println("Lampu sudah dalam kondisi mati");
        }else if(statusLampu == 1){
            statusLampu = -1;
            System.out.println("Lampu sudah dimatikan");
        }
    }
    @Override
    public void hidupkanLampu(){
        if(statusLampu == 1){
            System.out.println("Lampu sudah dinyalakan\n***");
        }else{
            statusLampu += 1;
            System.out.println("Lampu sudah dalam kondisi menyala");
        }
    }
    public int setSaklar(int saklar){
        return statusLampu = saklar;
    }
    @Override
    public void redupkanLampu(){
        if(statusLampu == 2){
            System.out.println("Lampu telah direduakan");
        }else{
            statusLampu += 1;
            System.out.println("Keredupan Lampu telah ditambah");
        }
    }
}
```

Kelas AplikasiLampu

The screenshot shows the NetBeans IDE interface with the title "Modul10 - NetBeans IDE 8.2". The main window displays the source code for the `AplikasiLampu.java` file. This class contains a static `main` method that creates a `Lampu` object and uses a `Scanner` to interact with the user, performing actions based on the input. A navigation pane on the left shows the project structure and the members of the `AplikasiLampu` class.

```
import java.util.Scanner;
/*
 * 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 AplikasiLampu {
    public static void main(String[] args){
        Lampu lampu = new Lampu();
        Scanner sc = new Scanner(System.in);
        lampu.statusLampu = lampu.setSaklar(0);
        System.out.println("Status Lampu = " + lampu.statusLampu +"\n Ketikkan");
        System.out.println("1 Untuk menyalaikan Lampu\n0 Untuk mematikan Lampu\n2 Untuk meredupkan Lampu");

        if(lampu.setSaklar(sc.nextInt()) == 0){
            lampu.matikanLampu();
        }else if(lampu.statusLampu == 1){
            lampu.hidupkanLampu();
        }else{
            lampu.redupkanLampu();
        }
    }
}
```

Output

Saat menekan angka 1 akan menyala lampu

```
run:
Status Lampu = 0
Ketikkan
1 Untuk menyalaikan Lampu
0 Untuk mematikan Lampu
2 Untuk meredupkan Lampu
1
Lampu sudah dinyalakan
***
BUILD SUCCESSFUL (total time: 4 seconds)
```

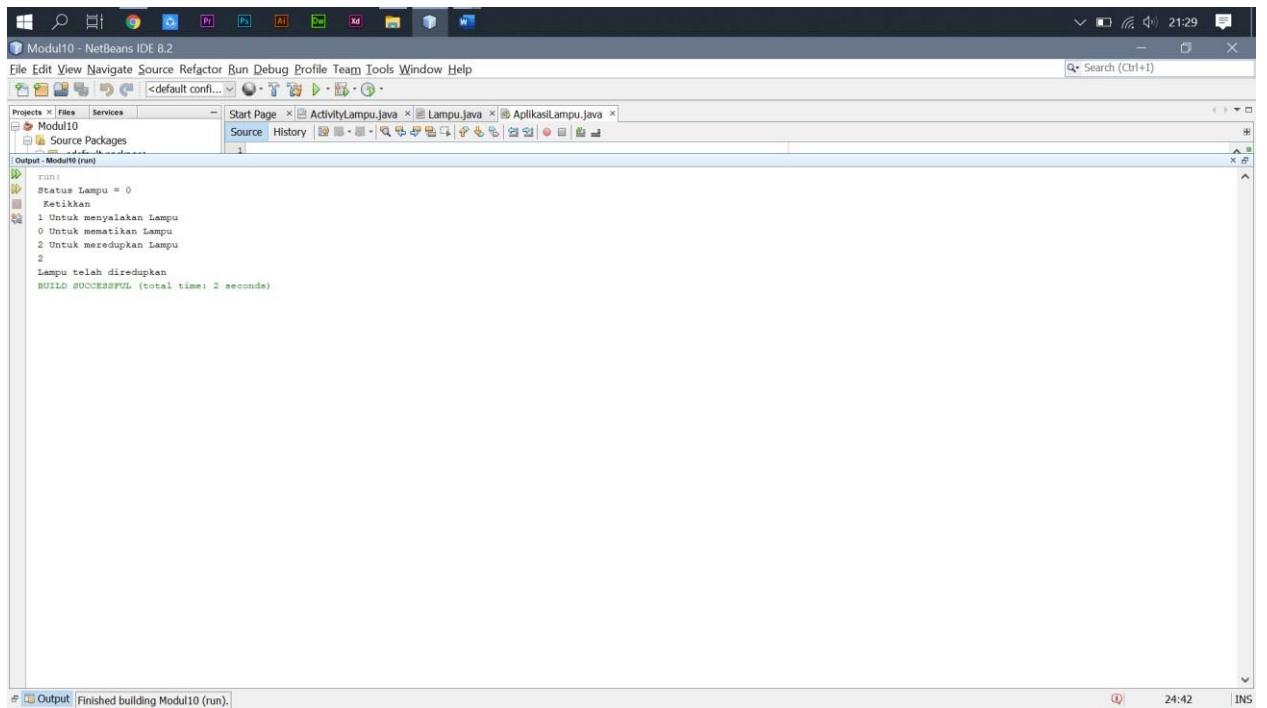
The screenshot shows the NetBeans IDE interface with the title "Modul10 - NetBeans IDE 8.2". The "Output" tab is selected, displaying the run log. The log shows the status of the lamp ("Status Lampu = 0"), the user's input ("Ketikkan 1"), the resulting action ("Lampu sudah dinyalakan"), and the build summary ("BUILD SUCCESSFUL (total time: 4 seconds)").

Saat menekan angka 0 akan mematikan lampu

```
run:
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: 4 seconds)
```

The screenshot shows the NetBeans IDE interface with the title "Modul10 - NetBeans IDE 8.2". The "Output" tab is selected, displaying the run log. The log shows the status of the lamp ("Status Lampu = 0"), the user's input ("Ketikkan 0"), the resulting action ("Lampu sudah dalam kondisi mati"), and the build summary ("BUILD SUCCESSFUL (total time: 4 seconds)").

Saat menekan angka 2 akan meredupkan lampu



The screenshot shows the NetBeans IDE 8.2 interface. The title bar reads "Modul10 - NetBeans IDE 8.2". 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, Go To, Run, Stop, and Exit. The Projects tab shows a project named "Modul10" with a "Source Packages" node. The Files tab shows three files: "Start Page", "AktivitasLampu.java", "Lampu.java", and "AplikasiLampu.java". The "AktivitasLampu.java" file is open and contains the following code:

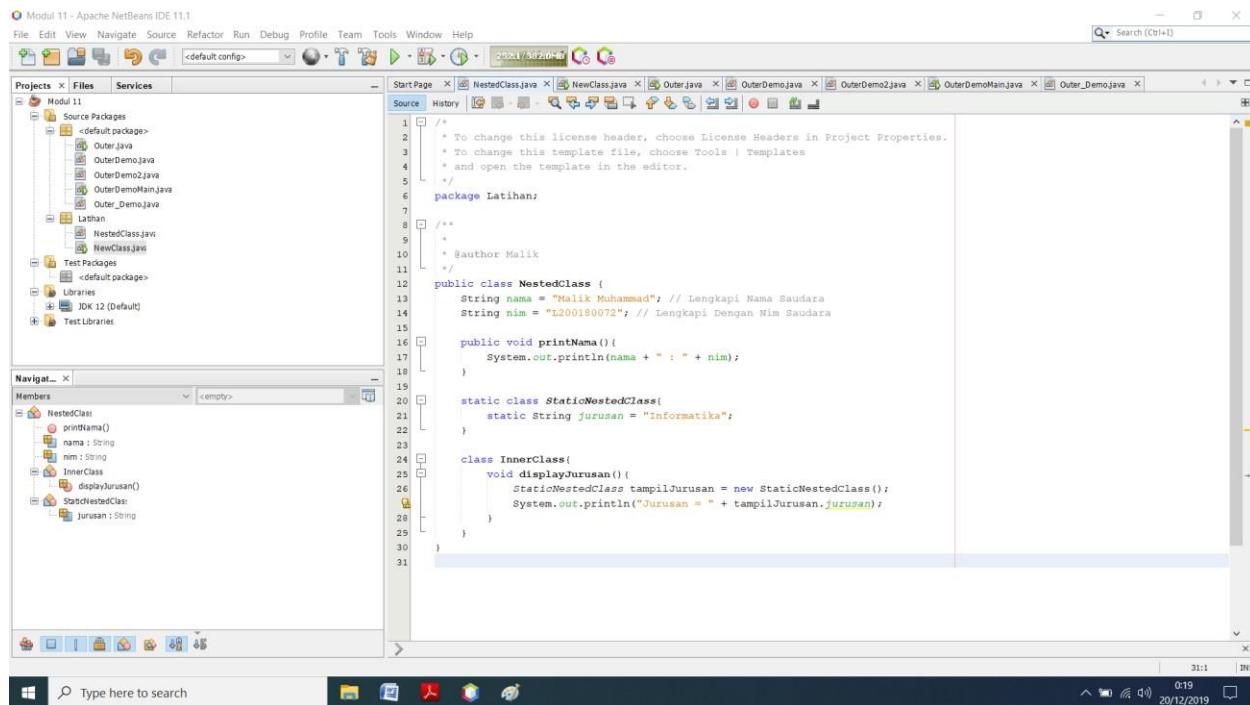
```
public class AktivitasLampu {  
    public static void main(String[] args) {  
        int Status_Lampu = 0;  
        Faktikken();  
        System.out.println("1 Untuk menyalaikan Lampu");  
        System.out.println("0 Untuk mematikan Lampu");  
        System.out.println("2 Untuk meredupkan Lampu");  
        System.out.println("2");  
        Lampu();  
        System.out.println("Lampu telah direduakan");  
    }  
  
    public static void Faktikken() {  
        System.out.println("Status Lampu = 0");  
    }  
  
    public static void Lampu() {  
        if (Status_Lampu == 0) {  
            Status_Lampu = 1;  
        } else if (Status_Lampu == 1) {  
            Status_Lampu = 0;  
        } else if (Status_Lampu == 2) {  
            Status_Lampu = 1;  
        }  
    }  
}
```

The Output tab shows the build log: "BUILD SUCCESSFUL (total time: 2 seconds)". The status bar at the bottom right shows "24:42" and "INS".

MODUL-11

NAMA: MALIK MUHAMMAD NIM :
L200180072
KELAS : B

Class NestedClass

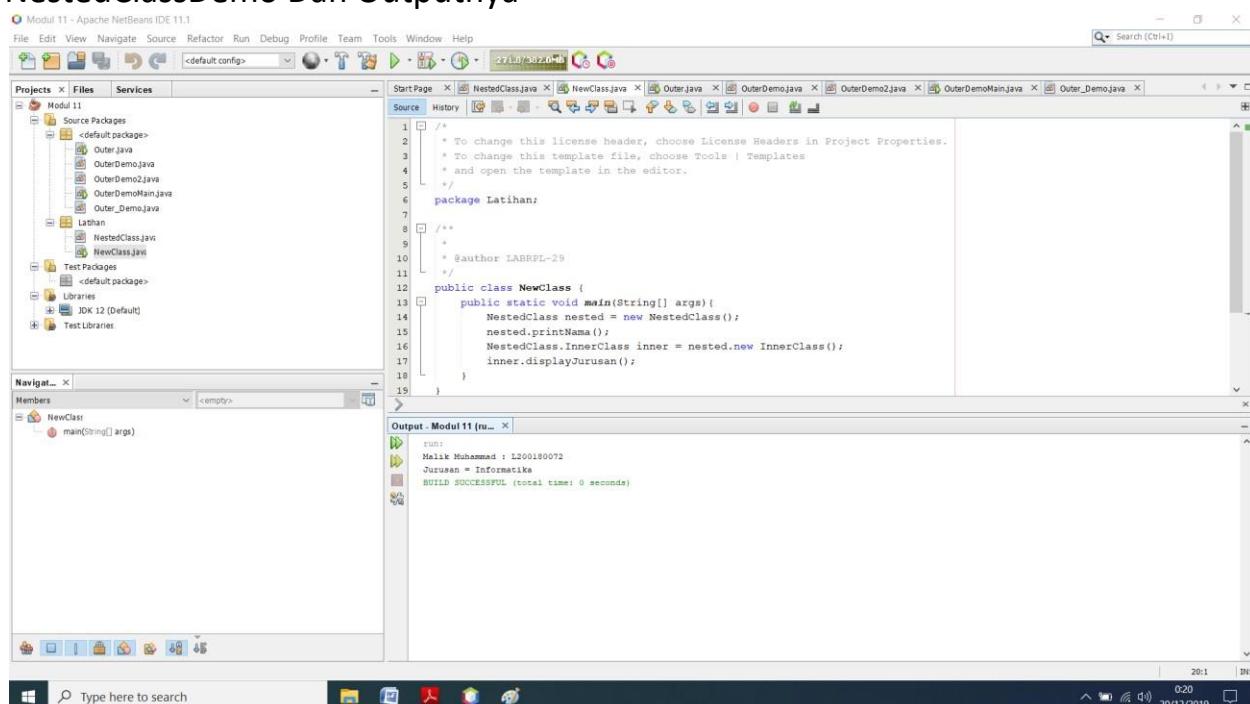


The screenshot shows the Apache NetBeans IDE interface with the following details:

- Project:** Modul 11
- Source Packages:** Outer, OuterDemo, OuterDemo2, OuterDemoMain, Outer_Demo
- Test Packages:** Lathan, NestedClass, NewClass
- Libraries:** JDK 12 (Default), TestLibraries
- Code Editor:** NestedClass.java
- Content of NestedClass.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 Malik
11  */
12 public class NestedClass {
13     String nama = "Malik Muhammad"; // Lengkapi Nama Saudara
14     String nim = "L200180072"; // Lengkapi Dengan Nim Saudara
15
16     public void printNama() {
17         System.out.println(nama + " : " + nim);
18     }
19
20     static class StaticNestedClass {
21         static String jurusan = "Informatika";
22     }
23
24     class InnerClass {
25         void displayJurusan() {
26             StaticNestedClass tampilJurusan = new StaticNestedClass();
27             System.out.println("Jurusan = " + tampilJurusan.jurusan);
28         }
29     }
30 }
31
```

NestedClassDemo Dan Outputnya



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

- Project:** Modul 11
- Source Packages:** Outer, OuterDemo, OuterDemo2, OuterDemoMain, Outer_Demo
- Test Packages:** Lathan, NestedClass, NewClass
- Libraries:** JDK 12 (Default), TestLibraries
- Code Editor:** NestedClass.java
- Content of NestedClass.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-29
11  */
12 public class NewClass {
13     public static void main(String[] args) {
14         NestedClass nested = new NestedClass();
15         nested.printNama();
16         NestedClass.InnerClass inner = nested.new InnerClass();
17         inner.displayJurusan();
18     }
19 }
```

- Output Window:** Output - Modul 11 (run...)
- Output Content:**

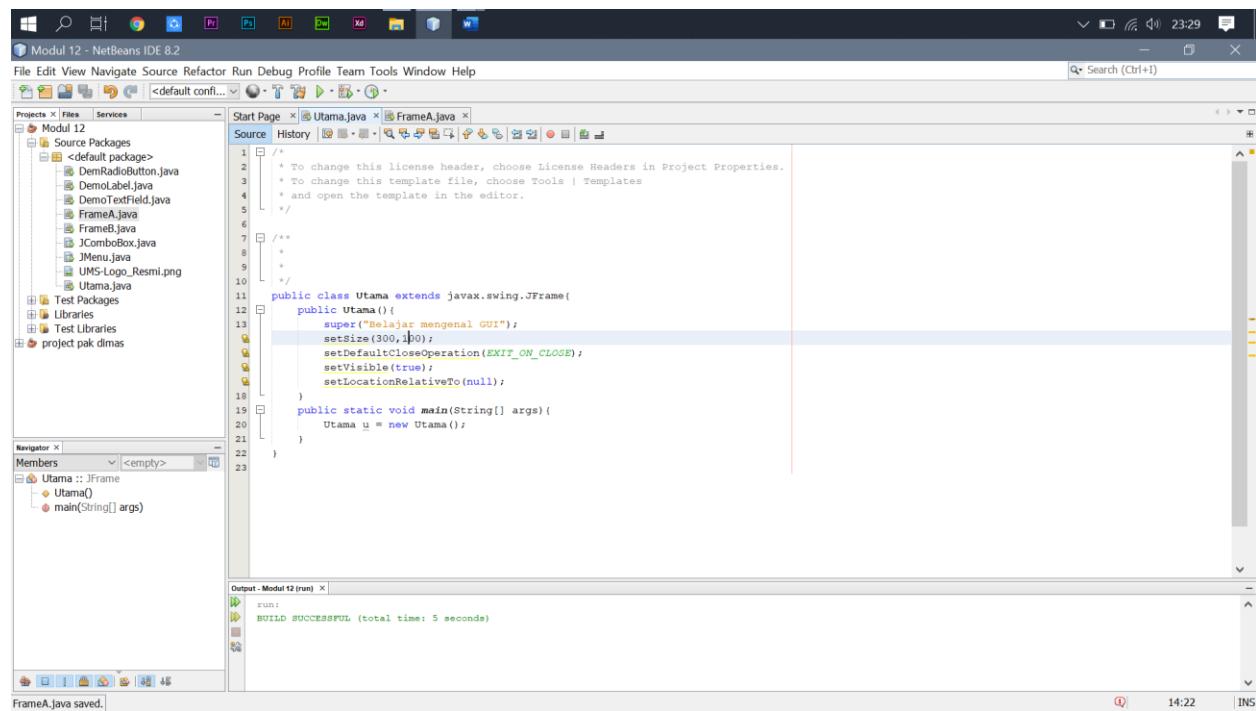
```
run:
Malik Muhammad : L200180072
Jurusan = Informatika
BUILD SUCCESSFUL (total time: 0 seconds)
```

MODUL-12

Nama : MALIK MUHAMMAD
NIM : L200180072
Kelas : B

MODUL 12 – GRAPHICAL USER INTERFACE (GUI)

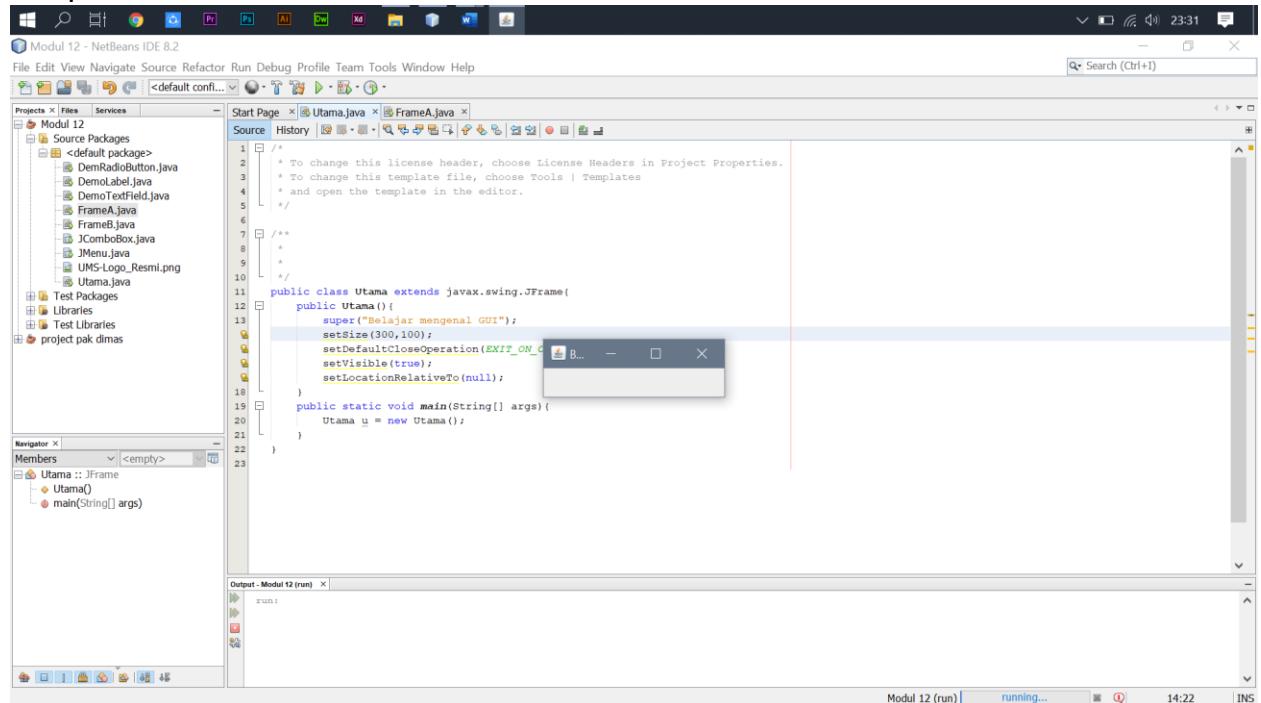
Latihan
Frame
Class Utama



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

- Title Bar:** Modul 12 - NetBeans IDE 8.2
- Menu Bar:** File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
- Toolbar:** Standard NetBeans toolbar icons.
- Project Explorer:** Shows a project named "Modul 12" with several source packages and files listed, including "Utama.java" and "FrameA.java".
- Code Editor:** The "Utama.java" file is open, displaying Java code for a JFrame. The code includes a constructor that sets the title to "Belajar mengenal GUI", sets the size to 300x100, and sets the default close operation to EXIT_ON_CLOSE. It also contains a static main method that creates and runs a new instance of the Utama class.
- Output Window:** Shows the build log: "BUILD SUCCESSFUL (total time: 5 seconds)".
- Status Bar:** FrameA.java saved., 14:22, INS.

Output



Konstruktor	Keterangan
<code>JFrame()</code>	<ul style="list-style-type: none"> Jendelautama yang digunakan untuk menampilkan komponen yang kita inginkan. Membuat JFrame tanpa judul.
<code>JFrame(String Judul)</code>	<ul style="list-style-type: none"> Pemberiannama pada jendelautama 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 set null, maka JFrame akan ditampilkan di tengah.

Button Class FrameA

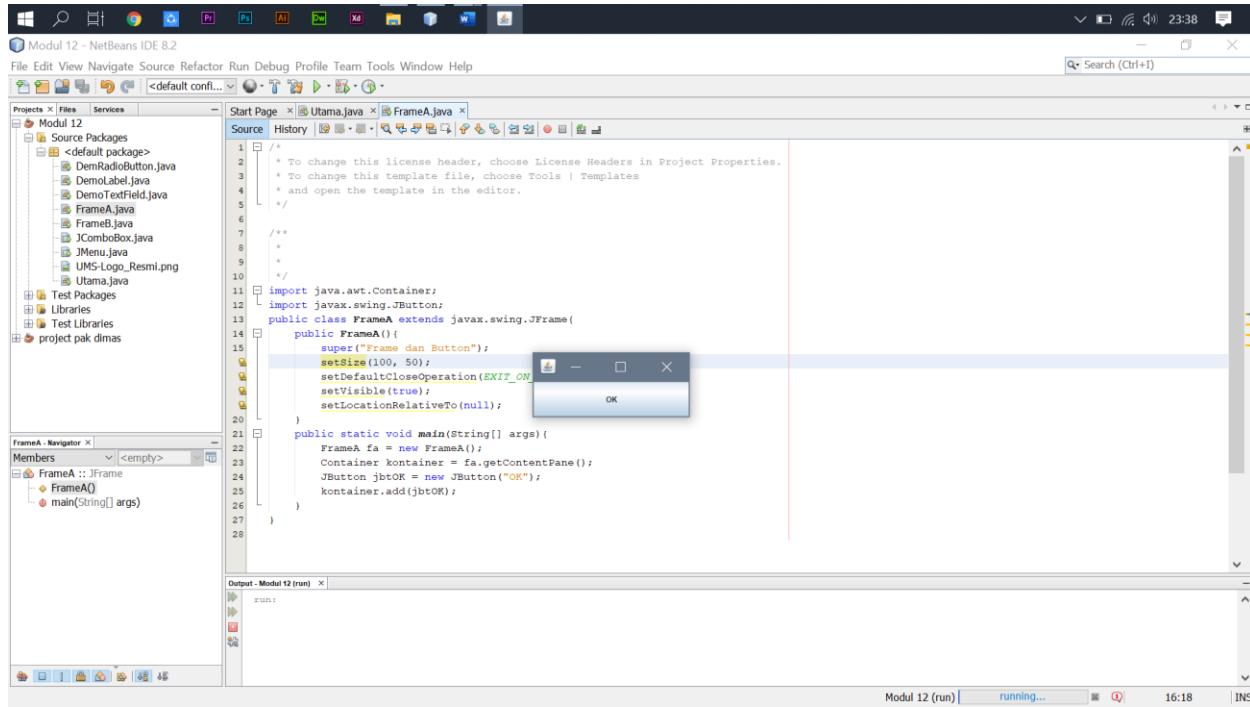
The screenshot shows the NetBeans IDE interface with the following details:

- Title Bar:** Modul 12 - NetBeans IDE 8.2
- Menu Bar:** File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
- Toolbar:** Standard NetBeans toolbar with icons for file operations.
- Project Explorer:** Shows the project structure under "Modul 12".
- Code Editor:** The "FrameA.java" file is open, containing the following Java code:

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

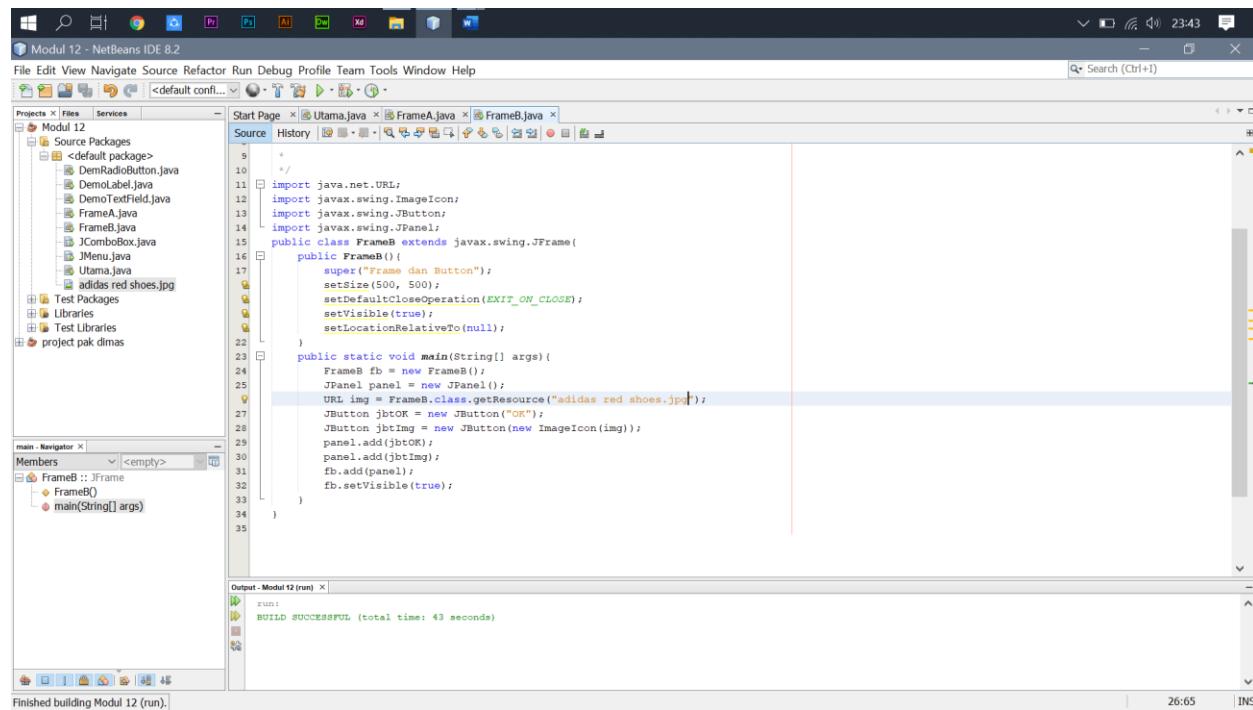
- Output Window:** Shows the build log: "BUILD SUCCESSFUL (total time: 14 seconds)".
- Status Bar:** Finished building Modul 12 (run)., 16:18, INS.

Output



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.

Container Class FrameB



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

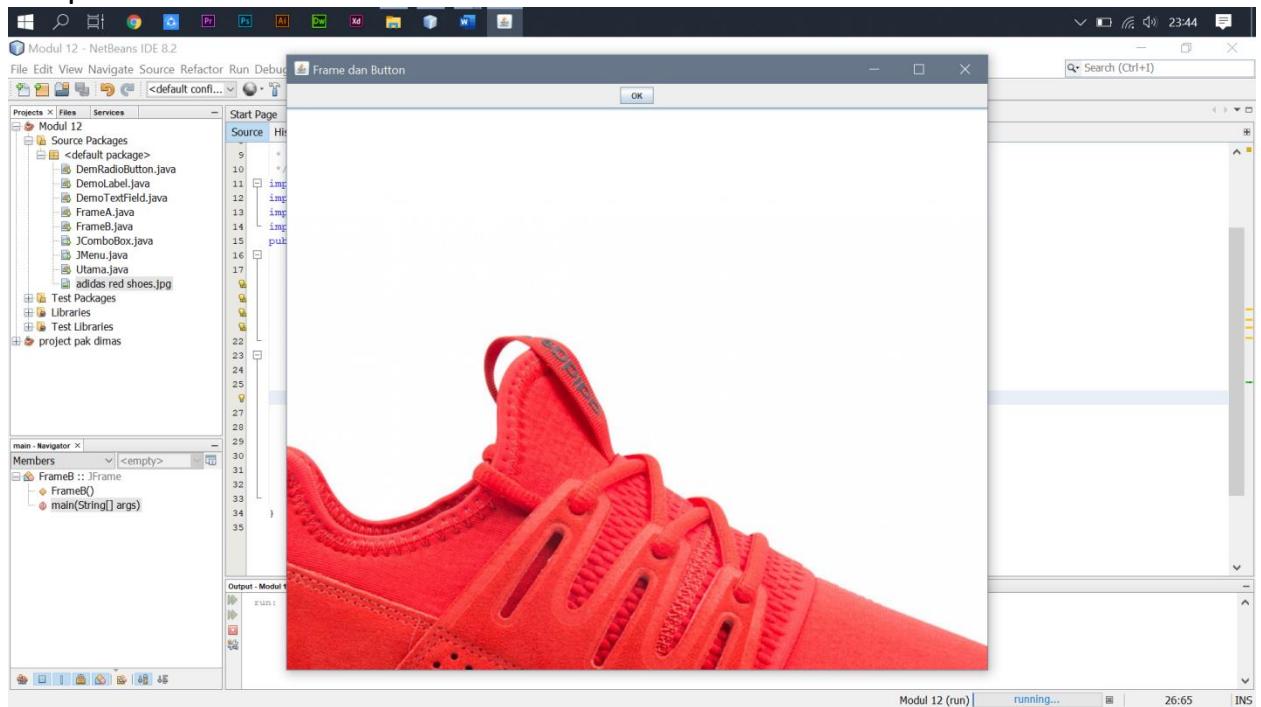
- Title Bar:** Modul 12 - NetBeans IDE 8.2
- Menu Bar:** File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
- Toolbar:** Standard NetBeans toolbar icons.
- Project Explorer:** Shows a project named "Modul 12" containing several source files: DemRadioButton.java, DemoLabel.java, DemoTextField.java, FrameA.java, FrameB.java, JComboBox.java, JMenu.java, Utama.java, and an image file "adidas red shoes.jpg".
- Code Editor:** The "FrameB.java" file is open. The code defines a class FrameB that extends javax.swing.JFrame. It includes imports for java.net.URL, javax.swing.ImageIcon, javax.swing.JButton, and javax.swing.JPanel. The constructor sets the frame title to "Frame dan Button", sets the size to 500x500, and adds a JPanel to the frame. The main method creates a new FrameB object, adds a JButton with the text "OK" and an icon to the panel, and makes the frame visible.
- Output Window:** Shows the build log: "BUILD SUCCESSFUL (total time: 43 seconds)".
- Status Bar:** Displays "Finished building Modul 12 (run.)", the current time (26:05), and the current mode (INS).

```

9
10 */
11 import java.net.URL;
12 import javax.swing.ImageIcon;
13 import javax.swing.JButton;
14 import javax.swing.JPanel;
15 public class FrameB extends javax.swing.JFrame{
16     public FrameB(){
17         super("Frame dan Button");
18         setSize(500, 500);
19         setDefaultCloseOperation(EXIT_ON_CLOSE);
20         setVisible(true);
21         setLocationRelativeTo(null);
22     }
23     public static void main(String[] args){
24         FrameB fb = new FrameB();
25         JPanel panel = new JPanel();
26         URL img = FrameB.class.getResource("adidas red shoes.jpg");
27         JButton jbtOK = new JButton("OK");
28         JButton jbtImg = new JButton(new ImageIcon(img));
29         panel.add(jbtOK);
30         panel.add(jbtImg);
31         fb.add(panel);
32         fb.setVisible(true);
33     }
34 }

```

Output



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.

Label

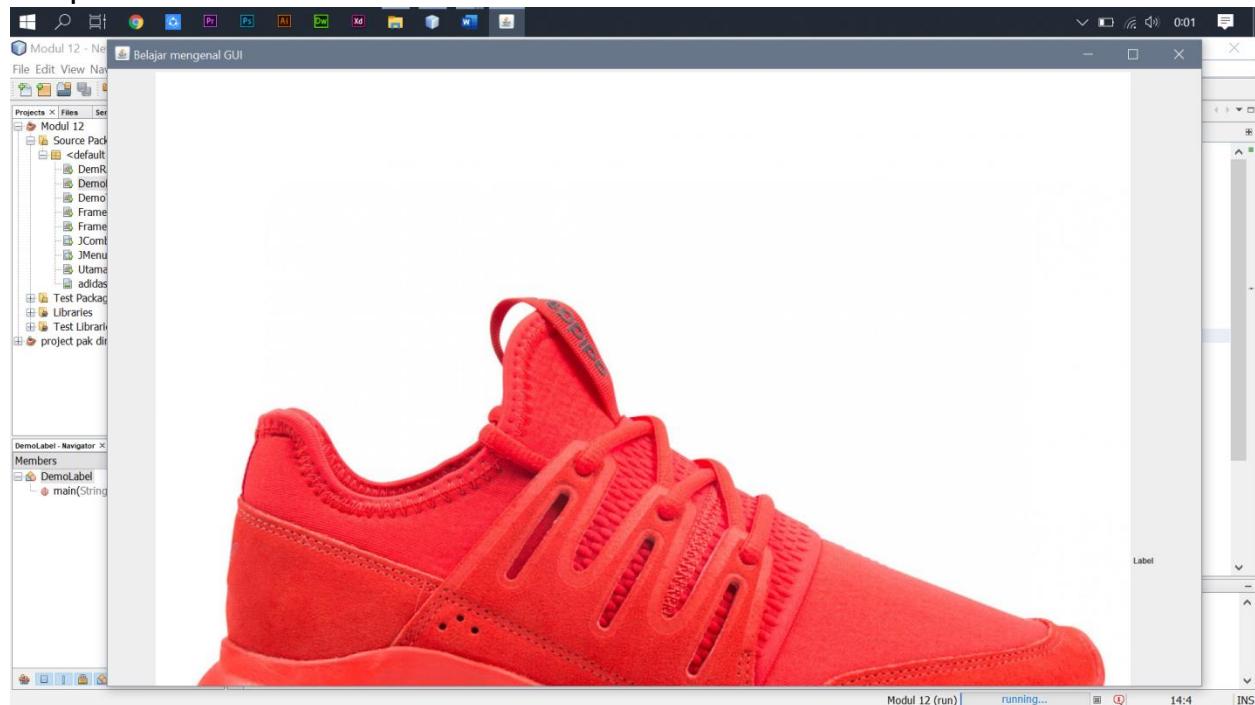
Class Demo

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

- Title Bar:** Modul 12 - NetBeans IDE 8.2
- Toolbar:** Standard NetBeans toolbar with icons for file operations.
- Menu Bar:** File, Edit, View, Navigate, Source, Refactor, Run, Debug, Profile, Team, Tools, Window, Help.
- Search Bar:** Search (Ctrl+F) at the top right.
- Projects Tab:** Shows "Modul 12" with "Source Packages" expanded, containing files like DemRadioButton.java, DemoLabel.java, DemoTextField.java, FrameA.java, FrameB.java, JComboBox.java, JMenu.java, Utama.java, and adidas red shoes.jpg.
- Files Tab:** Shows multiple open files: Start Page, Utama.java, FrameA.java, FrameB.java, DemoLabel.java (the current active file), and DemoTextField.java.
- Source Editor:** Displays the code for DemoLabel.java. The code creates a JPanel, adds a JLabel with text "Label", and sets its icon to "adidas red shoes.jpg". The code is annotated with JavaDoc comments and imports.
- Output Tab:** Shows the build log: BUILD SUCCESSFUL (total time: 21 seconds).
- Bottom Status Bar:** Shows the date and time: 25:37.

```
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  * 
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("adidas red shoes.jpg");
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
```

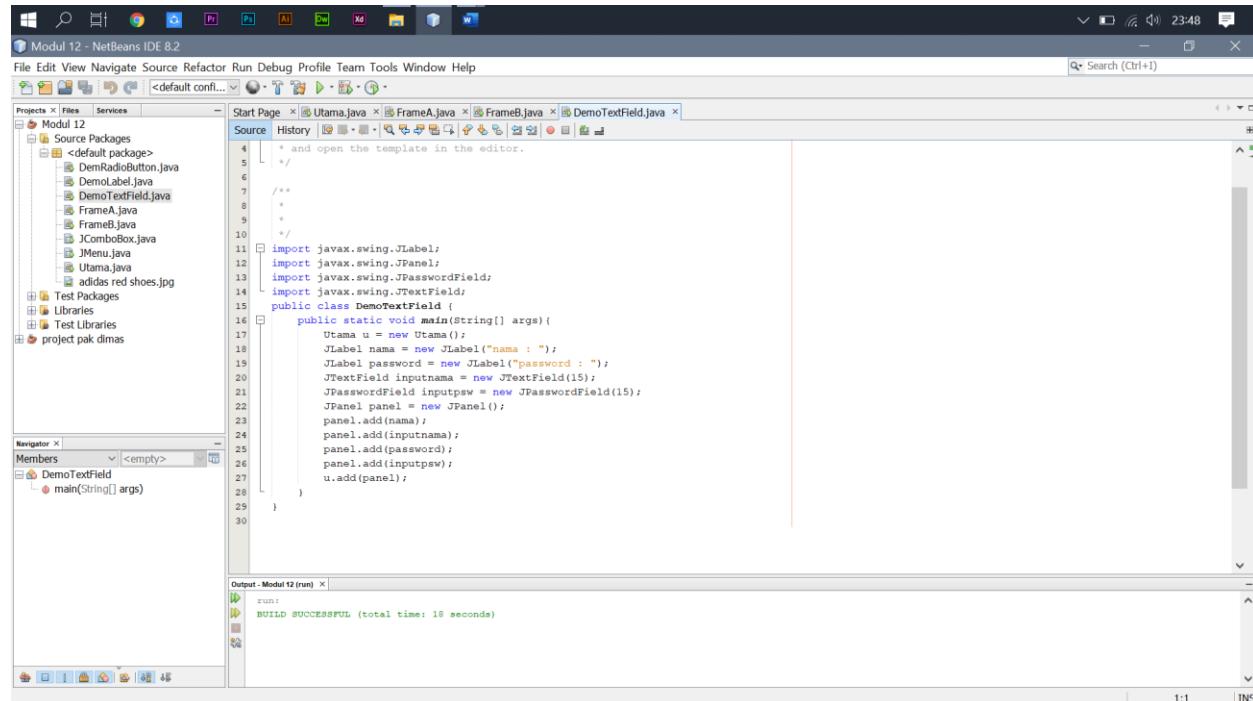
Output



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.

TextField dan Password Field

Class DemoTextField



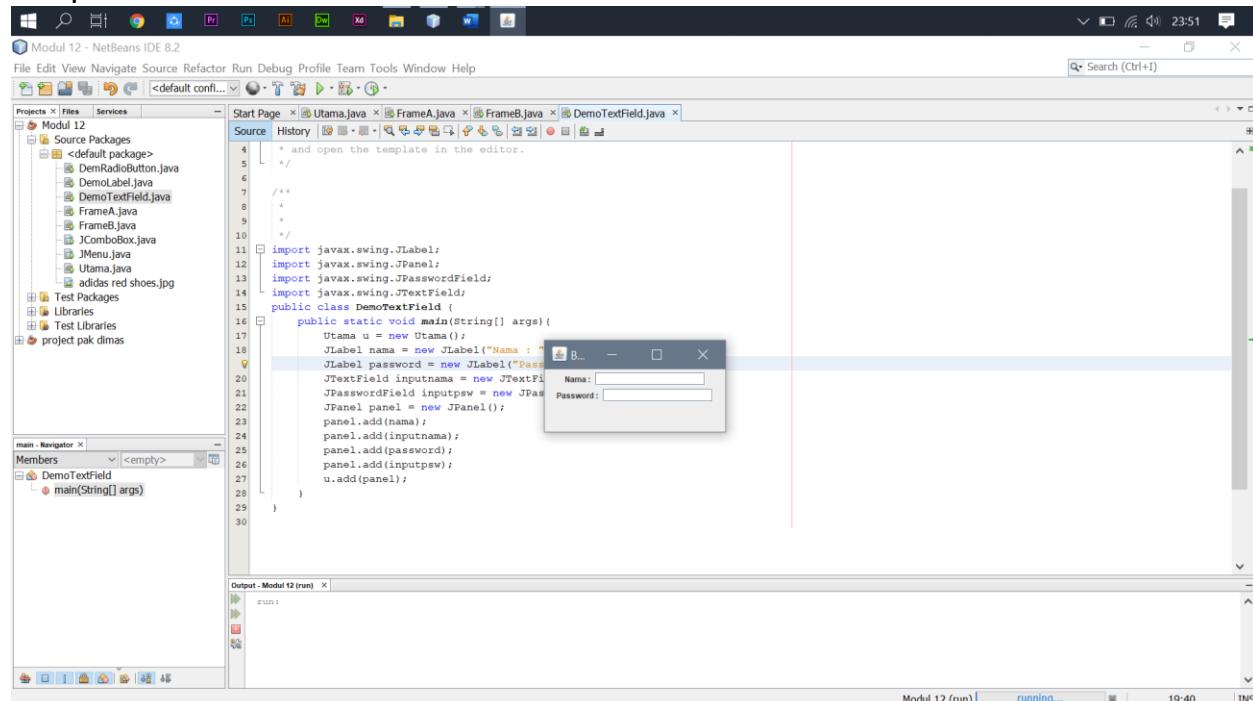
The screenshot shows the NetBeans IDE interface with the following details:

- Title Bar:** Modul 12 - NetBeans IDE 8.2
- Toolbar:** Standard NetBeans toolbar.
- Projects Tab:** Shows the project structure for "Modul 12".
- Source Editor:** The "DemoTextField.java" file is open, displaying Java code for creating a GUI with labels and text fields.

```
4  * and open the template in the editor.
5  */
6
7 /**
8  *
9  */
10
11 import javax.swing.JLabel;
12 import javax.swing.JPanel;
13 import javax.swing.JPasswordField;
14 import javax.swing.JTextField;
15
16 public class DemoTextField {
17     public static void main(String[] args){
18         Utama u = new Utama();
19         JLabel nama = new JLabel("Nama : ");
20         JLabel password = new JLabel("Password : ");
21         JTextField inputnama = new JTextField(15);
22         JPasswordField inputpsw = new JPasswordField(15);
23         JPanel panel = new JPanel();
24         panel.add(nama);
25         panel.add(inputnama);
26         panel.add(password);
27         panel.add(inputpsw);
28         u.add(panel);
29     }
30 }
```

- Output Window:** Shows the build log: "BUILD SUCCESSFUL (total time: 10 seconds)".

Output

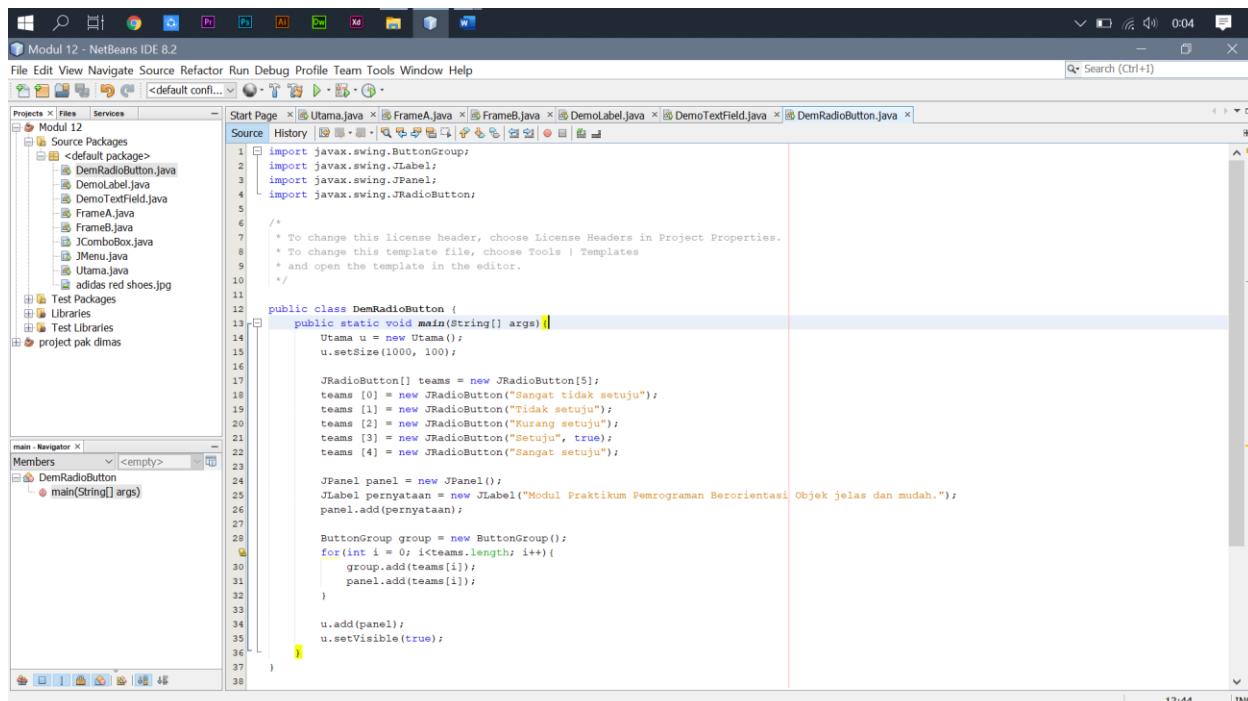


Konstruktor	Penjelasan
JTextField()	Text Field kosongtanpatulisan.
JTextField(int i)	Text Field denganpanjang yang ditentukan.
JTextField(String i)	Teks Field denganteks yang sudahditentukan.
JTextField(String teks, int i)	Teks Field denganteks dan panjangkolom yang sudahditentukan

Parameter dalam class JTextField	Penjelasan
String Text	Teksdalam Text Field.
Boolean Editable	Menentukanbisatidaknyateksdalam Text Field untukdiedit.
Int columns	Jumlahkolom pada Text Field.
Int horizontalAlignment	Perataan horizontal pada Text Field.

Radio Button dan CheckBox

Class DemoRadioButton



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

- Title Bar:** Modul 12 - NetBeans IDE 8.2
- Toolbar:** Standard NetBeans toolbar with icons for file operations, search, and help.
- MenuBar:** File, Edit, View, Navigate, Source, Refactor, Run, Debug, Profile, Team, Tools, Window, Help.
- Project Explorer:** Shows a project named "Modul 12" containing several Java files: DemRadioButton.java, DemoLabel.java, DemoTextField.java, FrameA.java, FrameB.java, DemoTextfield.java, and DemRadioButton.java. It also lists "Source Packages" and "Test Packages".
- Code Editor:** The main window displays the code for DemRadioButton.java. The code creates a JFrame, adds a JLabel, and a JPanel. The JPanel contains five JRadioButtons labeled "Sangat tidak setuju", "Tidak setuju", "Rusang setuju", "Setuju", and "Sangat setuju". A ButtonGroup is used to group them. The code then adds the panel to the frame and makes it visible.

```

import javax.swing.JButton;
import javax.swing.JFrame;
import javax.swing.JLabel;
import javax.swing.JPanel;
import javax.swing.JRadioButton;
import javax.swing.ButtonGroup;

public class DemRadioButton {
    public static void main(String[] args) {
        Utama u = new Utama();
        u.setSize(1000, 100);

        JRadioButton[] teams = new JRadioButton[5];
        teams[0] = new JRadioButton("Sangat tidak setuju");
        teams[1] = new JRadioButton("Tidak setuju");
        teams[2] = new JRadioButton("Rusang setuju");
        teams[3] = new JRadioButton("Setuju", true);
        teams[4] = new JRadioButton("Sangat setuju");

        JPanel panel = new JPanel();
        JLabel pernyataan = new JLabel("Modul Praktikum Pemrograman Berorientasi Objek jelas dan mudah.");
        panel.add(pernyataan);

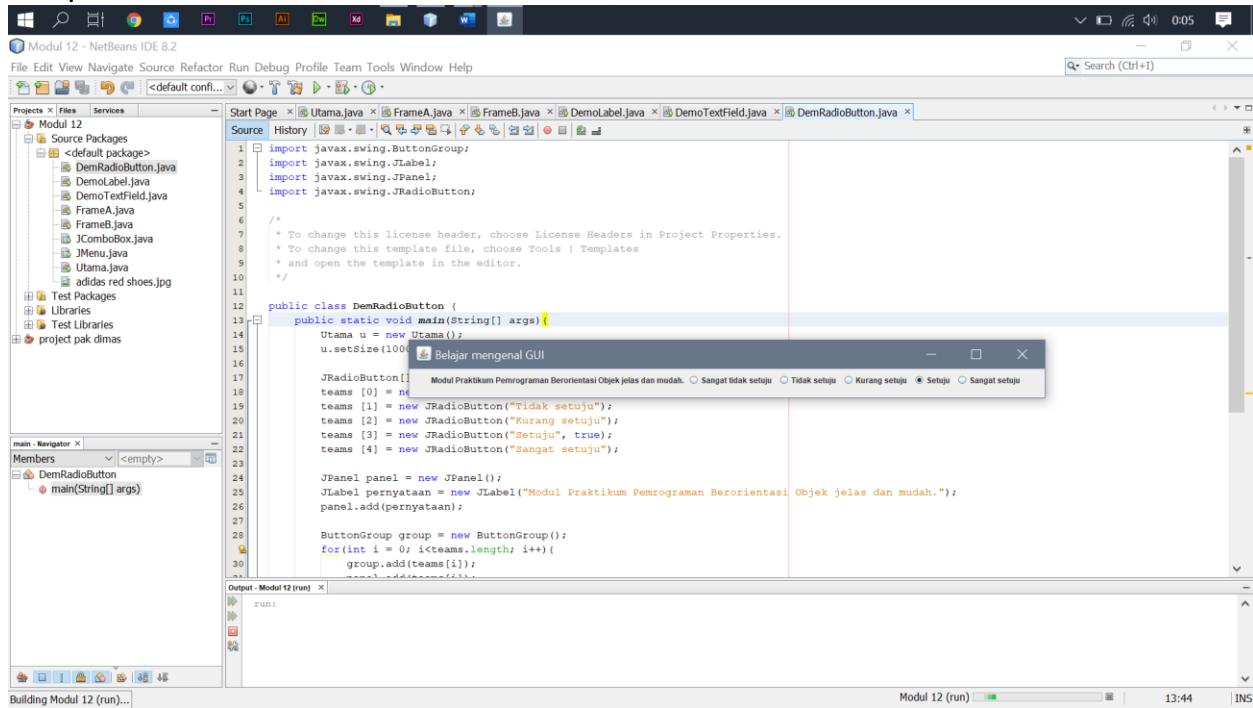
        ButtonGroup group = new ButtonGroup();
        for(int i = 0; i<teams.length; i++){
            group.add(teams[i]);
            panel.add(teams[i]);
        }

        u.add(panel);
        u.setVisible(true);
    }
}

```

- Bottom Status Bar:** Shows the time as 13:44 and the current mode as INS.

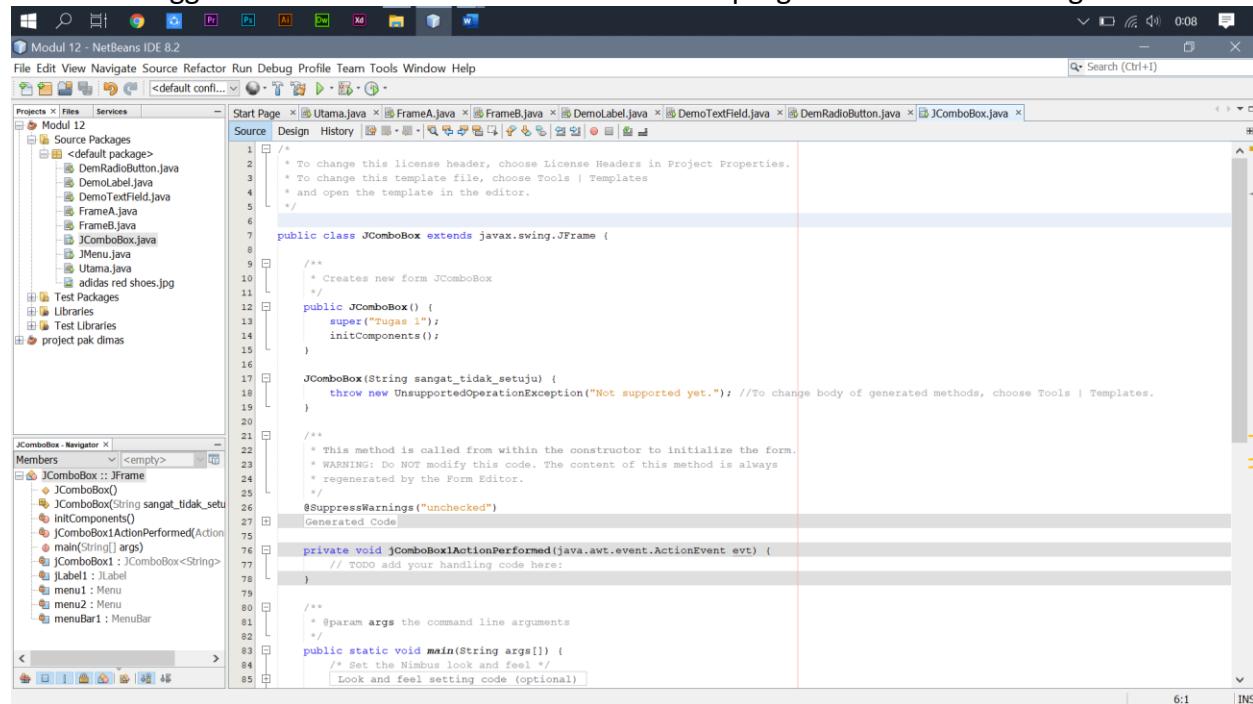
Output



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

Tugas

1. Menggunakan class JComboBox untuk membuat program GUI berdasarkan gambar



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

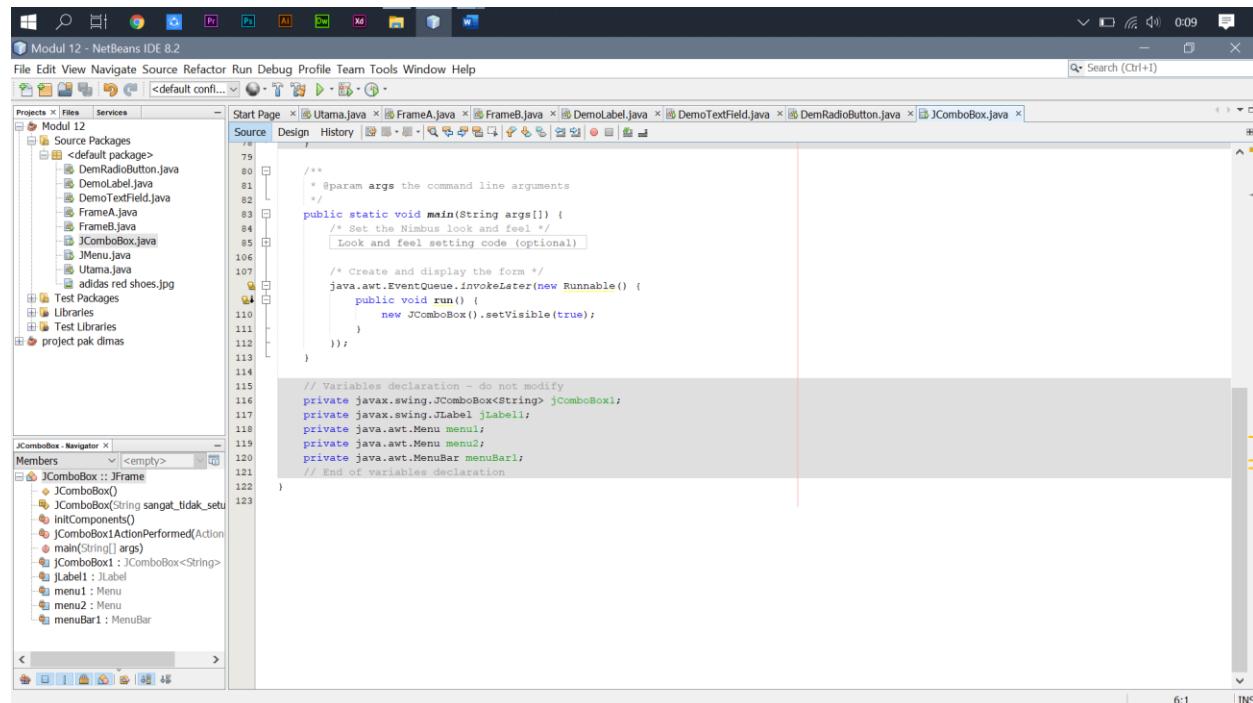
public class JcomboBox extends javax.swing.JFrame {

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

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

    /**
     * This method is called from within the constructor to initialize the form.
     * WARNING: Do NOT modify this code. The content of this method is always
     * regenerated by the Form Editor.
     */
    @SuppressWarnings("unchecked")
    // Generated Code
    private void jComboBox1ActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
    }

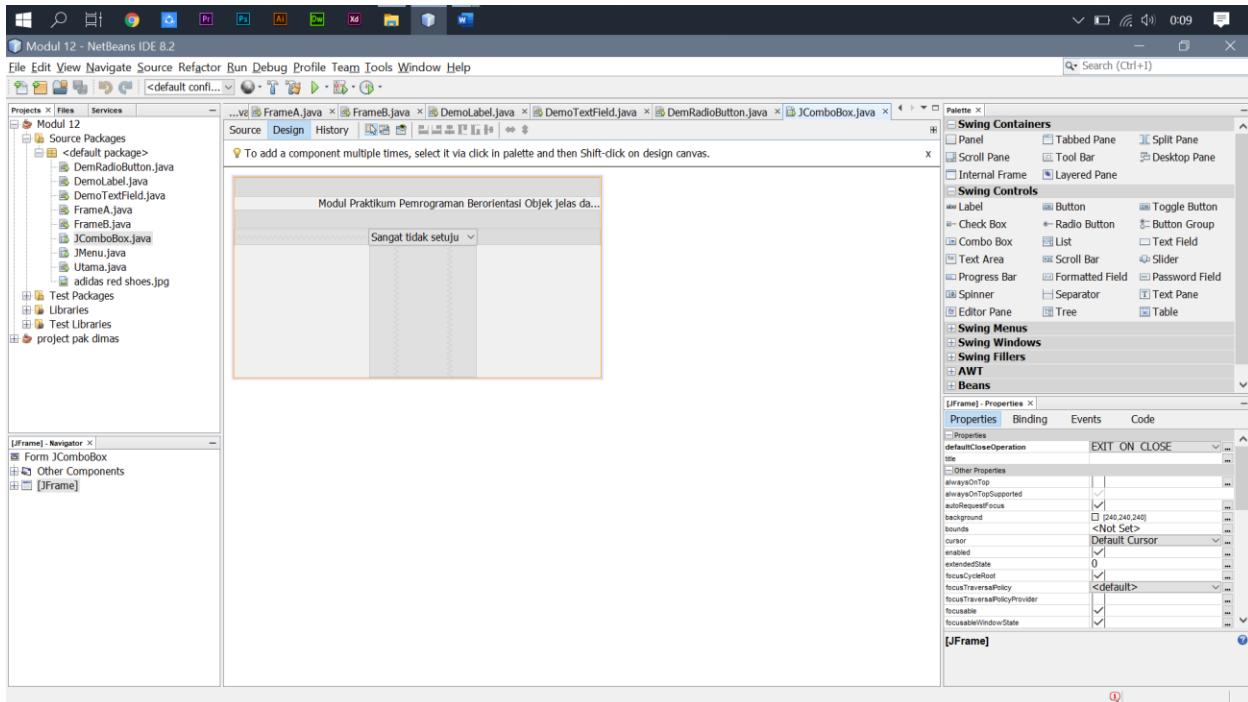
    /**
     * @param args the command line arguments
     */
    public static void main(String args[]) {
        /* Set the Nimbus look and feel */
        Look and feel setting code (optional)
    }
}
```



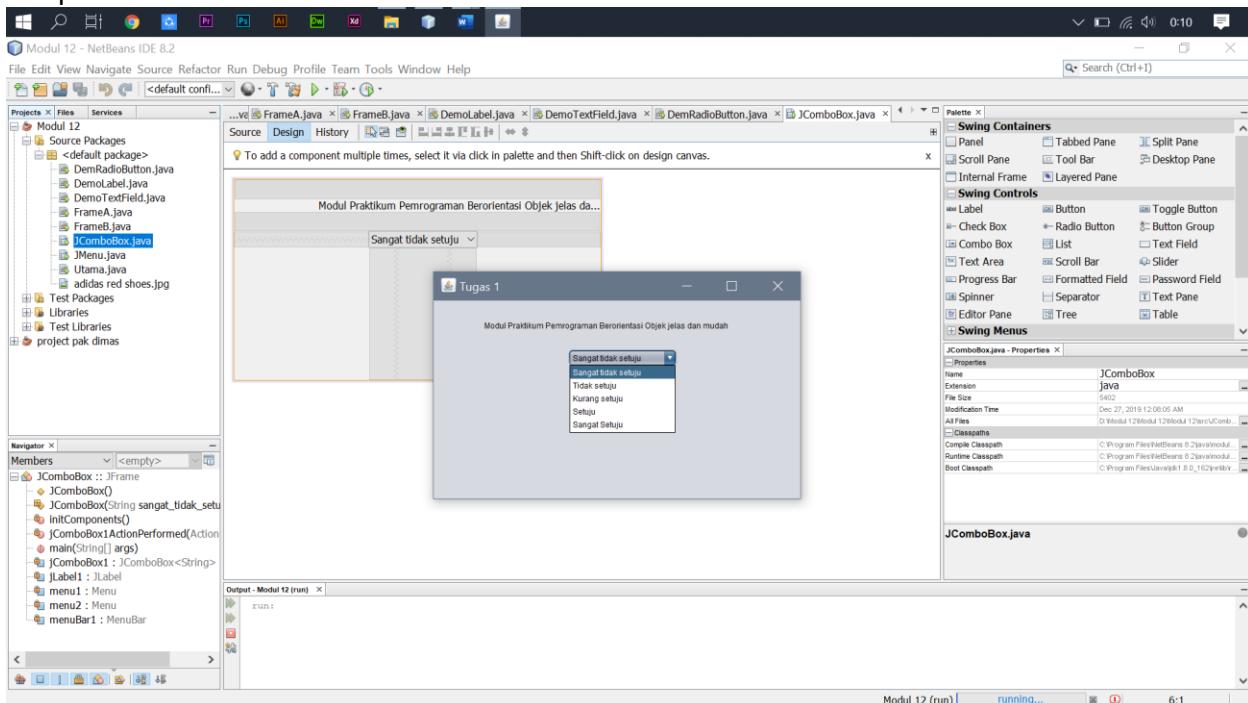
```
/*
 * @param args the command line arguments
 */
public static void main(String args[]) {
    /* Set the Nimbus look and feel */
    Look and feel setting code (optional)

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

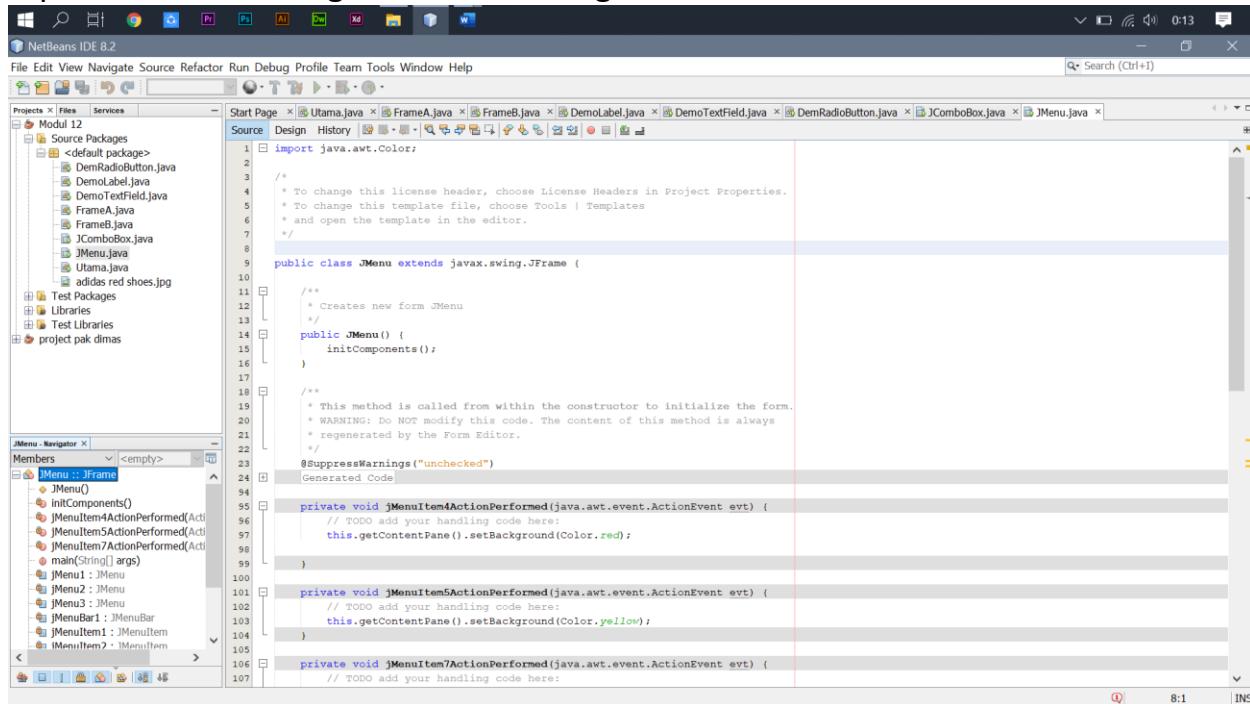
// Variables declaration - do not modify
private javax.swing.JComboBox<String> jComboBox1;
private javax.swing.JLabel jLabel1;
private java.awt.Menu menu1;
private java.awt.Menu menu2;
private java.awtMenuBar menuBar1;
// End of variables declaration
}
```



Output



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



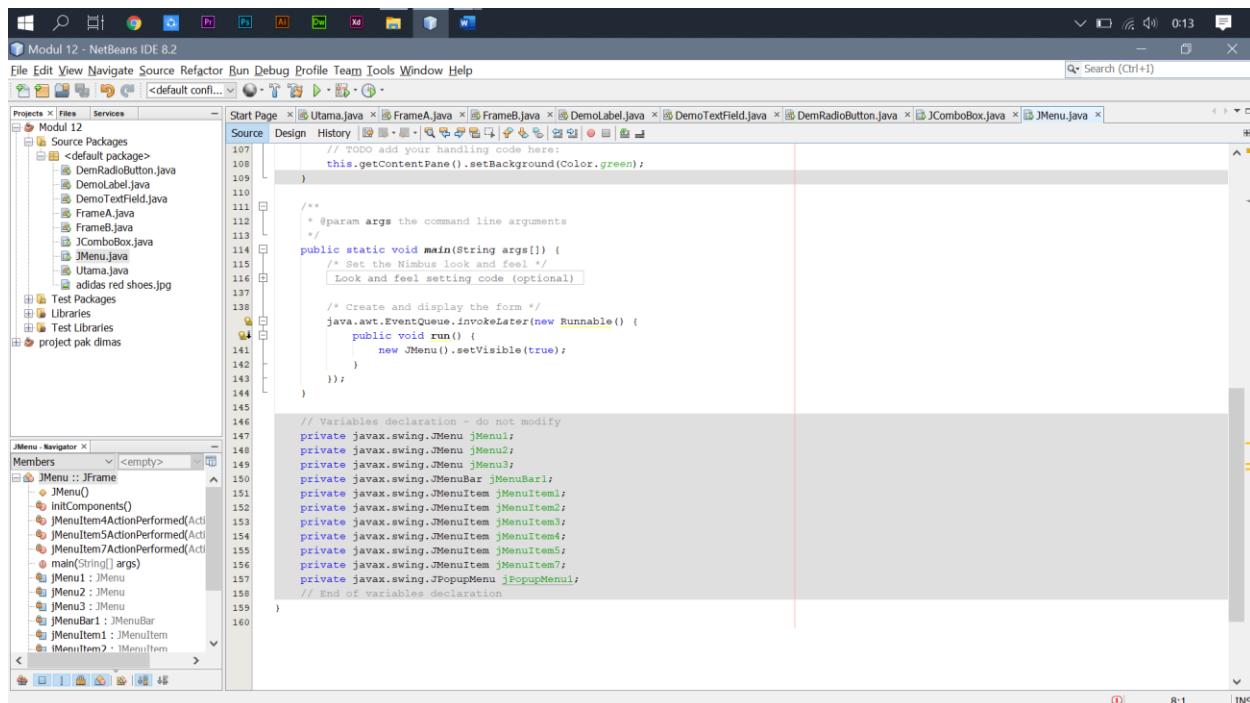
```
import java.awt.Color;
/*
 * To change this license header, choose License Headers in Project Properties.
 * To change this template file, choose Tools | Templates
 * and open the template in the editor.
 */
public class JMenu extends javax.swing.JFrame {

    /**
     * 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 jMenuItem4ActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
        this.getContentPane().setBackground(Color.red);
    }

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

    private void jMenuItem7ActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
    }
}
```



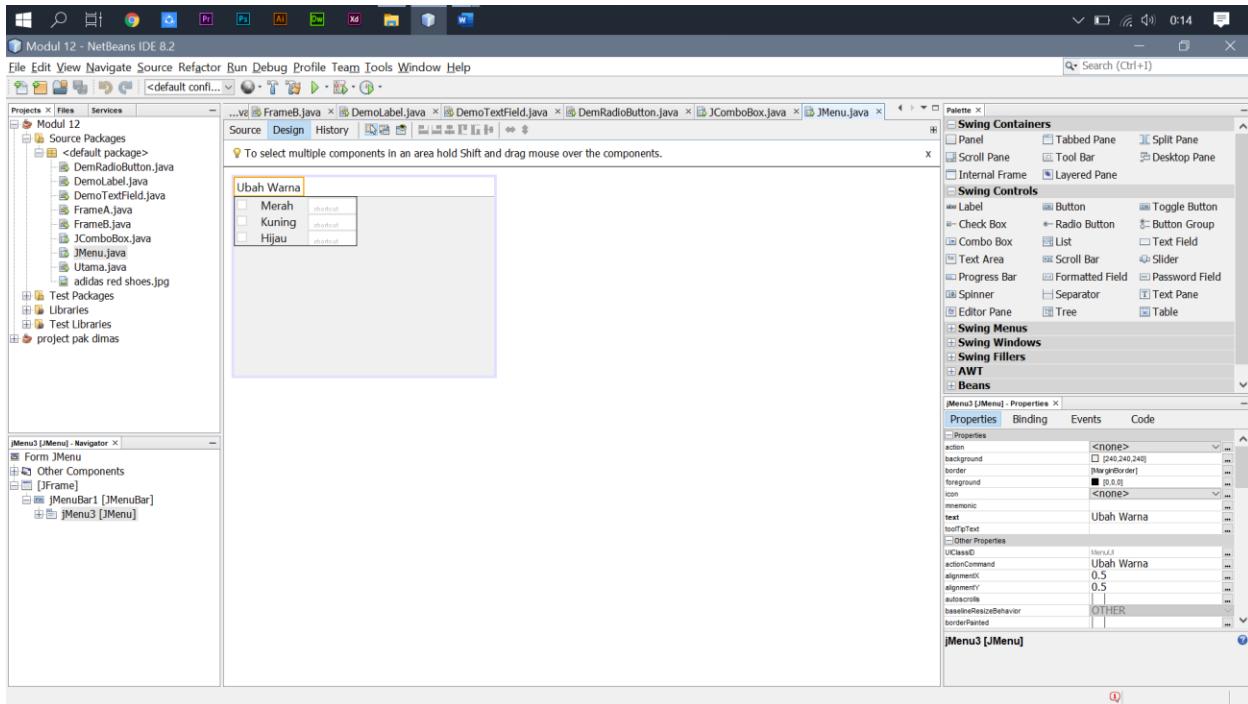
```
// TODO add your handling code here:
this.getContentPane().setBackground(Color.green);

}

/**
 * @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 jMenuBar1;
private javax.swing.JMenu jMenuBar2;
private javax.swing.JMenu jMenuBar3;
private javax.swing.JMenuBar jMenuBar4;
private javax.swing.JMenuItem jMenuItem1;
private javax.swing.JMenuItem jMenuItem2;
private javax.swing.JMenuItem jMenuItem3;
private javax.swing.JMenuItem jMenuItem4;
private javax.swing.JMenuItem jMenuItem5;
private javax.swing.JMenuItem jMenuItem7;
private javax.swing.JPopupMenu jPopupMenu1;
// End of variables declaration
}
```



Output

