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### **Laporan Praktikum**

### **Pemrograman Berorientasi Objek (PBO)**

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Modul 5 – Constructor

Modul 6 – Inheritance

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Modul 8 – Polymorphism

Modul 9 – Abstract Class

Modul 10 – Interface

Modul 11 – Nested Class

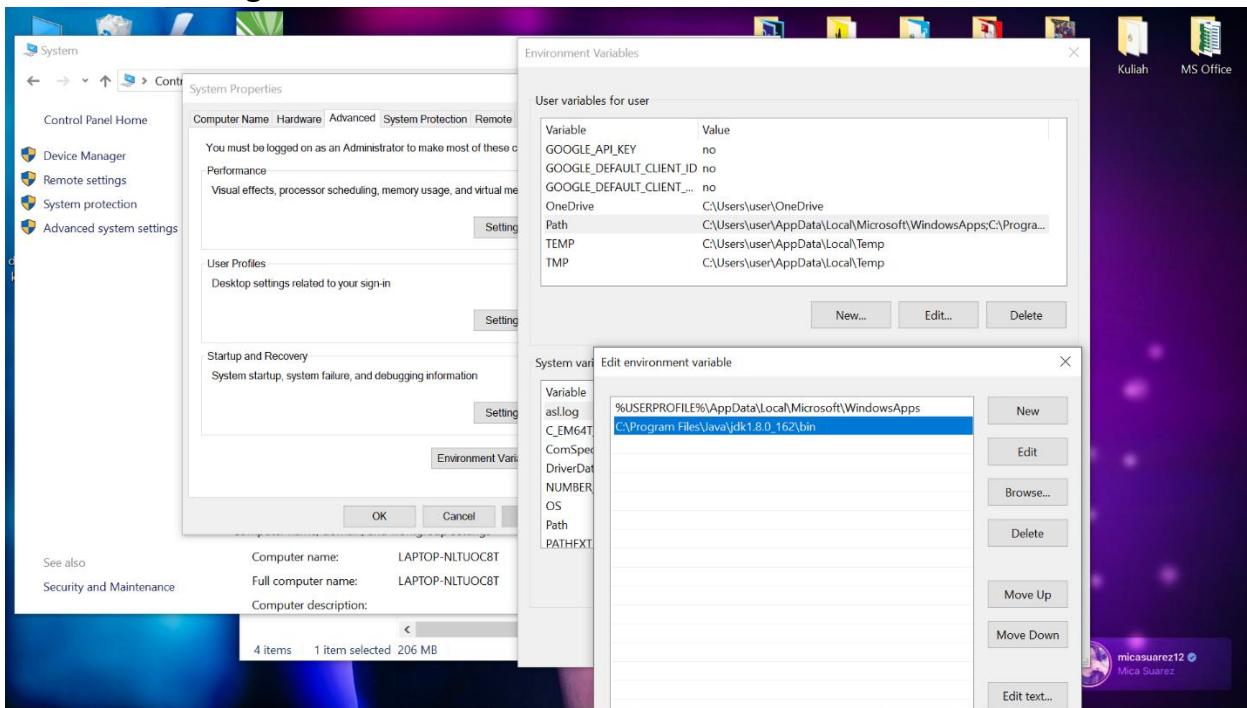
Modul 12 – Graphical User Interface (GUI)

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## MODUL 1 – Pengenalan Java



The screenshot displays four windows side-by-side. On the left is a 'Command Prompt' window showing the directory structure of drive D: and the compilation and execution of Java programs. The other three windows are 'Notepad' documents containing Java code:

- Program.Java - Notepad:**

```
public class Program{
    public static void main (String[] args){
        System.out.println("Hello World");
    }
}
```
- Roti.java - 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.java - Notepad:**

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

The Command Prompt window shows the following output:

```
Volume in drive D is New Volume
Volume Serial Number is 4875-F18B

Directory of D:\

19/09/2019  18:27    <DIR>          00_Sementara
01/09/2019  18:55    <DIR>          A. Illustrator
10/07/2019  15:01    <DIR>          A. Photoshop
19/01/2019  07:18    <DIR>          A. Premiere Pro
22/08/2019  12:57    <DIR>          Anang
04/06/2019  07:34    <DIR>          Aplikasi
19/09/2019  18:20    <DIR>          dll
22/08/2019  12:55    <DIR>          Film
19/09/2019  18:19    <DIR>          Gambar
19/09/2019  18:29    <DIR>          Hasil foto
19/09/2019  19:51    <DIR>          Presentasi Gentoo
19/09/2019  20:43    419 Program.class
19/09/2019  20:40    105 Program.Java
19/09/2019  20:43    1.130 Roti.class
19/09/2019  20:40    485 Roti.java
19/09/2019  20:40    518 RotiDemo.class
19/09/2019  20:44    213 RotiDemo.java
17/08/2019  08:53    <DIR>          SHAREit
19/09/2019  19:44    1.363.936 SO CentOS.pptx
19/09/2019  18:19    <DIR>          Video-ku
               7 File(s)   1.366.896 bytes
               13 Dir(s)  649.274.900.480 bytes free

D:\>javac Program.java
D:\>java Program
Hello World

D:\>javac Roti.java
D:\>javac RotiDemo.java
D:\>java RotiDemo
Warna Roti : Hijau
Rasa Roti : Pandan
Berat Roti : 30
Harga Roti : Rp. 6000.0
```

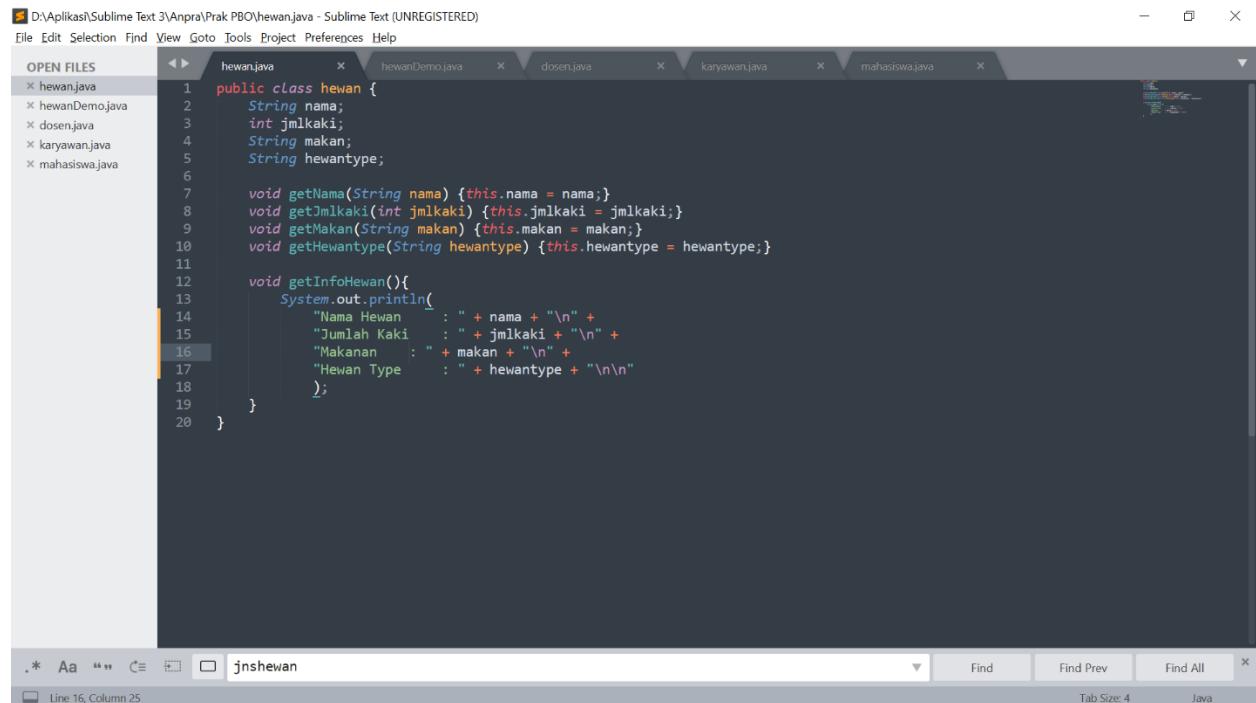
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## Modul 2 – Class dan Object

### Class hewan



The screenshot shows a Sublime Text window with multiple tabs open. The active tab is 'hewan.java' which contains the following Java code:

```
1 public class hewan {
2     String nama;
3     int jmlkaki;
4     String makan;
5     String hewantype;
6
7     void getName(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 }
```

The status bar at the bottom indicates 'Line 16, Column 25'. The bottom right corner shows 'Tab Size: 4' and 'Java'.

## Class hewanDemo

The screenshot shows the Sublime Text interface with multiple tabs open. The current tab is 'hewanDemo.java' which contains the following Java code:

```
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("Herbivora");
15        hewan2.getInfoHewan();
16    }
17 }
```

The status bar at the bottom indicates 'Line 5, Column 35'.

## Hasil/Output

The screenshot shows the Sublime Text interface with a command prompt window integrated into the interface. The command prompt shows the execution of the Java program:

```
Microsoft Windows [Version 10.0.17134.1006]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\user>d:
D:\>cd Aplikasi\Sublime Text 3\Anpra\Prak PBO
D:\Aplikasi\Sublime Text 3\Anpra\Prak PBO>javac hewan.java
D:\Aplikasi\Sublime Text 3\Anpra\Prak PBO>javac hewanDemo.java
D:\Aplikasi\Sublime Text 3\Anpra\Prak PBO>java hewanDemo
Nama Hewan      : Harimau
Jumlah Kaki    : 4
Makanan        : Daging
Hewan Type     : Karnivora

Nama Hewan      : Kerbau
Jumlah Kaki    : 4
Makanan        : Rumput
Hewan Type     : Herbivora
```

The status bar at the bottom indicates 'Line 16, Column 25'.

## Class dosen

D:\Aplikasi\Sublime Text 3\Anpra\Prak PBO\dosen.java - Sublime Text (UNREGISTERED)

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

1 public class dosen{
2     String nama;
3     String nik;
4     String pendidikan;
5     Date tglLahir;
6
7     void tampilkanNama(String nama){this.nama = nama;};
8     void tampilkanTglLahir(Date tglLahir){this.tglLahir = tglLahir;};
9     void tampilkanNik(int nik){this.nik = nik;};
10 }
```

.\* Aa ““ C= jnshewan

Line 4, Column 23

Find Find Prev Find All

Tab Size: 4 Java

## Class mahasiswa

D:\Aplikasi\Sublime Text 3\Anpra\Prak PBO\mahasiswa.java - Sublime Text (UNREGISTERED)

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

1 public class mahasiswa{
2     String nama;
3     String nim;
4     String alamat;
5     int semester;
6
7     void tampilkanNama(String nama){this.nama = nama;};
8     void tampilkanNim(String nim){this.nim = nim;};
9     void tampilkanAlamat(String jabatan){this.alamat = alamat;};
10    void tampilkanSemester(int semester){this.semester = semester;};
11 }
```

.\* Aa ““ C= jnshewan

Line 10, Column 66

Find Find Prev Find All

Tab Size: 4 Java

## Class karyawan

The screenshot shows a Sublime Text window with multiple tabs open. The current tab, 'karyawan.java', contains the following Java code:

```
1 public class karyawan{  
2     String nama;  
3     String alamat;  
4     String jabatan;  
5     Double gaji;  
6  
7     void tampilanNama(String nama){this.nama = nama;}  
8     void tampilanAlamat(String alamat){this.alamat = alamat;}  
9     void tampilanJabatan(String jabatan){this.jabatan = jabatan;}  
10    void tampilanGaji(Double gaji){this.gaji = gaji;}  
11 }
```

The code defines a class named 'karyawan' with four instance variables: 'nama', 'alamat', 'jabatan', and 'gaji'. It includes four methods: 'tampilanNama', 'tampilanAlamat', 'tampilanJabatan', and 'tampilanGaji', each taking a parameter and setting it to the instance variable 'this'.

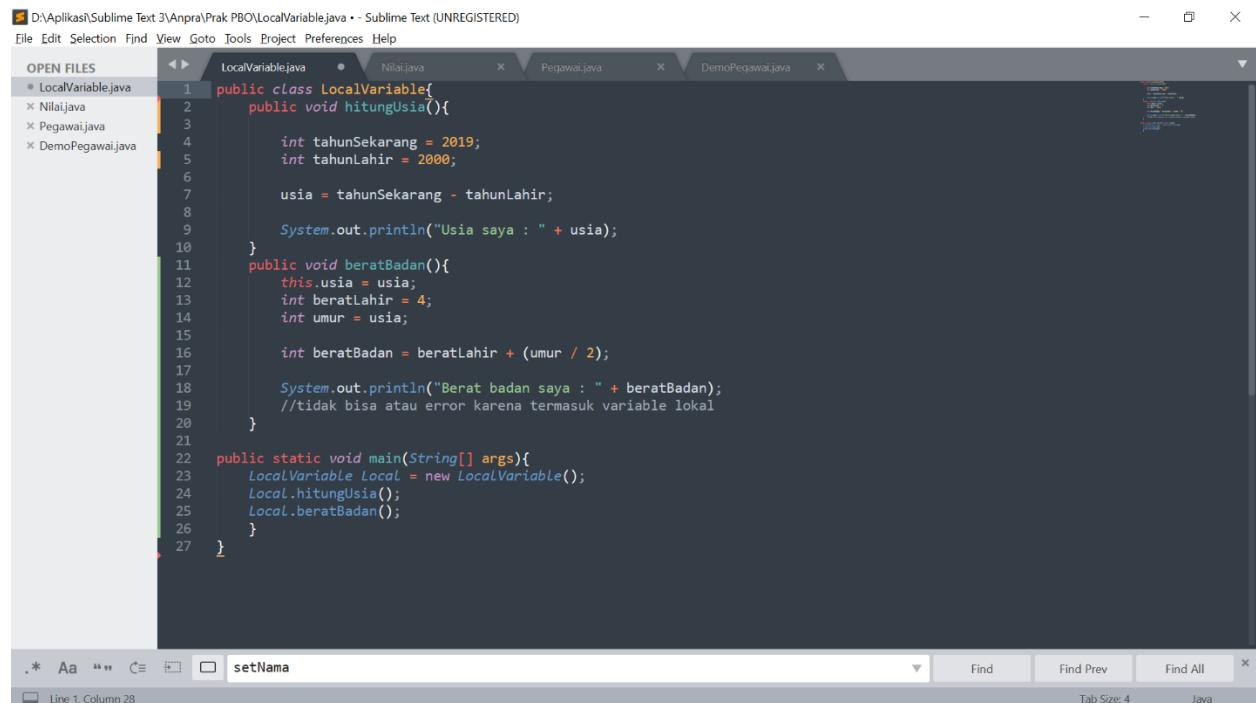
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## MODUL 3 – Class Member : Variable dan Method

### Latihan 1



The screenshot shows a Sublime Text 3 interface with the following details:

- File Path:** D:\Aplikasi\Sublime Text 3\Anpra\Prak PBO\LocalVariable.java
- Open Files:** LocalVariable.java (active), Nilai.java, Pegawai.java, DemoPegawai.java
- Code Content:**

```
1 public class LocalVariable{
2     public void hitungUsia(){
3         int tahunSekarang = 2019;
4         int tahunLahir = 2000;
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    public static void main(String[] args){
22        LocalVariable Local = new LocalVariable();
23        Local.hitungUsia();
24        Local.beratBadan();
25    }
26
27 }
```
- Status Bar:** Line 1, Column 28
- Bottom Bar:** Find, Find Prev, Find All, Tab Size: 4, Java

## Hasil saat program dijalankan

D:\Aplikasi\Sublime Text 3\Anpra\Prak PBO\LocalVariable.java - Sublime Text (UNREGISTERED)

File Edit Selection Find View Goto Tools Project Preferences Help

OPEN FILES

- LocalVariable.java
- Nilai.java
- Pegawai.java
- DemoPegawai.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:14: error: cannot find symbol  
        int umur = usia;  
   ^  
     symbol: variable usia  
     location: class LocalVariable  
5 errors

D:\Aplikasi\Sublime Text 3\Anpra\Prak PBO>

.\* Aa "" C= setNama

Line 21, Column 5

Find Find Prev Find All Tab Size: 4 Java

## Latihan 2

D:\Aplikasi\Sublime Text 3\Anpra\Prak PBO\LocalVariable.java - Sublime Text (UNREGISTERED)

File Edit Selection Find View Goto Tools Project Preferences Help

OPEN FILES

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

```
1 public class LocalVariable{  
2     int usia = 0;  
3     public void hitungUsia(){  
4         int tahunSekarang = 2019;  
5         int tahunLahir = 2000;  
6  
7         usia = tahunSekarang - tahunLahir;  
8  
9         System.out.println("Usia saya : " + usia);  
10    }  
11    public void beratBadan(){  
12        this.usia = usia;  
13        int beratLahir = 4;  
14        int umur = usia;  
15  
16        int beratBadan = beratLahir + (umur / 2);  
17  
18        System.out.println("Berat badan saya : " + beratBadan);  
19        //tidak bisa atau error karena termasuk variable lokal  
20    }  
21  
22    public static void main(String[] args){  
23        LocalVariable Local = new LocalVariable();  
24        Local.hitungUsia();  
25        Local.beratBadan();  
26    }  
27}  
28}
```

.\* Aa "" C= setNama

Line 2, Column 18

Find Find Prev Find All Tab Size: 4 Java

## Hasil saat program dijalankan

D:\Aplikasi\Sublime Text 3\Anpra\Prak PBO\LocalVariable.java - Sublime Text (UNREGISTERED)

File Edit Selection Find View Goto Tools Project Preferences Help

OPEN FILES

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

Command Prompt

```
D:\Aplikasi\Sublime Text 3\Anpra\Prak PBO>javac LocalVariable.java
D:\Aplikasi\Sublime Text 3\Anpra\Prak PBO>java LocalVariable
Usia saya : 19
Berat badan saya : 13
```

D:\Aplikasi\Sublime Text 3\Anpra\Prak PBO>

setNama

Line 2, Column 18

Find Find Prev Find All Tab Size: 4 Java

## Latihan 3

D:\Aplikasi\Sublime Text 3\Anpra\Prak PBO\Pegawai.java - Sublime Text (UNREGISTERED)

File Edit Selection Find View Goto Tools Project Preferences Help

OPEN FILES

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

LocalVariable.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 }
```

setNama

Line 12, Column 26

Find Find Prev Find All Tab Size: 4 Java

D:\Aplikasi\Sublime Text 3\Anpra\Prak PBO\DemoPegawai.java - Sublime Text (UNREGISTERED)

File Edit Selection Find Goto Tools Project Preferences Help

OPEN FILES

- 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 ("Anang");
5         pgw1.beriNip (200180087);
6         pgw1.tambahGaji (6000000);
7         pgw1.cetakPegawai ();
8
9         Pegawai pgw2 = new Pegawai ();
10        pgw2.beriNama ("Prasetyo");
11        pgw2.beriNip (200180088);
12        pgw2.tambahGaji (7000000);
13        pgw2.cetakPegawai ();
14
15        Pegawai pgw3 = new Pegawai ();
16        pgw3.beriNama ("Anpra");
17        pgw3.beriNip (200180089);
18        pgw3.tambahGaji (8000000);
19        pgw3.cetakPegawai ();
20
21        Pegawai pgw4 = new Pegawai ();
22        pgw4.beriNama ("Setyo");
23        pgw4.beriNip (200180090);
24        pgw4.tambahGaji (9000000);
25        pgw4.cetakPegawai ();
26
27        Pegawai pgw5 = new Pegawai ();
28        pgw5.beriNama ("Pras");
29        pgw5.beriNip (200180099);
30        pgw5.tambahGaji (9900000);
31        pgw5.cetakPegawai ();
32    }
```

.\* Aa “ “ C= ☐ setNama

Line 13, Column 30

Find Find Prev Find All

Tab Size: 4 Java

## Hasil saat program dijalankan

D:\Aplikasi\Sublime Text 3\Anpra\Prak PBO\DemoPegawai.java - Sublime Text (UNREGISTERED)

File Edit Selection Find Goto Tools Project Preferences Help

OPEN FILES

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

Command Prompt

```
D:\Aplikasi\Sublime Text 3\Anpra\Prak PBO>javac Pegawai.java
D:\Aplikasi\Sublime Text 3\Anpra\Prak PBO>javac DemoPegawai.java
D:\Aplikasi\Sublime Text 3\Anpra\Prak PBO>java DemoPegawai
Nama Pegawai : Anang
NIP Pegawai : 200180087
Gaji Pegawai : 6000000.0

Nama Pegawai : Prasetyo
NIP Pegawai : 200180088
Gaji Pegawai : 7000000.0

Nama Pegawai : Anpra
NIP Pegawai : 200180089
Gaji Pegawai : 8000000.0

Nama Pegawai : Setyo
NIP Pegawai : 200180090
Gaji Pegawai : 9000000.0

Nama Pegawai : Pras
NIP Pegawai : 200180099
Gaji Pegawai : 9900000.0

D:\Aplikasi\Sublime Text 3\Anpra\Prak PBO>
```

31 pgw5.cetakPegawai ();

32 }

.\* Aa “ “ C= ☐ setNama

Line 13, Column 30

Find Find Prev Find All

Tab Size: 4 Java

## Tugas Rumah

D:\Aplikasi\Sublime Text 3\Anpra\Prak PBO\Nilai.java - Sublime Text (UNREGISTERED)

File Edit Selection Find Goto Tools Project Preferences Help

OPEN FILES

- × LocalVariable.java
- Nilai.java

```
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 }
```

Line 6, Column 1

Tab Size: 4 Java

## Hasil saat program dijalankan

D:\Aplikasi\Sublime Text 3\Anpra\Prak PBO\Nilai.java - Sublime Text (UNREGISTERED)

File Edit Selection Find View Goto Tools Project Preferences Help

OPEN FILES

- × LocalVariable.java
- Nilai.java

Command Prompt

```
Volume Serial Number is 4875-F18B  
  
Directory of D:\Aplikasi\Sublime Text 3\Anpra\Prak PBO  
  
03/10/2019 21:08 <DIR> .  
03/10/2019 21:08 <DIR> ..  
26/09/2019 20:37 268 dosen.java  
26/09/2019 20:27 1.083 hewan.class  
26/09/2019 20:27 538 hewan.java  
26/09/2019 20:28 621 hewanDemo.class  
26/09/2019 20:18 433 hewanDemo.java  
26/09/2019 20:54 328 karyawan.java  
03/10/2019 18:23 646 LocalVariable.class  
03/10/2019 18:38 284 LocalVariable.java  
26/09/2019 20:58 324 mahasiswa.java  
03/10/2019 21:17 694 Nilai.java  
10 File(s) 5.203 bytes  
2 Dir(s) 647.487.877.120 bytes free  
  
D:\Aplikasi\Sublime Text 3\Anpra\Prak PBO>javac Nilai.java  
D:\Aplikasi\Sublime Text 3\Anpra\Prak PBO>java Nilai  
Nilai UTS : 70.0  
Nilai UAS : 60.0  
Nilai Tugas : 100.0  
Nilai Total : 76.66666666666666  
  
D:\Aplikasi\Sublime Text 3\Anpra\Prak PBO>
```

31 }

Line 6, Column 1

Tab Size: 4 Java

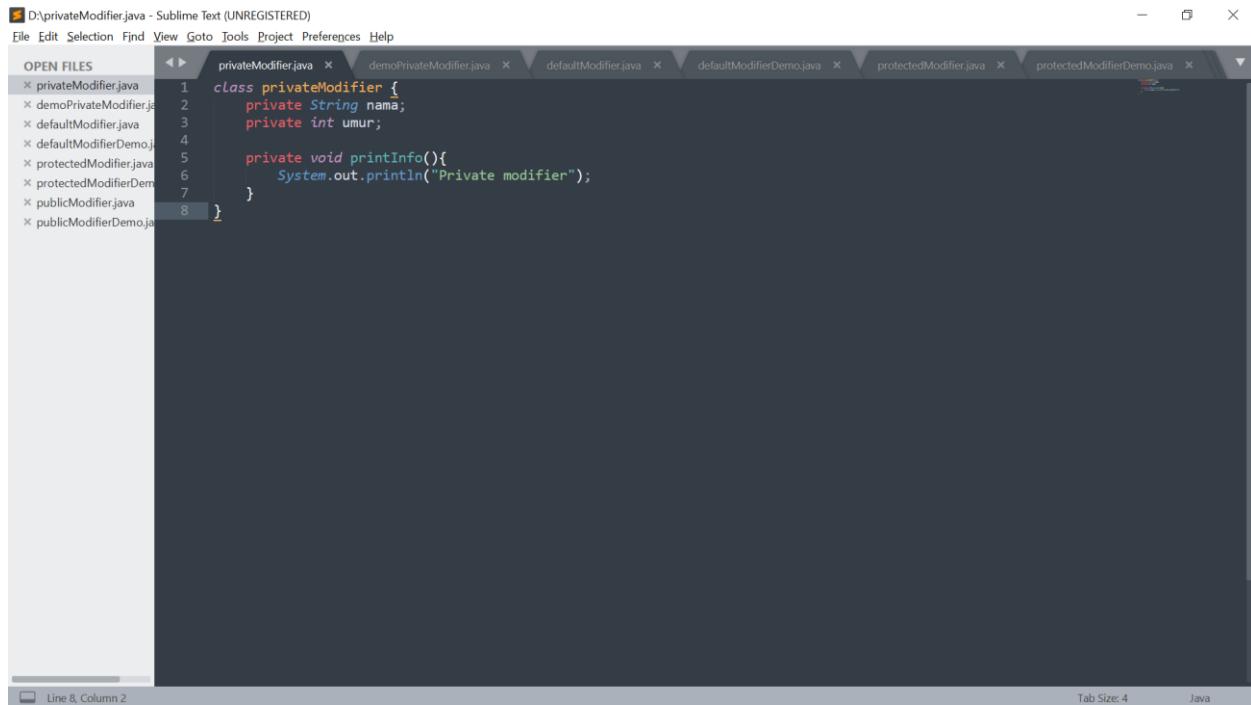
**Nama : Anang Prasetyo**

**NIM : L200180063**

**Kelas : B**

## Modul 4 – Access Modifier

### 1. Private Modifier



The screenshot shows a Sublime Text window with multiple tabs open at the top, but only one file is visible in the main editor area. The file is named 'privateModifier.java' and contains the following Java code:

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

The code defines a class named 'privateModifier' with two private instance variables: 'nama' (String type) and 'umur' (int type). It also contains a private method 'printInfo()' that prints the string "Private modifier" to the console. The cursor is positioned at the closing brace of the class definition on line 8.

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

File Edit Selection Find Goto Tools Project Preferences Help

OPEN FILES

- 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 }
```

Line 4, Column 24

Tab Size: 4 Java

This screenshot shows a Sublime Text window with multiple tabs open. The current tab is 'demoPrivateModifier.java'. The code in the editor is as follows:

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

The status bar at the bottom indicates 'Line 4, Column 24'.

Tidak dapat diakses karena hanya dapat diakses didalam package dan class yang sama

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

File Edit Selection Find Goto Tools Project Preferences Help

OPEN FILES

- privateModifier.java
- demoPrivateModifier.java

Command Prompt

```
Microsoft Windows [Version 10.0.17134.1040]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\user>d:
D:\>javac privateModifier.java

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

D:\>
```

Line 4, Column 24

Tab Size: 4 Java

This screenshot shows a terminal window within Sublime Text displaying Java compilation errors. The user has attempted to run the 'privateModifier.java' file, which failed because it lacks a main method. They then tried to run 'demoPrivateModifier.java', which failed due to a private access modifier on the 'printInfo()' method.

## 2. Default Modifier

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

File Edit Selection Find Goto Tools Project Preferences Help

OPEN FILES

- 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 }
```

Line 7, Column 31

Tab Size: 4 Java

D:\defaultModifierDemo.java - Sublime Text (UNREGISTERED)

File Edit Selection Find Goto Tools Project Preferences Help

OPEN FILES

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

```
1 class defaultModifierDemo{
2     public static void main(String[] args){
3         defaultModifier dm = new defaultModifier();
4         dm.jumlah();
5     }
6 }
```

Line 4, Column 21

Tab Size: 4 Java

D:\defaultModifierDemo.java - Sublime Text (UNREGISTERED)

File Edit Selection Find Goto Tools Project Preferences Help

OPEN FILES

privateModifier.java demoPrivateModifier.java defaultModifier.java defaultModifierDemo.java

Command Prompt

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

D:\>javac defaultModifier.java

D:\>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:\>javac defaultModifierDemo.java

D:\>java defaultModifierDemo
3

D:\>
```

Line 4, Column 21

Tab Size: 4 Java

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

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

File Edit Selection Find Goto Tools Project Preferences Help

OPEN FILES

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

Command Prompt

```
D:\>javac defaultModifier.java
D:\>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:\>
```

Line 7, Column 31

Tab Size: 4 Java

### 3. Protected Modifier

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

File Edit Selection Find Goto Tools Project Preferences Help

OPEN FILES

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

```
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 }
```

Line 1, Column 1

Tab Size: 4 Java

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

File Edit Selection Find Goto Tools Project Preferences Help

OPEN FILES

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

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

Line 7, Column 2

Tab Size: 4 Java

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

File Edit Selection Find Goto Tools Project Preferences Help

OPEN FILES

- privateModifier.java
- demoPrivateModifier.java
- defaultModifier.java
- defaultModifierDemo.java
- protectedModifier.java
- protectedModifierDemo.java

Command Prompt

```
D:\>javac protectedModifierDemo.java
D:\>java protectedModifierDemo
Protected Modifier
This is message
```

D:\>

Line 1, Column 8

Tab Size: 4 Java

This screenshot shows a Sublime Text window with multiple tabs open. The current tab is a command prompt window titled 'Command Prompt'. It displays the command 'javac protectedModifierDemo.java' being run, followed by the output of the Java application 'protectedModifierDemo'. The application prints 'Protected Modifier' and 'This is message' to the console. The status bar at the bottom indicates 'Line 1, Column 8'.

## 4. Public Modifier

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

File Edit Selection Find Goto Tools Project Preferences Help

OPEN FILES

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

publicModifier.java

```
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 }
```

Line 9, Column 2

Tab Size: 4 Java

This screenshot shows a Sublime Text window with multiple tabs open. The current tab is 'publicModifier.java'. The code defines a class named 'publicModifier' with three public integer fields: 'a', 'b', and 'c', each initialized to 2, 5, and 9 respectively. It also contains a public method 'kali()' that calculates the product of these three fields and prints it to the console using 'System.out.println'. The cursor is positioned at the end of the closing brace of the class definition. The status bar at the bottom indicates 'Line 9, Column 2'.

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

File Edit Selection Find Goto Tools Project Preferences Help

OPEN FILES

defaultModifier.java protectedModifierDemo.java protectedModifier.java publicModifier.java publicModifierDemo.java

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

Line 4, Column 20

Tab Size: 4 Java

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

File Edit Selection Find Goto Tools Project Preferences Help

OPEN FILES

protectedModifierDemo.java publicModifier.java

```
Command Prompt  
D:\>javac protectedModifierDemo.java  
D:\>java protectedModifierDemo  
Protected Modifier  
This is message  
D:\>javac publicModifier.java  
D:\>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:\>javac publicModifierDemo.java  
D:\>java publicModifierDemo  
Hasil Kali = 98  
D:\>
```

Line 4, Column 20

Tab Size: 4 Java

## Kali, tambah, kurang, bagi, dan rata-rata

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

File Edit Selection Find Goto Tools Project Preferences Help

OPEN FILES

```
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 }
```

Line 23, Column 44

Tab Size: 4 Java

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

File Edit Selection Find Goto Tools Project Preferences Help

OPEN FILES

```
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 }
```

Line 5, Column 19

Tab Size: 4 Java

## Hasil

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

File Edit Selection Find Goto Tools Project Preferences Help

OPEN FILES

- privateMo
- x demoPriv
- x defaultMo
- x protectedMo
- x publicMo

Command Prompt

```
D:\>javac publicModifierDemo.java
D:\>java publicModifierDemo
Hasil Kali = 90
Hasil Tambah = 16
Hasil Kurang = -12
Hasil Bagi = 0
Hasil Rata-rata = 5

D:\>
```

Line 5, Column 19

Tab Size: 4 Java

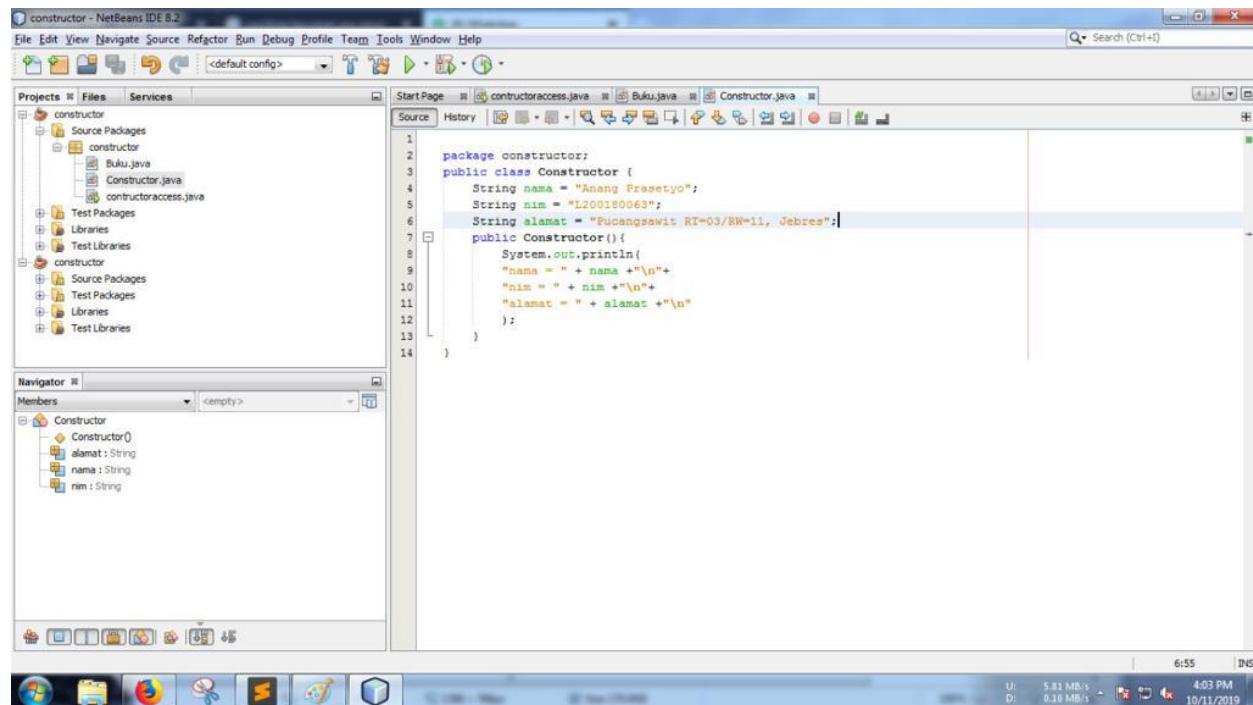
**Nama : Anang Prasetyo**

**NIM : L200180063**

**Kelas : B**

## Modul 5 - Constructor

### Latihan 1



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

- File Menu:** File, Edit, View, Navigate, Source, Refactor, Run, Debug, Profile, Team, Tools, Window, Help.
- Toolbar:** Standard NetBeans toolbar with icons for file operations.
- Project Explorer:** Shows two source packages named "constructor". The first package contains files "Buku.java", "Constructor.java", and "Constructoraccess.java". The second package also contains these files.
- Code Editor:** Displays the "Constructor.java" file with the following code:

```
1 package constructor;
2 public class Constructor {
3     String nama = "Anang Prasetyo";
4     String nim = "L200180063";
5     String alamat = "Pucangsawit RI=03/RW=11, Jebres";
6     public Constructor(){
7         System.out.println(
8             "nama = " + nama +"\n"+
9             "nim = " + nim +"\n"+
10            "alamat = " + alamat +"\n"
11        );
12    }
13 }
14 }
```
- Navigator:** Shows the members of the "Constructor" class, including the constructor and its three string fields: "alamat", "nama", and "nim".
- Bottom Status Bar:** Shows system information: U: 5.83 MB/s, D: 0.10 MB/s, 4:03 PM, 10/11/2019.

## Latihan 2

The screenshot shows the NetBeans IDE interface with the title "constructor - NetBeans IDE 8.2". The Projects tab shows a single project named "constructor" containing two source packages: "constructor" and "constructoraccess". The "constructor" package contains three files: "Buku.java", "Constructor.java", and "constructoraccess.java". The "constructoraccess" package contains three files: "Buku.java", "Constructor.java", and "constructoraccess.java". The Source tab displays the code for "Buku.java". The code defines a class "Buku" with four constructors and two methods: "info()" and "infoterbit()". The "info()" method prints the publisher name and book title. The "infoterbit()" method prints the publication year and printing count. The "Constructor.java" file is also visible in the background.

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

The screenshot shows the NetBeans IDE interface with the title "constructor - NetBeans IDE 8.2". The Projects tab shows a single project named "constructor" containing two source packages: "constructor" and "constructoraccess". The "constructor" package contains three files: "Buku.java", "Constructor.java", and "constructoraccess.java". The "constructoraccess" package contains three files: "Buku.java", "Constructor.java", and "constructoraccess.java". The Source tab displays the code for "Buku.java". The code now includes the addition of the "infoharga()" method, which prints the price. The "Constructor.java" file is also visible in the background.

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

The screenshot shows the NetBeans IDE 8.2 interface. The top menu bar includes File, Edit, View, Navigate, Source, Refactor, Run, Debug, Profile, Team, Tools, Window, and Help. The search bar at the top right contains the placeholder "Search (Ctrl+F)". The Projects tab is selected in the left sidebar, showing a project named "constructor" with two source packages: "constructor" and "Buku". The "constructor" package contains "Buku.java", "Constructor.java", and "constructoraccess.java". The "Buku" package contains "Buku.java". The Source tab in the center editor pane displays the following Java code:

```
1 package constructor;
2 public class constructoraccess {
3     public static void main(String[] args) {
4         Constructor Cons = new Constructor();
5         Buku B = new Buku ("illana tan", "Sunshine Becomes You");
6         Buku B1 = new Buku (2012, 4);
7         Buku B2 = new Buku (1000);
8         B.info();
9         B1.infoterbil();
10        B2.infoharga();
11    }
12 }
13
14
```

The Navigator tab on the left shows the members of "constructoraccess", specifically the "main(String[] args)" method.

## Hasil saat program dijalankan

The screenshot shows the NetBeans IDE 8.2 interface after running the program. The top menu bar and search bar are identical to the previous screenshot. The Projects tab is selected in the left sidebar. The Source tab in the center editor pane shows the same Java code as before. The Output tab at the bottom displays the execution results:

```
run:
nama = Anang Prasetyo
nim = L200180063
alamat = Pucangsawit RT=03/RW=11, Jebres

Name Pengarang = illana tan
Judul Buku = Sunshine Becomes You

Tahun Terbit = 2012
Cetakan Ke = 4

Harga = 1000.0

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

The status bar at the bottom right shows the date and time as 10/11/2019, 4:03 PM, and disk usage information: U: 5.81 MB/s, D: 0.16 MB/s.

## Tugas

The screenshot shows a Sublime Text interface with two open files and a Command Prompt window.

**Sublime Text Window 1 (Top):**

- File: D:\tugas5.java
- Content:

```
1 public class tugas5 {  
2     String nama = "Anang";  
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 }
```

**Sublime Text Window 2 (Bottom):**

- File: D:\aksesDataDiri.java
- Content:

```
1 public class aksesDataDiri {  
2     public static void main(String[] args){  
3         tugas5 data1 = new tugas5();  
4         tugas5 data2 = new tugas5(200180063);  
5  
6         data2.info();  
7     }  
8 }
```

**Command Prompt Window:**

- D:\>javac tugas5.java
- D:\>javac aksesDataDiri.java
- D:\>java aksesDataDiri
- Nama = Anang
- NIM = 200180063
- D:\>

**Nama : Anang Prasetyo**

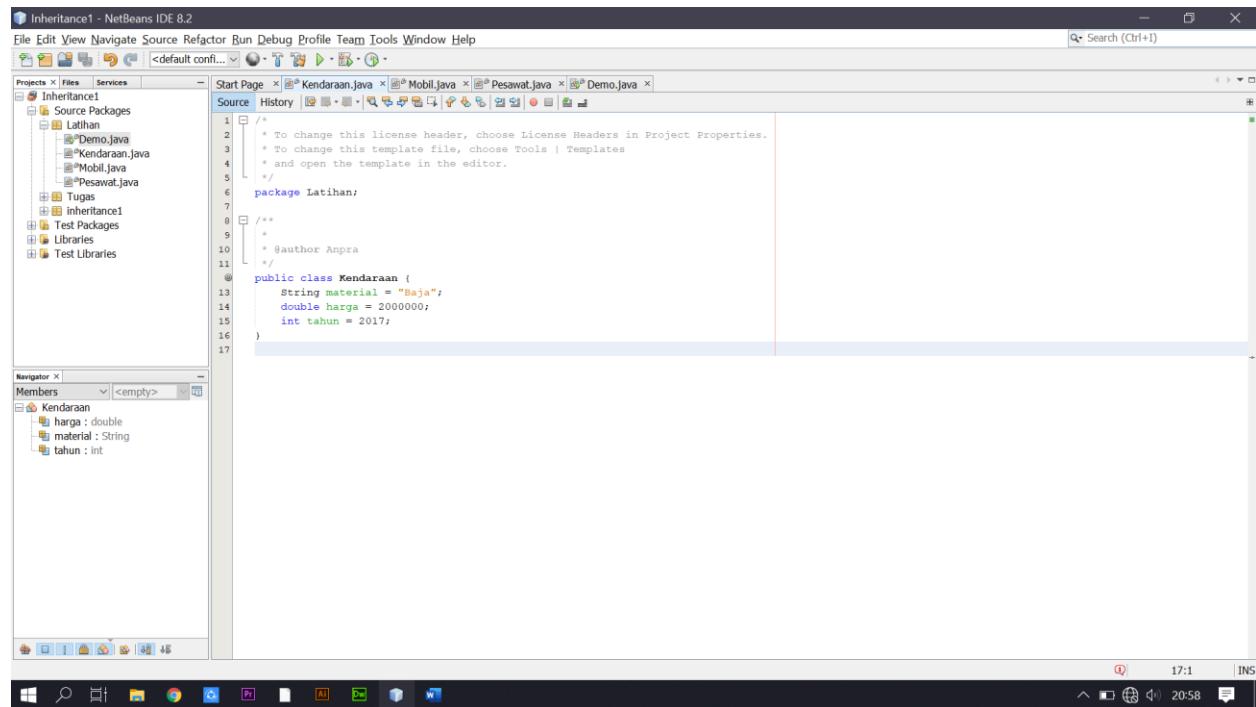
**NIM : L200180063**

**Kelas : B**

## MODUL 6 - Inheritance

### Latihan

#### Class Kendaraan



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

- Title Bar:** Inheritance1 - 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 "Inheritance1".
  - Source Packages:
    - Lathan
    - Demo.java
    - Kendaraan.java
    - Mobil.java
    - Pesawat.java
  - Tugas
  - Test Packages
  - Libraries
  - Test Libraries
- Code Editor:** Displays the code for the "Kendaraan.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 *
10 * @author Anpra
11 */
12 public class Kendaraan {
13     String material = "Baja";
14     double harga = 2000000;
15     int tahun = 2017;
16 }
```
- Navigator:** Shows the members of the "Kendaraan" class:
  - Members: harga : double, material : String, tahun : int
- Status Bar:** Shows the time as 17:1 and the mode as INS.

## Class Mobil

The screenshot shows the NetBeans IDE interface with the title "Inheritance1 - NetBeans IDE 8.2". The central editor window displays the following Java code for the class `Mobil`:

```
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 Anpra
10  */
11 public class Mobil extends Kendaraan {
12     String merk = "Tesla";
13     double harga = 2000000;
14 }
```

The Navigator pane on the left shows the members of the `Mobil` class:

- `Mobil :: Kendaraan`
- `harga : double`
- `merk : String`

## Class Pesawat

The screenshot shows the NetBeans IDE interface with the title "Inheritance1 - NetBeans IDE 8.2". The central editor window displays the following Java code for the class `Pesawat`:

```
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 Anpra
10  */
11 public class Pesawat extends Kendaraan {
12     String pabrik = "PT. Dirgantara Indonesia";
13     String material = "Baja";
14 }
```

The Navigator pane on the left shows the members of the `Pesawat` class:

- `Pesawat :: Kendaraan`
- `material : String`
- `pabrik : String`

## Class Demo

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

- Menu Bar:** File, Edit, View, Navigate, Source, Refactor, Run, Debug, Profile, Team, Tools, Window, Help.
- Toolbar:** Standard icons for file operations like Open, Save, Find, etc.
- Project Explorer:** Shows the project structure under "Inheritance1".
  - Source Packages:
    - Lathian
    - Demo.java
    - Kendaraan.java
    - Mobil.java
    - Pesawat.java
  - Tugas
  - inheritance1
  - Test Packages
  - Libraries
  - Test Libraries
- Code Editor:** Displays the content of Demo.java.

```
6 package Lathian;
7
8 /**
9 *
10 * @author Ampra
11 */
12 public class Demo {
13     public static void main(String[] args) {
14         Kendaraan k1 = new Kendaraan();
15         Pesawat p1= new Pesawat();
16         Mobil m1 = new Mobil();
17
18         System.out.println("Harga pesawat rata2 = " + p1.harga + " USD");
19         System.out.println("Material pesawat pada umumnya = " + p1.material);
20         System.out.println("Fabrikiran pesawat = " + p1.pabrikan);
21         System.out.println("Tahun pembuatan pesawat = " + p1.tahun + "\n");
22
23         System.out.println("Harga mobil rata2 = " + m1.harga);
24         System.out.println("Bahan mobil pada umumnya = " + m1.material);
25         System.out.println("Merk mobil = " + m1.merk);
26         System.out.println("Tahun buat mobil = " + m1.tahun);
27     }
28 }
```
- Output Window:** Shows the results of the "Inheritance1 run" command.

```
compile:
run:
Harga pesawat rata2 = 2000000.0 USD
Material pesawat pada umumnya = Baja
Fabrikiran pesawat = PT. Dirgantara Indonesia
Tahun pembuatan pesawat = 2017

Harga mobil rata2 = 2000000.0
Bahan mobil pada umumnya = Baja
Merk mobil = Tesla
Tahun buat mobil = 2017
BUILD SUCCESSFUL (total time: 1 second)
```
- Bottom Status Bar:** Shows the current time as 29:1 and date as 10/09/2019.

Tugas

## Class BangunDatar

The screenshot shows the NetBeans IDE interface with the title "Inheritance1 - 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, Save, Run, Stop, and Exit. The Projects tab shows a package named "Inheritance1" containing "Source Packages" (Lathian, Tugas) and "Test Packages" (inheritance1). The Tugas package contains classes: BangunDatar.java, Persegi.java, PersegiPanjang.java, SegiTiga.java, SegiTigaSamaKaki.java, and SegiTigaSamaSisi.java. The BangunDatar.java file is open in the editor, displaying Java code for calculating area and perimeter of shapes. The Navigator tab shows the members of the BangunDatar class, including protected methods hitungKeliling() and hitungLuas(), and main() as a static method. The status bar at the bottom indicates "BangunDatar.java saved." and shows the current time as 32:11.

```
/*
 * 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 Anpra
 */
public class BangunDatar {
    protected double luas;
    protected double keliling;
    protected void hitungLuas() {
        System.out.println(luas);
    }
    protected void hitungKeliling() {
        System.out.println(keliling);
    }
    public static void main(String[] args) {
        Persegi persegi = new Persegi();
        persegi.luas();
        persegi.keliling();

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

## Class Persegi

The screenshot shows the NetBeans IDE interface with the title "Inheritance1 - NetBeans IDE 8.2". The menu bar includes File, Edit, View, Navigate, Source, Refactor, Run, Debug, Profile, Team, Tools, Window, Help. The search bar at the top right says "Search (Ctrl+F)".

The Projects tab shows a single project named "Inheritance1" with a "Source Packages" node expanded, containing "Tugas" and "BangunDatar". The "Tugas" node contains files: BangunDatar.java, Persegi.java, PersegiPanjang.java, SegiTiga.java, SegiTigaSamaKaki.java, and SegiTigaSamaSisi.java.

The Source tab displays the content of the Persegi.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 Tugas;
7
8 /**
9 *
10 * @author Apra
11 */
12 public class Persegi extends BangunDatar {
13     protected double sisi = 50;
14     void luas(){
15         luas = sisi*sisi;
16         System.out.println("Luas persegi : " + luas);
17     }
18     void keliling(){
19         keliling = sisi+sisi+sisi+sisi;
20         System.out.println("Keliling persegi : " + keliling);
21     }
22 }
```

The Navigator tab shows the members of the Persegi class:

- Persegi :: BangunDatar
  - keliling()
  - luas()
- sisi : double

The status bar at the bottom left says "Persegi.java saved." and the bottom right shows the time as "23:1" and the date as "21/04".

## Class PersegiPanjang

The screenshot shows the NetBeans IDE interface with the title "Inheritance1 - NetBeans IDE 8.2". The menu bar includes File, Edit, View, Navigate, Source, Refactor, Run, Debug, Profile, Team, Tools, Window, Help, and a search field. The Projects tab shows a project named "Inheritance1" with packages "Source Packages", "Lathan", and "Tugas" containing files like "BangunDatar.java", "Persegi.java", "PersegiPanjang.java", "SegiTiga.java", "SegiTigaSamaKaki.java", and "SegiTigaSamaSisi.java". The Editor tab displays the code for "PersegiPanjang.java" which extends "BangunDatar". The Navigator tab shows members of "PersegiPanjang" including "luas()", "lebar : double", and "panjang : int". The status bar at the bottom indicates "PersegiPanjang.java saved." and the time "20:1".

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

/**
 *
 * @author Apra
 */
public class PersegiPanjang extends BangunDatar {
    protected int panjang = 10;
    protected double lebar = 20;
    void luas() {
        luas = panjang*lebar;
        System.out.println("Luas: "+luas+"Cm");
    }
}
```

## Class SegiTiga

The screenshot shows the NetBeans IDE interface with the title bar "Inheritance1 - NetBeans IDE 8.2". The main window displays the Java code for the SegiTiga class. The code defines a class SegiTiga that extends the BangunDatar class, protected by the variable alas.

```
1  /*
2   * To change this license header, choose License Headers in Project Properties.
3   * To change this template file, choose Tools | Templates
4   * and open the template in the editor.
5   */
6  package Tugas;
7
8  /**
9   * @author Anpra
10  */
11 public class SegiTiga extends BangunDatar{
12     protected double alas;
13 }
14
15 
```

The Navigator pane shows the members of the SegiTiga class, specifically the protected variable alas.

## Class SegiTigaSamaKaki

The screenshot shows the NetBeans IDE interface with the title bar "Inheritance1 - NetBeans IDE 8.2". The main window displays the Java code for the SegiTigaSamaKaki class. The code defines a class SegiTigaSamaKaki that extends the SegiTiga class, protected by the variable sisimiring.

```
1  /*
2   * To change this license header, choose License Headers in Project Properties.
3   * To change this template file, choose Tools | Templates
4   * and open the template in the editor.
5   */
6  package Tugas;
7
8  /**
9   * @author Anpra
10  */
11 public class SegiTigaSamaKaki extends SegiTiga {
12     protected double sisimiring;
13 }
14
15 
```

The Navigator pane shows the members of the SegiTigaSamaKaki class, specifically the protected variable sisimiring.

## Class SegiTigaSamaSisi

The screenshot shows the NetBeans IDE 8.2 interface with the following details:

- Title Bar:** Inheritance1 - 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 "Inheritance1".
  - Source Packages:
    - Lathan
    - Tugas
      - BangunDatar.java
      - PersegI.java
      - PersegIPanjang.java
      - SegiTiga.java
      - SegiTigaSamaKaki.java
      - SegiTigaSamaSisi.java
  - Test Packages
  - Libraries
  - Test Libraries
- Code Editor:** The main window displays the SegiTigaSamaSisi.java code. 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 Anpra
11 */
12 public class SegiTigaSamaSisi extends SegiTiga {
13     protected double sisi;
14 }
15
```
- Navigator:** Shows the members of the SegiTigaSamaSisi class, specifically the variable sisi.
- Status Bar:** Shows the message "SegiTigaSamaSisi.java saved.", the current time (15:1), and the status indicator (INS).
- Taskbar:** Shows the Windows taskbar with various pinned icons.

**Nama : Anang Prasetyo**

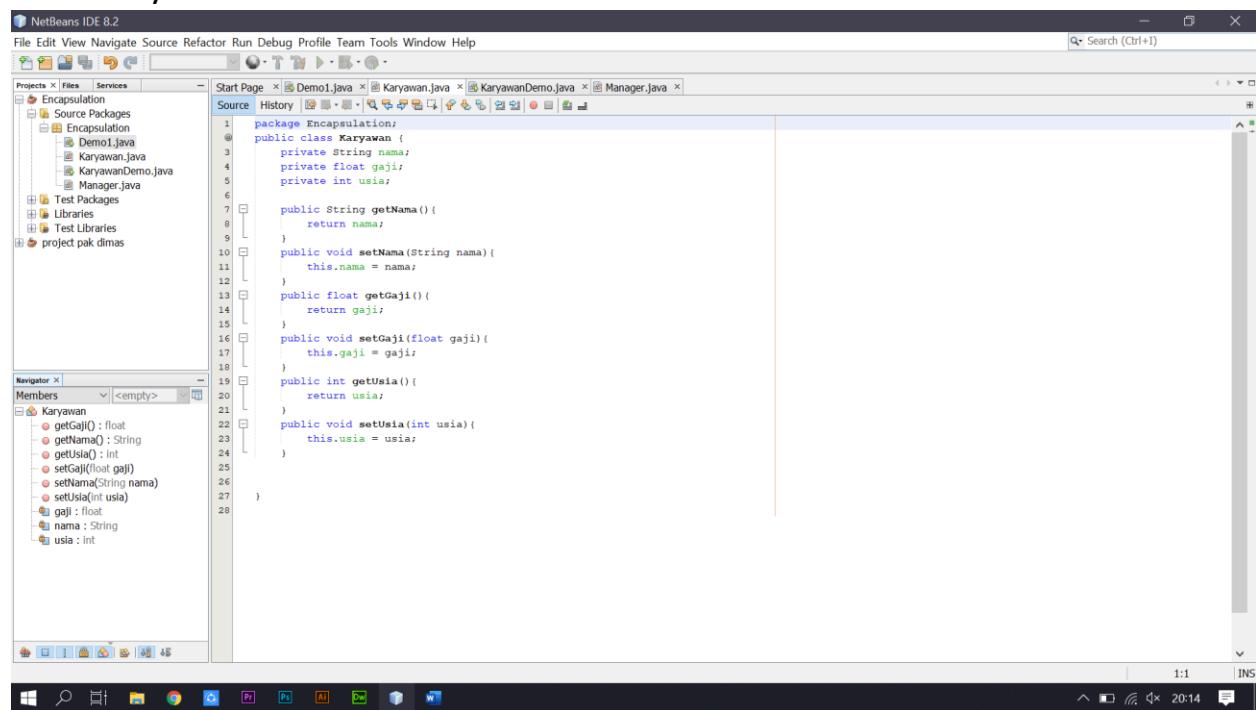
**NIM : L200180063**

**Kelas : B**

## MODUL 7 - Encapsulation

### Latihan 7.2

#### Kelas Karyawan



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

- Menu Bar:** File, Edit, View, Navigate, Source, Refactor, Run, Debug, Profile, Team, Tools, Window, Help.
- Toolbar:** Standard Java development tools like New Project, Open, Save, Run, Stop, etc.
- Project Explorer:** Shows a project named "Encapsulation" containing packages "Encapsulation", "Demo1", "Karyawan", "KaryawanDemo", and "Manager".
- Source Editor:** Displays the Karyawan.java code. The code defines a class Karyawan with private attributes nama (String), gaji (float), and usia (int). It includes four public methods: getName() which returns the name; setName(String nama) which sets the name; getGaji() which returns the salary; and setGaji(float gaji) which sets the salary.

```
1 package Encapsulation;
2 public class Karyawan {
3     private String nama;
4     private float gaji;
5     private int usia;
6
7     public String getName() {
8         return nama;
9     }
10    public void setName(String nama) {
11        this.nama = nama;
12    }
13    public float getGaji() {
14        return gaji;
15    }
16    public void setGaji(float gaji) {
17        this.gaji = gaji;
18    }
19    public int getUsia() {
20        return usia;
21    }
22    public void setUsia(int usia) {
23        this.usia = usia;
24    }
25}
26
27}
28}
```

- Navigator:** Shows the members of the Karyawan class, including its constructor and the four methods defined above.
- Status Bar:** Shows the zoom level (1:1), the current time (20:14), and the mode (INS).

## Kelas KaryawanDemo

The screenshot shows the NetBeans IDE interface with the title "Encapsulation - NetBeans IDE 8.2". The left sidebar displays the project structure under "Projects" with a single package named "Encapsulation" containing four files: Demo1.java, Karyawan.java, KaryawanDemo.java, and Manager.java. The right pane shows the source code for KaryawanDemo.java:

```
1 package Encapsulation;
2 public class KaryawanDemo {
3     public static void main(String[] args) {
4         Karyawan k1 = new Karyawan();
5         k1.setNama("Luffy");
6         k1.setGaji(2500000);
7         k1.setUsia(20);
8
9         System.out.println(k1.getNama());
10        System.out.println(k1.getGaji());
11        System.out.println(k1.getUsia());
12    }
13}
14
```

The Navigator panel below the code editor lists the members of the KaryawanDemo class, which is currently empty.

## Kelas Manager

The screenshot shows the NetBeans IDE interface with the title "Encapsulation - NetBeans IDE 8.2". The left sidebar displays the project structure under "Projects" with a single package named "Encapsulation" containing four files: Demo1.java, Karyawan.java, KaryawanDemo.java, and Manager.java. The right pane shows the source code for Manager.java:

```
1 package Encapsulation;
2 public class Manager extends Karyawan {
3     private float jamKerja = 7.5f;
4
5     public float jamKerja(){
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
```

The Navigator panel below the code editor lists the members of the Manager class, including its inheritance from Karyawan and its own specific methods and variables.

## Kelas Demo

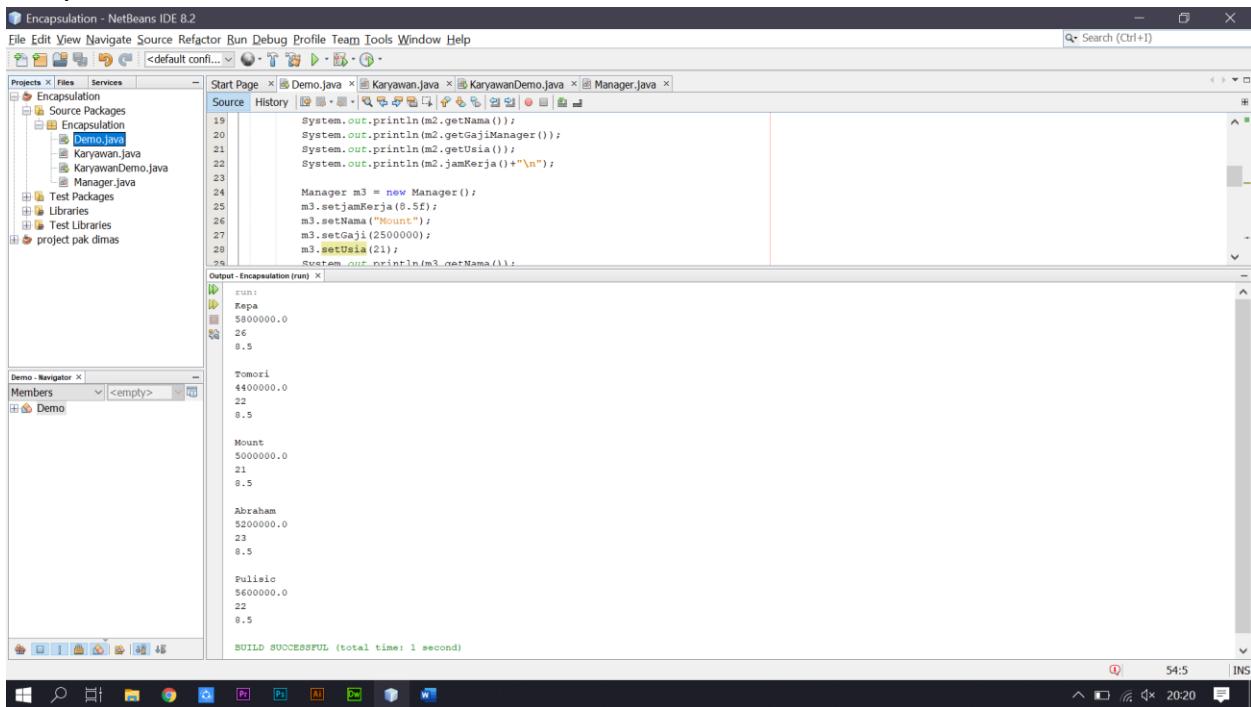
The screenshot shows the NetBeans IDE interface with the title "Encapsulation - NetBeans IDE 8.2". The left sidebar displays the project structure under "Projects" with a single package named "Encapsulation" containing four files: "Demo.java", "Karyawan.java", "KaryawanDemo.java", and "Manager.java". The main editor window shows the "Demo.java" source code:

```
1 package Encapsulation;
2 public class Demo {
3     public static void main(String[] args) {
4         Manager m1 = new Manager();
5         m1.setjamKerja(8.5f);
6         m1.setNama("Repa");
7         m1.setGaji(2900000);
8         m1.setUsia(26);
9         System.out.println(m1.getNama());
10        System.out.println(m1.getGajiManager());
11        System.out.println(m1.getUsia());
12        System.out.println(m1.jamKerja() + "\n");
13
14        Manager m2 = new Manager();
15        m2.setjamKerja(8.5f);
16        m2.setNama("Tomori");
17        m2.setGaji(2200000);
18        m2.setUsia(22);
19        System.out.println(m2.getNama());
20        System.out.println(m2.getGajiManager());
21        System.out.println(m2.getUsia());
22        System.out.println(m2.jamKerja() + "\n");
23
24        Manager m3 = new Manager();
25        m3.setjamKerja(8.5f);
26        m3.setNama("Mount");
27        m3.setGaji(2500000);
28        m3.setUsia(21);
29        System.out.println(m3.getNama());
30        System.out.println(m3.getGajiManager());
31        System.out.println(m3.getUsia());
32        System.out.println(m3.jamKerja() + "\n");
33
34        Manager m4 = new Manager();
35        m4.setjamKerja(8.5f);
36        m4.setNama("Abraham");
37        m4.setGaji(2600000);
38        m4.setUsia(23);
39
40        System.out.println(m3.getUsia());
41        System.out.println(m3.jamKerja() + "\n");
42
43        Manager m4 = new Manager();
44        m4.setjamKerja(8.5f);
45        m4.setNama("Abraham");
46        m4.setGaji(2600000);
47        m4.setUsia(23);
48        System.out.println(m4.getNama());
49        System.out.println(m4.getGajiManager());
50        System.out.println(m4.getUsia());
51        System.out.println(m4.jamKerja() + "\n");
52
53    }
54
55}
56
```

The code demonstrates the use of encapsulation by defining a Manager class with private attributes (jamKerja, Nama, Gaji, Usia) and public methods (getNama, getGajiManager, getUsia, jamKerja). It then creates four Manager objects (m1, m2, m3, m4) and prints their details.

This screenshot is identical to the one above, showing the same NetBeans IDE interface and "Demo.java" source code. The code demonstrates the use of encapsulation by defining a Manager class with private attributes (jamKerja, Nama, Gaji, Usia) and public methods (getNama, getGajiManager, getUsia, jamKerja). It then creates four Manager objects (m1, m2, m3, m4) and prints their details.

## Output dari Kelas Demo



**Nama : Anang Prasetyo**

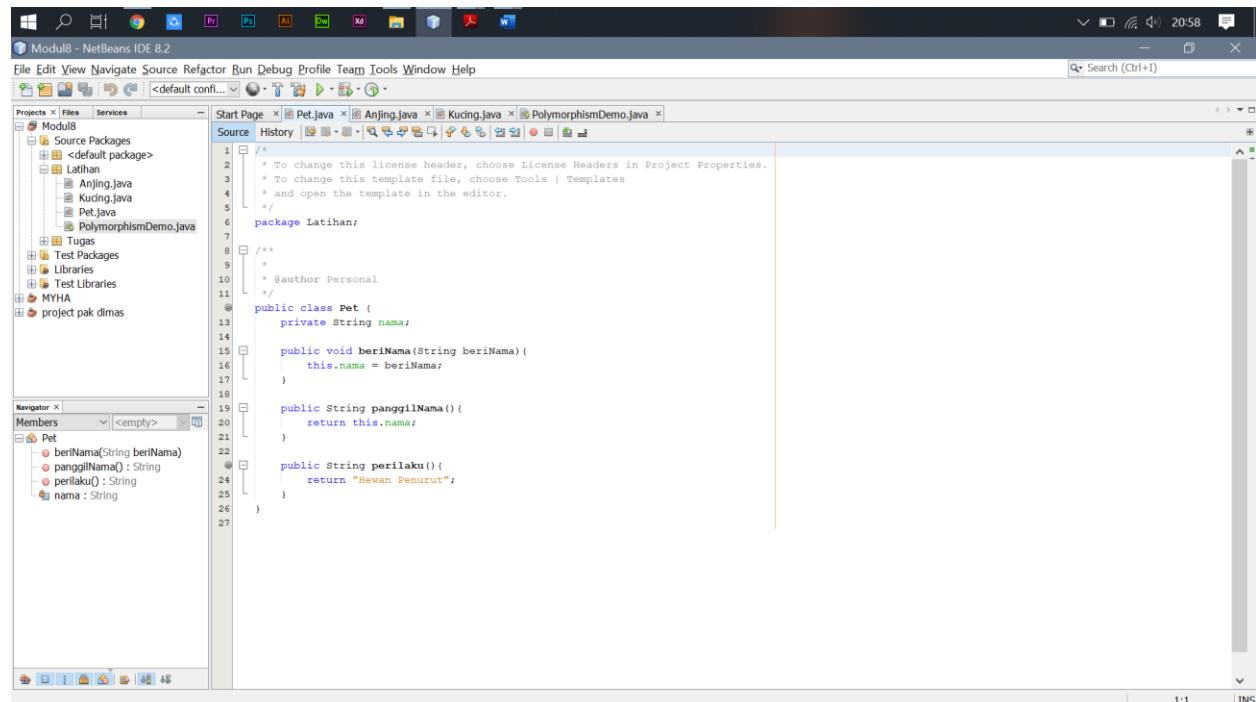
**NIM : L200180063**

**Kelas : B**

## **MODUL 8 – Polymorphism**

### **Latihan 8.2**

#### **Kelas Pet**



```
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  * Author: Personal
6  */
7 package Latihan;
8 /**
9  */
10 public class Pet {
11     private String nama;
12
13     public void beriNama(String beriNama) {
14         this.nama = beriNama;
15     }
16
17     public String panggilNama() {
18         return this.nama;
19     }
20
21     public String perilaku() {
22         return "Hewan Penurut";
23     }
24
25 }
26
27 }
```

## Kelas Kucing

The screenshot shows the NetBeans IDE interface with the title "Modul8 - NetBeans IDE 8.2". The central area displays the source code for the `Kucing.java` file. The code defines a class `Kucing` that extends `Pet`. It contains two methods: `perilaku()` which returns "Menyukai ikan", and `kucing1()` which returns "Meowwww... Meowww". The code is annotated with license headers and author information. The left sidebar shows the project structure under "Modul8" with packages like `Latihan`, `Anjing`, `Kucing`, and `Pet`. The bottom-left pane shows the "Navigator" with members of the `Kucing` 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 Personal
11  */
12 public class Kucing extends Pet{
13     public String perilaku(){
14         return "Menyukai ikan";
15     }
16     public String kucing1(){
17         return "Meowwww... Meowww";
18     }
19 }
20
```

## Kelas Anjing

The screenshot shows the NetBeans IDE interface with the title "Modul8 - NetBeans IDE 8.2". The central area displays the source code for the `Anjing.java` file. The code defines a class `Anjing` that extends `Pet`. It contains two methods: `perilaku()` which returns "Menyukai Daging dan Tulang", and `anjing1()` which returns "Guk..Guk..Guk..". The code is annotated with license headers and author information. The left sidebar shows the project structure under "Modul8" with packages like `Latihan`, `Anjing`, `Kucing`, and `Pet`. The bottom-left pane shows the "Navigator" with members of the `Anjing` 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 Personal
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 }
```

## Kelas TestPolymorphism

The screenshot shows the NetBeans IDE interface with the title bar "Modul8 - 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, Run, Stop, and Run Single. The Projects tab shows a project named "Modul8" with packages like "Source Packages", "Latihan", "Tugas", and "Test Packages". The current file is "TestPolymorphism.java". The code implements polymorphism with three animal classes: Kucing, Anjing, and Elang. The main method creates objects of each and prints their names and behaviors. The output window shows the results of the run.

```
/*
 * 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 Latihan;

/*
 *
 */
public class TestPolymorphism {
    public static void main(String[] args) {
        Kucing k = new Kucing();
        k.beriNama("TOM");
        System.out.println(k.panggilNama());
        System.out.println(k.perilaku());
        System.out.println(k.kucing1());

        Anjing a = new Anjing();
        a.beriNama("BULL");
        System.out.println(a.panggilNama());
        System.out.println(a.perilaku());
        System.out.println(a.anjing1());
    }
}

Output - Modul8 (run-single) X
run-single
TOM
Menyukai Ikan
Meeoooo... Meeoww
BULL
Menyukai Daging dan Tulang
Guk..Guk..Guk..
BUILD SUCCESSFUL (total time: 3 seconds)
```

## Tugas 8.3

### Kelas Hewan

The screenshot shows the NetBeans IDE interface with the title bar "Modul8 - 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, Run, Stop, and Run Single. The Projects tab shows a project named "Modul8" with packages like "Source Packages", "Latihan", "Tugas", and "Test Packages". The current file is "Hewan.java". The code defines a class "Hewan" with a method "jalan()". The output window shows the result of running the code.

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

/*
 *
 */
public class Hewan {
    public void jalan() {
        System.out.println("Hewan bisa berjalan");
    }
}

Output - Modul8 (run-single) X
run-single
Hewan bisa berjalan
BUILD SUCCESSFUL (total time: 3 seconds)
```

## Kelas Elang

The screenshot shows the NetBeans IDE interface with the title "Modul8 - NetBeans IDE 8.2". The main window displays the code for the "Elang.java" file. The code defines a class "Elang" that extends "Hewan". The "jalan()" method is implemented to print "Elang bisa terbang". The "Projects" panel on the left shows the "Modul8" project with packages like "Source Packages", "Lathan", and "Tugas", each containing various Java files. The "Navigator" panel shows the members of the "Elang" class.

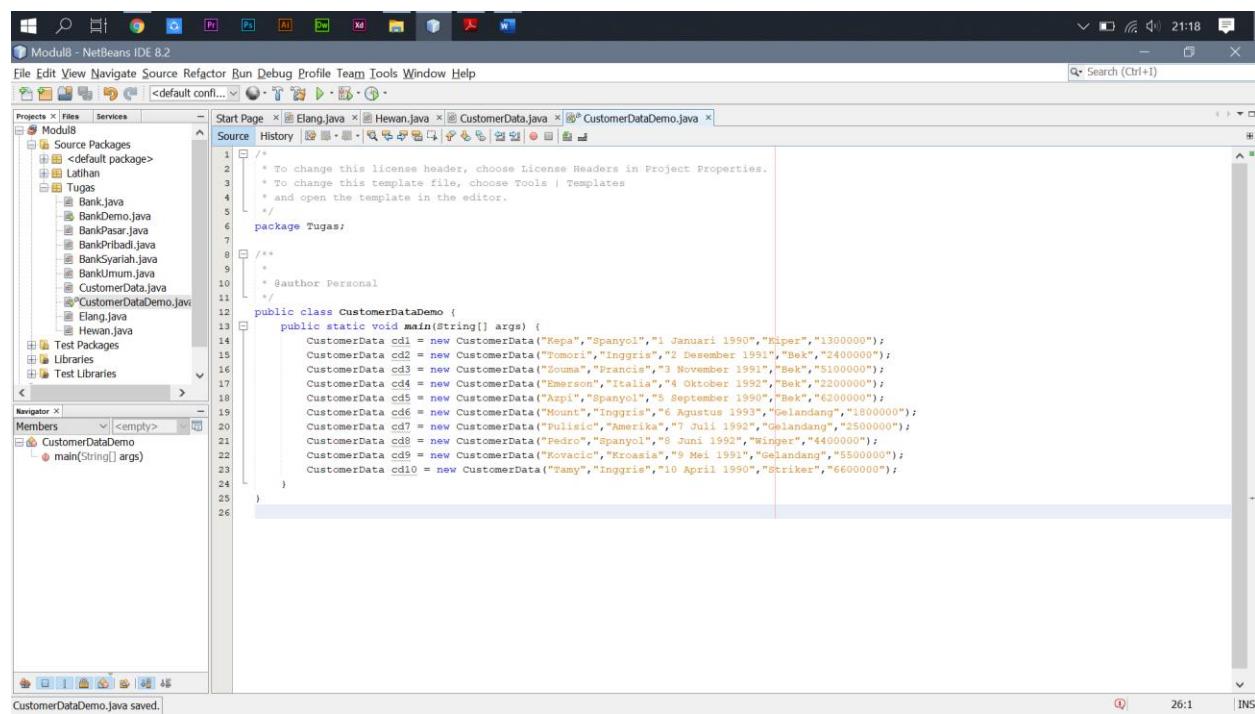
```
1 /* To change this license header, choose License Headers in Project Properties.
2 * To change this template file, choose Tools | Templates
3 * and open the template in the editor.
4 */
5 package Tugas;
6
7 /**
8 * @author Personal
9 */
10 public class Elang extends Hewan{
11     public void jalan(){
12         System.out.println("Elang bisa terbang");
13     }
14 }
15
16
17
```

## Kelas CustomerData

The screenshot shows the NetBeans IDE interface with the title "Modul8 - NetBeans IDE 8.2". The main window displays the code for the "CustomerData.java" file. The code defines a class "CustomerData" with attributes "nama", "alamat", "tanggallahir", "pekerjaan", and "gaji". It includes a constructor that prints a message and a constructor that initializes these attributes. The "System.out.println" statement at the end prints the values of all attributes. The "Projects" panel on the left shows the "Modul8" project with packages like "Source Packages", "Lathan", and "Tugas", each containing various Java files. The "Navigator" panel shows the members of the "CustomerData" class.

```
1 /*
2 * To change this license header, choose License Headers in Project Properties.
3 * To change this template file, choose Tools | Templates
4 * and open the template in the editor.
5 */
6 package Tugas;
7
8 /**
9 * @author Personal
10 */
11 public class CustomerData {
12     String nama;
13     String alamat;
14     String tanggallahir;
15     String pekerjaan;
16     String gaji;
17     public CustomerData(){
18         System.out.println("Mohon melengkapi data");
19     }
20     public CustomerData(String nama, String alamat, String tanggallahir,
21                         String pekerjaan, String gaji){
22         this.nama = nama;
23         this.alamat = alamat;
24         this.tanggallahir = tanggallahir;
25         this.pekerjaan = pekerjaan;
26         this.gaji = gaji;
27     }
28     System.out.println("Nama : " + nama +"\n"+ "Alamat : " + alamat +"\n" +
29     "Tanggal Lahir : " + tanggallahir +"\"+ "Pekerjaan : " + pekerjaan +"\n" +
30     "Gaji : " + gaji + "\n");
31     }
32 }
33
34 }
```

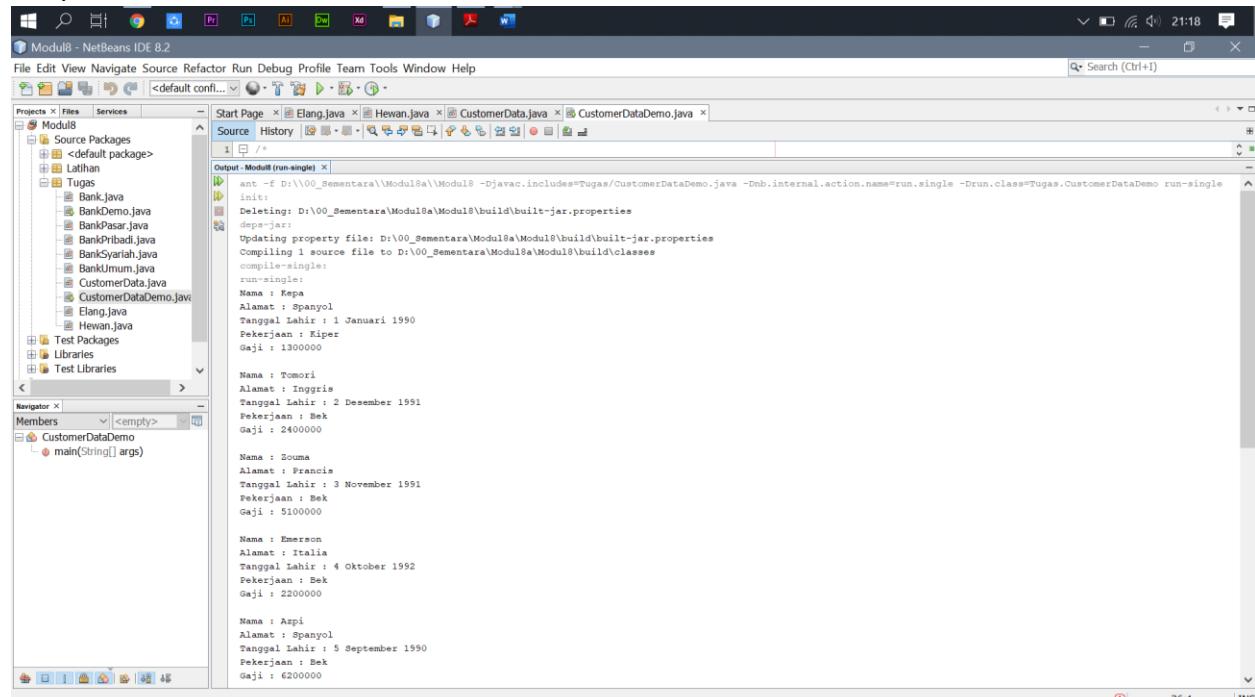
## Kelas CustomerDataDemo



The screenshot shows the NetBeans IDE interface with the title "Modul8 - NetBeans IDE 8.2". The main window displays the code for "CustomerDataDemo.java". The code defines a class "CustomerDataDemo" with a static main method that creates ten instances of "CustomerData" with various details. The IDE's toolbar and menu bar are visible at the top.

```
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  */
11
12 public class CustomerDataDemo {
13     public static void main(String[] args) {
14         CustomerData cd1 = new CustomerData("Kepa", "Spanyol", "1 Januari 1990", "Winger", "1300000");
15         CustomerData cd2 = new CustomerData("Tomor", "Inggris", "2 Desember 1991", "Bek", "2400000");
16         CustomerData cd3 = new CustomerData("Zouma", "Prancis", "3 November 1991", "Bek", "5100000");
17         CustomerData cd4 = new CustomerData("Emerson", "Italia", "4 Oktober 1992", "Bek", "2200000");
18         CustomerData cd5 = new CustomerData("Ari", "Spanyol", "5 September 1990", "Bek", "6200000");
19         CustomerData cd6 = new CustomerData("Mount", "Inggris", "1 Agustus 1993", "Gelandang", "1800000");
20         CustomerData cd7 = new CustomerData("Pulisci", "Amerika", "7 Juli 1992", "Gelandang", "2500000");
21         CustomerData cd8 = new CustomerData("Pedro", "Spanyol", "1 Juni 1992", "Winger", "4400000");
22         CustomerData cd9 = new CustomerData("Rovacic", "Kroasia", "9 Mei 1991", "Gelandang", "5500000");
23         CustomerData cd10 = new CustomerData("Tamy", "Inggris", "10 April 1990", "Striker", "6600000");
24     }
25 }
26 }
```

## Output



The screenshot shows the NetBeans IDE interface with the title "Modul8 - NetBeans IDE 8.2". The main window displays the output of running the "CustomerDataDemo.java" file. The output shows the execution of Ant tasks to build the project, followed by the printed details of ten customer objects. The IDE's toolbar and menu bar are visible at the top.

```
ant -f D:\00_Sementara\Modul8a\Modul8 -Djavac.includes=Tugas\CustomerDataDemo.java -Dnb.internal.action.name=run.single -Drun.class=Tugas.CustomerDataDemo run-single
init:
Deleting: D:\00_Sementara\Modul8a\Modul8\build\built-jar.properties
deps-jar:
Updating property file: D:\00_Sementara\Modul8a\Modul8\build\built-jar.properties
Compiling 1 source file to D:\00_Sementara\Modul8a\Modul8\build\classes
compile-single:
run-single:
Nama : Kepa
Alamat : Spanyol
Tanggal Lahir : 1 Januari 1990
Pekerjaan : Kiper
Gaji : 130000

Nama : Tomori
Alamat : Inggris
Tanggal Lahir : 2 Desember 1991
Pekerjaan : Bek
Gaji : 2400000

Nama : Zouma
Alamat : Prancis
Tanggal Lahir : 3 November 1991
Pekerjaan : Bek
Gaji : 5100000

Nama : Emerson
Alamat : Italia
Tanggal Lahir : 4 Oktober 1992
Pekerjaan : Bek
Gaji : 2200000

Nama : Ari
Alamat : Spanyol
Tanggal Lahir : 5 September 1990
Pekerjaan : Bek
Gaji : 6200000

Nama : Mount
Alamat : Inggris
Tanggal Lahir : 1 Agustus 1993
Pekerjaan : Gelandang
Gaji : 1800000

Nama : Pulisci
Alamat : Amerika
Tanggal Lahir : 7 Juli 1992
Pekerjaan : Gelandang
Gaji : 2500000

Nama : Pedro
Alamat : Spanyol
Tanggal Lahir : 1 Juni 1992
Pekerjaan : Winger
Gaji : 4400000

Nama : Rovacic
Alamat : Kroasia
Tanggal Lahir : 9 Mei 1991
Pekerjaan : Gelandang
Gaji : 5500000

Nama : Tamy
Alamat : Inggris
Tanggal Lahir : 10 April 1990
Pekerjaan : Striker
Gaji : 6600000
```

```

Output: Modul8 (run-single) x
=====
Nama : Azizi
Alamat : Spanyol
Tanggal Lahir : 5 September 1990
Pekerjaan : Bek
Gaji : 6200000

Nama : Mount
Alamat : Inggris
Tanggal Lahir : 6 Agustus 1993
Pekerjaan : Gelandang
Gaji : 1800000

Nama : Fulusic
Alamat : Amerika
Tanggal Lahir : 7 Juli 1992
Pekerjaan : Gelandang
Gaji : 2500000

Nama : Pedro
Alamat : Spanyol
Tanggal Lahir : 8 Juni 1990
Pekerjaan : Winger
Gaji : 4400000

Nama : Kovacic
Alamat : Erosia
Tanggal Lahir : 9 Mei 1991
Pekerjaan : Gelandang
Gaji : 5500000

Nama : Tamy
Alamat : Inggris
Tanggal Lahir : 10 April 1990
Pekerjaan : Striker
Gaji : 6600000

BUILD SUCCESSFUL (total time: 3 seconds)
  
```

## Kelas Bank

```

 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  * 
11  * @author Personal
12  */
13 public class Bank {
14     int rasio;
15     protected int rasioBunga() {
16         System.out.println("Bank " + rasio);
17         return rasio;
18     }
19 }
  
```

Bank.java saved.

## Kelas BankPribadi

The screenshot shows the NetBeans IDE interface with the title "Modul8 - NetBeans IDE 8.2". The main window displays the source code for the class `BankPribadi.java`. The code defines a class `BankPribadi` that extends the `Bank` class. It contains a protected method `rasioBunga` that prints the string "Bank Pribadi" followed by the parameter `rasio` and returns it. The code is annotated with Javadoc-style comments and author information.

```
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 Personal
11 */
12
13 public class BankPribadi extends Bank {
14     protected int rasioBunga(int rasio) {
15         System.out.println("Bank Pribadi " + rasio);
16         return rasio;
17     }
18 }
```

## Kelas BankUmum

The screenshot shows the NetBeans IDE interface with the title "Modul8 - NetBeans IDE 8.2". The main window displays the source code for the class `BankUmum.java`. The code defines a class `BankUmum` that extends the `Bank` class. It contains a protected method `rasioBunga` that prints the string "Bank Umum" followed by the parameter `rasio` and returns it. The code is annotated with Javadoc-style comments and author information.

```
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 Personal
11 */
12
13 public class BankUmum extends Bank {
14     protected int rasioBunga(int rasio) {
15         System.out.println("Bank Umum " + rasio);
16         return rasio;
17     }
18 }
```

## Kelas BankPasar

The screenshot shows the NetBeans IDE interface with the title "Modul8 - NetBeans IDE 8.2". The main window displays the source code for the class `BankPasar`. The code is as follows:

```
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 Personal
11 */
12
13 public class BankPasar extends BankUmum {
14     protected int rasioBunga(int rasio){
15         System.out.println("Bank Pasaar " + rasio);
16         return rasio;
17     }
18 }
```

The left sidebar shows the project structure under the package `Tugas`, which contains files like `Bank.java`, `BankDemo.java`, `BankPasar.java`, `BankPribadi.java`, `BankSyariah.java`, `BankUmum.java`, `CustomerData.java`, `CustomerDataDemo.java`, `Elang.java`, and `Hewan.java`. The right sidebar shows the Navigator and Members panes.

## Kelas BankSyariah

The screenshot shows the NetBeans IDE interface with the title "Modul8 - NetBeans IDE 8.2". The main window displays the source code for the class `BankSyariah`. The code is as follows:

```
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 Personal
11 */
12
13 public class BankSyariah extends BankUmum{
14     protected int rasioBunga(int rasio){
15         System.out.println("Bank Syariah " + rasio);
16         return rasio;
17     }
18 }
```

The left sidebar shows the project structure under the package `Tugas`, which contains files like `Bank.java`, `BankDemo.java`, `BankPasar.java`, `BankPribadi.java`, `BankSyariah.java`, `BankUmum.java`, `CustomerData.java`, `CustomerDataDemo.java`, `Elang.java`, and `Hewan.java`. The right sidebar shows the Navigator and Members panes. A message at the bottom of the code editor says "BankSyariah.java saved.".

## Kelas BankDemo dan Output

The screenshot shows the NetBeans IDE 8.2 interface with the following details:

- Project Explorer:** Shows a project named "Modul8" with a "Source Packages" node containing several Java files: Bank.java, BankDemo.java, BankPasar.java, BankPribadi.java, BankSyariah.java, BankUmum.java, CustomerData.java, CustomerDataDemo.java, Elang.java, and Hewan.java.
- Code Editor:** Displays the content of the BankDemo.java file. The code defines a main method that creates instances of various bank classes and calls their rasioBunga() methods. The code is as follows:

```
9  /*
10  *
11  * @author Asus
12  */
13 public class BankDemo {
14     public static void main(String[] args) {
15         Bank b1 = new Bank();
16         b1.rasioBunga();
17         BankPribadi b2 = new BankPribadi();
18         b2.rasioBunga();
19         BankUmum b3 = new BankUmum();
20         b3.rasioBunga(5);
21         BankPasar b4 = new BankPasar();
22         b4.rasioBunga(4);
23         BankSyariah b5 = new BankSyariah();
24         b5.rasioBunga(6);
25     }
26 }
27
```

- Output Window:** Shows the build and run logs. The log output is:

```
ant -f D:\00_Sementara\Modul8\Modul8 -Djavac.includes=Tugas\BankDemo.java -Dnb.internal.action.name=run.single -Drun.class=Tugas.BankDemo run-single
init:
Deleting: D:\00_Sementara\Modul8\Modul8\build\built-jar.properties
deps-jar:
Updating property file: D:\00_Sementara\Modul8\Modul8\build\built-jar.properties
Compiling 1 source file to D:\00_Sementara\Modul8\Modul8\build\classes
compile-single:
compile:
Bank 0
Bank Pribadi 9
Bank Umum 5
Bank Paser 4
Bank Syariah 6
BUILD SUCCESSFUL (total time: 2 seconds)
```

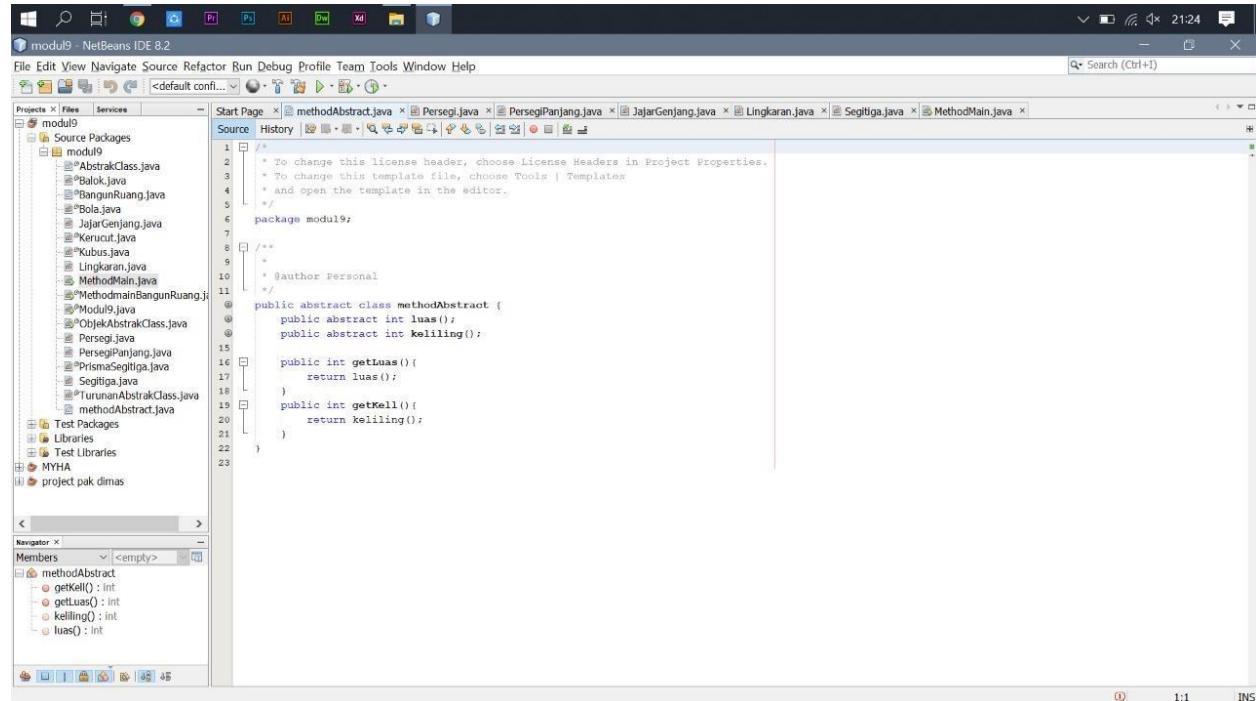
**Nama : Anang Prasetyo**

**NIM : L200180063**

**Kelas : B**

## MODUL 9 – Abstract Class

### Class MethodAbstract



The screenshot shows the NetBeans IDE interface with the project 'modul9' open. The 'methodAbstract.java' file is the active editor. The code defines an abstract class named 'methodAbstract' with two abstract methods: 'luas()' and 'keliling()'. It also contains two concrete methods: 'getLuas()' and 'getKeliling()' which return the results of the respective abstract methods.

```
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 Personal
10 */
11 public abstract class methodAbstract {
12     public abstract int luas();
13     public abstract int keliling();
14
15     public int getLuas() {
16         return luas();
17     }
18
19     public int getKeliling() {
20         return keliling();
21     }
22 }
```

The Navigator pane shows the members of the 'methodAbstract' class:

- methodAbstract
- getKell(): int
- getLuas(): int
- keliling(): int
- luas(): int

## Class PersegiPanjang

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, Go To, and Run. The Projects tab shows a project named "modul9" with several source packages: "modul9" containing "AbstrakClass.java", "Bola.java", "Balok.java", "BanpuRuang.java", "BolaRuang.java", "JajarGenjang.java", "Kerucut.java", "Kubus.java", "Lingkaran.java", "MethodMain.java", "MethodMainBangunRuang.java", "Modul9.java", "ObjekAbstrakClass.java", "Persegi.java", "PersegiPanjang.java", "PrismaSegitiga.java", "Segitiga.java", and "TurunanAbstrakClass.java"; "methodAbstract.java"; and "Test Packages", "Libraries", "Test Libraries", and "MYHA". The Files tab is selected, showing the "PersegiPanjang.java" file. The code defines a class "PersegiPanjang" that extends "methodAbstract". It has fields "panjang" and "lebar" both initialized to 15. It contains methods "luas()" which returns "panjang \* lebar" and "keliling()" which returns "2 \* (panjang + lebar)". The Navigator tab shows the members of the "PersegiPanjang" class: "keliling()", "luas()", "lebar", and "panjang". The status bar at the bottom right shows "14:19" and "INS".

```
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 Personal  
11 */  
12 public class PersegiPanjang extends methodAbstract{  
13     int panjang =24;  
14     int lebar = 15;  
15  
16     public int luas(){  
17         return panjang*lebar;  
18     }  
19     public int keliling(){  
20         return 2*(panjang+lebar);  
21     }  
22 }  
23
```

## Class Persegi

The screenshot shows the NetBeans IDE interface with the title bar "modul9 - NetBeans IDE 8.2". The menu bar, toolbar, and Projects tab are identical to the previous screenshot. The Files tab is selected, showing the "Persegi.java" file. The code defines a class "Persegi" that extends "methodAbstract". It has a field "sisi" initialized to 12. It contains methods "luas()" which returns "sisi\*sisi" and "keliling()" which returns "4\*sisi". The Navigator tab shows the members of the "Persegi" class: "keliling()", "luas()", and "sisi". The status bar at the bottom right shows "13:17" and "INS".

```
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 Personal  
11 */  
12 public class Persegi extends methodAbstract{  
13     int sisi=12;  
14  
15     public int luas(){  
16         return sisi*sisi;  
17     }  
18     public int keliling(){  
19         return 4*sisi;  
20     }  
21 }  
22
```

## Class JajarGenjang

The screenshot shows the NetBeans IDE interface with the project 'modul9' open. The code editor displays the class `JajarGenjang.java` which extends `methodAbstract`. The class has three instance variables: `alas`, `tinggi`, and `sisiMiring`. It contains two methods: `luas()` which returns `alas * tinggi`, and `keliling()` which returns `2 * (alas + sisiMiring)`.

```
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 Personal
10  */
11 public class JajarGenjang extends methodAbstract{
12     int alas =20;
13     int tinggi = 8;
14     int sisiMiring = 12;
15
16     public int luas(){
17         return alas * tinggi;
18     }
19
20     public int keliling(){
21         return 2 * (alas + sisiMiring);
22     }
23 }
```

The Navigator pane shows the members of the `JajarGenjang` class, including its constructor, methods `keliling()` and `luas()`, and instance variables `alas`, `tinggi`, and `sisiMiring`.

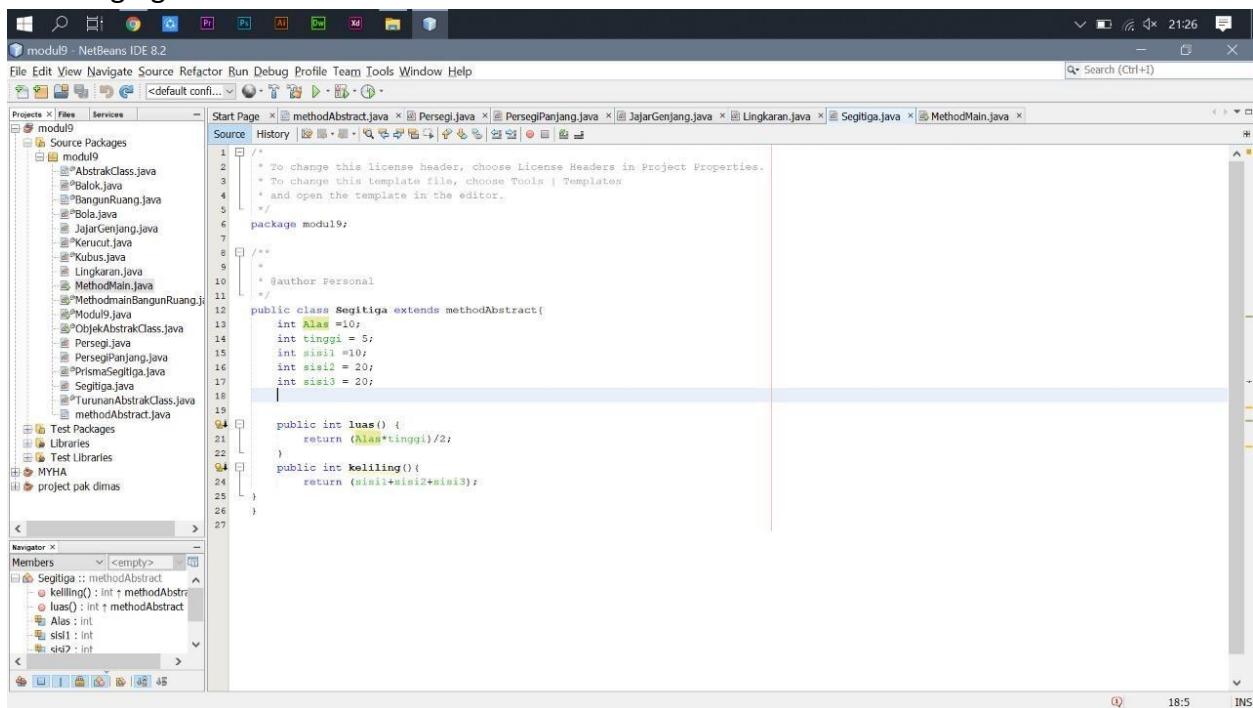
## Class Lingkaran

The screenshot shows the NetBeans IDE interface with the project 'modul9' open. The code editor displays the class `Lingkaran.java` which extends `methodAbstract`. The class has two instance variables: `diameter` and `phi`. It contains three methods: `jariJari()` which returns `diameter/2`, `luas()` which returns `phi * (jariJari() * jariJari())`, and `keliling()` which returns `phi * diameter`.

```
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 Personal
10  */
11 public class Lingkaran extends methodAbstract{
12     int diameter =14;
13     int phi = 22/7;
14
15     public int jariJari(){
16         return diameter/2;
17     }
18
19     public int luas(){
20         return phi * (jariJari()*jariJari());
21     }
22
23     public int keliling(){
24         return phi * diameter;
25     }
26 }
```

The Navigator pane shows the members of the `Lingkaran` class, including its constructor, methods `keliling()` and `luas()`, and instance variables `diameter` and `phi`.

## Class Segitiga

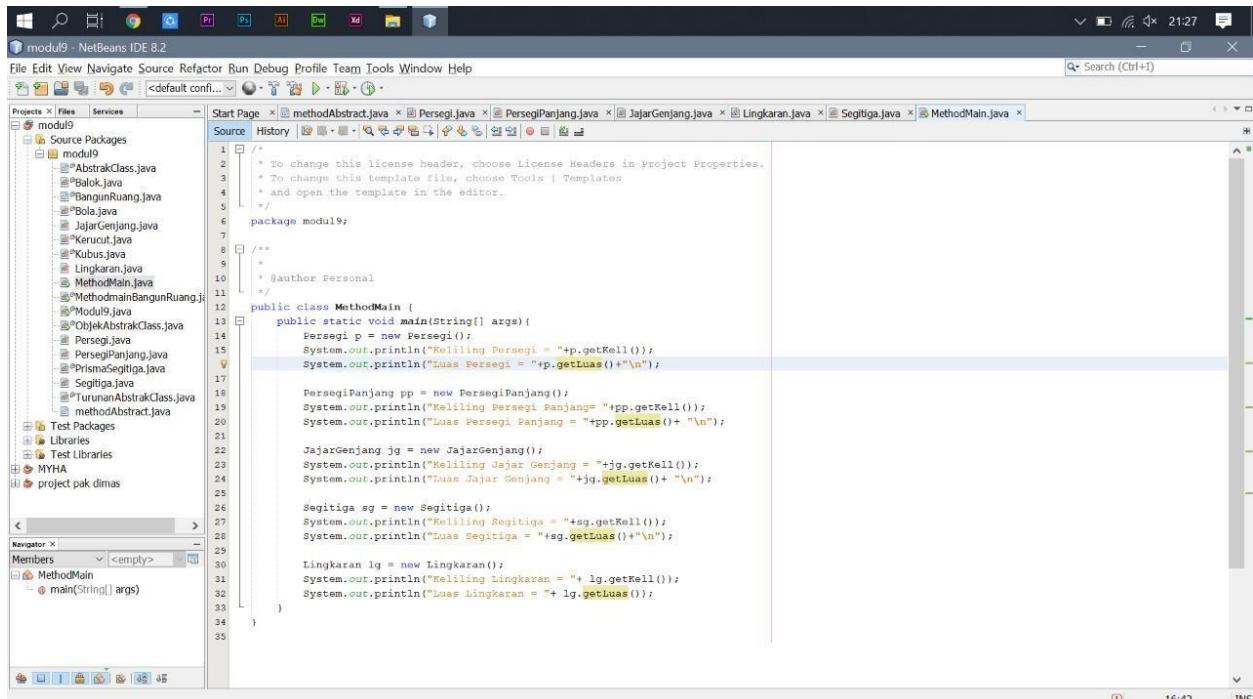


The screenshot shows the NetBeans IDE interface with the project 'modul9' open. The 'Source Packages' node contains several Java files, including 'Segitiga.java'. The code editor displays the following class definition:

```
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 Personal
10 */
11 public class Segitiga extends methodAbstract{
12     int alas =10;
13     int tinggi = 5;
14     int sisi1 =10;
15     int sisi2 = 20;
16     int sisi3 = 20;
17
18
19     public int luas(){
20         return (alas*tinggi)/2;
21     }
22     public int keliling(){
23         return (sisi1+sisi2+sisi3);
24     }
25
26 }
27
```

The Navigator pane on the left shows the members of the 'Segitiga' class, including 'luas()' and 'keliling()', both inherited from 'methodAbstract', and instance variables 'alas', 'tinggi', 'sisi1', 'sisi2', and 'sisi3'.

## Class Demo



The screenshot shows the NetBeans IDE interface with the project 'modul9' open. The 'Source Packages' node contains several Java files, including 'MethodMain.java'. The code editor displays the following main method:

```
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 Personal
10 */
11 public class MethodMain {
12     public static void main(String[] args){
13         Persegi p = new Persegi();
14         System.out.println("Kelling Persegi = "+p.getKell());
15         System.out.println("Luas Persegi = "+p.getLuas()+"\n");
16
17         PersegiPanjang pp = new PersegiPanjang();
18         System.out.println("Kelling Persegi Panjang = "+pp.getKell());
19         System.out.println("Luas Persegi Panjang = "+pp.getLuas()+"\n");
20
21         JajarGenjang jg = new JajarGenjang();
22         System.out.println("Kelling Jajar Genjang = "+jg.getKell());
23         System.out.println("Luas Jajar Genjang = "+jg.getLuas()+"\n");
24
25         Segitiga sg = new Segitiga();
26         System.out.println("Kelling Segitiga = "+sg.getKell());
27         System.out.println("Luas Segitiga = "+sg.getLuas()+"\n");
28
29         Lingkaran lg = new Lingkaran();
30         System.out.println("Kelling Lingkaran = "+lg.getKell());
31         System.out.println("Luas Lingkaran = "+ lg.getLuas());
32
33     }
34 }
```

modul9 - NetBeans IDE 8.2

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

Start Page | methodAbstract.java | Persegi.java | PersegiPanjang.java | JajarGenjang.java | Lingkaran.java | Segitiga.java | MethodMain.java | <default config> | Search (Ctrl+F)

Projects | Files | Services

modul9

Source Packages

- modul9
  - AbstrakClass.java
  - Balok.java
  - BangunRuang.java
  - Bola.java
  - JajarGenjang.java
  - Kerucut.java
  - Kubus.java
  - Lingkaran.java
  - MethodMain.java
  - MethodmainBangunRuang.java
  - Modul9.java
  - ObjekAbstrakClass.java
  - Persegi.java
  - PersegiPanjang.java
  - PrismaSegitiga.java
  - TurunanAbstrakClass.java
  - methodAbstract.java
- Test Packages
- Libraries
- Test Libraries
- MYHA
- project pak dimas

Navigator | Members

MethodMain

main(String[] args)

Output - modul9 (run-single) | Start Page | methodAbstract.java | Persegi.java | PersegiPanjang.java | JajarGenjang.java | Lingkaran.java | Segitiga.java | MethodMain.java | <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 modul9;
7
8 /**
9 */
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

```

ant -f D:\00\_Sementara\modul9 -Djavac.includes=modul9\MethodMain.java -Dnb.internal.action.name=run.single -Drun.class=modul9.MethodMain run-single

init:

Deleting: D:\00\_Sementara\modul9\build\built-jar.properties

deps-jar:

Updating property file: D:\00\_Sementara\modul9\modul9\build\built-jar.properties

Compiling 1 source file to D:\00\_Sementara\modul9\modul9\build\classes

compile-single:

run-single:

Keliling Persegi = 48  
Luas Persegi = 144

Keliling Persegi Panjang= 720  
Luas Persegi Panjang = 360

Keliling Jajar Genjang = 64  
Luas Jajar Genjang = 160

Keliling Segitiga = 50  
Luas Segitiga = 25

Keliling Lingkaran = 42  
Luas Lingkaran = 147

BUILD SUCCESSFUL (total time: 1 second)

Finished building modul9 (run-single).

## TUGAS

### Class methodAbstract

modul9 - NetBeans IDE 8.2

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

Start Page | methodAbstract.java | Balok.java | Kubus.java | Bola.java | Kerucut.java | PrismaSegitiga.java | MethodMain.java | <default config> | Search (Ctrl+F)

Projects | Files | Services

modul9

Source Packages

- Tugas
  - Balok.java
  - Bola.java
  - Kerucut.java
  - Kubus.java
  - MethodMain.java
  - PrismaSegitiga.java
  - methodAbstract.java
- modul9
- Test Packages
- Libraries
- Test Libraries
- MYHA
- project pak dimas

Navigator | Members

methodAbstract

LuasPermukaan(): float  
Volume(): float  
getLuasPermukaan(): float  
getVolume(): float

Output - modul9 (run-single) | Start Page | methodAbstract.java | Balok.java | Kubus.java | Bola.java | Kerucut.java | PrismaSegitiga.java | MethodMain.java | <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  * @author Personal
12  */
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

```

## Class Balok

The screenshot shows the NetBeans IDE interface with the project 'modul9' open. The 'Balok.java' file is the active editor. The code implements a class 'Balok' that extends 'methodAbstract'. It has three float fields: 'panjang', 'lebar', and 'tinggi'. The 'Volume()' method returns the product of these three dimensions. The 'LuasPermukaan()' method returns twice the sum of the areas of all faces.

```
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 Tugas;
6
7 import modul9.*;
8
9 /**
10 */
11 /*
12 * @author Personal
13 */
14 public class Balok extends methodAbstract {
15     float panjang = 15f;
16     float lebar = 6f;
17     float tinggi = 6f;
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 }
```

## Class Kubus

The screenshot shows the NetBeans IDE interface with the project 'modul9' open. The 'Kubus.java' file is the active editor. The code implements a class 'Kubus' that extends 'methodAbstract'. It has one float field 'sisi'. The 'Volume()' method returns the cube of 'sisi'. The 'LuasPermukaan()' method returns six times the square of '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 import modul9.*;
9
10 /**
11 */
12 /*
13 * @author Personal
14 */
15 public class Kubus extends methodAbstract{
16     float sisi = 15f;
17
18     public float Volume() {
19         return sisi*sisi*sisi;
20     }
21
22     public float LuasPermukaan() {
23         return 6*(sisi*sisi);
24     }
25 }
```

## Class Bola

The screenshot shows the NetBeans IDE interface with the project 'modul9' open. The 'Bola.java' file is selected in the 'Source' tab. The code defines a class 'Bola' that extends 'methodAbstract'. It includes methods for calculating volume and surface area based on radius and diameter.

```
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 Bola extends methodAbstract{
15     float phi = 3.14f;
16     float diameter = 14f;
17
18     public float jariJari(){
19         return diameter/2;
20     }
21     public float Volume() {
22         return (4/3)*(phi*jariJari()*jariJari()*jariJari());
23     }
24     public float LuasPermukaan(){
25         return (4*phi*(jariJari()*jariJari()));
26     }
27 }
```

The 'Navigator' panel on the left shows the members of the 'Bola' class, including 'LuasPermukaan()', 'Volume()', 'jariJari()', 'diameter', and 'phi'.

## Class Kerucut

The screenshot shows the NetBeans IDE interface with the project 'modul9' open. The 'Kerucut.java' file is selected in the 'Source' tab. The code defines a class 'Kerucut' that extends 'methodAbstract'. It includes methods for calculating volume and surface area based on radius, diameter, height, and slant height.

```
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 Kerucut extends methodAbstract{
15     float phi = 3.14f;
16     float diameter = 8f;
17     float tinggi = 20f;
18     float sisi = 12f;
19
20     public float jariJari(){
21         return diameter/2;
22     }
23
24     public float Volume() {
25         return (phi*jariJari()*jariJari()*tinggi)/3;
26     }
27     public float LuasPermukaan(){
28         return phi*jariJari()*sisi;
29     }
30 }
```

The 'Navigator' panel on the left shows the members of the 'Kerucut' class, including 'LuasPermukaan()', 'Volume()', 'jariJari()', 'diameter', 'tinggi', 'sisi', and 'phi'.

## Class PrismaSegitiga

The screenshot shows the NetBeans IDE interface with the project 'modul9' open. The 'PrismaSegitiga.java' file is selected in the Project Explorer. The code defines a class 'PrismaSegitiga' that extends 'methodAbstract'. It includes methods for calculating volume and surface area based on base width and height.

```
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 PrismaSegitiga extends methodAbstract{
15     float panjangAlas = 6f;
16     float tinggiAlas = 10f;
17     float tinggiPrisma = 16f;
18
19     public float Volume() {
20         return ((panjangAlas*tinggiAlas)/2)*tinggiPrisma;
21     }
22
23     public float LuasPermukaan(){
24         return (2*((panjangAlas*tinggiAlas)/2)+(3*(panjangAlas*tinggiPrisma)));
25     }
26 }
```

The Navigator pane shows the members of the 'PrismaSegitiga' class, including 'LuasPermukaan()', 'Volume()', and their parameters.

## Class MethodMain

The screenshot shows the NetBeans IDE interface with the project 'modul9' open. The 'MethodMain.java' file is selected in the Project Explorer. The code defines a main method that creates instances of 'Balok', 'Kubus', and 'Bola' classes and prints their volume and surface area.

```
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 }
```

## Output

The screenshot shows the NetBeans IDE 8.2 interface with the following details:

- Title Bar:** modul9 - 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)
- Projects Tab:** Shows the project structure for "modul9".
- Source Editor:** Displays the content of the "MethodMain.java" file:

```
9  /*
10  *
11  * @author Personal
12  */
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());
```
- Output Window:** Shows the build log for "run-single":

```
ant -f D:\00_Sementara\modul9\modul9 -Djavac.includes=Tugas\MethodMain.java -Dnb.internal.action.name=run.single -Drun.class=Tugas.MethodMain run-single
init:
Deleting: D:\00_Sementara\modul9\modul9\build\built-jar.properties
deps-jar:
Updating property file: D:\00_Sementara\modul9\modul9\build\built-jar.properties
Compiling 1 source file to D:\00_Sementara\modul9\modul9\build\classes
compile-single:
run-single:
Volume Balok = 720.0
Luas Permukaan Balok = 11700.0

Volume Kubus = 3375.0
Luas Permukaan Kubus = 1350.0

Volume Bola = 1077.0201
Luas Permukaan Bola = 615.44

Volume Kerucut = 334.93335
Luas Permukaan Kerucut = 150.72

Volume Prisma = 768.0
Luas Permukaan Prisma = 348.0
BUILD SUCCESSFUL (total time: 1 second)
```
- Navigator:** Shows the members of the "MethodMain" class.
- Bottom Status Bar:** Shows the date and time: 20:33 and INS.

**Nama : Anang Prasetyo**

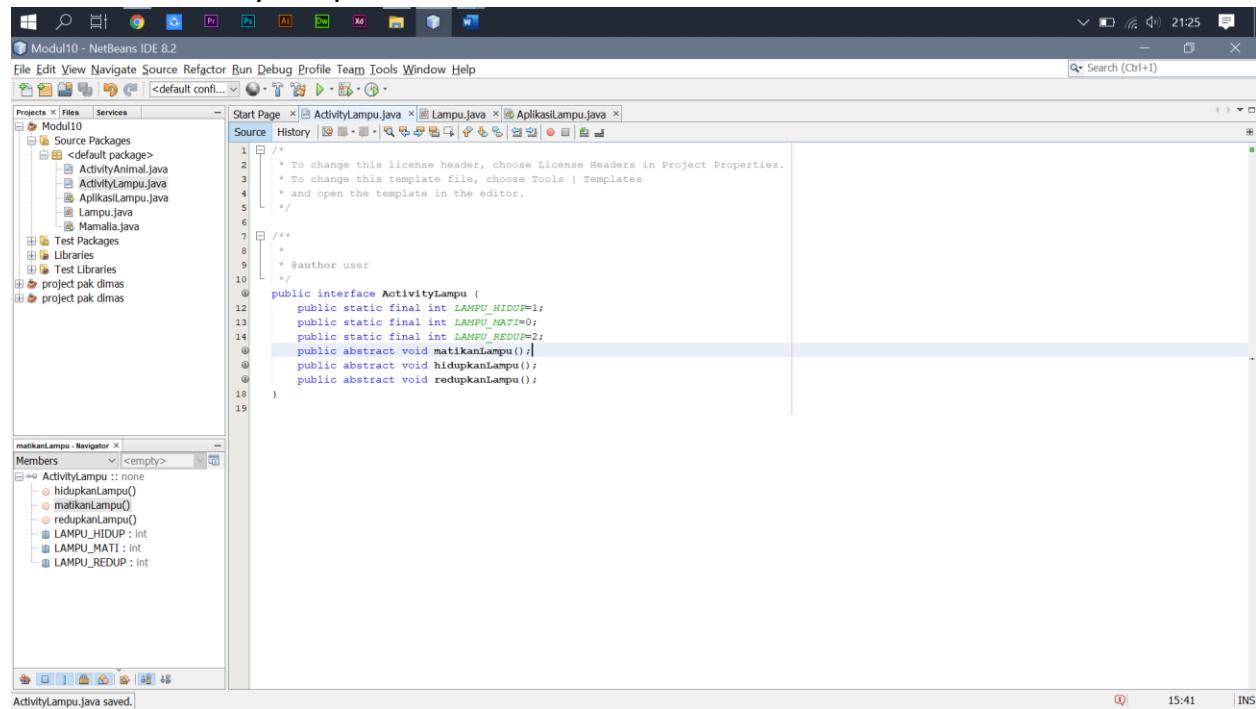
**NIM : L200180063**

**Kelas : B**

## MODUL 10 – INTERFACE

Tugas

### Interface ActivityLampu



The screenshot shows the NetBeans IDE 8.2 interface with the following details:

- Project Explorer:** Shows a project named "Modulo10" with a single source package containing files: ActivityAnimal.java, ActivityLampu.java, AplikasiLampu.java, Lampu.java, and Manalia.java.
- Code Editor:** Displays the code for the `ActivityLampu` interface. The code includes static final integer constants for states (HIDUP=1, MATI=0, REDUP=2) and abstract methods for turning the lamp on, off, and redrawing it.
- Navigator:** Shows the members of the `ActivityLampu` interface, including the methods `hidupkanLampu()`, `matikanLampu()`, `redupkanLampu()`, and the constants `LAMPU_HIDUP`, `LAMPU_MATI`, and `LAMPU_REDUP`.
- Status Bar:** At the bottom right, it shows "ActivityLampu.java saved.", the time "15:41", and the status "INS".

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

## Class Lampu

The screenshot shows the NetBeans IDE interface with the title bar "Modul10 - NetBeans IDE 8.2". The main window displays the source code for the class `Lampu.java`. The code implements the `ActivityLampu` interface, containing methods for turning the lamp on and off, setting the switch state, and turning it up or down. 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 direduangkan");
        }else{
            statusLampu +=1;
            System.out.println("Keredupan Lampu telah ditambah");
        }
    }
}
```

## Class AplikasiLampu

The screenshot shows the NetBeans IDE interface with the title bar "Modul10 - NetBeans IDE 8.2". The main window displays the source code for the class `AplikasiLampu.java`. It contains a `main` method that uses a `Scanner` to read user input and call the appropriate methods on a `Lampu` object 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.
 */

/**
 *
 * @author user
 */
public class AplikasiLampu {
    public static void main(String[] args) {
        Lampu lampu = new Lampu();
        Scanner sc = new Scanner(System.in);
        lampu.setStatusLampu = lampu.setSaklar(0);
        System.out.println("Status Lampu = " + lampu.getStatusLampu +"\n Ketikkan");
        System.out.println("1 Untuk menyalaakan Lampu\n0 Untuk mematikan Lampu\n2 Untuk meredupkan Lampu");

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

## Output

Saat menekan angka 1 akan menyalaakan lampu.

```
run:
status Lampu = 0
Ketikkan
1 Untuk menyalaakan Lampu
0 Untuk mematikan Lampu
2 Untuk mereduakan Lampu
0
Lampu sudah dinyalakan
***
BUILD SUCCESSFUL (total time: 4 seconds)
```

Saat menekan angka 0 akan mematikan lampu

```
run:
status Lampu = 0
Ketikkan
1 Untuk menyalaakan Lampu
0 Untuk mematikan Lampu
2 Untuk mereduakan Lampu
0
Lampu sudah dalam kondisi mati
BUILD SUCCESSFUL (total time: 4 seconds)
```

Saat menekan angka 2 akan meredupkan lampu

The screenshot shows the NetBeans IDE interface with the title "Modul10 - NetBeans IDE 8.2". The menu bar includes File, Edit, View, Navigate, Source, Refactor, Run, Debug, Profile, Team, Tools, Window, and Help. The toolbar has icons for file operations like New, Open, Save, and Print. The main window displays a Java project named "Modul10" with three files: Start Page, ActivityLampu.java, Lampu.java, and AplikasiLampu.java. The Output window shows the run log:

```
run:
status Lampu = 0
Ketikkan
1 Untuk menyalaikan Lampu
0 Untuk mematikan Lampu
2 Untuk mereduangkan Lampu
2
Lampu telah direduangkan
BUILD SUCCESSFUL (total time: 2 seconds)
```

The status bar at the bottom indicates "Output | Finished building Modul10 (run).", the time "24:42", and the user "INS".

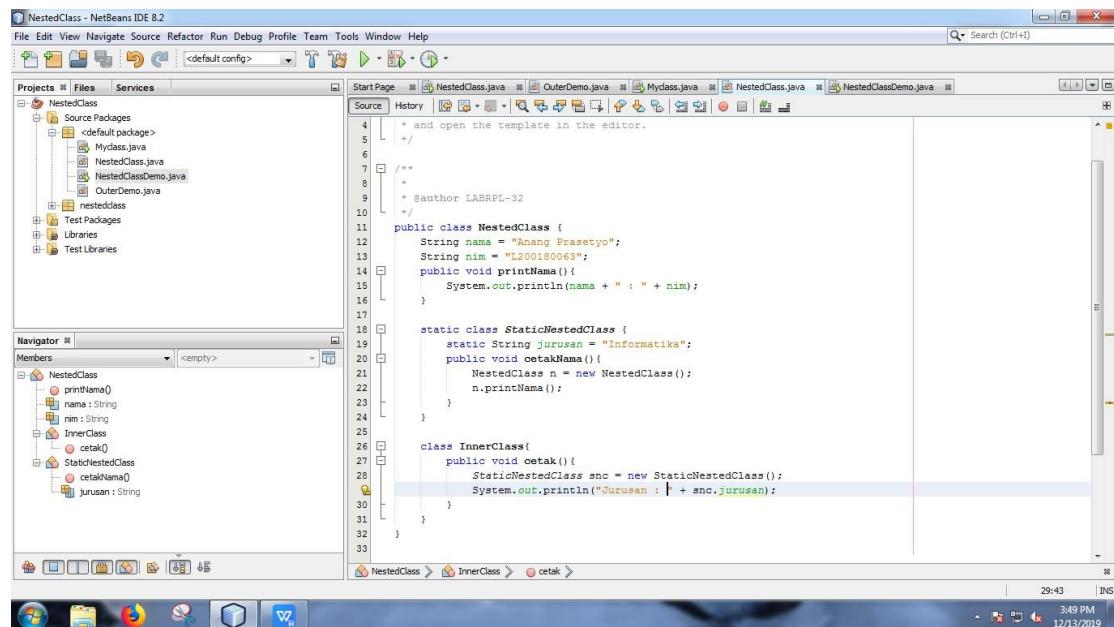
**Nama : Anang Prasetyo**

**NIM : L200180063**

**Kelas : B**

## MODUL 11 – Nested Class

### Class NestedClass



```
4  * and open the template in the editor.
5  *
6  */
7  /**
8  * @author LABRPL-32
9  */
10 public class NestedClass {
11     String nama = "Anang Prasetyo";
12     String nim = "L200180063";
13     public void printNama(){
14         System.out.println(nama + " : " + nim);
15     }
16
17     static class StaticNestedClass {
18         static String jurusan = "Informatika";
19         public void cetakNama(){
20             NestedClass n = new NestedClass();
21             n.printNama();
22         }
23     }
24
25     class InnerClass{
26         public void cetak(){
27             StaticNestedClass snc = new StaticNestedClass();
28             System.out.println("Jurusan : " + snc.jurusan);
29         }
30     }
31
32 }
33
```

## Class NestedClassDemo

The screenshot shows the NetBeans IDE interface with the title bar "NestedClass - NetBeans IDE 8.2". The main area displays the Java code for NestedClassDemo.java:

```
1  /*
2  * To change this license header, choose License Headers in Project Properties.
3  * To change this template file, choose Tools | Templates
4  * and open the template in the editor.
5  */
6
7 /**
8 *
9 * @author LABRPL-32
10 */
11 public class NestedClassDemo {
12     public static void main (String[] args) {
13         NestedClass ns = new NestedClass();
14         NestedClass.StaticNestedClass sns = new NestedClass.StaticNestedClass();
15         sns.cetakNama();
16         NestedClass.InnerClass ic = ns.new InnerClass();
17         ic.cetak();
18     }
19 }
20
```

The Projects panel on the left shows the project structure with files like NestedClass.java, Myclass.java, NestedClass.java, NestedClassDemo.java, OuterDemo.java, and nestedclass. The Navigator panel shows the main method.

## Output

The screenshot shows the NetBeans IDE interface with the title bar "NestedClass - NetBeans IDE 8.2". The main area displays the Java code for NestedClassDemo.java. Below it, the Output window shows the execution results:

```
run:
Anang Prasetyo : L200180063
Jurusan : Informatika
BUILD SUCCESSFUL (total time: 0 seconds)
```

The Projects panel on the left shows the project structure with files like NestedClass.java, Myclass.java, NestedClass.java, NestedClassDemo.java, OuterDemo.java, and nestedclass. The Navigator panel shows the main method.

**Nama : Anang Prasetyo**

**NIM : L200180063**

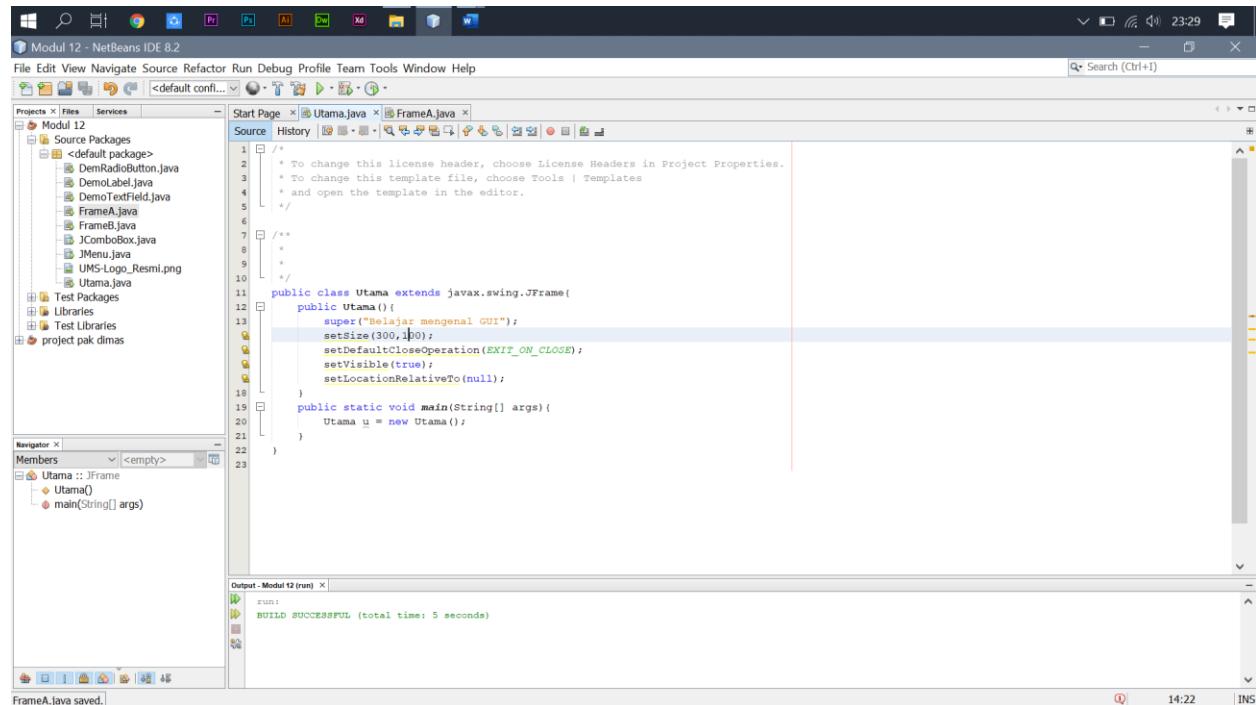
**Kelas : B**

## **MODUL 12 – GRAPHICAL USER INTERFACE (GUI)**

**Latihan**

**Frame**

**Class Utama**



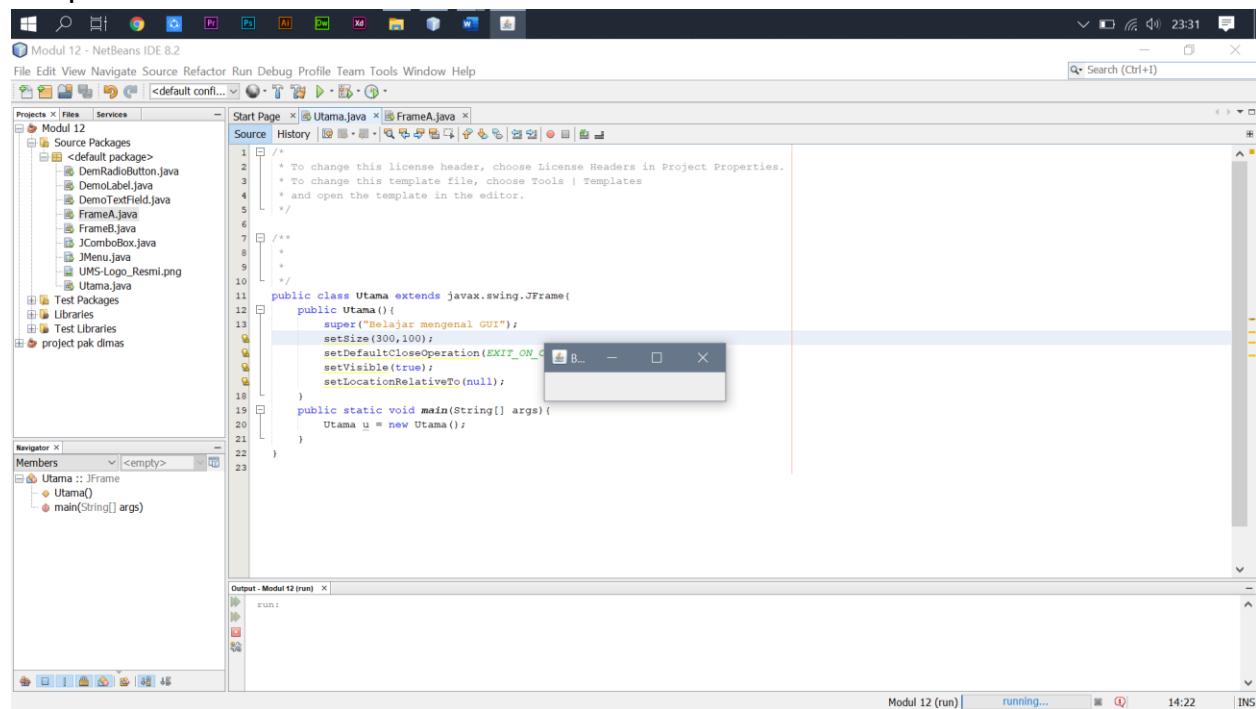
The screenshot shows the NetBeans IDE interface with the following details:

- 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" containing several source packages and files, including "Utama.java".
- Code Editor:** The main editor window displays the code for "FrameA.java". The code defines a class "Utama" that extends "javax.swing.JFrame". It sets the title to "Belajar mengenal GUI", sizes it to 300x100, and sets the default close operation to EXIT\_ON\_CLOSE. The main method creates an instance of Utama.

```
1  /*
2  * To change this license header, choose License Headers in Project Properties.
3  * To change this template file, choose Tools | Templates
4  * and open the template in the editor.
5  */
6
7 /**
8 *
9 *
10 */
11 public class Utama extends javax.swing.JFrame{
12     /**
13      * @param args
14      */
15     public Utama(){
16         super("Belajar mengenal GUI");
17         setSize(300,100);
18         setDefaultCloseOperation(EXIT_ON_CLOSE);
19         setVisible(true);
20         setLocationRelativeTo(null);
21     }
22     /**
23      * @param args
24      */
25     public static void main(String[] args){
26         Utama u = new Utama();
27     }
28 }
```

- Output Window:** Shows the build log: "BUILD SUCCESSFUL (total time: 5 seconds)".
- Status Bar:** Displays the current time as 14:22 and the status as INS.

## Output



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

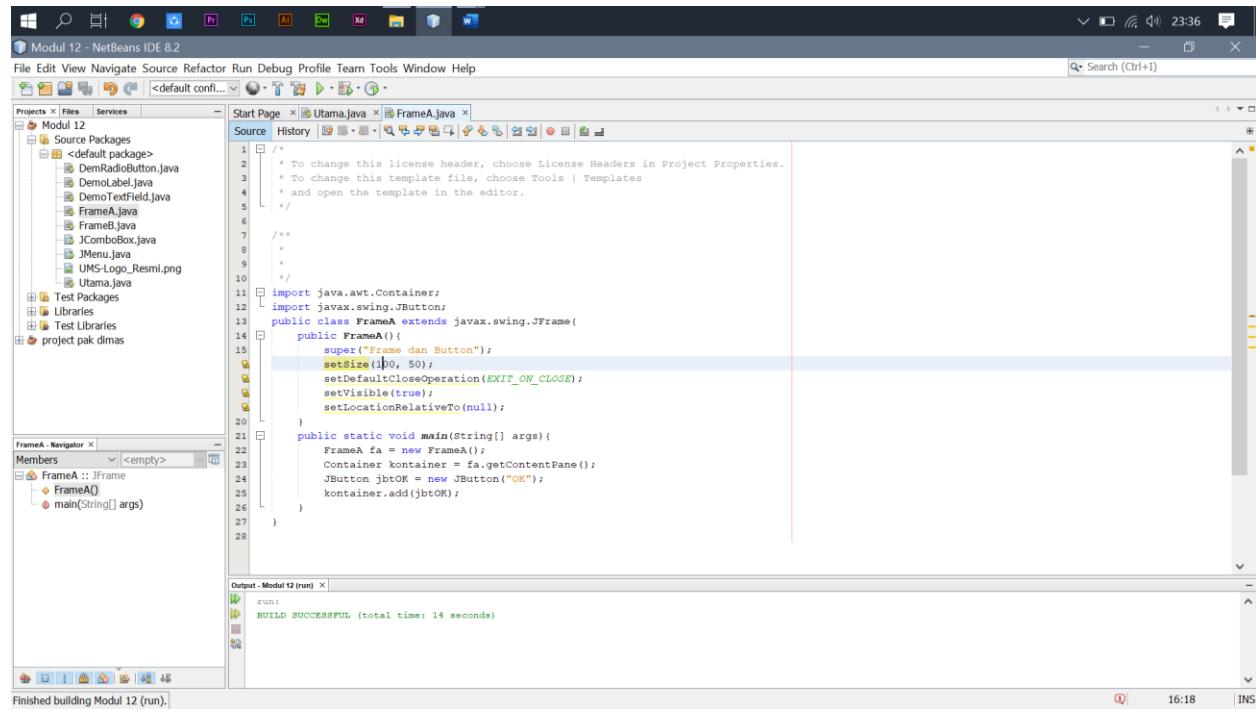
Metode	Keterangan
void setSize (int lebar, int tinggi)	Mengatur ukuran frame.
void setLocation (int x, int y)	Mengatur lokasi frame dihitung dari kiri atas.
void setVisible (boolean)	Menentukan JFrame ditampilkan atau tidak.

```
void setLocationRelativeTo(Component)
```

Menentukan letak JFrame relative dengan komponen lainnya. Jika diset null, maka JFrame akan ditampilkan di tengah.

## Button

### Class FrameA



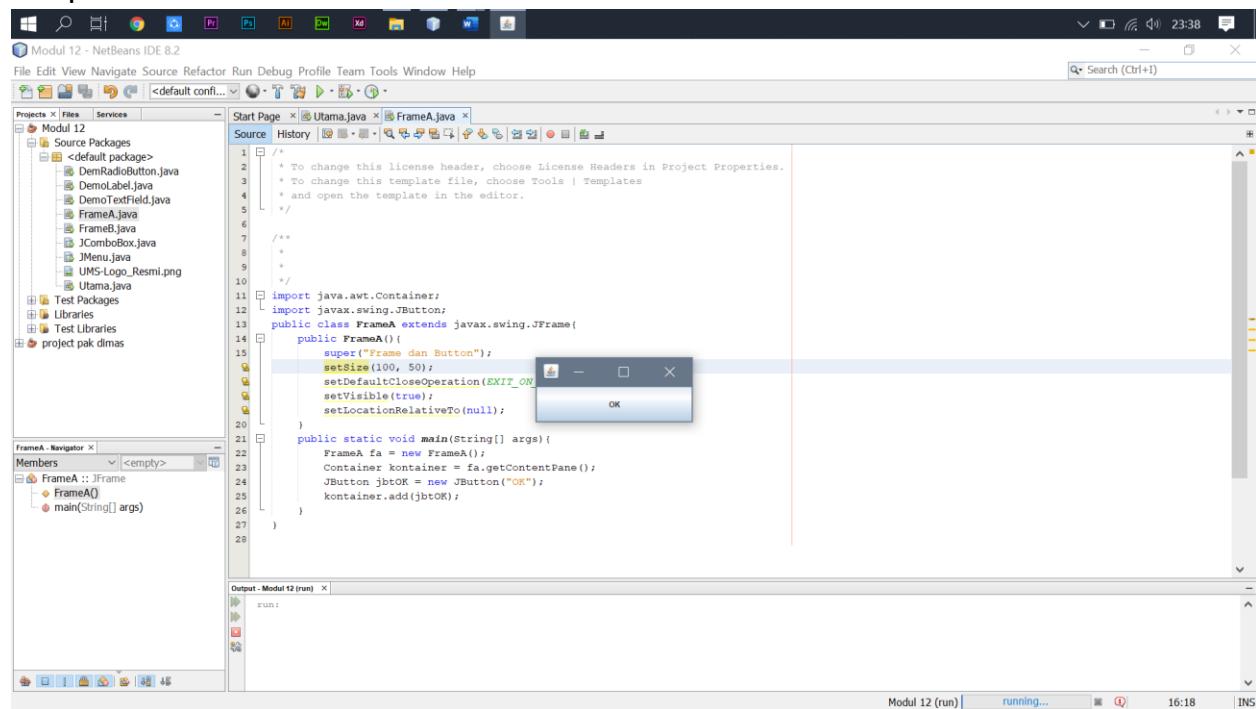
The screenshot shows the NetBeans IDE interface with the following details:

- 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 icons.
- Project Explorer:** Shows "Modul 12" with "Source Packages" containing "FrameA.java". Other files like DemiRadioButton.java, DemoLabel.java, DemoTextField.java, FrameB.java, JComboBox.java, JMenuBar.java, and Utama.java are also listed.
- Code Editor:** The "FrameA.java" file is open. The code defines a class FrameA that extends javax.swing.JFrame. It sets the frame's title to "Frame dan Button", its size to 100x50, and its default close operation to EXIT\_ON\_CLOSE. It makes the frame visible and sets its location relative to null. A main method creates a new FrameA instance, adds an OK button to its content pane, and then adds the content pane to the frame.

```
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: "run: 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

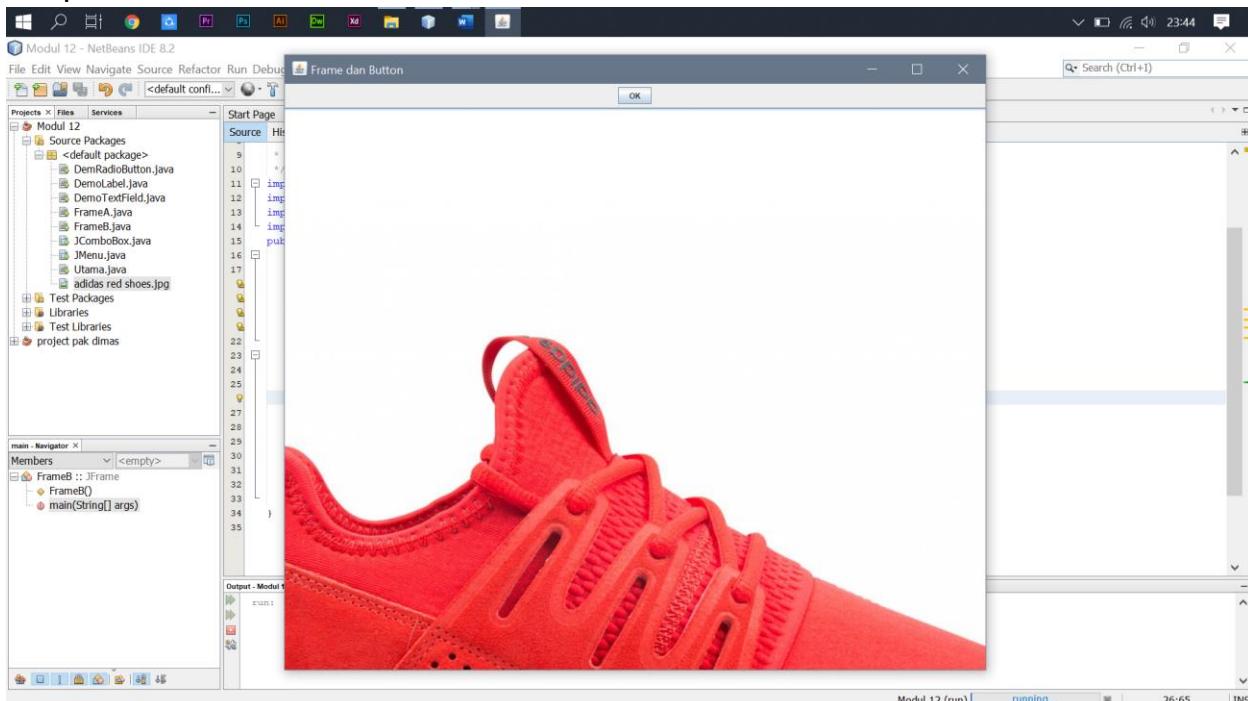
## Class FrameB

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.
- Projects Tab:** Shows a project named "Modul 12" containing several source files like DemiRadioButton.java, DemoLabel.java, etc., and a file named "adidas red shoes.jpg".
- Source Editor:** Displays the code for FrameB.java:

```
9  *
10 */
11 import java.net.URL;
12 import javax.swing.ImageIcon;
13 import javax.swing.JPanel;
14 import javax.swing.JButton;
15
16 public class FrameB extends javax.swing.JFrame{
17     public FrameB(){
18         super("Frame dan Button");
19         setSize(500, 500);
20         setDefaultCloseOperation(EXIT_ON_CLOSE);
21         setVisible(true);
22         setLocationRelativeTo(null);
23     }
24
25     public static void main(String[] args){
26         FrameB fb = new FrameB();
27         JPanel panel = new JPanel();
28         URL img = FrameB.class.getResource("adidas red shoes.jpg");
29         JButton jbOK = new JButton("OK");
30         JButton jbImg = new JButton(new ImageIcon(img));
31         panel.add(jbOK);
32         panel.add(jbImg);
33         fb.add(panel);
34     }
35 }
```
- Output Tab:** Shows the build log: "BUILD SUCCESSFUL (total time: 43 seconds)".
- Status Bar:** Finished building Modul 12 (run). | 26:65 | INS

## Output

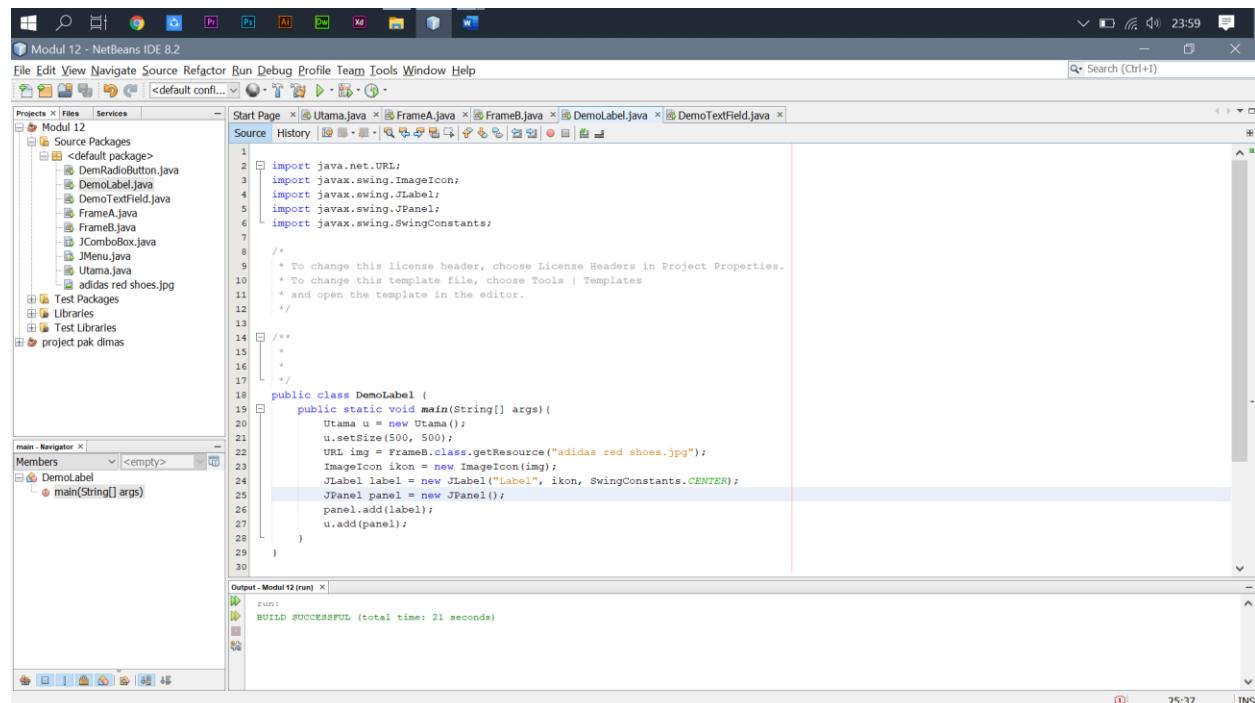


Konstruktor	Keterangan
JLabel(String teks)	Label dengan teks.

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

## Label

### Class DemoLabel



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

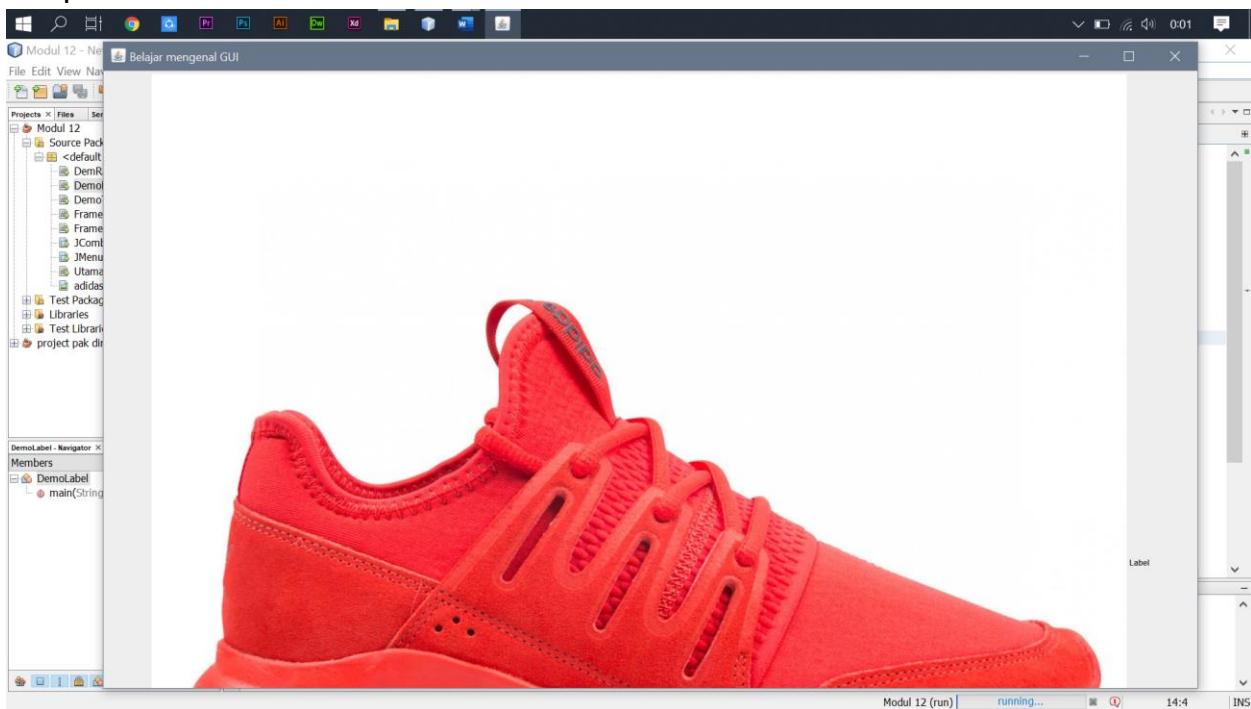
- Title Bar:** Modul 12 - NetBeans IDE 8.2
- Menu Bar:** File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
- Toolbar:** Standard NetBeans toolbar icons.
- Project Explorer:** Shows the project structure under "Modul 12". It includes several source packages like "Modul 12", "Source Packages", and "Test Packages". Under "Source Packages", there are files such as DemRadioButton.java, DemoLabel.java, DemoTextField.java, FrameA.java, FrameB.java, DemoLabel.java, and DemoTextField.java. A file named "adidas red shoes.jpg" is also listed.
- Code Editor:** The main editor window displays the Java code for "DemoLabel.java". The code imports necessary classes and defines a main method that creates a frame, sets its size to 500x500, loads an image from the class's resource, creates a label with the text "Label", and adds it to a panel. The panel is then added to the frame.
- Output Window:** The "Output" window at the bottom shows the build log: "BUILD SUCCESSFUL (total time: 21 seconds)".
- Status Bar:** Shows the current time as 25:37 and the mode as INS.

```

1  import java.net.URL;
2  import javax.swing.ImageIcon;
3  import javax.swing.JLabel;
4  import javax.swing.JPanel;
5  import javax.swing.SwingConstants;
6
7  /*
8   * To change this license header, choose License Headers in Project Properties.
9   * To change this template file, choose Tools | Templates
10  * and open the template in the editor.
11 */
12
13 /**
14  *
15  *
16  */
17
18 public class DemoLabel {
19     public static void main(String[] args){
20         Utama u = new Utama();
21         u.setSize(500, 500);
22         URL img = FrameB.class.getResource("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

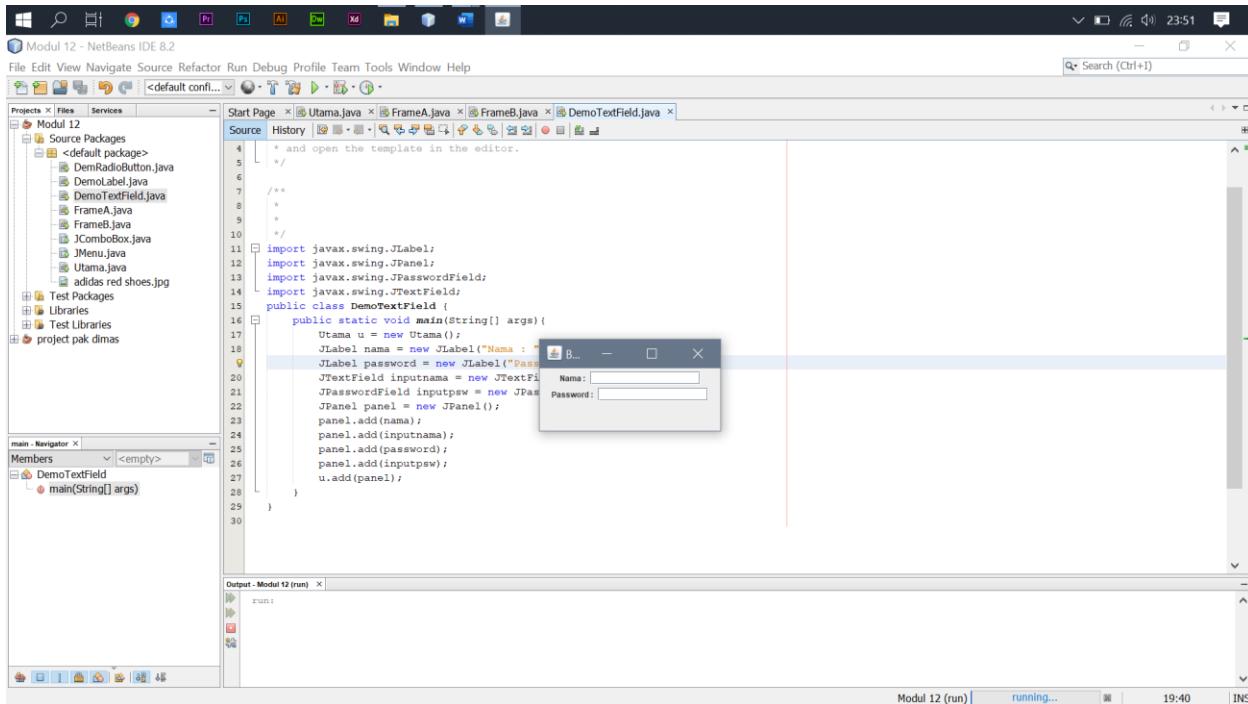
The screenshot shows the NetBeans IDE interface with the following details:

- Title Bar:** Modul 12 - NetBeans IDE 8.2
- Menu Bar:** File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
- Toolbar:** Standard NetBeans toolbar.
- Projects Tab:** Shows a project named "Modul 12" containing several source packages and files.
- Source Editor:** Displays the code for `DemoTextField.java`. The code creates a window with two text fields for name and password.

```
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     /**
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 Tab:** Shows the build log: "BUILD SUCCESSFUL (total time: 18 seconds)".

## Output



Konstruktor

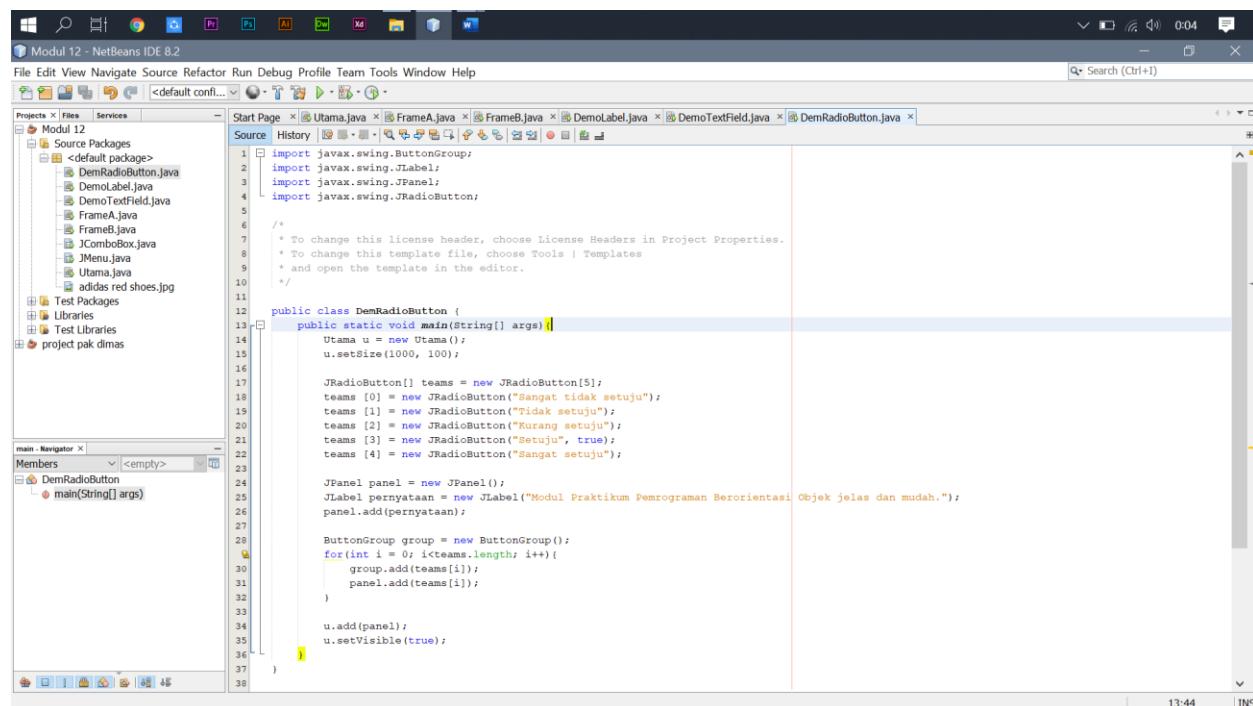
Penjelasan

JTextField()	Text Field kosong tanpa tulisan.
JTextField(int i)	Text Field dengan panjang yang ditentukan.
JTextField(String i)	Teks Field dengan teks yang sudah ditentukan.
JTextField(String teks, int i)	Teks Field dengan teks dan panjang kolom yang sudah ditentukan

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

## Radio Button dan CheckBox

### Class DemRadioButton



The screenshot shows the NetBeans IDE interface with the title bar "Modul 12 - NetBeans IDE 8.2". The main window displays the Java code for the `DemRadioButton` class. The code imports various Java Swing components and defines a main method that creates a window, adds a panel with five radio buttons to it, and sets the window's size to 1000x100. The code uses a `ButtonGroup` to group the radio buttons.

```

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

/*
 * 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 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("Kurang setuju");
        teams [3] = new JRadioButton("Setuju", true);
        teams [4] = new JRadioButton("Sangat setuju");

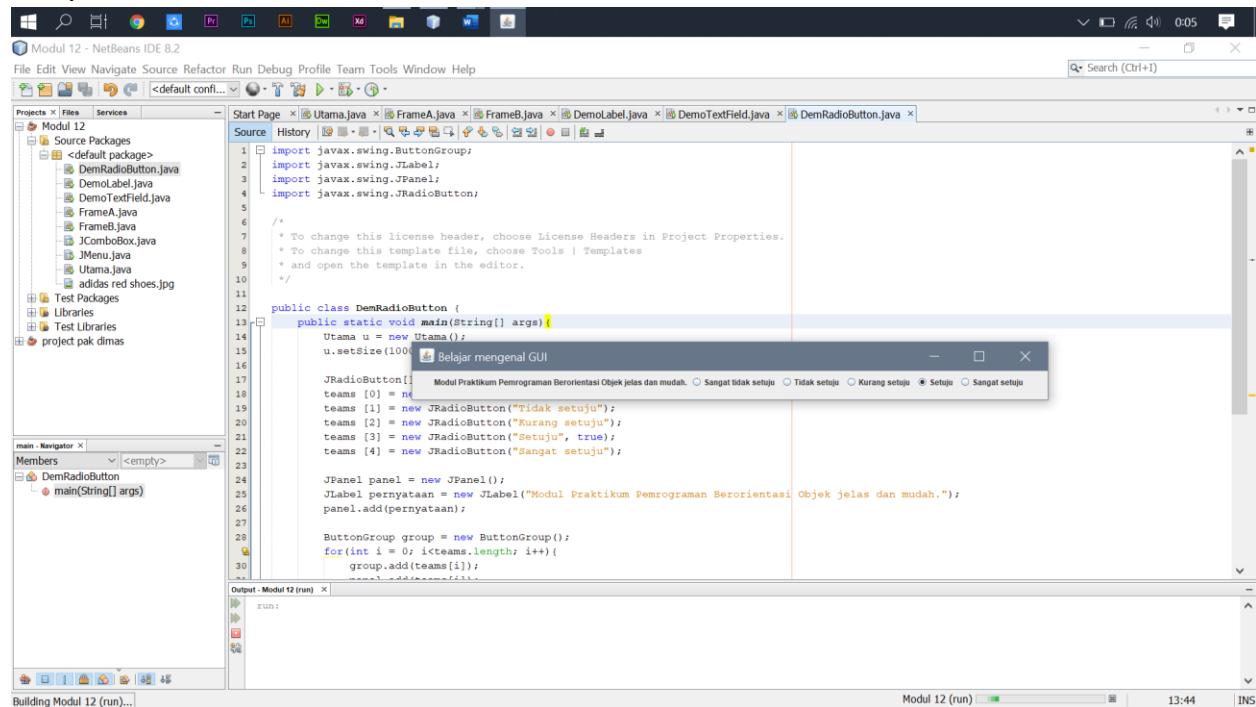
        JPanel panel = new JPanel();
        JLabel pernyataan = new JLabel("Modul Praktikum Pemrograman Berorientasi Objek jelas dan mudah.");
        panel.add(pernyataan);

        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);
    }
}

```

## Output



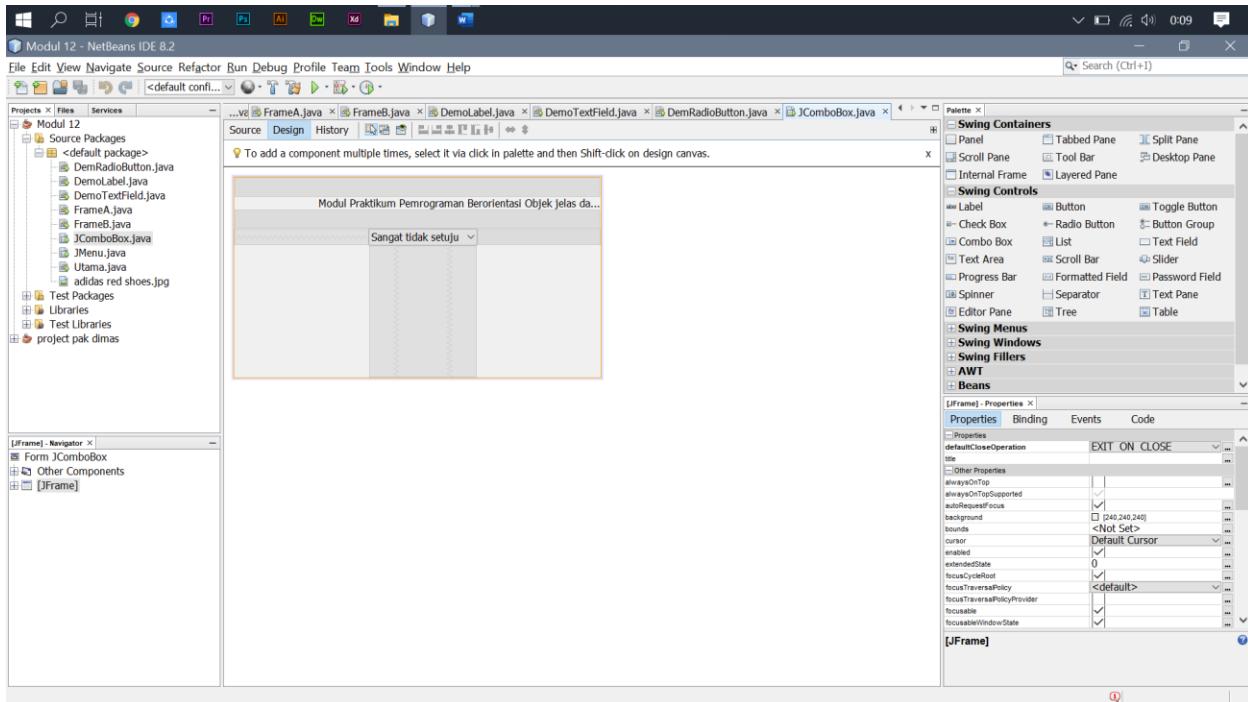
Konstruktor	Penjelasan
JCheckBox(String Teks)	Check box dengan teks yang ditentukan.
JCheckBox(String, Boolean)	Check box dengan teks yang ditentukan, jika kondisi pada parameter kedua true, maka Check box ini akan dipilih.
JCheckBox(icon)	Check box dengan gambar icon.
JCheckBox(icon, Boolean)	Check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

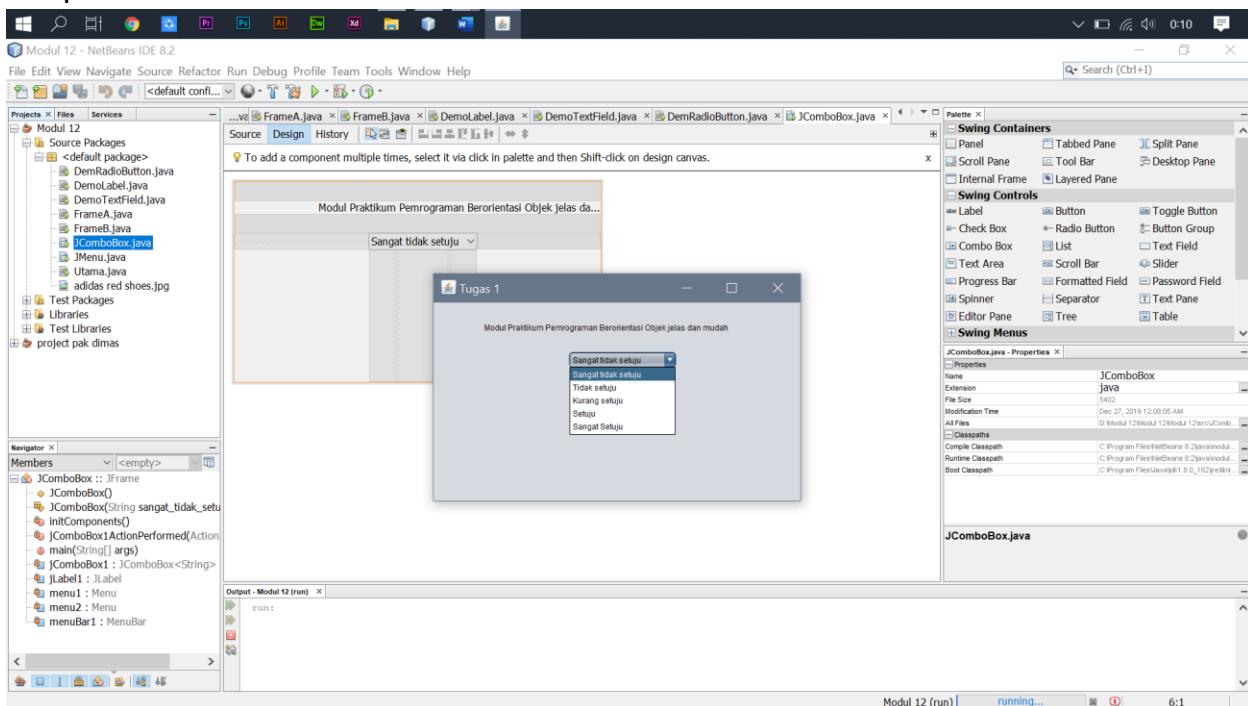
1. Menggunakan class JComboBox untuk membuat program GUI berdasarkan gambar

```
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  public class JComboBox extends javax.swing.JFrame {
8
9      /**
10      * Creates new form JComboBox
11      */
12     public JComboBox() {
13         super("Tugas 1");
14         initComponents();
15     }
16
17     JComboBox(String sangat_tidak_setuju) {
18         throw new UnsupportedOperationException("Not supported yet.");
19     }
20
21     /**
22      * This method is called from within the constructor to initialize the form.
23      * WARNING: Do NOT modify this code. The content of this method is always
24      * regenerated by the Form Editor.
25      */
26     @SuppressWarnings("unchecked")
27     private void jComboBox1ActionPerformed(java.awt.event.ActionEvent evt) {
28         // TODO add your handling code here:
29     }
30
31     /**
32      * @param args the command line arguments
33      */
34     public static void main(String args[]) {
35         /* Set the Nimbus look and feel */
36         LookAndFeelSettingCode(optional);
37
38         /* Create and display the form */
39         java.awt.EventQueue.invokeLater(new Runnable() {
40             public void run() {
41                 new JComboBox().setVisible(true);
42             }
43         });
44     }
45
46     // Variables declaration - do not modify
47     private javax.swing.JComboBox<String> jComboBox1;
48     private javax.swing.JLabel jLabel1;
49     private java.awt.Menu menu1;
50     private java.awt.Menu menu2;
51     private java.awtMenuBar menuBar1;
52     // End of variables declaration
53 }
```

```
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  public class JComboBox extends javax.swing.JFrame {
8
9      /**
10      * Creates new form JComboBox
11      */
12     public JComboBox() {
13         super("Tugas 1");
14         initComponents();
15     }
16
17     JComboBox(String sangat_tidak_setuju) {
18         throw new UnsupportedOperationException("Not supported yet.");
19     }
20
21     /**
22      * This method is called from within the constructor to initialize the form.
23      * WARNING: Do NOT modify this code. The content of this method is always
24      * regenerated by the Form Editor.
25      */
26     @SuppressWarnings("unchecked")
27     private void jComboBox1ActionPerformed(java.awt.event.ActionEvent evt) {
28         // TODO add your handling code here:
29     }
30
31     /**
32      * @param args the command line arguments
33      */
34     public static void main(String args[]) {
35         /* Set the Nimbus look and feel */
36         LookAndFeelSettingCode(optional);
37
38         /* Create and display the form */
39         java.awt.EventQueue.invokeLater(new Runnable() {
40             public void run() {
41                 new JComboBox().setVisible(true);
42             }
43         });
44     }
45
46     // Variables declaration - do not modify
47     private javax.swing.JComboBox<String> jComboBox1;
48     private javax.swing.JLabel jLabel1;
49     private java.awt.Menu menu1;
50     private java.awt.Menu menu2;
51     private java.awtMenuBar menuBar1;
52     // End of variables declaration
53 }
```



## Output



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

NetBeans IDE 8.2

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

Start Page Utama.java FrameA.java FrameB.java DemoLabel.java DemoTextField.java DemiRadioButton.java JComboBox.java JMenu.java Utama.java adidas red shoes.jpg

Projects Files Services Modul 12

Source Packages <default package>

- DemiRadioButton.java
- DemoLabel.java
- DemoTextField.java
- FrameA.java
- FrameB.java
- JComboBox.java
- JMenu.java
- Utama.java
- adidas red shoes.jpg

Test Packages Libraries Test Libraries project pak dimas

JMenu - Navigator Members <empty>

Members <empty>

JMenu :: JFrame

- JMenu()
- initComponents()
- jMenuItem4ActionPerformed(ActionEvent evt)
- jMenuItem5ActionPerformed(ActionEvent evt)
- jMenuItem7ActionPerformed(ActionEvent evt)
- main(String[] args)
- Menu1 : JMenu
- Menu2 : JMenu
- Menu3 : JMenu
- MenuBar1 : JMenuBar
- jMenuItem1 : JMenuItem
- jMenuItem2 : JMenuItem

Source Design History

```
1 import java.awt.Color;
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 public class JMenu extends javax.swing.JFrame {
10 
11     /**
12      * Creates new form JMenu
13     */
14     public JMenu() {
15         initComponents();
16     }
17 
18     /**
19      * This method is called from within the constructor to initialize the form.
20      * WARNING: Do NOT modify this code. The content of this method is always
21      * regenerated by the Form Editor.
22      */
23     @SuppressWarnings("unchecked")
24     // Generated Code
25 
26     private void jMenuItem4ActionPerformed(java.awt.event.ActionEvent evt) {
27         // TODO add your handling code here:
28         this.getContentPane().setBackground(Color.red);
29     }
30 
31     private void jMenuItem5ActionPerformed(java.awt.event.ActionEvent evt) {
32         // TODO add your handling code here:
33         this.getContentPane().setBackground(Color.yellow);
34     }
35 
36     private void jMenuItem7ActionPerformed(java.awt.event.ActionEvent evt) {
37         // TODO add your handling code here:
38     }
39 
```

8:1 INS

Modul 12 - NetBeans IDE 8.2

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

Start Page Utama.java FrameA.java FrameB.java DemoLabel.java DemoTextField.java DemiRadioButton.java JComboBox.java JMenu.java

Projects Files Services Modul 12

Source Packages <default package>

- DemiRadioButton.java
- DemoLabel.java
- DemoTextField.java
- FrameA.java
- FrameB.java
- JComboBox.java
- JMenu.java
- Utama.java
- adidas red shoes.jpg

Test Packages Libraries Test Libraries project pak dimas

JMenu - Navigator Members <empty>

Members <empty>

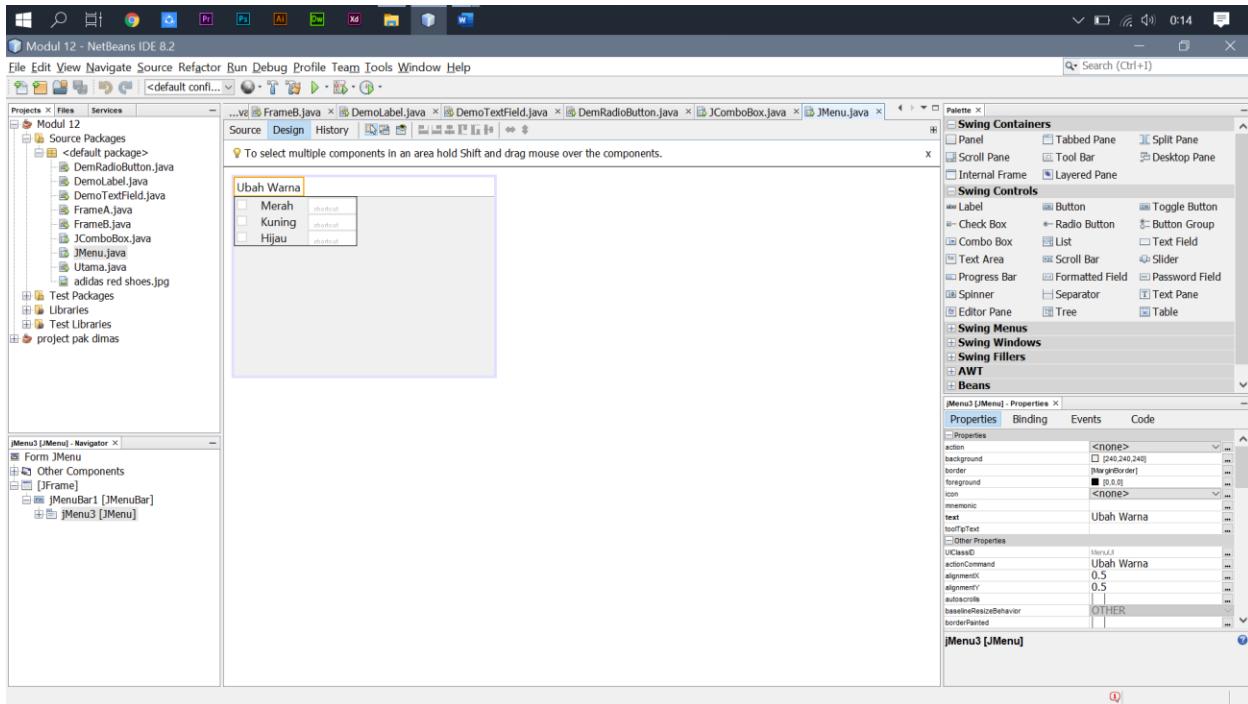
JMenu :: JFrame

- JMenu()
- initComponents()
- jMenuItem4ActionPerformed(ActionEvent evt)
- jMenuItem5ActionPerformed(ActionEvent evt)
- jMenuItem7ActionPerformed(ActionEvent evt)
- main(String[] args)
- Menu1 : JMenu
- Menu2 : JMenu
- Menu3 : JMenu
- MenuBar1 : JMenuBar
- jMenuItem1 : JMenuItem
- jMenuItem2 : JMenuItem

Source Design History

```
107     // TODO add your handling code here:
108     this.getContentPane().setBackground(Color.green);
109 }
110 
111 /**
112  * @param args the command line arguments
113 */
114 public static void main(String args[]) {
115     /* Set the Nimbus look and feel */
116     // Look and feel setting code (optional)
117 
118     /* Create and display the form */
119     java.awt.EventQueue.invokeLater(new Runnable() {
120         public void run() {
121             new JMenu().setVisible(true);
122         }
123     });
124 }
125 
126 // Variables declaration - do not modify
127 private javax.swing.JMenu jMenu1;
128 private javax.swing.JMenu jMenu2;
129 private javax.swing.JMenu jMenu3;
130 private javax.swing.JMenuBar jMenuBar1;
131 private javax.swing.JMenuItem jMenuItem1;
132 private javax.swing.JMenuItem jMenuItem2;
133 private javax.swing.JMenuItem jMenuItem3;
134 private javax.swing.JMenuItem jMenuItem4;
135 private javax.swing.JMenuItem jMenuItem5;
136 private javax.swing.JMenuItem jMenuItem7;
137 private javax.swing.JPopupMenu jPopupMenu1;
138 // End of variables declaration
139 
```

8:1 INS



## Output

