

MODUL PRAKTIKUM 2

Mata Kuliah : Pwmeogaman Berorientasi Obyek + Praktikum

Dosen Pengampu : Dwi Rolliawati



Disusun Oleh:

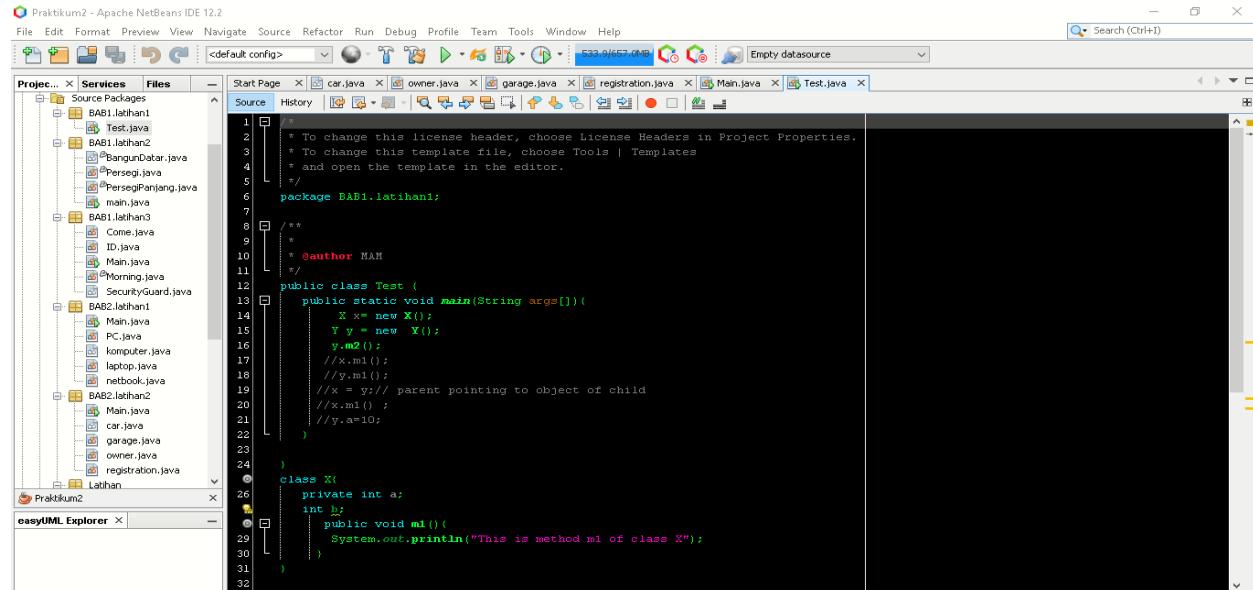
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**PROGRAM STUDI SISTEM INFORMASI
FAKULTAS SAINS DAN TEKNOLOGI
UNIVERSITAS ISLAM NEGERI SUNAN AMPEL SURABAYA
2021**

BAB 1

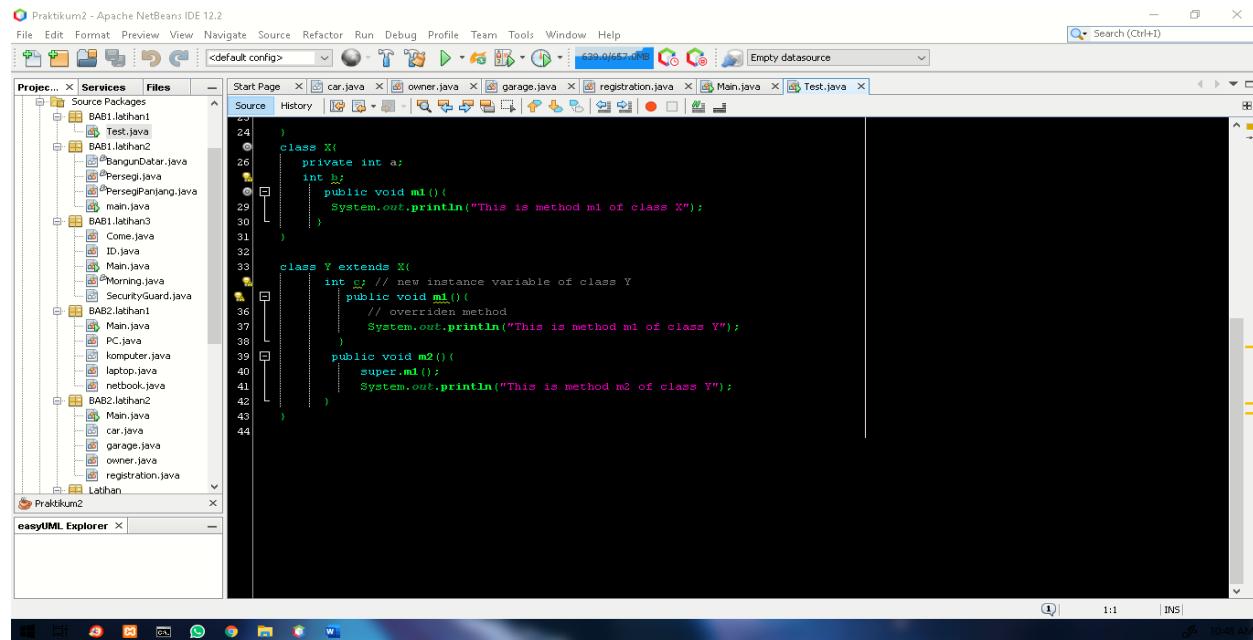
Latihan

1. A



Praktikum2 - Apache NetBeans IDE 12.2

```
1  /*
2   * To change this license header, choose License Headers in Project Properties.
3   * To change this template file, choose Tools | Templates
4   * and open the template in the editor.
5   */
6 package BAB1.latihan1;
7
8 /**
9  *
10 */
11
12 public class Test {
13     public static void main(String args[]){
14         X x = new X();
15         Y y = new Y();
16         y.m2();
17         //x.m1();
18         //y.m1();
19         //x = y;// parent pointing to object of child
20         //x.m1();
21         //y.a=10;
22     }
23 }
24
25 class X{
26     private int a;
27     int b;
28     public void m1(){
29         System.out.println("This is method m1 of class X");
30     }
31 }
```



Praktikum2 - Apache NetBeans IDE 12.2

```
24
25     class X{
26         private int a;
27         int b;
28         public void m1(){
29             System.out.println("This is method m1 of class X");
30         }
31     }
32
33     class Y extends X{
34         int c; // new instance variable of class Y
35         public void m1(){
36             // overridden method
37             System.out.println("This is method m1 of class Y");
38         }
39         public void m2(){
40             super.m1();
41             System.out.println("This is method m2 of class Y");
42         }
43     }
44 }
```

class Y extends class X, sehingga method 'm1' yang berada di class X dapat diakses di class Y dengan isi yang berbeda, kemudian pada kelas Y terdapat method baru yakni 'm2' yang berisi memanggil pengaksesan method di 'm1' dengan isi yang berbeda dan juga isi dari 'm2' itu sendiri. Kemudian pada class main, dipanggilnya class Y dengan method 'm2', dimana sudah berisi pemanggilan akses dari 'm1' dan isi dari 'm2' itu sendiri.

1. B

```
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 BAB1.latihan1;
7
8  /**
9  */
10 /* @author MAM
```

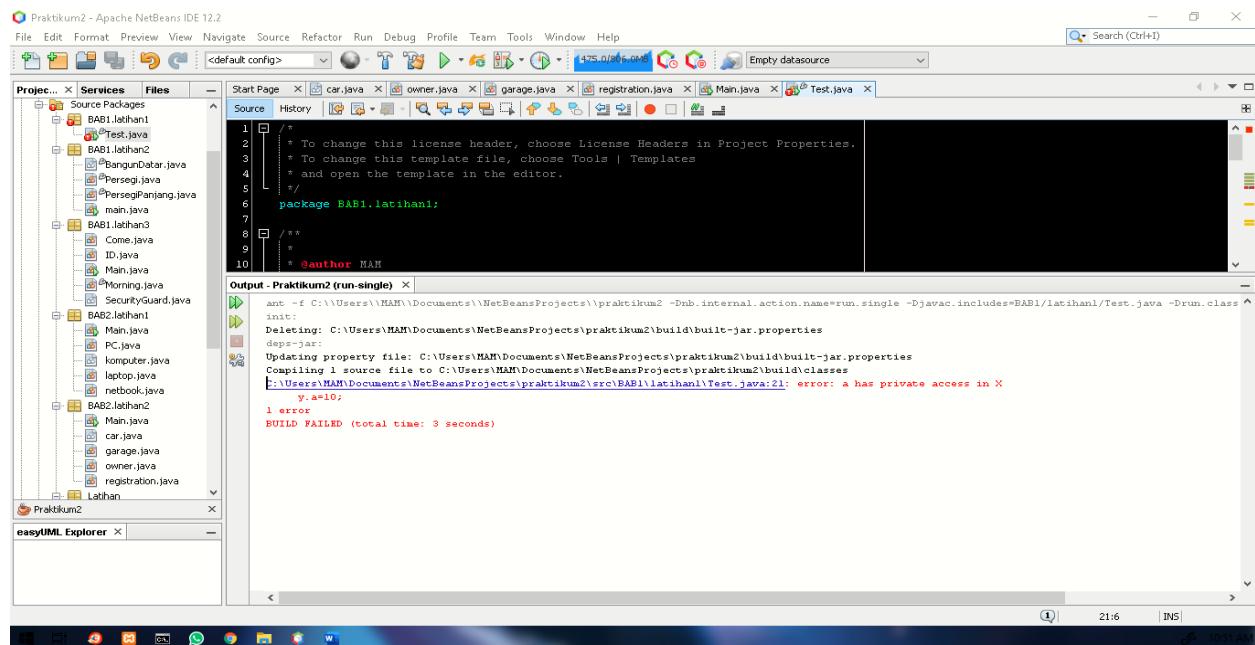
```
ant -f C:\Users\MAM\Documents\NetBeansProjects\praktikum2\build\build-jar.properties
int:
Deleting: C:\Users\MAM\Documents\NetBeansProjects\praktikum2\build\built-jar.properties
deps-jar:
Updating property file: C:\Users\MAM\Documents\NetBeansProjects\praktikum2\build\build-jar.properties
Compiling 1 source file to C:\Users\MAM\Documents\NetBeansProjects\praktikum2\build\classes
compile-single:
run-single:
This is method m1 of class X
This is method m2 of class Y
BUILD SUCCESSFUL (total time: 2 seconds)
```

```
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 BAB1.latihan1;
7
8  /**
9  */
10 /* @author MAM
```

```
ant -f C:\Users\MAM\Documents\NetBeansProjects\praktikum2\build\build-jar.properties
int:
Deleting: C:\Users\MAM\Documents\NetBeansProjects\praktikum2\build\built-jar.properties
deps-jar:
Updating property file: C:\Users\MAM\Documents\NetBeansProjects\praktikum2\build\build-jar.properties
Compiling 1 source file to C:\Users\MAM\Documents\NetBeansProjects\praktikum2\build\classes
compile-single:
run-single:
This is method m1 of class X
This is method m2 of class Y
This is method m1 of class X
This is method m1 of class Y
This is method m1 of class Y
BUILD SUCCESSFUL (total time: 3 seconds)
```

class Y extends class X, sehingga method 'm1' yang berada di class X dapat diakses di class Y dengan isi yang berbeda, kemudian pada kelas Y terdapat method baru yakni 'm2' yang berisi memanggil pengaksesan method di 'm1' dengan isi yang berbeda dan juga isi dari 'm2' itu sendiri. Kemudian pada class main, dipanggilnya class Y dengan method 'm2', dimana sudah berisi pemanggilan akses dari 'm1' dan isi dari 'm2' itu sendiri. Pemanggilan di class X dengan method aslinya yakni 'm1'. Pemanggilan class Y dengan method yang sudah diakses dari class X, namun dengan isi yang sudah berubah. Kemudian pemanggilan class X dimana disini X = Y dengan method 'm1' sehingga outputnya berisi 'm1' yang sudah berubah karena hasil extends dari class induk X.

1. C

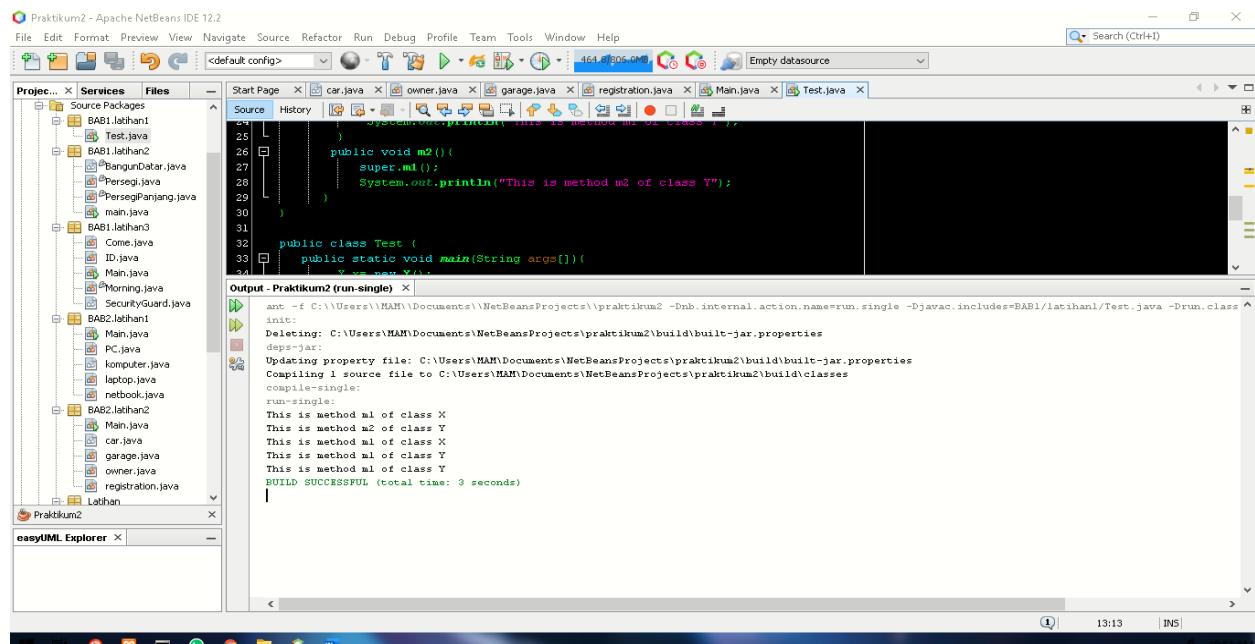


```
Praktikum2 - Apache NetBeans IDE 12.2
File Edit Format Preview View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Project... Services Files Start Page <default config> 475.0/865.0MB Empty datasource
BAB1.latihan1 Test.java
BAB1.latihan2 BangunDatar.java Persegi.java PersegiPanjang.java main.java
BAB1.latihan3 Come.java ID.java Main.java Morning.java SecurityGuard.java
BAB2.latihan1 Main.java PC.java komputer.java laptop.java netbook.java
BAB2.latihan2 Main.java car.java garage.java owner.java registration.java
Latihan
Output - Praktikum2(run-single) x
ant -f C:\Users\HAM\Documents\NetBeansProjects\praktikum2 -Dnb.internal.action.name=run.single -Djavac.includes=BAB1\latihan1/Test.java -Drun.class
int:
Deleting: C:\Users\HAM\Documents\NetBeansProjects\praktikum2\build\built-jar.properties
deps-jar:
Updating property file: C:\Users\HAM\Documents\NetBeansProjects\praktikum2\build\built-jar.properties
Compiling 1 source file to C:\Users\HAM\Documents\NetBeansProjects\praktikum2\build\classes
C:\Users\HAM\Documents\NetBeansProjects\praktikum2\src\Bab1\latihan1\Test.java:21: error: a has private access in X
    y.a*10;
      ^
1 error
BUILD FAILED (total time: 3 seconds)

Project Explorer | Recent Files | Help | 21:6 | INS | 10:11 AM
```

Disini terjadi error pada class main tidak dapat mengakses variable 'a' karena pada class induk X si variable 'a' bersifat private.

1. D

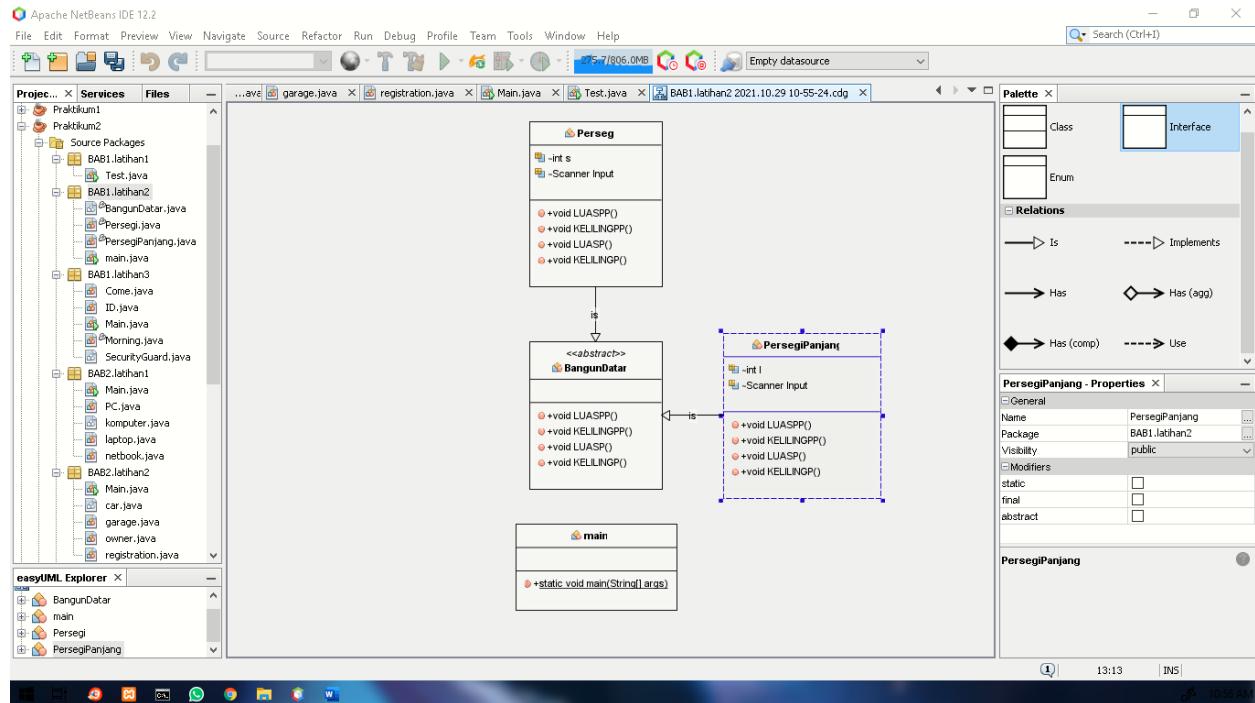


```
Praktikum2 - Apache NetBeans IDE 12.2
File Edit Format Preview View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Project... Services Files Start Page <default config> 464.8/865.0MB Empty datasource
BAB1.latihan1 Test.java
BAB1.latihan2 BangunDatar.java Persegi.java PersegiPanjang.java main.java
BAB1.latihan3 Come.java ID.java Main.java Morning.java SecurityGuard.java
BAB2.latihan1 Main.java PC.java komputer.java laptop.java netbook.java
BAB2.latihan2 Main.java car.java garage.java owner.java registration.java
Latihan
Output - Praktikum2(run-single) x
ant -f C:\Users\HAM\Documents\NetBeansProjects\praktikum2 -Dnb.internal.action.name=run.single -Djavac.includes=BAB1\latihan1/Test.java -Drun.class
int:
Deleting: C:\Users\HAM\Documents\NetBeansProjects\praktikum2\build\built-jar.properties
deps-jar:
Updating property file: C:\Users\HAM\Documents\NetBeansProjects\praktikum2\build\built-jar.properties
Compiling 1 source file to C:\Users\HAM\Documents\NetBeansProjects\praktikum2\build\classes
compile-single:
run-single:
This is method m1 of class X
This is method m2 of class Y
This is method m1 of class X
This is method m1 of class Y
This is method m1 of class Y
This is method m1 of class Y
BUILD SUCCESSFUL (total time: 3 seconds)

Project Explorer | Recent Files | Help | 13:13 | INS | 10:04 AM
```

ganti 'private' pada int a dengan 'protected' agar dapat diakses oleh class lain, kemudian di class main test harus menambahkan 'System.out.println("y.a = " + y.a);' agar apa yang diinputkan kedalam 'y.a' otomatis teroutput.

2. Diagram class



Source Code

```

1 /*
2  * To change this license header, choose License Headers in Project Properties.
3  * To change this template file, choose Tools | Templates
4  * and open the template in the editor.
5  */
6 package BAB1.latihan2;
7
8 /**
9  * @author MAM
10 */
11 abstract class Bangundatar {
12     public abstract void LUASPP();
13     public abstract void KELILINGPP();
14     public abstract void LUASP();
15     public abstract void KELILINGP();
16 }
17
18
    
```

Bangundatar.java - Properties

- Name: Bangundatar
- Extension: java
- File Size: 429
- Modification Time: Oct 29, 2021, 9:20:15 AM
- All Files: C:\Users\MAK\Docume...
- Classpaths
- Compile Classpath: C:\Users\MAK\Docume...
- Runtime Classpath: C:\Users\MAK\Docume...
- Boot Classpath: nbjrt file:C:/Program%...

Praktikum2 - Apache NetBeans IDE 12.2

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

Project... Services Files ...ave Main.java Test.java BAB1.latihan2 2021.10.29 10-55-24.cdg BangunDatar.java Persegi.java

Source History ... BangunDatar.java Persegi.java

```
1 * To change this license header, choose License Headers in Project Properties.
2 * To change this template file, choose Tools | Templates.
3 * and open the template in the editor.
4 */
5
6 package BAB1.latihan2;
7
8 import java.util.Scanner;
9
10 /**
11 *
12 * @author MAM
13 */
14
15 public class Persegi extends BangunDatar{
16     int s;
17     Scanner Input = new Scanner(System.in);
18     @Override
19     public void LUASPP() {
20         }
21     @Override
22     public void KELILINGPP() {
23         }
24     @Override
25     public void LUASP() {
26         System.out.println("Menghitung Luas Persegi");
27         System.out.print("Sisi : ");s = Input.nextInt();
28         int l = s*s;
29         System.out.println("Luas Persegi Panjang adalah : " + l);
30         System.out.print("\n");
31     }
32 }
33
34
35
36
37
38
39
40
41
42
43
```

Properties

- Name: Persegi
- Extension: java
- File Size: 1066
- Modification Time: Oct 29, 2021, 9:20:15 AM
- All Files: C:\Users\MA...
Classpath:
 - Compile Classpath
 - Runtime Classpath: C:\Users\MA...
Boot Classpath: nbjrt file: C:\Program%...

Persegi.java

10:17 AM

Praktikum2 - Apache NetBeans IDE 12.2

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

Project... Services Files ...ave Main.java Test.java BAB1.latihan2 2021.10.29 10-55-24.cdg BangunDatar.java Persegi.java

Source History ... BangunDatar.java Persegi.java

```
23
24
25     @Override
26     public void LUASP() {
27         System.out.println("Menghitung Luas Persegi");
28         System.out.print("Sisi : ");s = Input.nextInt();
29         int l = s*s;
30         System.out.println("Luas Persegi Panjang adalah : " + l);
31         System.out.print("\n");
32     }
33
34     @Override
35     public void KELILINGPP() {
36         System.out.println("Menghitung Keliling Persegi");
37         System.out.print("sisi : ");s = Input.nextInt();
38         int k = s*4;
39         System.out.println("Keliling Persegi adalah : " + k);
40         System.out.print("\n");
41     }
42
43
```

Properties

- Name: Persegi
- Extension: java
- File Size: 1066
- Modification Time: Oct 29, 2021, 9:20:15 AM
- All Files: C:\Users\MA...
Classpath:
 - Compile Classpath
 - Runtime Classpath: C:\Users\MA...
Boot Classpath: nbjrt file: C:\Program%...

Persegi.java

10:18 AM

Praktikum2 - Apache NetBeans IDE 12.2

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

Project... Services Files ...ave BAB1.latihan2 2021.10.29 10:55-24.cdg BangunDatar.java Persegi.java PersegiPanjang.java

Source History

```
3  * To change this template file, choose Tools | Templates
4  * and open the template in the editor.
5  */
6  package BAB1.latihan2;
7  import java.util.Scanner;
8
9  /**
10  * 
11  * @author MAM
12  */
13  public class PersegiPanjang extends BangunDatar{
14      int l, p, ll, p2;
15      Scanner input = new Scanner(System.in);
16
17      @Override
18      public void LUASPP () {
19          System.out.println("Menghitung Luas Persegi Panjang");
20          System.out.print("Lebar : ");l = Input.nextInt();
21          System.out.print("Panjang : ");p = Input.nextInt();
22          int h = l * p;
23          System.out.println("Luas Persegi Panjang adalah : " + h);
24          System.out.print("\n");
25      }
26      @Override
27      public void KELILINGPP () {
28          System.out.println("Menghitung Keliling Persegi Panjang");
29          System.out.print("Lebar : ");ll = Input.nextInt();
30          System.out.print("Panjang : ");p2 = Input.nextInt();
31          int h1 = ll + p2;
32          int h2 = h1 * 2;
33          System.out.println("Keliling Persegi Panjang adalah : " + h2);
34          System.out.print("\n");
35      }
36      @Override
37      public void LUASP () {
38      }
39      @Override
40      public void KELILINGP () {
41      }
42  }
```

Properties

- Name: PersegiPanjang
- Extension: java
- File Size: 1264
- Modification Time: Oct 29, 2021, 9:19:37 AM
- All Files: C:\Users\MAM\Docume...

Classpath

- Compile Classpath
- Runtime Classpath: C:\Users\MAM\Docume...
- Boot Classpath: nbjrt file: C:\Program%...

PersegiPanjang.java

1:1 INS

Praktikum2 - Apache NetBeans IDE 12.2

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

Project... Services Files ...ave BAB1.latihan2 2021.10.29 10:55-24.cdg BangunDatar.java Persegi.java PersegiPanjang.java

Source History

```
23      System.out.println("Luas Persegi Panjang adalah : " + h);
24  }
25
26  @Override
27  public void KELILINGPP () {
28      System.out.println("Menghitung Keliling Persegi Panjang");
29      System.out.print("Lebar : ");ll = Input.nextInt();
30      System.out.print("Panjang : ");p2 = Input.nextInt();
31      int h1 = ll + p2;
32      int h2 = h1 * 2;
33      System.out.println("Keliling Persegi Panjang adalah : " + h2);
34      System.out.print("\n");
35
36  }
37  @Override
38  public void LUASP () {
39  }
40  @Override
41  public void KELILINGP () {
42  }
```

Properties

- Name: PersegiPanjang
- Extension: java
- File Size: 1264
- Modification Time: Oct 29, 2021, 9:19:37 AM
- All Files: C:\Users\MAM\Docume...

Classpath

- Compile Classpath
- Runtime Classpath: C:\Users\MAM\Docume...
- Boot Classpath: nbjrt file: C:\Program%...

PersegiPanjang.java

1:1 INS

Praktikum2 - Apache NetBeans IDE 12.2

```

1 * To change this license header, choose License Headers in Project Properties.
2 * To change this template file, choose Tools | Templates
3 * and open the template in the editor.
4 */
5 package BAB1.latihan2;
6
7 /**
8 *
9 */
10 * @author MAM
11
12 public class main {
13     public static void main(String[] args) {
14         PersegiPanjang x = new PersegiPanjang();
15         Persegi y = new Persegi();
16
17         x.LUASPP();
18         x.KELILINGPP();
19         y.LUASP();
20         y.KELILINGP();
21     }
22 }
23
24

```

Properties for main.java:

- Name: main
- Extension: java
- File Size: 515
- Modification Time: Oct 29, 2021, 9:01:38 AM
- All Files: C:\Users\MA... (partial)
- Classpath
- Compile Classpath
- Runtime Classpath: C:\Users\MA... (partial)
- Boot Classpath: nbjrt file: C:\Program%...

Output

UMlbangunDatar - Apache NetBeans IDE 12.2

```

1 * To change this license header, choose License Headers in Project Properties.
2 * To change this template file, choose Tools | Templates
3 * and open the template in the editor.
4 */
5 package BAB1.latihan2;
6
7 /**
8 *
9 */
10 * @author MAM
11
12 public class main {
13     public static void main(String[] args) {
14         PersegiPanjang x = new PersegiPanjang();
15         Persegi y = new Persegi();
16
17         x.LUASPP();
18         x.KELILINGPP();
19         y.LUASP();
20         y.KELILINGP();
21     }
22 }
23
24

```

Properties for BAB1.latihan2 2021.10.29 10-55-24.cdg:

- Name: BAB1.latihan2 2021.10...
- Extension: cdg
- File Size: 2539
- Modification Time: Oct 29, 2021, 10:55:24

Output - Praktikum2 (run-single):

```

compile-single:
run-single:
Menghitung Luas Persegi Panjang
Lebar : 4
Panjang : 5
Luas Persegi Panjang adalah : 20

Menghitung Keliling Persegi Panjang
Lebar : 5
Panjang : 8
Keliling Persegi Panjang adalah : 26

Menghitung Luas Persegi
Sisi : 5
Luas Persegi Panjang adalah : 25

Menghitung Keliling Persegi
sisi : 6
Keliling Persegi adalah : 24

BUILD SUCCESSFUL (total time: 19 seconds)

```

3 Source Code

The screenshot shows the Apache NetBeans IDE 12.2 interface. The project tree on the left shows a Java application named "Praktikum2". The "Source Packages" node contains several packages: "BAB1.latihan1", "BAB1.latihan2", "BAB1.latihan3", "BAB2.latihan1", "BAB2.latihan2", and "BAB2.latihan3". The "BAB1.latihan3" package contains files like "Come.java", "ID.java", "Main.java", "Morning.java", and "SecurityGuard.java". The "BAB2.latihan3" package contains files like "Main.java", "PC.java", "komputer.java", "laptop.java", "netbook.java", "car.java", and "garage.java". The central editor pane displays the code for "SecurityGuard.java". The code defines an abstract class "SecurityGuard" with a single abstract method "Say()". The right-hand panel shows the properties for "SecurityGuard.java", including its name, extension (java), file size (314), modification time (Oct 29, 2021, 9:28:22 AM), and classpath information.

```
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 BAB1.latihan3;
6
7 /**
8 */
9
10 /**
11 * @author MAM
12 */
13 abstract class SecurityGuard {
14     public abstract void Say();
15 }
```

The screenshot shows the Apache NetBeans IDE 12.2 interface. The project tree on the left shows the same Java application structure as the previous screenshot. The "BAB1.latihan3" package now contains a new file "ID.java". The central editor pane displays the code for "ID.java". The code defines a concrete class "ID" that extends the "SecurityGuard" class. It overrides the "Say()" method and prints a message asking for a user ID. The right-hand panel shows the properties for "ID.java", including its name, extension (java), file size (507), modification time (Oct 29, 2021, 9:29:05 AM), and classpath information.

```
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 BAB1.latihan3;
6
7 /**
8 */
9
10 /**
11 * @author MAM
12 */
13
14 public class ID extends SecurityGuard{
15     String x = " Stranger";
16
17     @Override
18     public void Say() {
19         System.out.println("=====");
20         System.out.println("Seeing" + x);
21         System.out.println("Your ID, Please");
22     }
23 }
```

Praktikum2 - Apache NetBeans IDE 12.2

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

Project... Services Files ...ave Persegi.java PersegiPanjang.java main.java Come.java SecurityGuard.java ID.java

default config Empty datasource

Search (Ctrl+F)

Properties Name: Come Extension: java File Size: 538 Modification Time: Oct 29, 2021, 9:29:05 AM All Files C:\Users\MA... Classpath Compile Classpath Runtime Classpath Boot Classpath nb:jrtfile:/C:/Program%...

Come.java - Properties

```
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 BAB1.latihan3;
6
7 /**
8 *
9 * @author MAM
10 */
11
12 public class Come extends SecurityGuard {
13     String x = " Open the Car Door ";
14
15     @Override
16     public void Say() {
17         System.out.println("=====");
18         System.out.println("When" + x);
19         System.out.println("Welcome Ma'am!");
20     }
21 }
```

easyUML Explorer

1:1 INS

11:01 AM

Praktikum2 - Apache NetBeans IDE 12.2

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

Project... Services Files ...ave PersegiPanjang.java main.java Come.java SecurityGuard.java ID.java Morning.java

default config Empty datasource

Search (Ctrl+F)

Properties Name: Morning Extension: java File Size: 523 Modification Time: Oct 29, 2021, 9:32:38 AM All Files C:\Users\MA... Classpath Compile Classpath Runtime Classpath Boot Classpath nb:jrtfile:/C:/Program%...

Morning.java - Properties

```
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 BAB1.latihan3;
6
7 /**
8 *
9 * @author MAM
10 */
11
12 public class Morning extends SecurityGuard {
13     String x = " his master ";
14
15     @Override
16     public void Say() {
17         System.out.println("=====");
18         System.out.println( "When Meet'" + x );
19         System.out.println("Good morning Sir!");
20     }
21 }
```

easyUML Explorer

1:1 INS

11:01 AM

Praktikum2 - Apache NetBeans IDE 12.2

```

1 /*
2  * To change this license header, choose License Headers in Project Properties.
3  * To change this template file, choose Tools | Templates
4  * and open the template in the editor.
5  */
6 package BAB1.latihan3;
7
8 /**
9  *
10  * @author MAM
11  */
12 public class Main {
13     public static void main(String args[]) {
14         ID a = new ID();
15         Come s = new Come();
16         Morning d = new Morning();
17         System.out.println("Security Guard have 3 Side ");
18         a.Say();
19         s.Say();
20         d.Say();
21     }
22 }
23
24

```

Main.java - Properties

Name	Main
Extension	java
File Size	504
Modification Time	Oct 29, 2021, 9:25:05 AM
All Files	C:\Users\MA... Main.java
Classpath	
Compile Classpath	...
Runtime Classpath	C:\Users\MA... nb-jar-file:C:\Program%...
Boot Classpath	...

Output

Praktikum2 - Apache NetBeans IDE 12.2

```

ant -f C:\Users\MA...\\praktikum2 -Dnb.internal.action.name=run.single -Djavac.includes=BAB1.latihan3/Main.java -Drun.class
init:
Deleting: C:\Users\MA...\\praktikum2\\build\\built-jar.properties
deps-jar:
Updating property file: C:\Users\MA...\\praktikum2\\build\\built-jar.properties
Compiling 1 source file to C:\Users\MA...\\praktikum2\\build\\classes
compile-single:
run-single:
Security Guard have 3 Side
=====
Seing Stranger
Your ID, Please
=====
When Open the Car Door
Welcom Ma'am
=====
When Meet his master
Good morning Sir!
BUILD SUCCESSFUL (total time: 2 seconds)

```

BAB 2

Latihan

1. Source Code

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

- Project Tree:** The project is named "Praktikum2". It contains several packages:
 - `Perseri`: Contains `Persegi.java` and `PersegiPanjang.java`.
 - `BAB1.latihan3`: Contains `Come.java`, `ID.java`, `Main.java`, `Morning.java`, and `SecurityGuard.java`.
 - `BAB2.latihan1`: Contains `Main.java`, `PC.java`, `komputer.java`, `laptop.java`, and `netbook.java`.
 - `BAB2.latihan2`: Contains `Main.java`, `car.java`, `garage.java`, `owner.java`, and `registration.java`.
 - `Latihan`: Contains `Iphone.java`, `Main.java`, `Oppo.java`, `Phone.java`, and `PhoneUser.java`.
- Code Editor:** The main editor window displays the `Komputer.java` file. The code defines an abstract class `Komputer` with methods for setting specifications, processor, and listrik, and getting them back. It also includes a static method `getLaptop` and an abstract method `getLihatSpec`. The code is annotated with Javadoc and author information.
- Properties Panel:** On the right, the properties for the `komputer.java` file are shown, including its name, extension, file size, modification time, and classpath details.
- Toolbars and Status Bar:** Standard NetBeans toolbars are at the top, and the status bar at the bottom shows the current line (11), column (INS), and other status indicators.

The screenshot shows the Apache NetBeans IDE 12.2 interface. The menu bar includes File, Edit, Format, Preview, View, Navigate, Source, Refactor, Run, Debug, Profile, Team, Tools, Window, Help. The toolbar has icons for file operations like New, Open, Save, Cut, Copy, Paste, Find, and others. The title bar says <default config>. The main workspace shows a project tree on the left with nodes like Project..., Services, Files, and a Source editor on the right displaying the code for komputer.java. The code defines a class Komputer with methods setSpesifikasi, setProcessor, and setListrik, along with their respective getters and an abstract method getLihatSpec. A status bar at the bottom shows memory usage (371 MB/806,0MB), a search field, and toolbars for 1:1 and INS.

Praktikum2 - Apache NetBeans IDE 12.2

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

<default config>

371 MB/806,0MB

Search (Ctrl+H)

Project... Services Files

Source History

komputer.java Properties

Name komputer

Extension java

Modification Time Oct 29, 2021, 9:42:38 AM

All Files C:\Users\MAIM\Documents\NetBeansProjects\Praktikum2\src\komputer.java

Classpath

Compile Classpath

Runtime Classpath C:\Users\MAIM\Documents\NetBeansProjects\Praktikum2\lib\file\IC\Program%...

Boot Classpath

komputer.java

komputer.java

```
14     void setspesifikasi (String spesifikasi){  
15         this.spesifikasi = spesifikasi;  
16     }  
17     void setprocessor (String processor){  
18         this.processor = processor;  
19     }  
20     void setlistrik (String listrik){  
21         this.listrik = listrik;  
22     }  
23     String getspesifikasi(){  
24         return spesifikasi;  
25     }  
26     String getprocessor(){  
27         return processor;  
28     }  
29     String getlistrik(){  
30         return listrik;  
31     }  
32     abstract String getlihatSpec();  
33 }  
34 
```

Praktikum2

easyUML Explorer

Praktikum2 - Apache NetBeans IDE 12.2

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

default config <...> Search (Ctrl+F)

Project... Services Files ...ave SecurityGuard.java ID.java Morning.java Main.java komputer.java PC.java

Source History

```
1  * To change this license header, choose License Headers in Project Properties.
2  * To change this template file, choose Tools | Templates
3  * and open the template in the editor.
4  */
5
6 package BAB2.latihan1;
7
8 /**
9 *
10 * @author MAM
11 */
12
13 public class PC extends komputer{
14     private String spesifikasi,processor,listrik;
15
16     public PC(String spesifikasi, String processor, String listrik){
17         this.spesifikasi = "Spesifikasi : DA WARRIOR i7 RTX 2060 NB SERIES RAM 8GB x 2 (16GB"
18         this.processor = "Processor : Intel i7 10700\n";
19         this.listrik = "Daya : 320wat";
20     }
21
22     @Override
23     String getLihatSpec() {
24         return spesifikasi+processor+listrik;
25     }
26 }
27
```

PC.java - Properties

Name	PC
Extension	java
File Size	735
Modification Time	Oct 29, 2021, 10:00:39 AM
All Files	C:\Users\MAM\Documents\NetBeansProjects\Praktikum2\src\BAB2\latihan1\PC.java
Classpath	
Compile Classpath	...
Runtime Classpath	C:\Users\MAM\Documents\NetBeansProjects\Praktikum2\lib\ext\api\java\rt.jar;C:\Program%...
Boot Classpath	nbjrt file;C:\Program%...

PC.java

Project... Services Files ...ave SecurityGuard.java ID.java Morning.java Main.java komputer.java PC.java

Source History

```
1  * To change this license header, choose License Headers in Project Properties.
2  * To change this template file, choose Tools | Templates
3  * and open the template in the editor.
4  */
5
6 package BAB2.latihan1;
7
8 /**
9 *
10 * @author MAM
11 */
12
13 public class PC extends komputer{
14     private String spesifikasi,processor,listrik;
15
16     public PC(String spesifikasi, String processor, String listrik){
17         this.spesifikasi = "Spesifikasi : DA WARRIOR i7 RTX 2060 NB SERIES RAM 8GB x 2 (16GB"
18         this.processor = "Processor : Intel i7 10700\n";
19         this.listrik = "Daya : 320wat";
20     }
21
22     @Override
23     String getLihatSpec() {
24         return spesifikasi+processor+listrik;
25     }
26 }
27
```

Project... Services Files ...ave SecurityGuard.java ID.java Morning.java Main.java komputer.java PC.java

Source History

```
1  * To change this license header, choose License Headers in Project Properties.
2  * To change this template file, choose Tools | Templates
3  * and open the template in the editor.
4  */
5
6 package BAB2.latihan1;
7
8 /**
9 *
10 * @author MAM
11 */
12
13 public class PC extends komputer{
14     private String spesifikasi,processor,listrik;
15
16     public PC(String spesifikasi, String processor, String listrik){
17         this.spesifikasi = "Spesifikasi : DA WARRIOR i7 RTX 2060 NB SERIES RAM 8GB x 2 (16GB"
18         this.processor = "Processor : Intel i7 10700\n";
19         this.listrik = "Daya : 320wat";
20     }
21
22     @Override
23     String getLihatSpec() {
24         return spesifikasi+processor+listrik;
25     }
26 }
27
```

Project... Services Files ...ave SecurityGuard.java ID.java Morning.java Main.java komputer.java PC.java

Source History

```
1  * To change this license header, choose License Headers in Project Properties.
2  * To change this template file, choose Tools | Templates
3  * and open the template in the editor.
4  */
5
6 package BAB2.latihan1;
7
8 /**
9 *
10 * @author MAM
11 */
12
13 public class PC extends komputer{
14     private String spesifikasi,processor,listrik;
15
16     public PC(String spesifikasi, String processor, String listrik){
17         this.spesifikasi = "Spesifikasi : DA WARRIOR i7 RTX 2060 NB SERIES RAM 8GB x 2 (16GB"
18         this.processor = "Processor : Intel i7 10700\n";
19         this.listrik = "Daya : 320wat";
20     }
21
22     @Override
23     String getLihatSpec() {
24         return spesifikasi+processor+listrik;
25     }
26 }
27
```

Praktikum2 - Apache NetBeans IDE 12.2

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

default config <...> Search (Ctrl+F)

Project... Services Files ...ave SecurityGuard.java ID.java Morning.java Main.java komputer.java PC.java laptop.java

Source History

```
1  * To change this license header, choose License Headers in Project Properties.
2  * To change this template file, choose Tools | Templates
3  * and open the template in the editor.
4  */
5
6 package BAB2.latihan1;
7
8 /**
9 *
10 * @author MAM
11 */
12
13 public class laptop extends komputer{
14     private String spesifikasi,processor,listrik;
15
16     public laptop(String spesifikasi, String processor, String listrik){
17         this.spesifikasi = "Spesifikasi : ROG Strix SCAR 15 GS321V-I7R6C6T 15.6-inch Full HD I"
18         this.processor = "Processor : Intel corei7 11000\n";
19         this.listrik = "Daya : 25wat";
20     }
21
22     @Override
23     String getLihatSpec() {
24         return spesifikasi+processor+listrik;
25     }
26 }
27
```

laptop.java - Properties

Name	laptop
Extension	java
File Size	751
Modification Time	Oct 29, 2021, 10:00:39 AM
All Files	C:\Users\MAM\Documents\NetBeansProjects\Praktikum2\src\BAB2\latihan1\laptop.java
Classpath	
Compile Classpath	...
Runtime Classpath	C:\Users\MAM\Documents\NetBeansProjects\Praktikum2\lib\ext\api\java\rt.jar;C:\Program%...
Boot Classpath	nbjrt file;C:\Program%...

laptop.java

Project... Services Files ...ave SecurityGuard.java ID.java Morning.java Main.java komputer.java PC.java

Source History

```
1  * To change this license header, choose License Headers in Project Properties.
2  * To change this template file, choose Tools | Templates
3  * and open the template in the editor.
4  */
5
6 package BAB2.latihan1;
7
8 /**
9 *
10 * @author MAM
11 */
12
13 public class laptop extends komputer{
14     private String spesifikasi,processor,listrik;
15
16     public laptop(String spesifikasi, String processor, String listrik){
17         this.spesifikasi = "Spesifikasi : ROG Strix SCAR 15 GS321V-I7R6C6T 15.6-inch Full HD I"
18         this.processor = "Processor : Intel corei7 11000\n";
19         this.listrik = "Daya : 25wat";
20     }
21
22     @Override
23     String getLihatSpec() {
24         return spesifikasi+processor+listrik;
25     }
26 }
27
```

Project... Services Files ...ave SecurityGuard.java ID.java Morning.java Main.java komputer.java PC.java

Source History

```
1  * To change this license header, choose License Headers in Project Properties.
2  * To change this template file, choose Tools | Templates
3  * and open the template in the editor.
4  */
5
6 package BAB2.latihan1;
7
8 /**
9 *
10 * @author MAM
11 */
12
13 public class laptop extends komputer{
14     private String spesifikasi,processor,listrik;
15
16     public laptop(String spesifikasi, String processor, String listrik){
17         this.spesifikasi = "Spesifikasi : ROG Strix SCAR 15 GS321V-I7R6C6T 15.6-inch Full HD I"
18         this.processor = "Processor : Intel corei7 11000\n";
19         this.listrik = "Daya : 25wat";
20     }
21
22     @Override
23     String getLihatSpec() {
24         return spesifikasi+processor+listrik;
25     }
26 }
27
```

Project... Services Files ...ave SecurityGuard.java ID.java Morning.java Main.java komputer.java PC.java

Source History

```
1  * To change this license header, choose License Headers in Project Properties.
2  * To change this template file, choose Tools | Templates
3  * and open the template in the editor.
4  */
5
6 package BAB2.latihan1;
7
8 /**
9 *
10 * @author MAM
11 */
12
13 public class laptop extends komputer{
14     private String spesifikasi,processor,listrik;
15
16     public laptop(String spesifikasi, String processor, String listrik){
17         this.spesifikasi = "Spesifikasi : ROG Strix SCAR 15 GS321V-I7R6C6T 15.6-inch Full HD I"
18         this.processor = "Processor : Intel corei7 11000\n";
19         this.listrik = "Daya : 25wat";
20     }
21
22     @Override
23     String getLihatSpec() {
24         return spesifikasi+processor+listrik;
25     }
26 }
27
```

Praktikum2 - Apache NetBeans IDE 12.2

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

Project... Services Files ...ave ID.java Morning.java Main.java komputer.java PC.java laptop.java netbook.java

Source History

```
1  * To change this license header, choose License Headers in Project Properties.
2  * To change this template file, choose Tools | Templates
3  * and open the template in the editor.
4  */
5
6 package BAB2.latihan1;
7
8 /**
9 *
10 * @author MAM
11 */
12
13 public class netbook extends komputer{
14     private String spesifikasi,processor,listrik;
15
16     public netbook(String spesifikasi,String processor,String listrik){
17         this.spesifikasi = "Spesifikasi : HP Stream 11-ak001dx 1.6 diagonal HD SVA anti-glare";
18         this.processor = "Processor : Intel® Celeron® N4000\n";
19         this.listrik = "Daya : 25watt";
20     }
21
22     @Override
23     String getLihatSpec() {
24         return spesifikasi+processor+listrik;
25     }
26 }
27
```

Properties

- Name: netbook
- Extension: java
- File Size: 761
- Modification Time: Oct 29, 2021, 10:00:39 AM
- All Files: C:\Users\MAM\Documents\NetBeansProjects\Praktikum2\src\BAB2\latihan1\netbook.java

Classpath

- Compile Classpath
- Runtime Classpath: C:\Users\MAM\Documents\NetBeansProjects\Praktikum2\lib\file\IC\Program%...
- Boot Classpath

netbook.java

Project... Services Files ...ave Morning.java Main.java komputer.java PC.java laptop.java netbook.java Main.java

Source History

Properties

- Name: Main
- Extension: java
- File Size: 833
- Modification Time: Oct 29, 2021, 9:56:17 AM
- All Files: C:\Users\MAM\Documents\NetBeansProjects\Praktikum2\src\BAB2\latihan1>Main.java

Classpath

- Compile Classpath
- Runtime Classpath: C:\Users\MAM\Documents\NetBeansProjects\Praktikum2\lib\file\IC\Program%...
- Boot Classpath

Main.java

Praktikum2 - Apache NetBeans IDE 12.2

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

Project... Services Files ...ave Morning.java Main.java komputer.java PC.java laptop.java netbook.java Main.java

Source History

```
1  * To change this license header, choose License Headers in Project Properties.
2  * To change this template file, choose Tools | Templates
3  * and open the template in the editor.
4  */
5
6 package BAB2.latihan1;
7
8 /**
9 *
10 * @author MAM
11 */
12
13 public class Main {
14     public static void main(String[] args) {
15         laptop a = new laptop("", "", "");
16         System.out.println("Laptop \n" + a.getLihatSpec());
17         System.out.println("=====");
18
19         PC b = new PC("", "", "");
20         System.out.println("PC \n" + b.getLihatSpec());
21         System.out.println("=====");
22
23         netbook c = new netbook("", "", "");
24         System.out.println("Netbook \n" + a.getLihatSpec());
25         System.out.println("=====");
26     }
27 }
```

Properties

- Name: Main
- Extension: java
- File Size: 833
- Modification Time: Oct 29, 2021, 9:56:17 AM
- All Files: C:\Users\MAM\Documents\NetBeansProjects\Praktikum2\src\BAB2\latihan1>Main.java

Classpath

- Compile Classpath
- Runtime Classpath: C:\Users\MAM\Documents\NetBeansProjects\Praktikum2\lib\file\IC\Program%...
- Boot Classpath

Main.java

Output

Praktikum2 - Apache NetBeans IDE 12.2

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

Project Services Files ...ave Main.java komputer.java PC.java laptop.java netbook.java Main.java

Source History ... Search (Ctrl+F) Empty datasource

Main.java - Properties

- Name: Main
- Extension: java
- File Size: 633
- Modification Time: Oct 29, 2021, 9:58:17 AM

```

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 BAB2.latihan1;
7
8 /**
9 *
10 * @author MAM

```

Output - Praktikum2 (run-single) x

```

deps=jar:
Updating property file: C:\Users\HAN\Documents\NetBeansProjects\praktikum2\build\built-jar.properties
Compiling 1 source file to C:\Users\HAN\Documents\NetBeansProjects\praktikum2\build\classes
compile-single:
run-single:
Laptop
Spesifikasi : ROG Strix SCAR 15 G532LW-I7R6C6T 15.6-inch Full HD IPS, 240 Hz
Processor : Intel core i7 11000
Daya : 25watt
=====
PC
Spesifikasi : DA WARRIOR I7 RTX 2060 NB SERIES RAM 8GB x 2 (16GB) DDR4
Processor : Intel i7 10700
Daya : 320watt
=====
Netbook
Spesifikasi : ROG Strix SCAR 15 G532LW-I7R6C6T 15.6-inch Full HD IPS, 240 Hz
Processor : Intel core i7 11000
Daya : 25watt
=====
BUILD SUCCESSFUL (total time: 2 seconds)

```

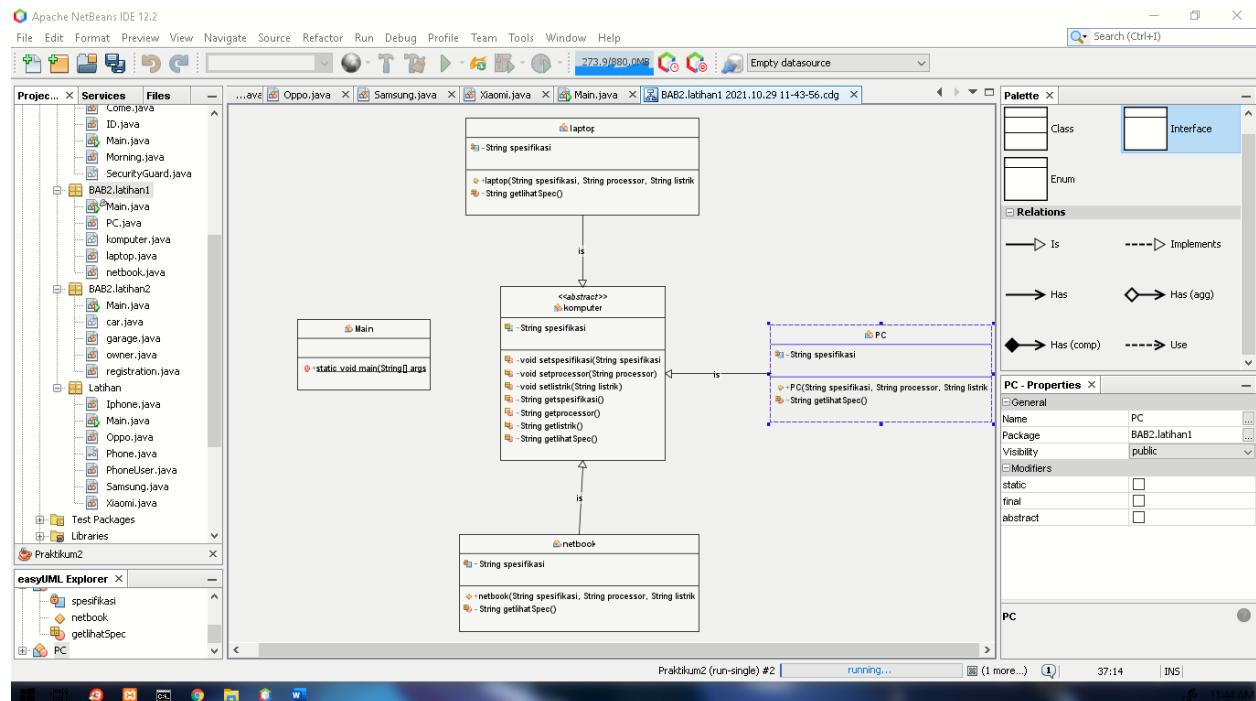
Praktikum2 x

easyUML Explorer x

Finished building Praktikum2 (run-single).

1:1 1:1 INS 10:44 AM

Diagram class



2. Source Code

Praktikum2 - Apache NetBeans IDE 12.2

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

Source History

Project... Services Files ... age car.java owner.java garage.java registration.java Main.java Test.java BAB1.latihan2 2...

car.java - Properties

Properties

- Name: car
- Extension: java
- File Size: 490
- Modification Time: Oct 29, 2021, 10:26:29 AM
- All Files: C:\Users\MAAM\Documents\NetBeansProjects\Praktikum2\src\BAB2\latihan2\car.java
- Classpath
- Compile Classpath
- Runtime Classpath: C:\Users\MAAM\Documents\NetBeansProjects\Praktikum2\lib\file\IC\Program%...
- Boot Classpath

car.java

```
1  /*
2  * To change this license header, choose License Headers in Project Properties.
3  * To change this template file, choose Tools | Templates
4  * and open the template in the editor.
5  */
6 package BAB2.latihan2;
7
8 /**
9 *
10 * @author MAAM
11 */
12 public abstract class car {
13     String license;
14
15     abstract void detail();
16
17     public String getLicense(){
18         return license;
19     }
20     public void setLicense(String license){
21         this.license = license;
22     }
23 }
```

13:12 | INS | 10:04 AM

Praktikum2 - Apache NetBeans IDE 12.2

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

Source History

Project... Services Files ... age car.java owner.java garage.java registration.java Main.java Test.java BAB1.latihan2 2...

registration.java - Properties

Properties

- Name: registration
- Extension: java
- File Size: 597
- Modification Time: Oct 29, 2021, 10:32:38 AM
- All Files: C:\Users\MAAM\Documents\NetBeansProjects\Praktikum2\src\BAB2\latihan2\registration.java
- Classpath
- Compile Classpath
- Runtime Classpath: C:\Users\MAAM\Documents\NetBeansProjects\Praktikum2\lib\file\IC\Program%...
- Boot Classpath

registration.java

```
1  /*
2  * To change this license header, choose License Headers in Project Properties.
3  * To change this template file, choose Tools | Templates
4  * and open the template in the editor.
5  */
6 package BAB2.latihan2;
7
8 /**
9 *
10 * @author MAAM
11 */
12 public class registration extends car{
13
14     @Override
15     void detail() {
16         System.out.println("Registration : ");
17     }
18     void currentTown() {
19         System.out.println("MAAM");
20     }
21     void vehicleID() {
22         System.out.println("06112000");
23     }
24     void taxDue() {
25         System.out.println("$ 1000");
26     }
27 }
```

25:35 | INS | 10:04 AM

Praktikum2 - Apache NetBeans IDE 12.2

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

Search (Ctrl+F)

Project... Services Files ...age car.java owner.java garage.java registration.java Main.java Test.java BAB1.latihan2 2...

Source History

owner.java - Properties

Name: owner
Extension: java
File Size: 624
Modification Time: Oct 29, 2021, 10:26:29 AM
All Files: C:\Users\MAAM\Documents\NetBeansProjects\Praktikum2\src\Bab2\latihan2\owner.java

Classpath

Compile Classpath: C:\Users\MAAM\Documents\NetBeansProjects\Praktikum2\build\classes\Bab2\latihan2

Runtime Classpath: C:\Users\MAAM\Documents\NetBeansProjects\Praktikum2\build\classes

Boot Classpath: nbjrt file:/C:/Program%...

owner.java

```
1  /* To change this license header, choose License Headers in Project Properties.
2  * To change this template file, choose Tools | Templates
3  * and open the template in the editor.
4  */
5  package Bab2.latihan2;
6
7  /**
8  *
9  * @author MAAM
10 */
11 public class owner extends car {
12
13     @Override
14     void detail() {
15         System.out.println("Owner : ");
16     }
17
18     void carDesc() {
19         System.out.println("This car is full electric and power full");
20     }
21
22     void serviceHis() {
23         System.out.println("Upgrade Software");
24     }
25
26     void petrolMilHis() {
27         System.out.println("15.00 mil");
28     }
}
```

Praktikum2 - Apache NetBeans IDE 12.2

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

Search (Ctrl+F)

Project... Services Files ...age car.java owner.java garage.java registration.java Main.java Test.java BAB1.latihan2 2...

Source History

garage.java - Properties

Name: garage
Extension: java
File Size: 596
Modification Time: Oct 29, 2021, 10:32:38 AM
All Files: C:\Users\MAAM\Documents\NetBeansProjects\Praktikum2\src\Bab2\latihan2\garage.java

Classpath

Compile Classpath: C:\Users\MAAM\Documents\NetBeansProjects\Praktikum2\build\classes\Bab2\latihan2

Runtime Classpath: C:\Users\MAAM\Documents\NetBeansProjects\Praktikum2\build\classes

Boot Classpath: nbjrt file:/C:/Program%...

garage.java

```
1  /* To change this license header, choose License Headers in Project Properties.
2  * To change this template file, choose Tools | Templates
3  * and open the template in the editor.
4  */
5  package Bab2.latihan2;
6
7  /**
8  *
9  * @author MAAM
10 */
11 public class garage extends car {
12
13     @Override
14     void detail() {
15         System.out.println("Garage : ");
16     }
17
18     void workDesc() {
19         System.out.println("Software Update");
20     }
21
22     void billingIn() {
23         System.out.println("$ 65");
24     }
25
26     void power() {
27         System.out.println("First owner ");
28     }
}
```

Praktikum2 - Apache NetBeans IDE 12.2

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

Project... Services Files ...age car.java owner.java garage.java registration.java Main.java Test.java BAB1.latihan2...

default config> 476.8 MB Empty datasource

Main.java - Properties

Name	Main
Extension	java
File Size	1087
Modification Time	Oct 29, 2021, 10:40:02 AM
All Files	C:\Users\MA... BAB2.latihan2...
Classpath	
Compile Classpath	...
Runtime Classpath	C:\Users\MA... Boot Classpath

Main.java

```
1  /* To change this license header, choose License Headers in Project Properties.
2  * To change this template file, choose Tools | Templates.
3  * and open the template in the editor.
4  */
5  package BAB2.latihan2;
6
7  /**
8  *
9  * @author MAM
10 */
11
12 public class Main {
13     public static void main (String[] args) {
14         registration r = new registration();
15         garage g = new garage();
16         owner o = new owner();
17
18         r.detail();
19         r.setLicense("AG 0611 MM");
20         System.out.println(r.getLicense());
21         r.currentTown();
22         r.vehicleID();
23         r.tadue();
24
25         g.detail();
26         g.setLicense("AG 0611 MM");
27         System.out.println(g.getLicense());
28         g.workDesc();
29         g.billingIn();
30         g.owner();
31
32         r.detail();
33         r.setLicense("AG 0611 MM");
34         System.out.println(r.getLicense());
35         r.currentTown();
36         r.vehicleID();
37         r.tadue();
38
39         o.detail();
40         o.workDesc();
41         o.petrolMilHis();
42         o.serviceHis();
43     }
44 }
```

42:24 INS 11:07 AM

Praktikum2 - Apache NetBeans IDE 12.2

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

Project... Services Files ...age car.java owner.java garage.java registration.java Main.java Test.java BAB1.latihan2...

default config> 482.9 MB Empty datasource

Main.java - Properties

Name	Main
Extension	java
File Size	1087
Modification Time	Oct 29, 2021, 10:40:02 AM
All Files	C:\Users\MA... BAB2.latihan2...
Classpath	
Compile Classpath	...
Runtime Classpath	C:\Users\MA... Boot Classpath

Main.java

```
1  /* To change this license header, choose License Headers in Project Properties.
2  * To change this template file, choose Tools | Templates.
3  * and open the template in the editor.
4  */
5  package BAB2.latihan2;
6
7  /**
8  *
9  * @author MAM
10 */
11
12 public class Main {
13     public static void main (String[] args) {
14         registration r = new registration();
15         garage g = new garage();
16         owner o = new owner();
17
18         r.detail();
19         r.setLicense("AG 0611 MM");
20         System.out.println(r.getLicense());
21         r.currentTown();
22         r.vehicleID();
23         r.tadue();
24
25         g.detail();
26         g.setLicense("AG 0611 MM");
27         System.out.println(g.getLicense());
28         g.workDesc();
29         g.billingIn();
30         g.owner();
31
32         r.detail();
33         r.setLicense("AG 0611 MM");
34         System.out.println(r.getLicense());
35         r.currentTown();
36         r.vehicleID();
37         r.tadue();
38
39         o.detail();
40         o.workDesc();
41         o.petrolMilHis();
42         o.serviceHis();
43     }
44 }
```

42:24 INS 11:08 AM

Output

Praktikum2 - Apache NetBeans IDE 12.2

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

Output x

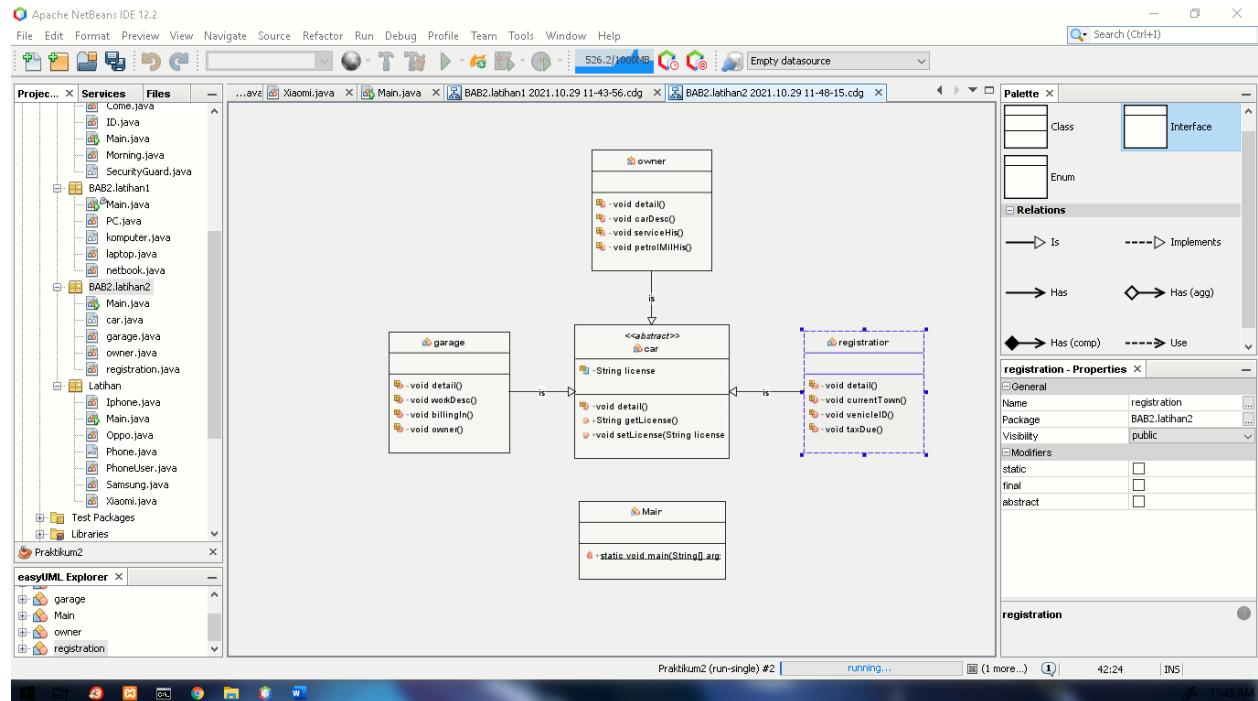
```

Praktikum2 (run-single) #2 | Praktikum2 (run-single) #3 x
ant -f C:\Users\HAM\Documents\NetBeansProjects\praktikum2 -Dnb.internal.action.name=run.single -Djavac.includes=BAB2\latihan2/Main.java -Drun.class
init:
deps-jar:
Updating property file: C:\Users\HAM\Documents\NetBeansProjects\praktikum2\build\built-jar.properties
Compiling 1 source file to C:\Users\HAM\Documents\NetBeansProjects\praktikum2\build\classes
compile-single:
run-single:
Registration :
AG 0611 MM
HAM
06112000
; 1000
Garage :
AG 0611 MM
Software Update
; 65
First owner
Registration :
AG 0611 MM
HAM
06112000
; 1000
Owner :
This car is full electric and power full
15.00 mil
Upgrade Software
BUILD SUCCESSFUL (total time: 3 seconds)

```

Finished building Praktikum2 (run-single) #3.

Diagram Class



Latihan

1. Source Code

The screenshot shows the Apache NetBeans IDE 12.2 interface. The central area displays the `Phone.java` source code. The code defines a public interface `Phone` with methods `powerOn()`, `powerOff()`, `volumeUp()`, and `volumeDown()`. The code is annotated with a license header, a copyright notice, and an author's name (`@author MAM`). The right side of the interface shows the `Properties` panel for `Phone.java`, listing details such as Name (Phone), Extension (java), File Size (416), Modification Time (Oct 24, 2021, 6:11:35 PM), and Classpath information. The bottom status bar indicates the file is saved (1) and the current time is 11:08 AM.

```
1 * To change this license header, choose License Headers in Project Properties.
2 * To change this template file, choose Tools | Templates
3 * and open the template in the editor.
4 */
5 package Latihan;
6
7 /**
8 */
9 /*
10 * @author MAM
11 */
12 public interface Phone {
13     int MAX_VOLUME = 100;
14     int MIN_VOLUME = 0;
15
16     void powerOn();
17     void powerOff();
18     void volumeUp();
19     void volumeDown();
20 }
21
```

Properties for Phone.java:

- Name: Phone
- Extension: java
- File Size: 416
- Modification Time: Oct 24, 2021, 6:11:35 PM
- All Files: C:\Users\MAIM\Documents\NetBeansProjects\Praktikum2\src\Latihan\Phone.java
- Classpath:
 - Compile Classpath: C:\Users\MAIM\Documents\NetBeansProjects\Praktikum2\build\classes
 - Runtime Classpath: C:\Users\MAIM\Documents\NetBeansProjects\Praktikum2\lib;file:///C:/Program%20Files%20(x86)/Java/jdk-17.0.1/lib
 - Boot Classpath: nbjrt file:///C:/Program%20Files%20(x86)/Java/jdk-17.0.1/lib

Praktikum2 - Apache NetBeans IDE 12.2

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

Project... Services Files ...ave PC.java laptop.java netbook.java Main.java Phone.java PhoneUser.java

Source History

```
1 * To change this license header, choose License Headers in Project Properties.
2 * To change this template file, choose Tools | Templates.
3 * and open the template in the editor.
4 */
5 package Latihan;
6
7 /**
8 *
9 *
10 * @author MAM
11 */
12 public class PhoneUser {
13     private Phone phone;
14
15     public PhoneUser(Phone phone) {
16         this.phone = phone;
17     }
18
19     void turnOnThePhone() {
20         this.phone.powerOn();
21     }
22
23     void turnOffThePhone() {
24         this.phone.powerOff();
25     }
26
27     void makePhoneLouder() {
28         this.phone.volumeUp();
29     }
30
31     void makePhoneSilent() {
32         this.phone.volumeDown();
33     }
34 }
```

PhoneUser.java - Properties

- Name: PhoneUser
- Extension: java
- File Size: 666
- Modification Time: Oct 24, 2021, 6:11:35 PM
- All Files: C:\Users\MAM\Documents\NetBeansProjects\Praktikum2\src\Latihan\PhoneUser.java
- Classpath
- Compile Classpath
- Runtime Classpath: C:\Users\MAM\Documents\NetBeansProjects\Praktikum2\lib\jrt-fc\Program\%...
- Boot Classpath

PhoneUser.java

11:09 AM

Praktikum2 - Apache NetBeans IDE 12.2

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

Project... Services Files ...ave PC.java laptop.java netbook.java Main.java Phone.java PhoneUser.java

Source History

```
14 public PhoneUser(Phone phone) {
15     this.phone = phone;
16 }
17
18 void turnOnThePhone() {
19     this.phone.powerOn();
20 }
21
22 void turnOffThePhone() {
23     this.phone.powerOff();
24 }
25
26 void makePhoneLouder() {
27     this.phone.volumeUp();
28 }
29
30 void makePhoneSilent() {
31     this.phone.volumeDown();
32 }
33 }
34 }
```

PhoneUser.java - Properties

- Name: PhoneUser
- Extension: java
- File Size: 666
- Modification Time: Oct 24, 2021, 6:11:35 PM
- All Files: C:\Users\MAM\Documents\NetBeansProjects\Praktikum2\src\Latihan\PhoneUser.java
- Classpath
- Compile Classpath
- Runtime Classpath: C:\Users\MAM\Documents\NetBeansProjects\Praktikum2\lib\jrt-fc\Program\%...
- Boot Classpath

PhoneUser.java

11:09 AM

Praktikum2 - Apache NetBeans IDE 12.2

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

Project... Services Files ...ave laptop.java netbook.java Main.java Phone.java PhoneUser.java Iphone.java

Search (Ctrl+F)

Empty datasource

Iphone.java - Properties

Name: Iphone
Extension: java
File Size: 1735
Modification Time: Oct 24, 2021, 7:06:42 PM
All Files
Classpath
Compile Classpath
Runtime Classpath C:\Users\MAA\Documents\NetBeansProjects\Praktikum2\lib\file\IC\Program%...
Boot Classpath

Iphone.java

```
1  * To change this license header, choose License Headers in Project Properties.  
2  * To change this template file, choose Tools | Templates.  
3  * and open the template in the editor.  
4  */  
5  package Latihan;  
6  
7  /**  
8  *  
9  * @author MAM  
10 */  
11  
12  public class Iphone implements Phone{  
13      private int volume;  
14      private boolean isPowerOn;  
15  
16      public Iphone () {  
17          this.volume = 50;  
18      }  
19  
20      @Override  
21      public void powerOn() {  
22          isPowerOn = true;  
23          System.out.println("Power ON");  
24          System.out.println("Iphone 12 Pro Max");  
25          System.out.println("IOS version 14");  
26      }  
27  
28      @Override  
29      public void powerOff() {  
30          isPowerOn = false;  
31          System.out.println("Handphone dimatikan");  
32      }  
33  }
```

Praktikum2 - Apache NetBeans IDE 12.2

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

Project... Services Files ...ave laptop.java netbook.java Main.java Phone.java PhoneUser.java Iphone.java

Search (Ctrl+F)

Empty datasource

Iphone.java - Properties

Name: Iphone
Extension: java
File Size: 1735
Modification Time: Oct 24, 2021, 7:06:42 PM
All Files
Classpath
Compile Classpath
Runtime Classpath C:\Users\MAA\Documents\NetBeansProjects\Praktikum2\lib\file\IC\Program%...
Boot Classpath

Iphone.java

```
34  @Override  
35  public void volumeUp () {  
36      if (isPowerOn) {  
37          if (this.volume == MAX_VOLUME) {  
38              System.out.println("Volume FULL!");  
39              System.out.println("sudah " + this.getVolume() + "%");  
40          } else {  
41              this.volume += 10;  
42              System.out.println("Volume sekarang: " + this.getVolume());  
43          }  
44      } else {  
45          System.out.println("HP Masih belum dinyalakan");  
46      }  
47  }  
48  
49  @Override  
50  public void volumeDown () {  
51      if (isPowerOn) {  
52          if (this.volume == MIN_VOLUME) {  
53              System.out.println("Volume = 0%");  
54          } else {  
55              this.volume -= 10;  
56              System.out.println("Volume sekarang: " + this.getVolume());  
57          }  
58      } else {  
59          System.out.println("HP Masih belum dinyalakan");  
60      }  
61  }  
62  
63  public int getVolume () {  
64      return this.volume;  
65  }
```

Praktikum2 - Apache NetBeans IDE 12.2

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

Project... Services Files .../ave netbook.java Main.java Phone.java PhoneUser.java Iphone.java Oppo.java

Source History

```
1  * To change this license header, choose License Headers in Project Properties.
2  * To change this template file, choose Tools | Templates.
3  * and open the template in the editor.
4  */
5
6 package Latihan;
7
8 /**
9 *
10 * @author MAM
11 */
12
13 public class Oppo implements Phone{
14     private int volume;
15     private boolean isPowerOn;
16
17     public Oppo () {
18         this.volume = 50;
19     }
20
21     @Override
22     public void powerOn() {
23         isPowerOn = true;
24         System.out.println("Power ON");
25         System.out.println("Oppo Find X2 Pro ");
26         System.out.println("Android version 11");
27     }
28
29     @Override
30     public void powerOff() {
31         isPowerOn = false;
32         System.out.println("Handphone dimatikan");
33     }
34 }
```

Properties

- Name: Oppo
- Extension: java
- File Size: 1735
- Modification Time: Oct 24, 2021, 7:06:42 PM
- All Files: C:\Users\MAM\Documents\NetBeansProjects\Praktikum2\src\Latihan\Oppo.java

Oppo.java - Properties

Opp.java

Opp.java

Praktikum2 - Apache NetBeans IDE 12.2

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

Project... Services Files .../ave netbook.java Main.java Phone.java PhoneUser.java Iphone.java Oppo.java

Source History

```
34     @Override
35     public void volumeUp() {
36         if (isPowerOn) {
37             if (this.volume == MAX_VOLUME) {
38                 System.out.println("Volume FULL!");
39             } else {
40                 this.volume += 10;
41                 System.out.println("Volume sekarang: " + this.getVolume());
42             }
43         } else {
44             System.out.println("HP Masih belum dinyalakan");
45         }
46     }
47
48     @Override
49     public void volumeDown() {
50         if (isPowerOn) {
51             if (this.volume == MIN_VOLUME) {
52                 System.out.println("Volume = 04");
53             } else {
54                 this.volume -= 10;
55                 System.out.println("Volume sekarang: " + this.getVolume());
56             }
57         } else {
58             System.out.println("HP Masih belum dinyalakan");
59         }
60     }
61
62     public int getVolume() {
63         return this.volume;
64     }
65 }
```

Properties

- Name: Oppo
- Extension: java
- File Size: 1735
- Modification Time: Oct 24, 2021, 7:06:42 PM
- All Files: C:\Users\MAM\Documents\NetBeansProjects\Praktikum2\src\Latihan\Oppo.java

Oppo.java - Properties

Opp.java

Opp.java

Praktikum2 - Apache NetBeans IDE 12.2

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

Project... Services Files ...ave Main.java Phone.java PhoneUser.java Iphone.java Oppo.java Samsung.java

default config 504.09/1000MB Empty datasource

Properties Name: Samsung Extension: java File Size: 1741 Modification Time: Oct 24, 2021, 7:06:42 PM All Files C:\Users\MAA\Documents\NetBeansProjects\Praktikum2\src\Latihan\Samsung.java Classpaths Compile Classpath Runtime Classpath Boot Classpath nb:jrt://C:/Program%...

Source History

```
1 * To change this license header, choose License Headers in Project Properties.
2 * To change this template file, choose Tools | Templates.
3 * and open the template in the editor.
4 */
5 package Latihan;
6
7 /**
8 *
9 * @author MAM
10 */
11
12 public class Samsung implements Phone {
13     private int volume;
14     private boolean isPowerOn;
15
16     public Samsung() {
17         this.volume = 50;
18     }
19
20     @Override
21     public void powerOn() {
22         isPowerOn = true;
23         System.out.println("Power ON");
24         System.out.println("Samsung S21 ultra");
25         System.out.println("Android version 12");
26     }
27
28     @Override
29     public void powerOff() {
30         isPowerOn = false;
31         System.out.println("Handphone dimatikan");
32     }
}
```

Praktikum2 - Apache NetBeans IDE 12.2

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

Project... Services Files ...ave Main.java Phone.java PhoneUser.java Iphone.java Oppo.java Samsung.java

default config 505.09/1000MB Empty datasource

Properties Name: Samsung Extension: java File Size: 1741 Modification Time: Oct 24, 2021, 7:06:42 PM All Files C:\Users\MAA\Documents\NetBeansProjects\Praktikum2\src\Latihan\Samsung.java Classpaths Compile Classpath Runtime Classpath Boot Classpath nb:jrt://C:/Program%...

Source History

```
34
35     @Override
36     public void volumeUp() {
37         if (isPowerOn) {
38             if (this.volume == MAX_VOLUME) {
39                 System.out.println("Volume FULL!!!");
40             } else {
41                 this.volume += 10;
42                 System.out.println("Volume sekarang: " + this.getVolume());
43             }
44         } else {
45             System.out.println("HP Masih belum dinyalakan");
46         }
47     }
48
49     @Override
50     public void volumeDown() {
51         if (isPowerOn) {
52             if (this.volume == MIN_VOLUME) {
53                 System.out.println("Volume = 0%");
54             } else {
55                 this.volume -= 10;
56                 System.out.println("Volume sekarang: " + this.getVolume());
57             }
58         } else {
59             System.out.println("HP Masih belum dinyalakan");
60         }
61     }
62
63     public int getVolume() {
64         return this.volume;
65     }
}
```

Praktikum2 - Apache NetBeans IDE 12.2

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

Project... Services Files ...ave Phone.java PhoneUser.java Iphone.java Oppo.java Samsung.java Xiaomi.java

Xiaomi.java - Properties

Name: Xiaomi
Extension: java
File Size: 1740
Modification Time: Oct 24, 2021, 7:06:42 PM
All Files
Classpath
Compile Classpath
Runtime Classpath C:\Users\MAA\Documents\NetBeansProjects\Praktikum2\lib\file\IC\Program%...
Boot Classpath

Source History

```
1  * To change this license header, choose License Headers in Project Properties.  
2  * To change this template file, choose Tools | Templates.  
3  * and open the template in the editor.  
4  */  
5  package Latihan;  
6  
7  /**  
8  *  
9  * @author MAM  
10 */  
11  
12  public class Xiaomi implements Phone {  
13      private int volume;  
14      private boolean isPowerOn;  
15  
16      public Xiaomi() {  
17          this.volume = 50;  
18      }  
19  
20      @Override  
21      public void powerOn() {  
22          isPowerOn = true;  
23          System.out.println("Power ON");  
24          System.out.println("XIAOMI MI 11 ultra");  
25          System.out.println("Android version 12");  
26      }  
27  
28      @Override  
29      public void powerOff() {  
30          isPowerOn = false;  
31          System.out.println("Handphone dimatikan");  
32      }  
33  }
```

Praktikum2 - Apache NetBeans IDE 12.2

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

Project... Services Files ...ave Phone.java PhoneUser.java Iphone.java Oppo.java Samsung.java Xiaomi.java

Xiaomi.java - Properties

Name: Xiaomi
Extension: java
File Size: 1740
Modification Time: Oct 24, 2021, 7:06:42 PM
All Files
Classpath
Compile Classpath
Runtime Classpath C:\Users\MAA\Documents\NetBeansProjects\Praktikum2\lib\file\IC\Program%...
Boot Classpath

Source History

```
34  @Override  
35  public void volumeUp() {  
36      if (isPowerOn) {  
37          if (this.volume == MAX_VOLUME) {  
38              System.out.println("Volume FULL!");  
39          } else {  
40              this.volume += 10;  
41              System.out.println("Volume sekarang: " + this.getVolume());  
42          }  
43      } else {  
44          System.out.println("HP Masih belum dinyalakan");  
45      }  
46  }  
47  
48  
49  @Override  
50  public void volumeDown() {  
51      if (isPowerOn) {  
52          if (this.volume == MIN_VOLUME) {  
53              System.out.println("Volume = 0%");  
54          } else {  
55              this.volume -= 10;  
56              System.out.println("Volume sekarang: " + this.getVolume());  
57          }  
58      } else {  
59          System.out.println("HP Masih belum dinyalakan");  
60      }  
61  }  
62  
63  public int getVolume() {  
64      return this.volume;  
65  }
```

Output

The screenshot shows the Apache NetBeans IDE 12.2 interface. The project tree on the left contains several packages: BAB1.latihan3, BAB2.latihan1, BAB2.latihan2, and Latihan. The BAB1.latihan3 package contains classes like Come.java, ID.java, Main.java, Morning.java, and SecurityGuard.java. The BAB2.latihan1 package contains Main.java, PC.java, komputer.java, laptop.java, netbook.java. The BAB2.latihan2 package contains Main.java, car.java, garage.java, owner.java, registration.java. The Latihan package contains Iphone.java, Main.java, Oppo.java, Phone.java, PhoneUser.java, Samsung.java, and Xiaomi.java. The central workspace shows the code for Main.java. The Output window displays the following terminal session:

```
Updating property file: C:\Users\MAN\Documents\NetBeansProjects\praktikum2\build\built-jar.properties
Compiling 1 source file to C:\Users\MAN\Documents\NetBeansProjects\praktikum2\build\classes
compile-single:
run-single:
  - Pilih Type HP Anda -
    (1) MI 11 ultra
    (2) Iphone XR
    (3) S21 ultra
    (4) Find X2 pro
    (10) Reluar
  -----
  Pilih > 1
  Power ON
  XIAOMI MI 11 ultra
  Android version 12
  -----
  (1) Power ON
  (2) Power OFF
  (3) Volume +
  (4) Volume -
  (10) Tutup
  -----
  Pilih > 3
  Volume sekarang: 60
  -----
  (1) Power ON
  (2) Power OFF
  (3) Volume +
  (4) Volume -
  (10) Tutup
  -----
  Pilih >
<
```

2. Bisa, karena interface dapat mempunyai sub class sebanyak mungkin layak nya class pada umum nya. Penerapan nya menggunakan method implements. Dengan menggunakan metode implements class interface akan mempunyai sub interface. Untuk implementasinya bisa dilihat pada source code diatas