PRAKTIKUM PEMROGRAMAN BERORIENTASI OBJEK

MODUL 9

ABSTRACT CLASS

DISUSUN OLEH :

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9.3. LATIHAN

Dengan menggunakan class `MethodAbstrak` pada Program 5 di atas, buatlah class `PersegiPanjang`, `JajarGenjang`, `Lingkaran`, dan `Segitiga`! Selanjutnya implementasikan method `luas()` dan `keliling()` yang sesuai dengan perhitungan masing-masing class.

Class methodAbstract :

```java
package latihan.modul.pkg9;
/*
@author L200210137_Bima Triadmaja
*/
public abstract class methodAbstract {
    public abstract int luas();
    public abstract int keliling();

    public int getLuas(){
        return luas();
    }

    public int getKell(){
        return keliling();
    }
}
```

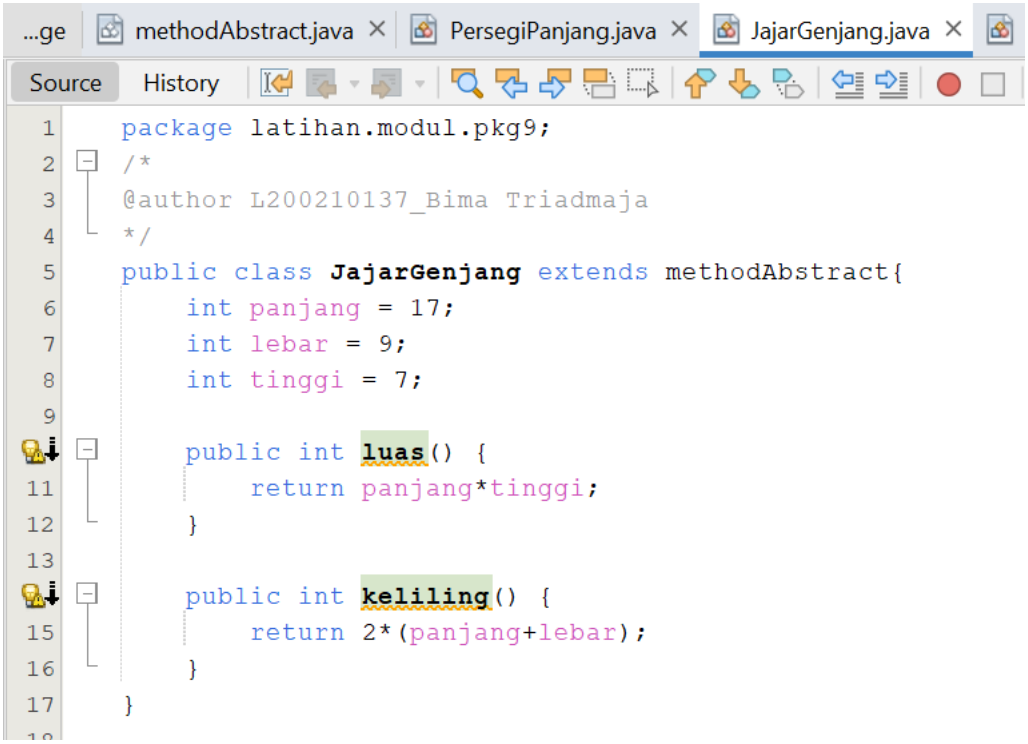
Class PersegiPanjang :

```java
package latihan.modul.pkg9;
/*
@author L200210137_Bima Triadmaja
*/
public class PersegiPanjang extends methodAbstract {
    int panjang = 12;
    int lebar = 7;

    public int luas() {
        return panjang*lebar;
    }

    public int keliling() {
        return 2*(panjang*lebar);
    }
}
```

Class JajarGenjang :

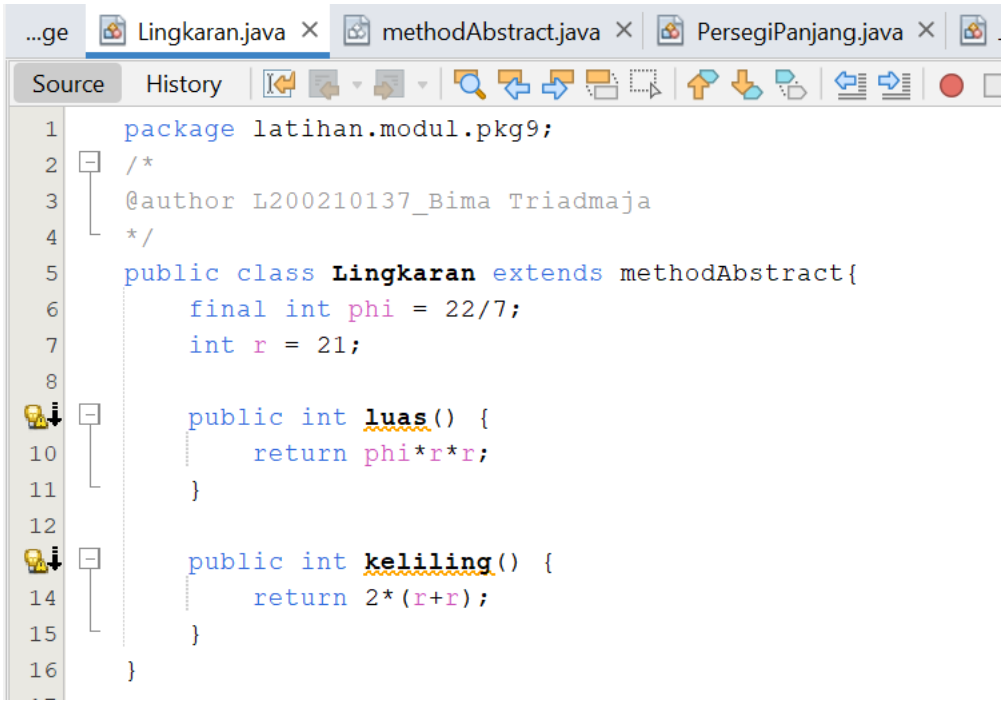



```java
package latihan.modul.pkg9;
/*
@author L200210137_Bima Triadmaja
*/
public class JajarGenjang extends methodAbstract{
    int panjang = 17;
    int lebar = 9;
    int tinggi = 7;

    public int luas() {
        return panjang*tinggi;
    }

    public int keliling() {
        return 2*(panjang+lebar);
    }
}
```

Class Lingkaran :




```java
package latihan.modul.pkg9;
/*
@author L200210137_Bima Triadmaja
*/
public class Lingkaran extends methodAbstract{
    final int phi = 22/7;
    int r = 21;

    public int luas() {
        return phi*r*r;
    }

    public int keliling() {
        return 2*(r+r);
    }
}
```

Class Segitiga :

Start Page | Lingkaran.java | Segitiga.java | JajarGenjang.java | metho

Source | History

```
1  package latihan.modul.pkg9;
2  /*
3  @author L200210137_Bima Triadmaja
4  */
5  public class Segitiga extends methodAbstract{
6      int sisiA = 12; //sisi miring segitiga
7      int sisiB = 10;  //sisi alas segitiga
8      int sisiC = 5;  //sisi tinggi segitiga
9
10     public int luas() {
11         return (sisiB*sisiC)/2 ;
12     }
13
14     public int keliling() {
15         return sisiA + sisiB + sisiC;
16     }
17 }
```

Mainclass MethodMain dan Outputnya :

Start Page | Lingkaran.java | Segitiga.java | MethodMain.java | JajarGenjang.ja...

Source | History

```
1  package latihan.modul.pkg9;
2  /*
3  @author L200210137_Bima Triadmaja
4  */
5  public class MethodMain {
6      public static void main(String[] args){
7          PersegiPanjang pp = new PersegiPanjang();
8          JajarGenjang jg = new JajarGenjang();
9          Lingkaran lk = new Lingkaran();
10         Segitiga sg = new Segitiga();
11
12         System.out.println("----Bangun Persegi Panjang----" + "\n" +
13                            "Keliling    : " + pp.getKell() + "\n" +
14                            "Luas        : " + pp.getLuas());
15         System.out.println("-----Bangun Jajargenjang-----" + "\n" +
16                            "Keliling    : " + jg.getKell() + "\n" +
17                            "Luas        : " + jg.getLuas());
18         System.out.println("-------Bangun Lingkaran-------" + "\n" +
19                            "Keliling    : " + lk.getKell() + "\n" +
20                            "Luas        : " + lk.getLuas());
21         System.out.println("-------Bangun Segitiga-------" + "\n" +
22                            "Keliling    : " + sg.getKell() + "\n" +
23                            "Luas        : " + sg.getLuas());
24
25     }
26 }
```

Output - Latihan modul 9 (run)

```
run:
----Bangun Persegi Panjang----
Keliling    : 168
Luas        : 84
-----Bangun Jajargenjang-----
Keliling    : 52
Luas        : 119
-------Bangun Lingkaran-------
Keliling    : 84
Luas        : 1323
-------Bangun Segitiga-------
Keliling    : 27
Luas        : 25
BUILD SUCCESSFUL (total time: 0 seconds)
```

9.4. TUGAS

Buatlah class `abstract` untuk bangun ruang, dengan ketentuan memiliki method `abstract` untuk menghitung volume, dan luasSelimut/luasPermukaan. Selanjutnya buatlah class `Balok`, `Kubus`, `Bola`, `Kerucut`, dan `PrismaSegitiga` unutk mengimplementasikan metod `abstract` tersebut!

Class BangunRuang :

BangunRuang.java | Balok.java | Kubus.java | Bola.java

Source | History

```
1  package Tugas;
2  /**
3   * @author L200210137_Bima Triadmaja
4   */
5  public abstract class BangunRuang {
6      public abstract int volume();
7      public abstract int luasPermukaan();
8
9      public int getvolume(){
10         return volume();
11     }
12
13     public int getluasPermukaan(){
14         return luasPermukaan();
15     }
16 }
```

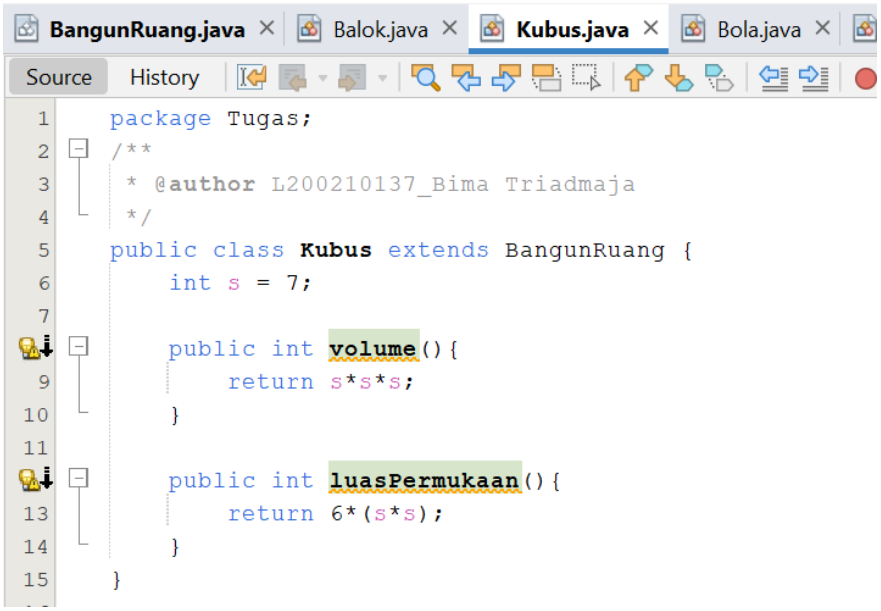
Class Balok :

BangunRuang.java | Balok.java | Kubus.java | Bola.java | K

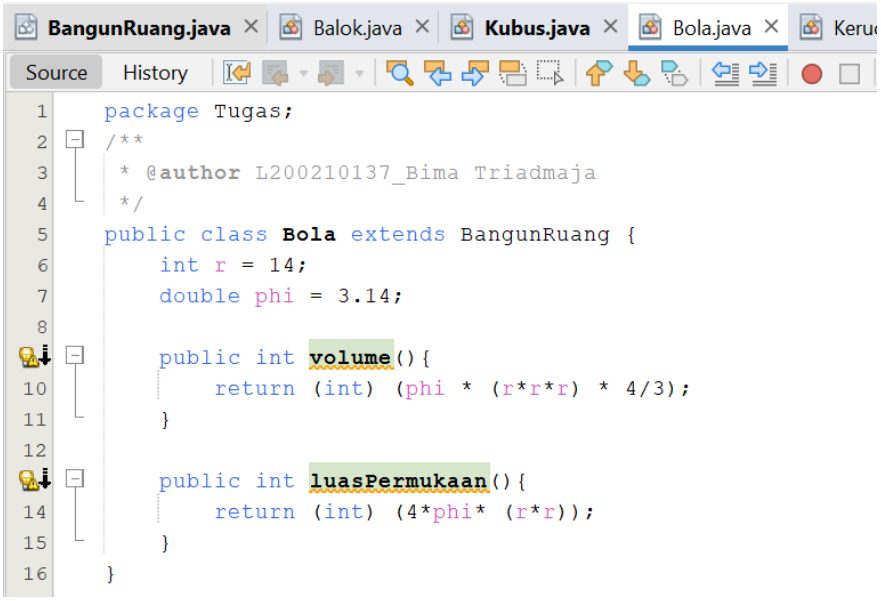
Source | History

```
1  package Tugas;
2  /**
3   * @author L200210137_Bima Triadmaja
4   */
5  public class Balok extends BangunRuang {
6      int p = 15;
7      int l = 5;
8      int t = 9;
9
10     public int volume(){
11         return p*l*t;
12     }
13
14     public int luasPermukaan(){
15         return 2*(p*l + l*t + p*t);
16     }
17 }
```

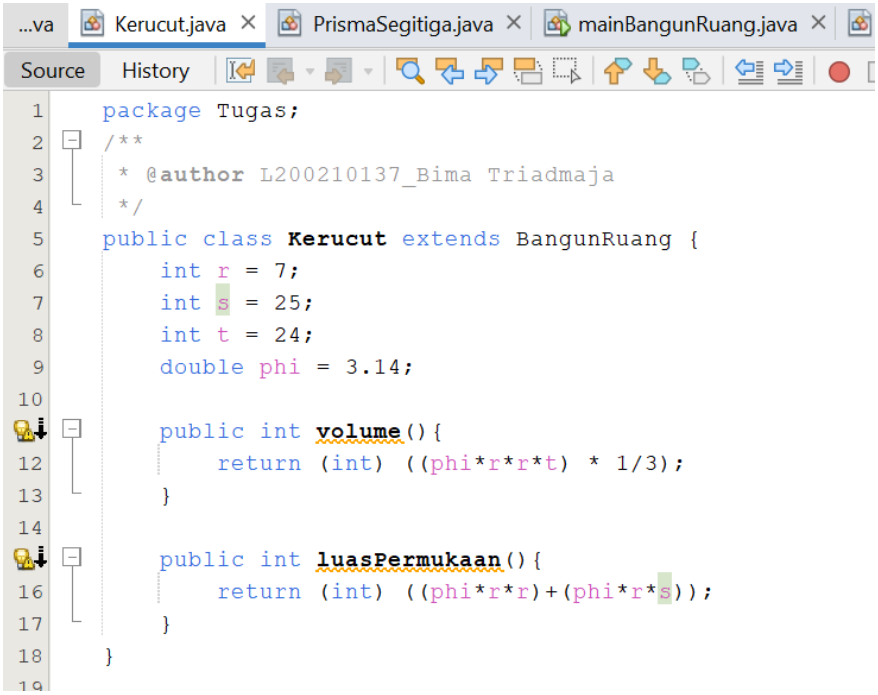
Class Kubus :



Class Bola :



Class Kerucut :

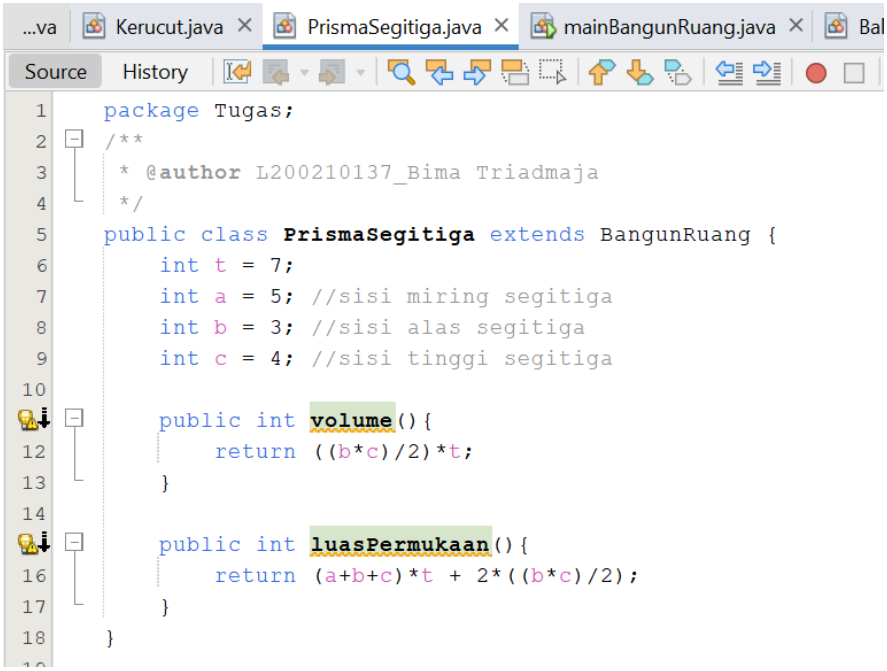



```java
package Tugas;
/**
 * @author L200210137_Bima Triadmaja
 */
public class Kerucut extends BangunRuang {
    int r = 7;
    int s = 25;
    int t = 24;
    double phi = 3.14;

    public int volume(){
        return (int) ((phi*r*r*t) * 1/3);
    }

    public int luasPermukaan(){
        return (int) ((phi*r*r)+(phi*r*s));
    }
}
```

Class PrismaSegitiga :




```java
package Tugas;
/**
 * @author L200210137_Bima Triadmaja
 */
public class PrismaSegitiga extends BangunRuang {
    int t = 7;
    int a = 5; //sisi miring segitiga
    int b = 3; //sisi alas segitiga
    int c = 4; //sisi tinggi segitiga

    public int volume(){
        return ((b*c)/2)*t;
    }

    public int luasPermukaan(){
        return (a+b+c)*t + 2*((b*c)/2);
    }
}
```

Mainclass mainBangunRuang dan Outputnya :

BangunRuang.java | Kerucut.java | PrismaSegitiga.java | **mainBangunRuang.java** | Balok.java

Source | History

```
1  package Tugas;
2  /**
3   * @author L200210137_Bima Triadmaja
4   */
5  public class mainBangunRuang {
6      public static void main(String[] args){
7          Balok blk = new Balok();
8          Kubus kb = new Kubus();
9          Bola bl = new Bola();
10         Kerucut kr = new Kerucut();
11         PrismaSegitiga ps = new PrismaSegitiga();
12
13         System.out.println("------Balok------" + "\n" +
14                            "Volume         : " + blk.getvolume() + "\n" +
15                            "Luas Permukaan : " + blk.getluasPermukaan() + "\n");
16         System.out.println("------Kubus------" + "\n" +
17                            "Volume         : " + kb.getvolume() + "\n" +
18                            "Luas Permukaan : " + kb.getluasPermukaan() + "\n");
19         System.out.println("-------Bola-------" + "\n" +
20                            "Volume         : " + bl.getvolume() + "\n" +
21                            "Luas Permukaan : " + bl.getluasPermukaan() + "\n");
22         System.out.println("------Kerucut------" + "\n" +
23                            "Volume         : " + kr.getvolume() + "\n" +
24                            "Luas Permukaan : " + kr.getluasPermukaan() + "\n");
25         System.out.println("--Prisma Segitiga--" + "\n" +
26                            "Volume         : " + ps.getvolume() + "\n" +
27                            "Luas Permukaan : " + ps.getluasPermukaan() + "\n");
28     }
29 }
```

Output - Latihan modul 9 (run)

```
run:
------Balok------
Volume         : 675
Luas Permukaan : 510

------Kubus------
Volume         : 343
Luas Permukaan : 294

-------Bola-------
Volume         : 11488
Luas Permukaan : 2461

------Kerucut------
Volume         : 1230
Luas Permukaan : 703

--Prisma Segitiga--
Volume         : 42
Luas Permukaan : 96

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