PRAKTIKUM

PEMROGRAMAN BERORIENTASI OBJEK

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PROGRAM STUDI TEKNIK INFORMATIKA

FAKULTAS KOMUNIKASI DAN INFORMATIKA

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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 MethodAbstrak

src > MethodAbstract > methodAbstract.java > methodAbstract

```java
package MethodAbstract;

public abstract class methodAbstract {

    public abstract int luas ();
    public abstract int keliling ();

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

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

Class PersegiPanjang

src > MethodAbstract > PersegiPanjang.java > PersegiPanjang

```java
package MethodAbstract;

public class PersegiPanjang extends methodAbstract {

    int a = 2;
    int b = 4;

    public int luas() {
        return a*b;
    }

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

Class JajarGenjang

src > MethodAbstract > JajarGenjang.java > JajarGenjang > b

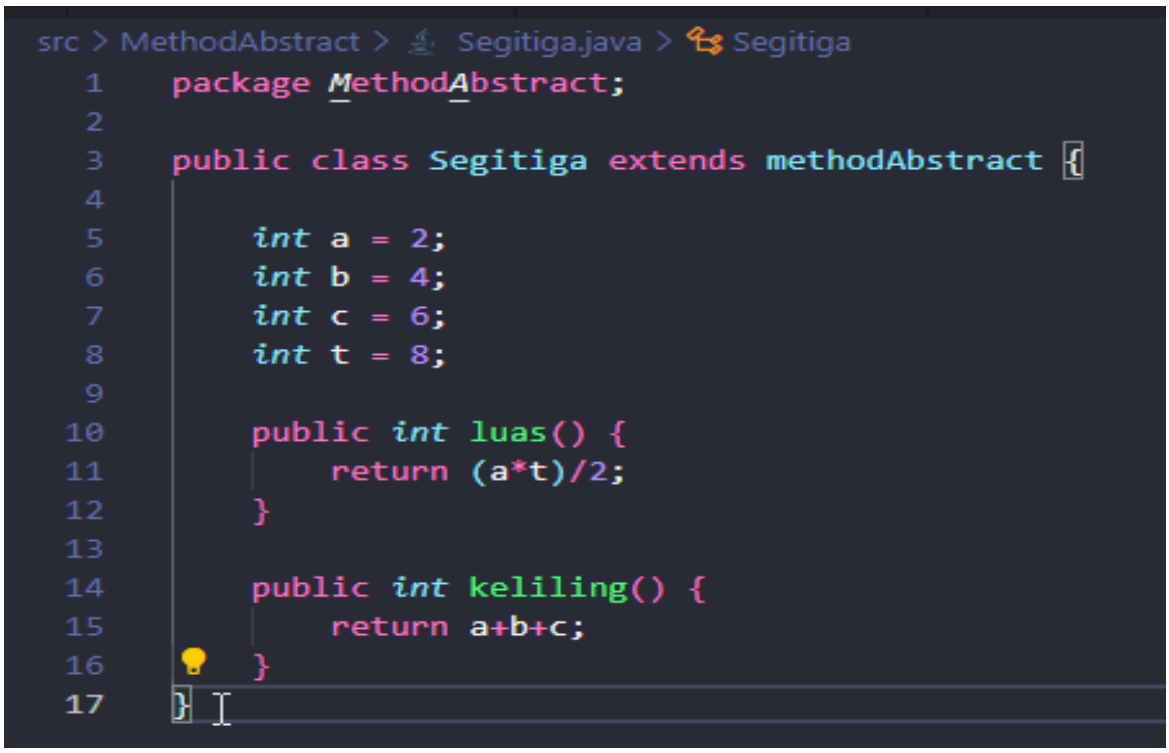
```java
package MethodAbstract;

public class JajarGenjang extends methodAbstract {

    int a = 2;
    int b = 4;
    int t = 6;

    public int luas() {
        return a*t;
    }

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

Class Lingkaran

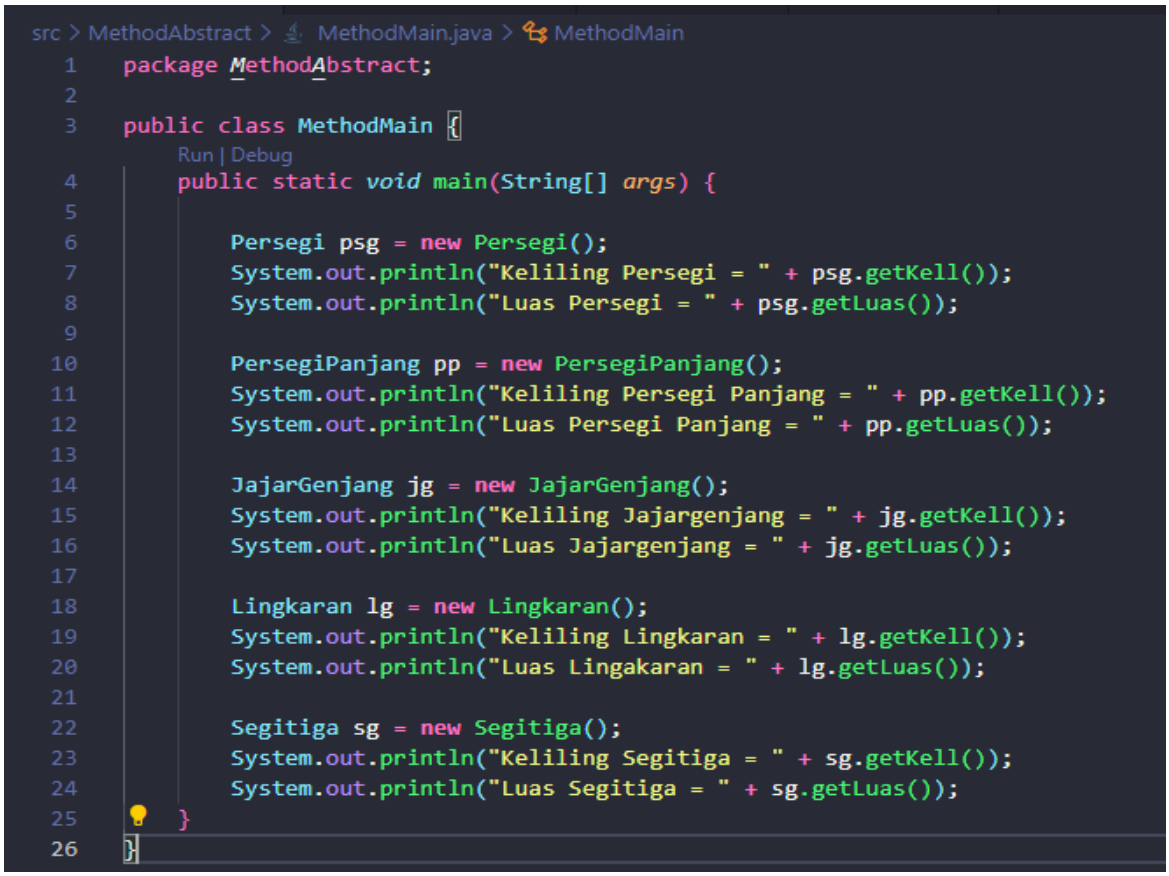
src > MethodAbstract > Lingkaran.java > Lingkaran

```java
package MethodAbstract;

public class Lingkaran extends methodAbstract {

    int r = 7;

    public int luas() {
        return 22/7*r;
    }

    public int keliling() {
        return 2*22/7*r;
    }
}
```

Class Segitiga



Class MethodMain



Output

```
PS C:\Users\Asus\.vscode\Praktikum_PBO_9>
s\Java\jdk-17.0.4.1\bin\java.exe' '-XX:+Sho
tikum_PBO_9\bin' 'MethodAbstract.MethodMain
Keliling Persegi = 20
Luas Persegi = 25
Keliling Persegi Panjang = 12
Luas Persegi Panjang = 8
Keliling Jajargenjang = 12
Luas Jajargenjang = 12
Keliling Lingkaran = 42
Luas Lingakaran = 21
Keliling Segitiga = 12
Luas Segitiga = 8
PS C:\Users\Asus\.vscode\Praktikum_PBO_9>
```

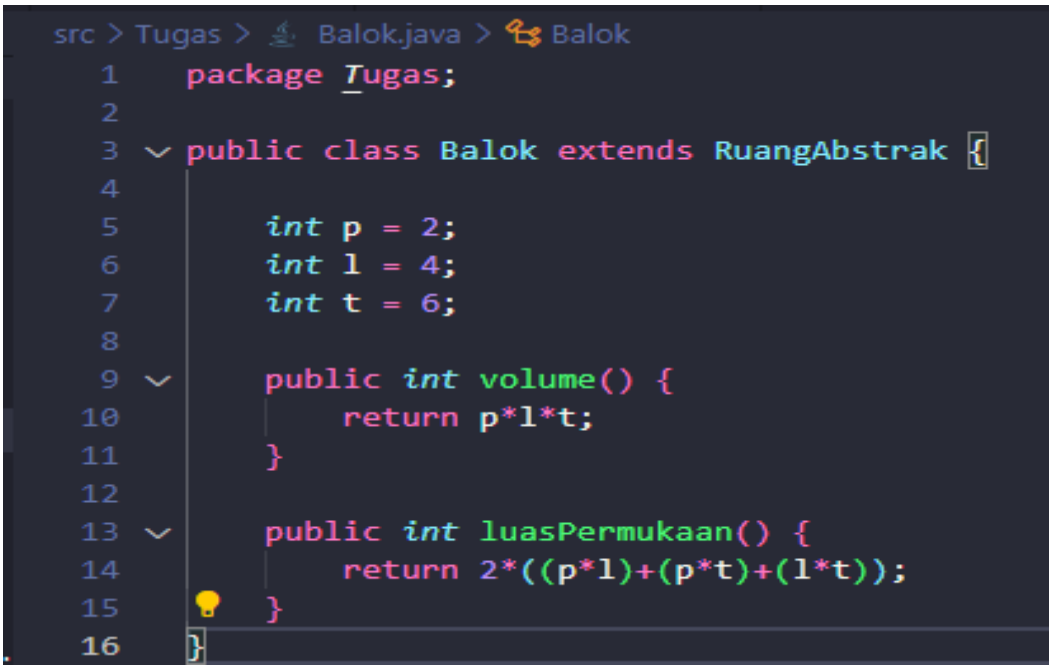
9.4. TUGAS

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` untuk mengimplementasikan method `abstract` tesebut!

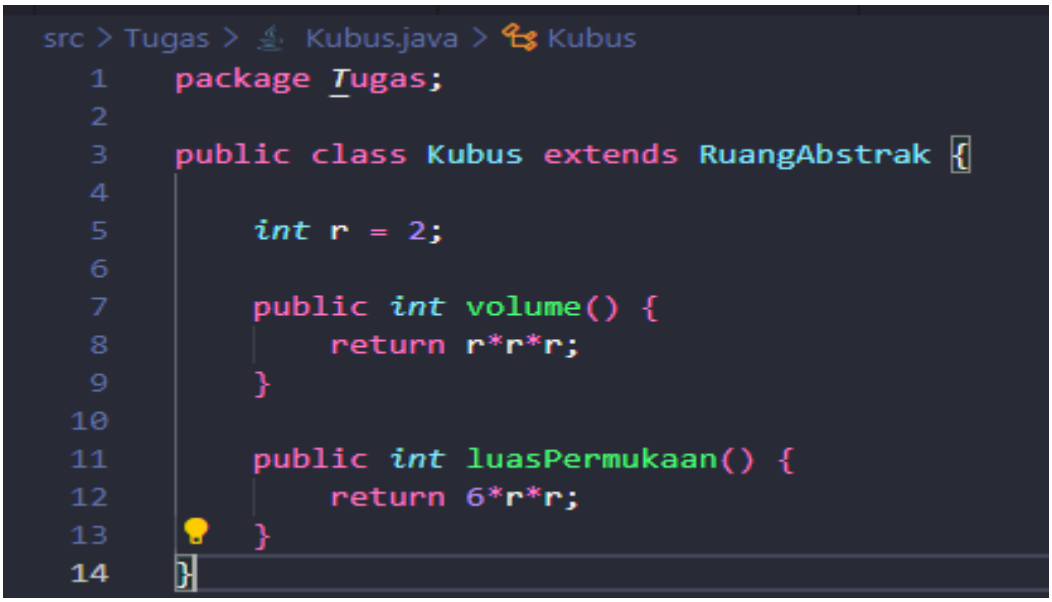
Class Abtract

```
1   package Tugas;
2
3   public abstract class RuangAbstrak {
4
5       public abstract int volume();
6       public abstract int luasPermukaan();
7
8       public int getVol() {
9           return volume();
10      }
11
12      public int getLp() {
13          return luasPermukaan();
14      }
15  }
```

Class Balok



Class Kubus



Class Bola

src > Tugas > Bola.java > Bola

```java
package Tugas;

public class Bola extends RuangAbstrak {

    int r = 7;

    public int volume() {
        return (4/3)*(22/7)*r*r*r;
    }

    public int luasPermukaan() {
        return 4*(22/7)*r*r;
    }
}
```

Class Kerucut

src > Tugas > Kerucut.java > Kerucut

```java
package Tugas;

public class Kerucut extends RuangAbstrak {

    int r = 7;
    int s = 10;
    int t = 12;

    public int volume() {
        return ((22/7)*r*r*t)/3;
    }

    public int luasPermukaan() {
        return (22/7)*r*(r+s);
    }
}
```

Class PrismaSegitiga

src > Tugas > PrismaSegitiga.java > PrismaSegitiga

```java
package Tugas;

public class PrismaSegitiga extends RuangAbstrak {

    int ab = 4; // Panjang rusuk alas prisma segitiga
    int bc = 3; // Panjang rusuk alas prisma segitiga
    int ac = 5; // Panjang rusuk alas prisma segitiga
    int t = 8; // Tinggi prisma segitiga

    public int volume() {
        return (bc*ab*t)/2;
    }

    public int luasPermukaan() {
        return 2*((bc*ab)/2) + ((ab+bc+ac)*8) ;
    }
}
```

Class Demo

src > Tugas > Demo.java > Demo

```java
package Tugas;

public class Demo {
    Run | Debug
    public static void main (String[] args) {

        Balok bk = new Balok();
        System.out.println("Volume Balok = " + bk.getVol());
        System.out.println("Luas Permukaan Balok = " + bk.getLp());

        Kubus ks = new Kubus();
        System.out.println("Volume Kubus = " + ks.getVol());
        System.out.println("Luas Permukaan Kubus = " + ks.getLp());

        Bola ba = new Bola();
        System.out.println("Volume Bola = " + ba.getVol());
        System.out.println("Luas Permukaan Bola = " + ba.getLp());

        Kerucut kt = new Kerucut();
        System.out.println("Volume Kerucut = " + kt.getVol());
        System.out.println("Luas Permukaan Kerucut = " + kt.getLp());

        PrismaSegitiga ps = new PrismaSegitiga();
        System.out.println("Volume PrismaSegitiga = " + ps.getVol());
        System.out.println("Luas Permukaan PrismaSegitiga = " + ps.getLp());
    }
}
```

Output

```
PS C:\Users\Asus\.vscode\Praktikum_PBO_9>
 'C:\Program Files\Java\jdk-17.0.4.1\bin\ja
 '-cp' 'C:\Users\Asus\.vscode\Praktikum_PBO
Volume Balok = 48
Luas Permukaan Balok = 88
Volume Kubus = 8
Luas Permukaan Kubus = 24
Volume Bola = 1029
Luas Permukaan Bola = 588
Volume Kerucut = 588
Luas Permukaan Kerucut = 357
Volume PrismaSegitiga = 48
Luas Permukaan PrismaSegitiga = 108
PS C:\Users\Asus\.vscode\Praktikum_PBO_9>
```