



Riza Satria Perdana, S.T., M.T.

Teknik Informatika - STEI ITB

Enum Types

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Pemrograman Berorientasi Objek

Enum Types

- Tipe yang berisi suatu nilai anggota dari sekumpulan himpunan konstanta yang tetap
- Contoh: nama arah mata angin, nama hari, nama bulan, dll
- Karena merupakan konstanta maka isi tipe enum dituliskan dalam huruf besar

Contoh

```
public enum Day {  
    SUNDAY, MONDAY, TUESDAY, WEDNESDAY,  
    THURSDAY, FRIDAY, SATURDAY  
}
```

```
public class EnumTest {  
    Day day;  
  
    public EnumTest(Day day) {  
        this.day = day;  
    }  
}
```

Contoh

```
public void tellItLikeItIs() {  
    switch (day) {  
        case MONDAY:  
            System.out.println("Mondays are bad.");  
            break;  
  
        case FRIDAY:  
            System.out.println("Fridays are better.");  
            break;  
  
        case SATURDAY: case SUNDAY:  
            System.out.println("Weekends are best.");  
            break;  
  
        default:  
            System.out.println("Midweek days are so-so.");  
            break;  
    }  
}
```

Contoh

```
public static void main(String[] args) {  
    EnumTest firstDay = new EnumTest(Day.MONDAY);  
    firstDay.tellItLikeItIs();  
    EnumTest thirdDay = new EnumTest(Day.WEDNESDAY);  
    thirdDay.tellItLikeItIs();  
    EnumTest fifthDay = new EnumTest(Day.FRIDAY);  
    fifthDay.tellItLikeItIs();  
    EnumTest sixthDay = new EnumTest(Day.SATURDAY);  
    sixthDay.tellItLikeItIs();  
    EnumTest seventhDay = new EnumTest(Day.SUNDAY);  
    seventhDay.tellItLikeItIs();  
}
```

Tipe Enum di Java

- Lebih powerfull daripada bahasa OO yang lain
- Deklarasi enum akan menciptakan kelas dengan nama tersebut
- Body kelas enum dapat berisi method dan field tambahan
- Compiler akan otomatis menambahkan method spesial untuk enum

Tipe Enum di Java

- Contoh, static method values yang mengembalikan array berisi seluruh nilai yang valid

```
for (Planet p : Planet.values()) {  
    System.out.printf("Your weight on %s is %f%n",  
                      p, p.surfaceWeight(mass));  
}
```

Tipe Enum di Java

- Tipe enum secara implisit diturunkan (extend) `java.lang.Enum`
- Karena Java tidak mendukung multiple inheritance maka tipe enum tidak bisa diturunkan dari yang lain

Contoh

```
public enum Planet {  
    MERCURY (3.303e+23, 2.4397e6),  
    VENUS   (4.869e+24, 6.0518e6),  
    EARTH   (5.976e+24, 6.37814e6),  
    MARS    (6.421e+23, 3.3972e6),  
    JUPITER (1.9e+27,   7.1492e7),  
    SATURN  (5.688e+26, 6.0268e7),  
    URANUS  (8.686e+25, 2.5559e7),  
    NEPTUNE (1.024e+26, 2.4746e7);  
  
    private final double mass;    // in kilograms  
    private final double radius; // in meters  
    Planet(double mass, double radius) {  
        this.mass = mass;  
        this.radius = radius;  
    }  
    private double mass() { return mass; }  
    private double radius() { return radius; }  
}
```



Contoh

```
// universal gravitational constant (m3 kg-1 s-2)
public static final double G = 6.67300E-11;

double surfaceGravity() {
    return G * mass / (radius * radius);
}
double surfaceWeight(double otherMass) {
    return otherMass * surfaceGravity();
}
public static void main(String[] args) {
    if (args.length != 1) {
        System.err.println("Usage: java Planet <earth_weight>");
        System.exit(-1);
    }
    double earthWeight = Double.parseDouble(args[0]);
    double mass = earthWeight/EARTH.surfaceGravity();
    for (Planet p : Planet.values())
        System.out.printf("Your weight on %s is %f\n",
                           p, p.surfaceWeight(mass));
    }
}
```

Terima Kasih