Statemen Kontrol

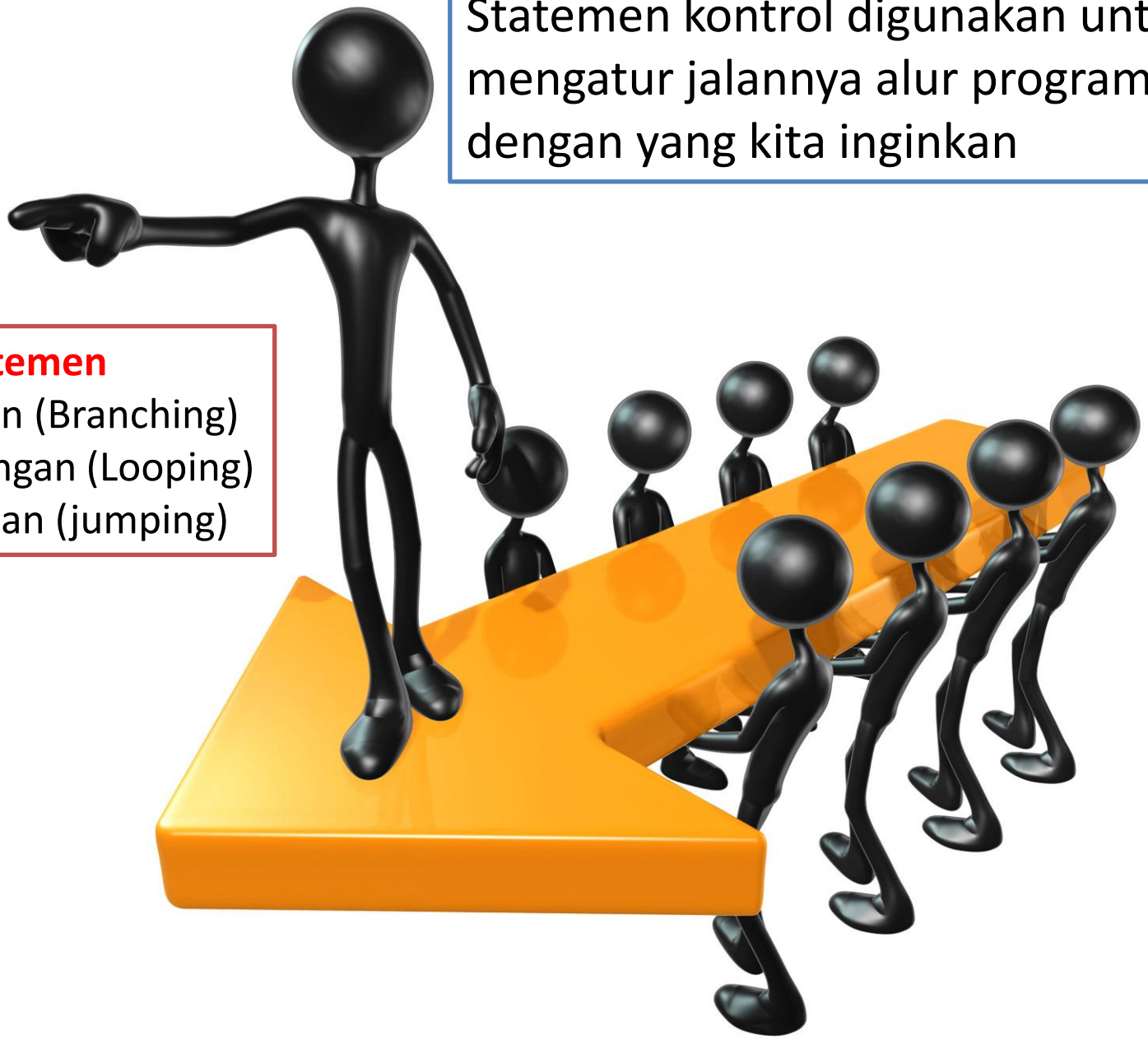
Statemen kontrol digunakan untuk mengatur jalannya alur program sesuai dengan yang kita inginkan

Jenis Statemen

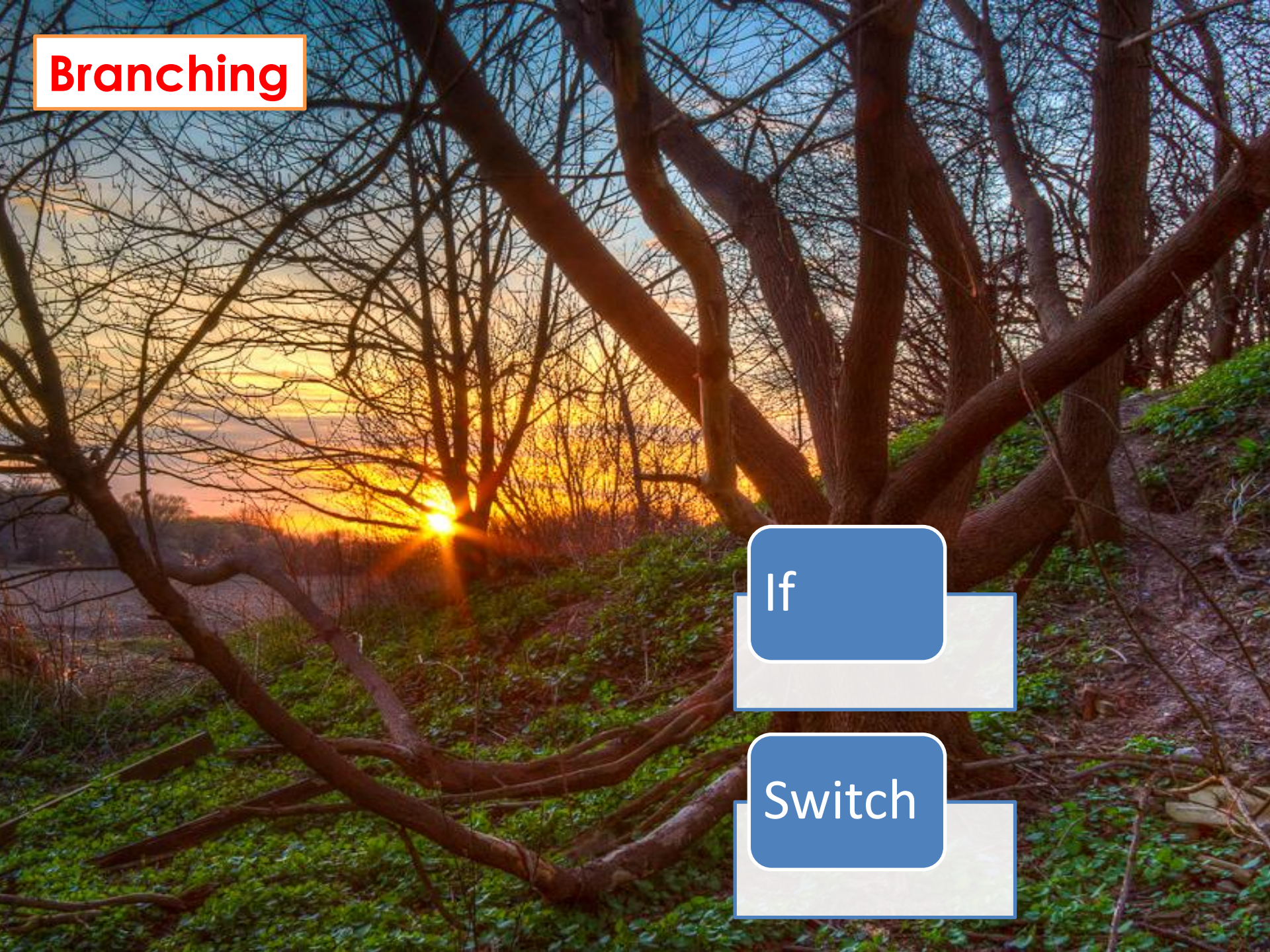
-Pemilihan (Branching)

-Pengulangan (Looping)

-Peloncatan (jumping)



Branching



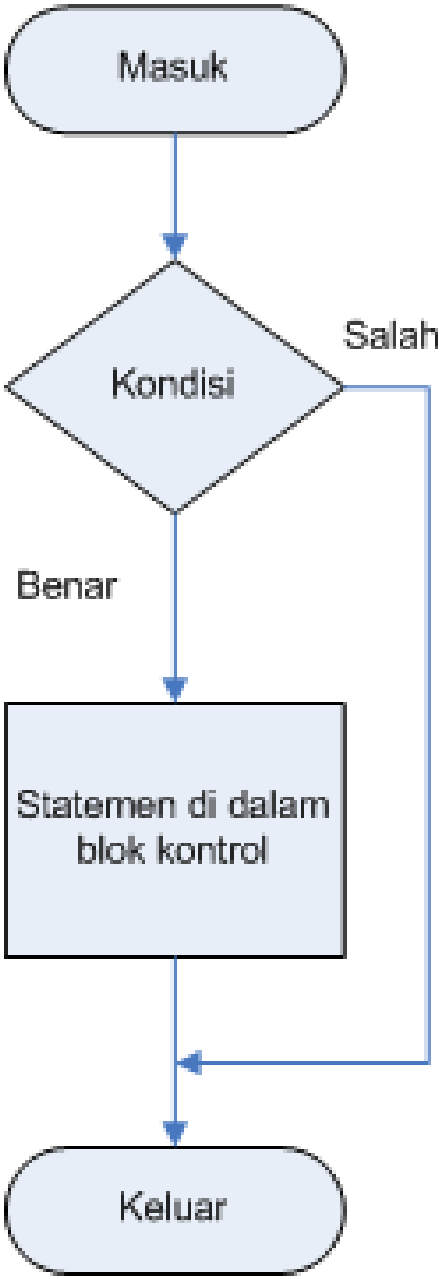
If

Switch

Statemen If (Satu Kondisi)

```
If (kondisi) statemen
```

```
If (kondisi) {
        statemen1;
        statemen2;
        …
}
```



```java
public class DemoIfSatuKondisi1 {
    public static void main(String[] args) {
        int a=1, b=10;
        if (a<5){
            System.out.println("Nilai a lebih kecil dari 5");
        }
        if (b<5){
            System.out.println("Nilai b lebih kecil dari 5");
        }
    }
}
```

```
run:
Nilai a lebih kecil dari 5
BUILD SUCCESSFUL (total time: 0 seconds)
```

```java
public class DemoIfSatuKondisi2 {
    public static void main (String [] args){
char ch = 'E';
if (ch == 'a'||ch == 'A'||
    ch == 'i'||ch == 'I'||
    ch == 'u'||ch == 'U'||
    ch == 'e'||ch == 'E'||
    ch == 'o'||ch == 'O') {
    System.out.println(ch+" Huruf Vokal");
        }
    }
}
```

```
run:
E Huruf Vokal
BUILD SUCCESSFUL (total time: 0 seconds)
```

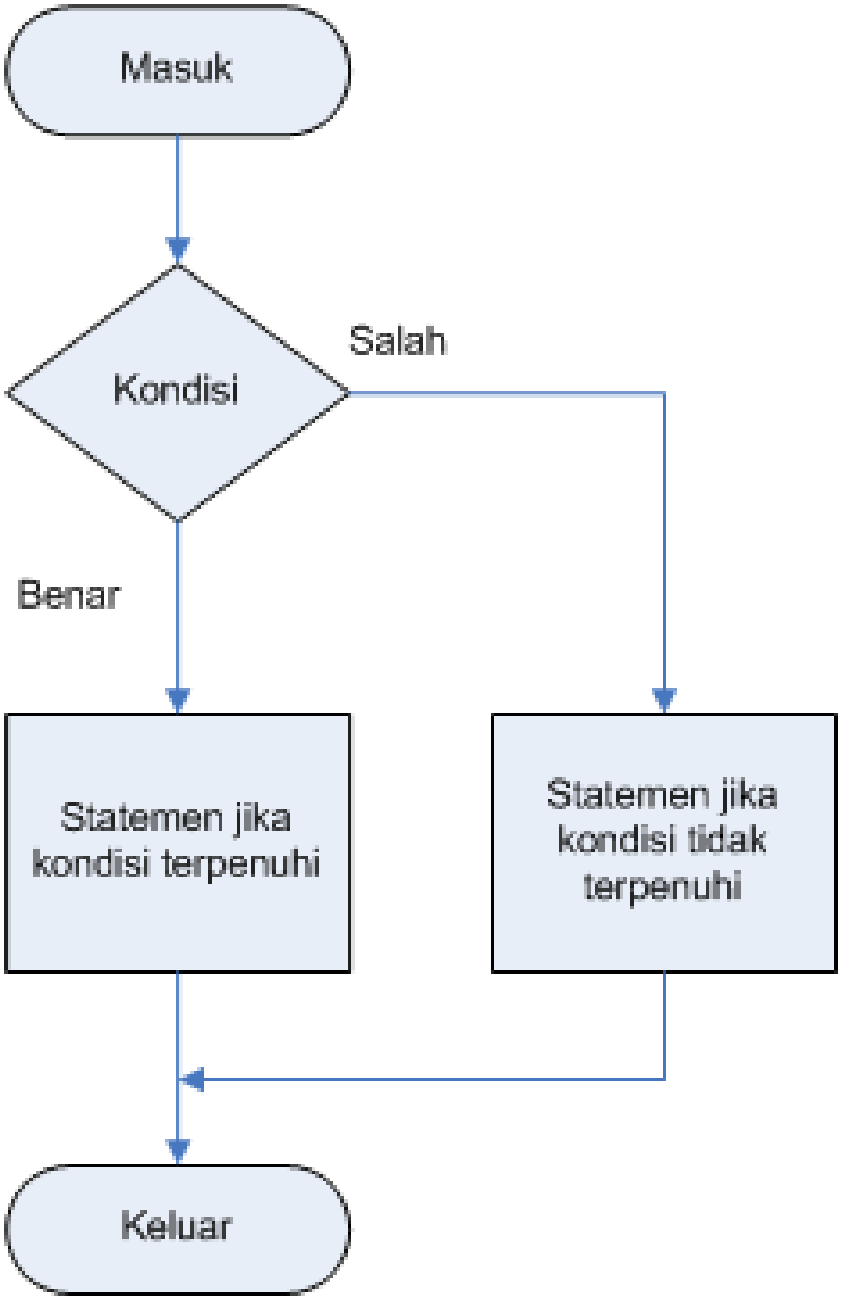
```java
public class DemoIfSatuKondisi3 {
    public static void main (String [] args){
        int tahun = 2008;
        if ((tahun % 4 == 0)&&
                ((tahun % 100 != 0)|| (tahun % 400 == 0))){
            System.out.println("Tahun " +tahun+ " merupakan tahun kabisat");
        }
    }
}
```

```
run:
Tahun 2008 merupakan tahun kabisat
BUILD SUCCESSFUL (total time: 0 seconds)
```

Statemen If (Dua Kondisi)

```
If (kondisi)
        statemen jika kondisi benar
else
        statemen jika kondisi salah
```

```
If (kondisi){
        statemen1;
        statemen2;
        ...
}else{
        statemen1;
        statemen2;
        ...
}
```



```java
public class DemoIfDuaKondisi1 {
  public static void main (String [] args){
      int a =1, b=10;
      if (a<5){
          System.out.println(a+" lebih kecil dari 5");
      }else{
          System.out.println(a+" lebih besar dari 5");
  }
      if (b<5){
          System.out.println(b+" lebih kecil dari 5");
      }else{
          System.out.println (b+" lebih besar dari 5");
}
}
}
```

```
run:
1 lebih kecil dari 5
10 lebih besar dari 5
BUILD SUCCESSFUL (total time: 0 seconds)
```

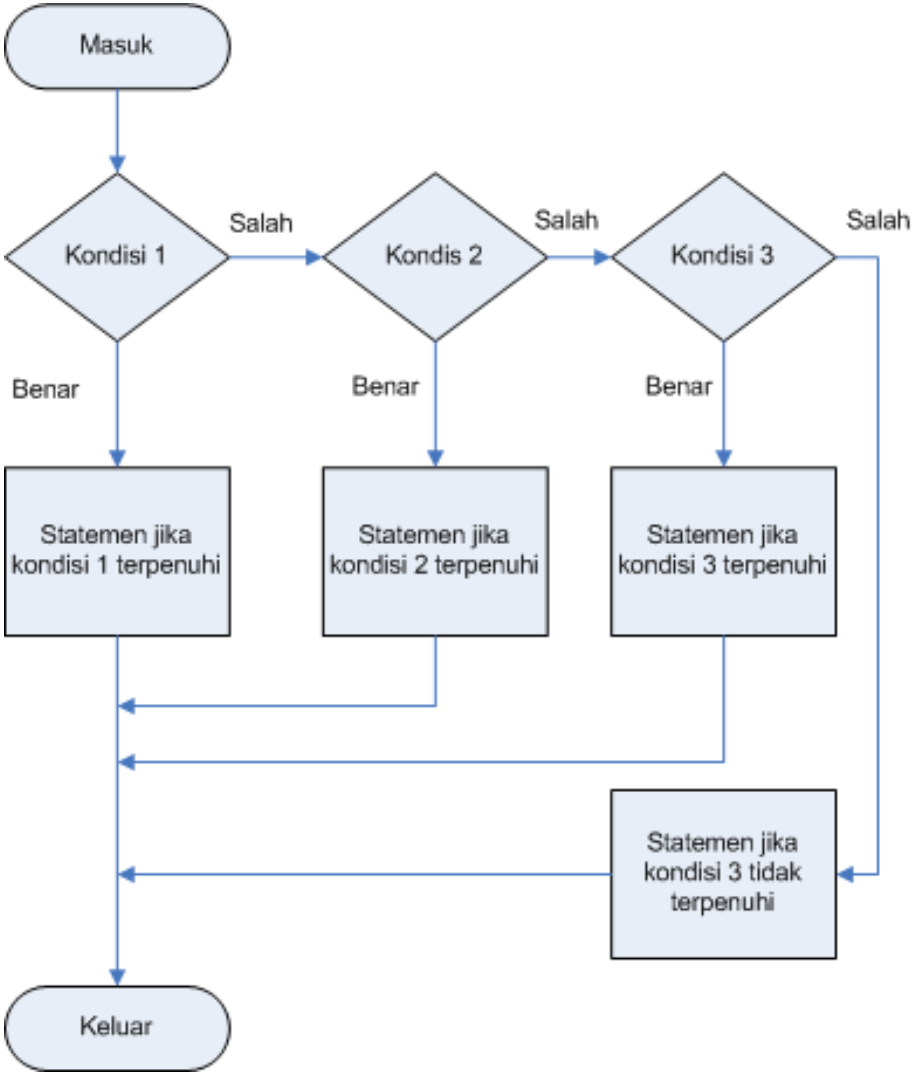
```java
public class DemoIfDuaKondisi2 {
   public static void main (String [] args){
       char ch = 'B';
       if (ch == 'a'||ch == 'A'||
    ch == 'i'||ch == 'I'||
    ch == 'u'||ch == 'U'||
    ch == 'e'||ch == 'E'||
    ch == 'o'||ch == 'O') {
    System.out.println(ch+" Huruf Vokal");
        }else{
            System.out.println (ch+" Huruf Mati (Konsonan)");
       }
   }
}
```

```
run:
B Huruf Mati (Konsonan)
BUILD SUCCESSFUL (total time: 0 seconds)
```

Statemen If (Tiga/Lebih Kondisi)

```
If (kondisi1)
        statemen jika kondisi benar
Else if (kondisi2)
        statemen jika kondisi1 salah
Else
        statemen jika kondis1 dan kondisi2 salah
```

```
If (kondisi1){
        statemen1;
        statemen2;
        …
}else if (kondisi2){
        statemen1;
        statemen2;
        …
}else(
        statemen1;
        statemen2;
        …
}
```



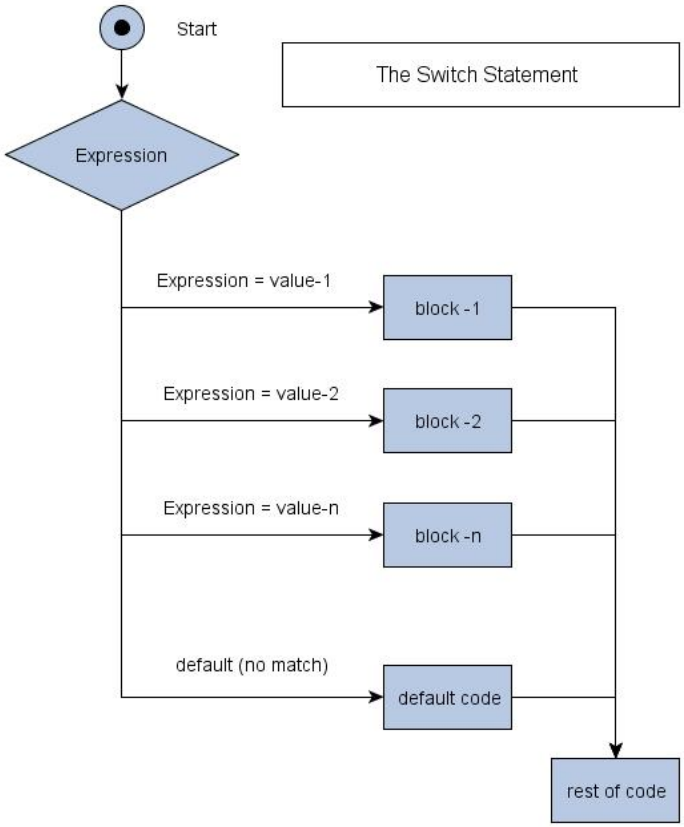
```java
public class DemoIfTigaKondisi1 {
    public static void main (String [] args){
        int bilangan = 4;
        if (bilangan<0){
            System.out.println (bilangan + " merupakan bilangan NEGATIF");
        }else if (bilangan == 0){
            System.out.println ("Nilai yang dimasukkan adalah angka NOL");
        }else{
            System.out.println (bilangan + " merupakan bilangan POSITIF");
        }
    }

}
```

```
run:
4 merupakan bilangan POSITIF
BUILD SUCCESSFUL (total time: 0 seconds)
```

```java
public class DemoIfTigaKondisi2 {
    public static void main (String [] args){
        char nilaiIndeks;
        double nilaiUTS, nilaiUAS, nilaiAkhir;
        nilaiUTS = 75.0;
        nilaiUAS = 60.0;
        nilaiAkhir = (0.4*nilaiUTS) + (0.6*nilaiUAS);
        if (nilaiAkhir >= 80){
            nilaiIndeks = 'A';
        }else if (nilaiAkhir >=70){
            nilaiIndeks = 'B';
    } else if (nilaiAkhir >= 60){
            nilaiIndeks = 'C';
    }else if (nilaiAkhir >= 50){
            nilaiIndeks = 'D';
    }else {
            nilaiIndeks = 'E';
    }
        System.out.println ("Nilai Akhir\t: "+nilaiAkhir);
        System.out.println("Nilai Indeks\t: "+nilaiIndeks);
}
}
```

```
run:
Nilai Akhir      : 66.0
Nilai Indeks     : C
BUILD SUCCESSFUL (total time: 0 seconds)
```

Statemen Switch




```
Switch (ekspresi){
Case nilai1 : statemen yg dilakukan jika ekspresi sama dg nilai1
              break;
Case nilai2 : statemen yg dilakukan jika ekspresi sama dg nilai2
              break;
…
Case nilain : statemen yg dilakukan jika ekspresi sama dg nilain
              break;
default : statemen yg dilakukan jika semua nilai yg didefinisikan di atas tidak ada yg sama dg ekspresi
}
```

```java
public class DemoSwitch1 {
    public static void main (String [] args){
        int nohari = 4;
        switch (nohari){
            case 1:
                System.out.println ("Hari ke-" +nohari + " adalah hari Minggu");
                break;
            case 2:
                System.out.println ("Hari ke-" +nohari + " adalah hari Senin");
                break;
            case 3:
                System.out.println ("Hari ke-" +nohari + " adalah hari Selasa");
                break;
            case 4:
                System.out.println ("Hari ke-" +nohari + " adalah hari Rabu");
                break;
            case 5:
                System.out.println ("Hari ke-" +nohari + " adalah hari Kamis");
                break;
            case 6:
                System.out.println ("Hari ke-" +nohari + " adalah hari Jumat");
                break;
            case 7:
                System.out.println ("Hari ke-" +nohari + " adalah hari Sabtu");
                break;
            default:
                System.out.println ("Tidak ada hari ke-" +nohari);
        }
    }
}
```

Hanya boleh : byte, short, int, char. Tidak boleh boolean

Tidak boleh lupa **"BREAK"**

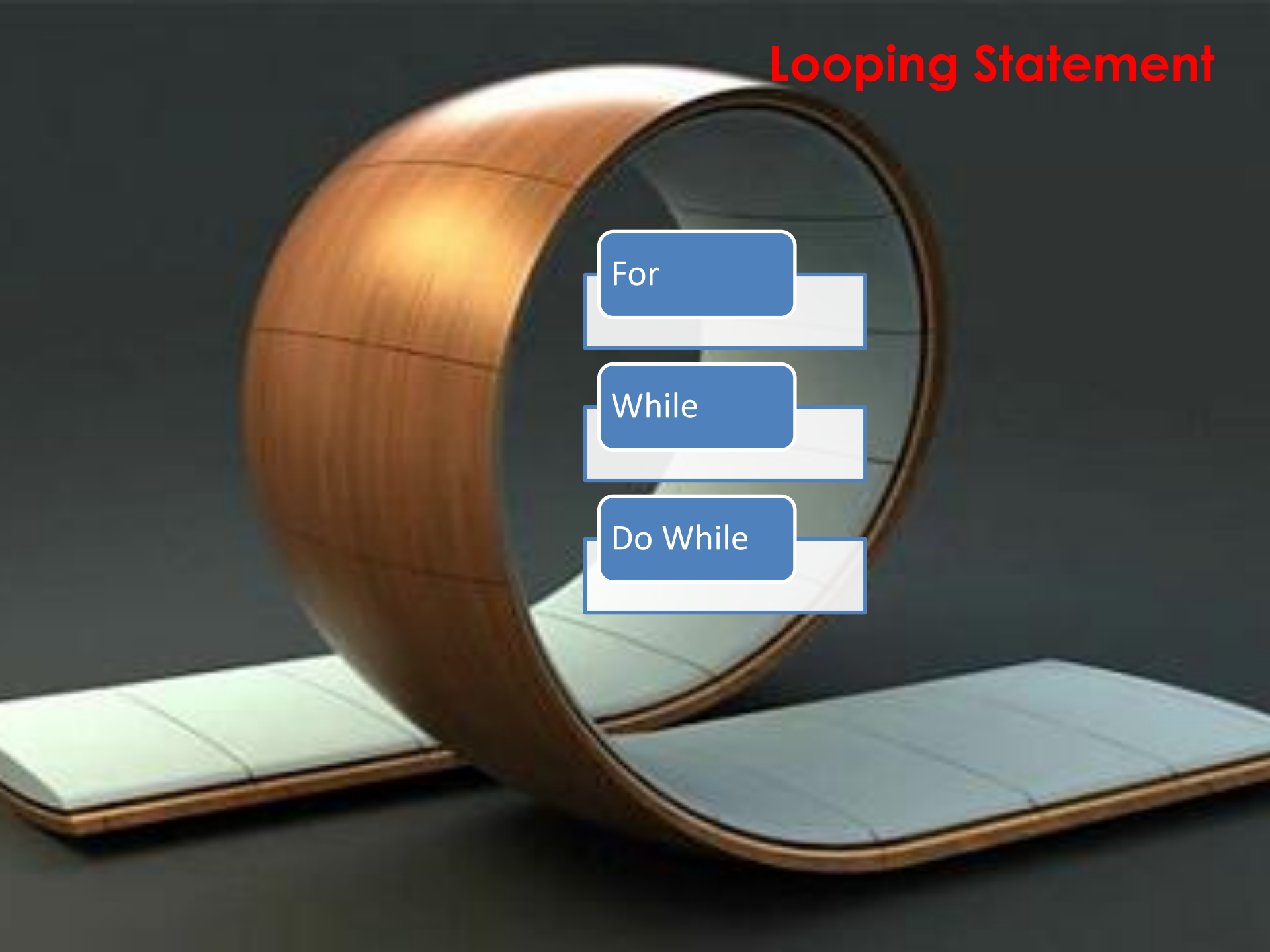
```
run:
Hari ke-4 adalah hari Rabu
BUILD SUCCESSFUL (total time: 0 seconds)
```

```java
public class DemoSwitch2 {
    public static void main (String [] args){
        String bulan = null;
        String triwulan = null;
        int noBulan = 3;
        switch (noBulan){
            case 1 : bulan = "Januari"; break;
            case 2 : bulan = "Februari"; break;
            case 3 : bulan = "Maret"; break;
            case 4 : bulan = "April"; break;
            case 5 : bulan = "Mei"; break;
            case 6 : bulan = "Juni"; break;
            case 7 : bulan = "Juli"; break;
            case 8 : bulan = "Agustus"; break;
            case 9 : bulan = "September"; break;
            case 10 : bulan = "Oktober"; break;
            case 11 : bulan = "November"; break;
            case 12: bulan = "Desember"; break;
            default:{
                System.out.println ("Tidak ada bulan ke-" +noBulan);
                System.exit(1);
            }
        }
```

```
        switch (noBulan){
                case 1:
                case 2:
                case 3:
                case 4:{
                    triwulan = "I";
                    break;
                }
                case 5:
                case 6:
                case 7:
                case 8:{
                    triwulan = "II";
                    break;
                }
                case 9:
                case 10:
                case 11:
                case 12:{
                    triwulan = "III";
                    break;
                }
                default:{
                    System.out.println ("Tidak ada bulan ke-" + noBulan);
                    System.exit(1);
                }
    }
        System.out.println("Bulan ke-" + noBulan + "(" + bulan +
                ") masuk ke dalam triwulan " + triwulan);
}
}
```

```
run:
Bulan ke-3(Maret) masuk ke dalam triwulan I
BUILD SUCCESSFUL (total time: 0 seconds)
```

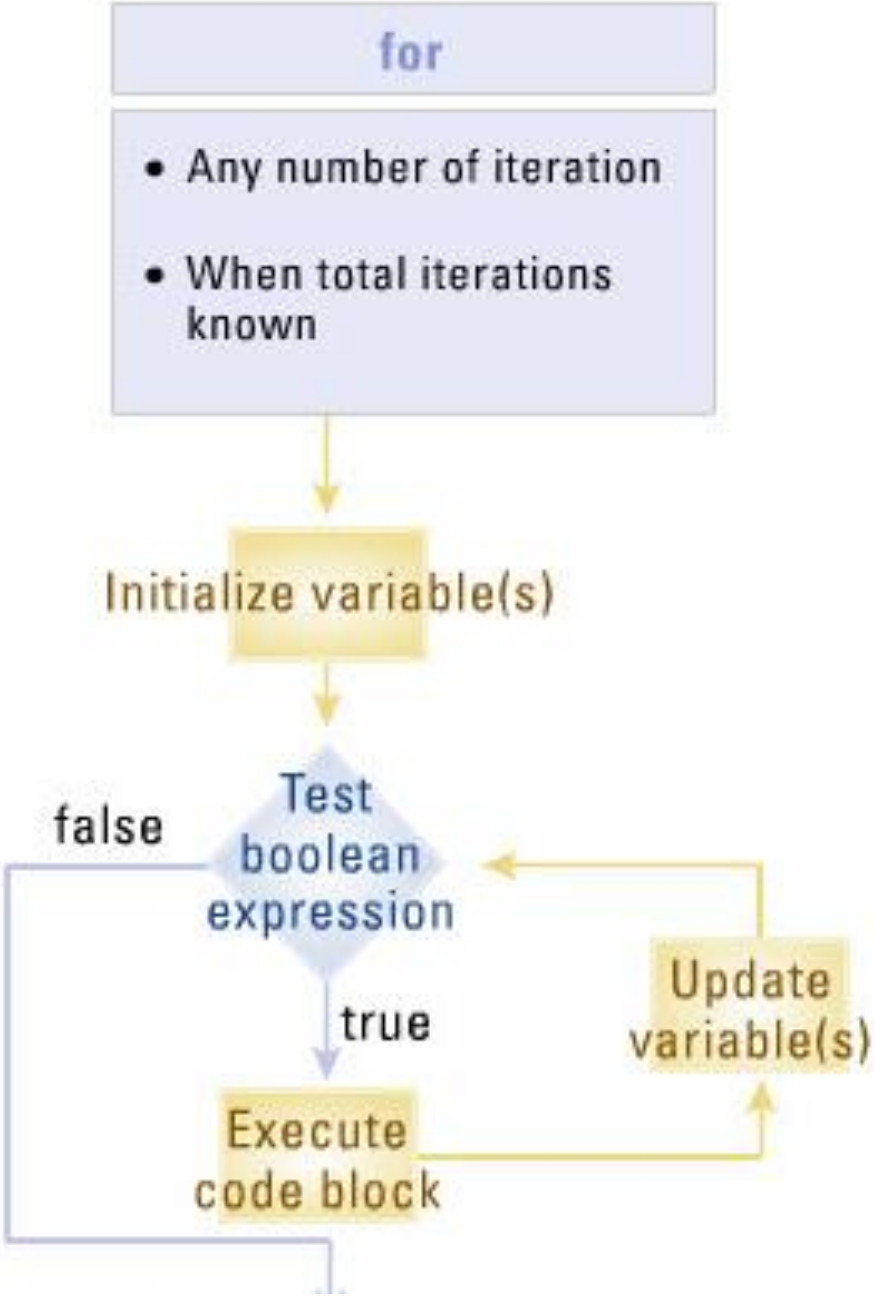
Looping Statement



- For
- While
- Do While

Struktur For

```
For (inisialisasi; kondisi; iterasi){
        statemen yang akan diulang
}
```



```java
public class DemoFor1 {
    public static void main (String [] args){
        for (int i= 0; i<10; i++){
            System.out.println ("Brigida Arie Minartiningtyas");
        }
    }
}
```

```java
public class DemoFor2 {
    public static void main (String [] args){
        for (int i= 10; i>0; i--){
            System.out.println ("Brigida Arie Minartiningtyas");
        }
    }
}
```

```
run:
Brigida Arie Minartiningtyas
Brigida Arie Minartiningtyas
Brigida Arie Minartiningtyas
Brigida Arie Minartiningtyas
Brigida Arie Minartiningtyas
Brigida Arie Minartiningtyas
Brigida Arie Minartiningtyas
Brigida Arie Minartiningtyas
Brigida Arie Minartiningtyas
Brigida Arie Minartiningtyas
BUILD SUCCESSFUL (total time: 0 seconds)
```

```java
public class DemoFor3 {
    public static void main (String [] args){
        int n = 5;
        int hasil = 0;
        for (int i = 1; i<=n; i++){
            hasil += i;
            if (i != n){
                System.out.print (i + " + ");
            }else {
                System.out.print (i + " = ");
            }
        }
        System.out.println (hasil);
    }
}
```

```
run:
1 + 2 + 3 + 4 + 5 = 15
BUILD SUCCESSFUL (total time: 0 seconds)
```

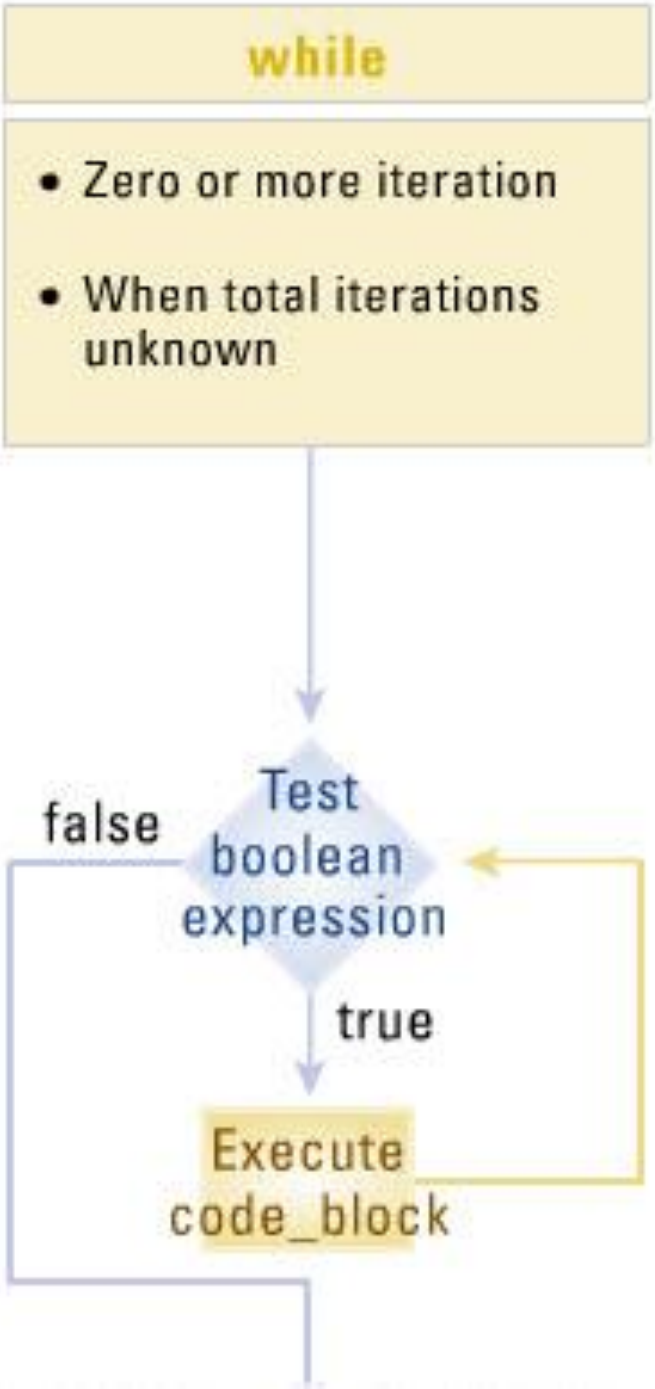
Penggunaan Koma Dalam Struktur For

```java
public class DemoFor6 {
    public static void main (String [] args){
        int i,j;
        for (i=0, j=4; i<5; i++, j--){
            System.out.println ("Nilai i : " + i);
            System.out.println ("Nilai j : " + j);
            System.out.println ();
        }
    }
}
```

```
run:
Nilai i : 0
Nilai j : 4

Nilai i : 1
Nilai j : 3

Nilai i : 2
Nilai j : 2

Nilai i : 3
Nilai j : 1

Nilai i : 4
Nilai j : 0

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

Struktur While

```
Inisialiasi
While (kondisi){
        statemen yang akan diulang
        …
        iterasi
}
```



```java
public class DemoWhile1 {
    public static void main (String [] args){
            int i = 0;
            while (i<10){
                System.out.println("Tyas");
                i++;
            }
}
}
```

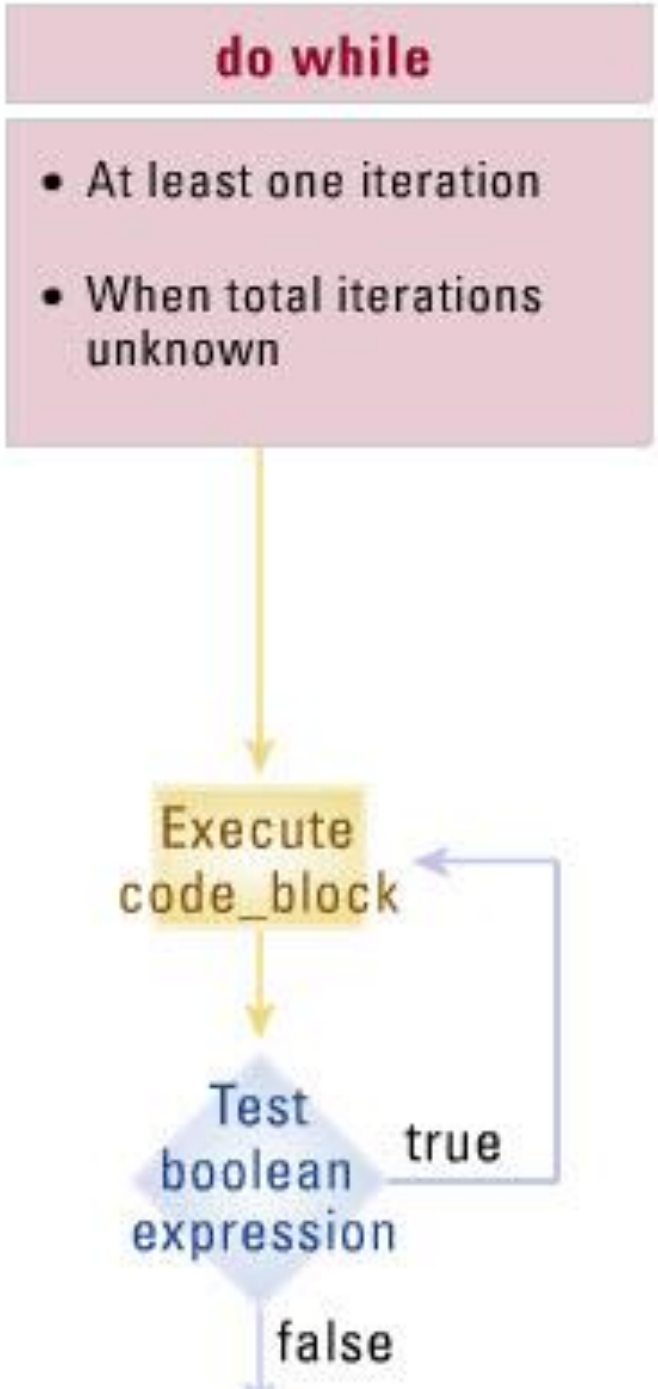
```
run:
Tyas
Tyas
Tyas
Tyas
Tyas
Tyas
Tyas
Tyas
Tyas
Tyas
BUILD SUCCESSFUL (total time: 1 second)
```

```java
public class DemoWhile2 {
    public static void main (String [] args){
        int n = 5;
        int hasil = 0;
        int i = 1;
        while (i<=n){
            System.out.print (i);
                if (i != n) {
                    System.out. print (" + ");
                }else{
                    System.out.print (" = ");
                }
                hasil +=i;
                i++;
            }
            System.out.println (hasil);
        }
    }
```

```
run:
1 + 2 + 3 + 4 + 5 = 15
BUILD SUCCESSFUL (total time: 0 seconds)
```

Struktur Do-While

```
Inisialiasi
Do{
        statemen yang akan diulang
        ...
        iterasi
} while (kondisi1);
```



```java
public class DemoDoWhile1 {
    public static void main (String [] args){
        int n = 5;
        int hasil = 0;
        int i = 1;
        do {
            System.out.print (i);
            if (i != n) {
                System.out.print (" + ");
            }else{
                System.out.print (" = ");
            }
            hasil += i;
            i++;
        }while (i<=n);
        System.out.println (hasil);
    }

}
```

```
run:
1 + 2 + 3 + 4 + 5 = 15
BUILD SUCCESSFUL (total time: 0 seconds)
```

```java
public class DemoDoWhile {
    public static void main (String [] args){
            int bilangan = 5;
            int hasil = 1;
            System.out.print (bilangan + " ! = ");
            if (bilangan ==0){
                System.out.println (hasil);
                System.exit (1);
            }
            int i = bilangan;
            do {
                System.out.print (i);
                if (i!=1){
                    System.out.print (" X ");
                }else{
                    System.out.print (" = ");
                }
            hasil *=i;
            i--;
    }while (i>=1);
    System.out.println (hasil);
}
}
```

```
run:
5 ! = 5 X 4 X 3 X 2 X 1 = 120
BUILD SUCCESSFUL (total time: 0 seconds)
```

Pengulangan Bersarang

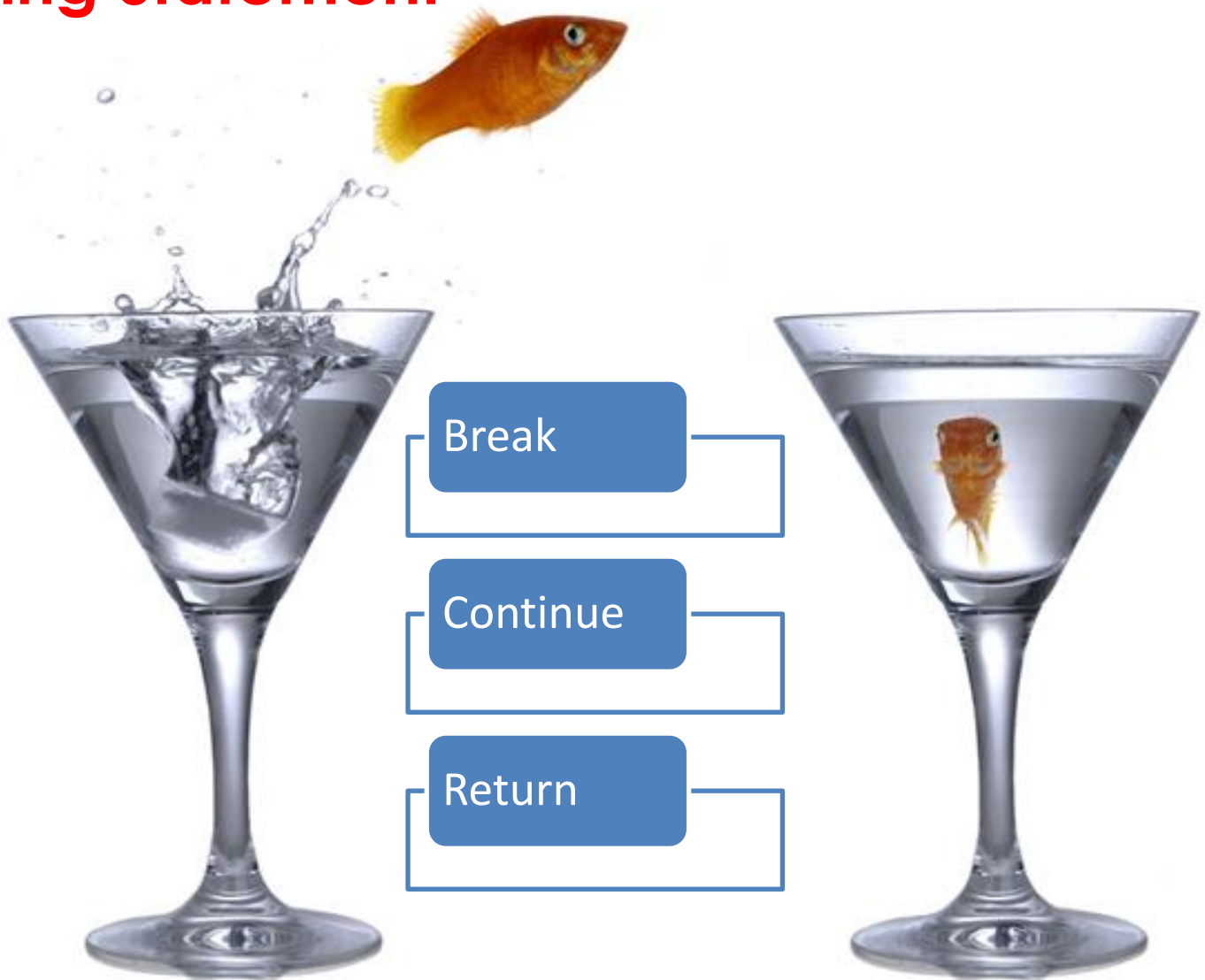
```
run:
1
2  4
3  6  9
4  8  12  16
5  10  15  20  25
BUILD SUCCESSFUL (total time: 0 seconds)
```

```java
public class DemoForBersarang {
    public static void main (String [] args){
        for (int i = 1; i<=5; i++){
            for (int j = 1; j<=i; j++){
                System.out.print (i*j + " ");
            }
            System.out.println ();
        }
    }
}
```

```java
public class DemoWhileBersarang {
    public static void main (String [] args){
        int i = 1, j;
        while (i<=5){
            j = 1;
            while (j<=i){
                System.out.print(i*j + " ");
                j++;
            }
            System.out.println();
            i++;
        }
    }
}
```

```java
public class DemoDoWhileBersarang {
    public static void main (String [] args){
        int i = 1, j;
        do {
            j = 1;
            do {
                System.out.print (i*j + " ");
                j++;
            } while (j<=i);
            System.out.println ();
            i++;
        } while (i<=5);
    }
}
```

Jumping Statement



- Break
- Continue
- Return

Peloncatan (jumping) digunakan untuk memindahkan eksekusi program ke baris kode yang dikehendaki

Break

```
public class DemoBreak1 {
    public static void main (String [] args){
        for (int i=0; i<10; i++){
        if (i == 5){
            break;
        }
        System.out.println ("Baris ke-" + i);
    }
        System.out.println ("Statemen setelah blok pengulangan");
}
}
```

```
run:
Baris ke-0
Baris ke-1
Baris ke-2
Baris ke-3
Baris ke-4
Statemen setelah blok pengulangan
BUILD SUCCESSFUL (total time: 0 seconds)
```

Continue

```java
public class DemoContinue {
    public static void main (String [] args){
        for (int i =0; i<10; i++){
        System.out.print (i + " ");
        if (i % 2 == 0){
            continue;
        }
        System.out.println ();
    }
    }
}
```

```
run:
0 1
2 3
4 5
6 7
8 9
BUILD SUCCESSFUL (total time: 0 seconds)
```

Return

```
public class DemoReturn {
    public static void main (String [] args){
        int banyak = 0;
        tulis (banyak);
    }
    private static void tulis (int n){
        if (n<1){
            System.out.println ("Nilai i tidak boleh lebih kecil dari 1");
            return;
        }
        for (int i = 0; i<n; i++){
            System.out.println ("Baris ke-" + i);
        }
    }
}
```

```
run:
Nilai i tidak boleh lebih kecil dari 1
BUILD SUCCESSFUL (total time: 0 seconds)
```