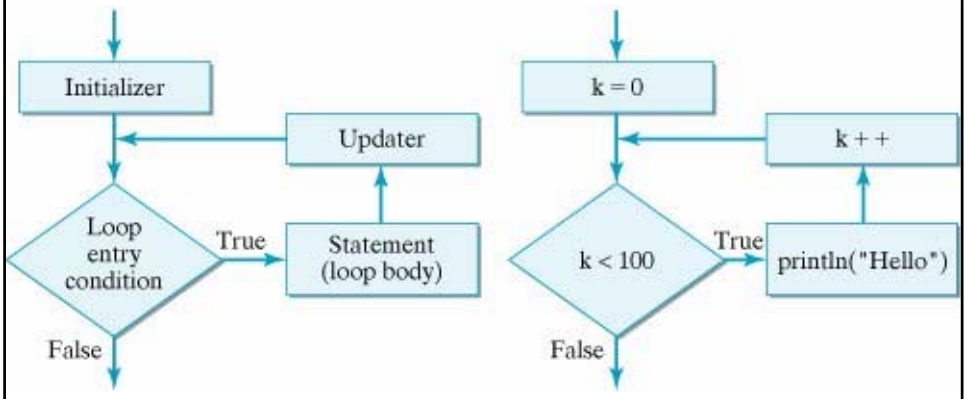
Programação Orientada a Objetos

Alexandre César Muniz de Oliveira

Estruturas de Controle

Parte VI

Laço *for*



Laço *for*

```
for (int k = 0; k < 100; k--)
    System.out.println("Hello");
for (int k = 1; k != 100; k+=2)
    System.out.println("Hello");
for (int k = 98; k < 100; k = k / 2)
    System.out.println("Hello");
for (unsigned int k = 10; k >= 0; k --)
    System.out.println("Hello");
for (int k = 1;; k ++)
    System.out.println("Hello");
```

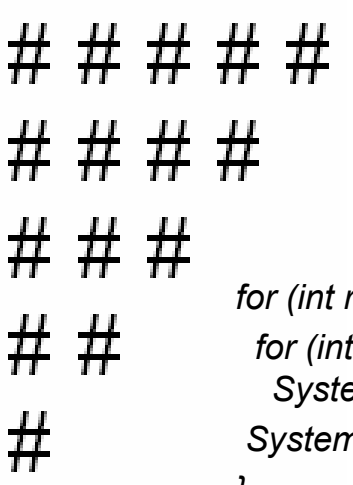
Laço *for*

```
for (int k = 0; k < 100; k++)
  if (k % 5 == 0) System.out.println("k= " + k);
//
for (char k = 'a'; k <= 'z'; k++)
  System.out.print (k + " ");
//
for (int k = 1; k <= 10; k++) {
    int m = k * 5;
    System.out.print (m + " ");
}
```

Laço *for*

```
1. for (int row = 1; row <= 4 ; row++) {
2.   for (int col = 1; col <= 9; col++)
3.     System.out.print(col * row + "\t" );
4.   System.out.println();
5. }
```

Laço *for*



```
for (int row = 1; row <= 5; row++) {
  for (int j = 1; j <= 6 - row; j++)
    System.out.print('#');
  System.out.println();
}
```

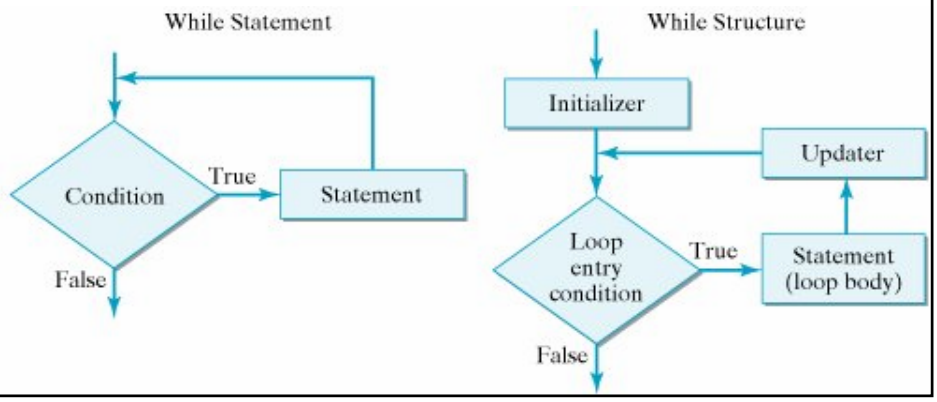
Contadores e acumuladores

```
int k = 0; int acum=0;
while (k < 100) {
    System.out.println("Hello(“ + k + “)”);
    k++;
    acum += k;
}
// ou …
for (int k = 0, int acum=0; k < 100; k++) {
    System.out.println("Hello(“ + k + “)” +acum);
    acum += k;
}
```

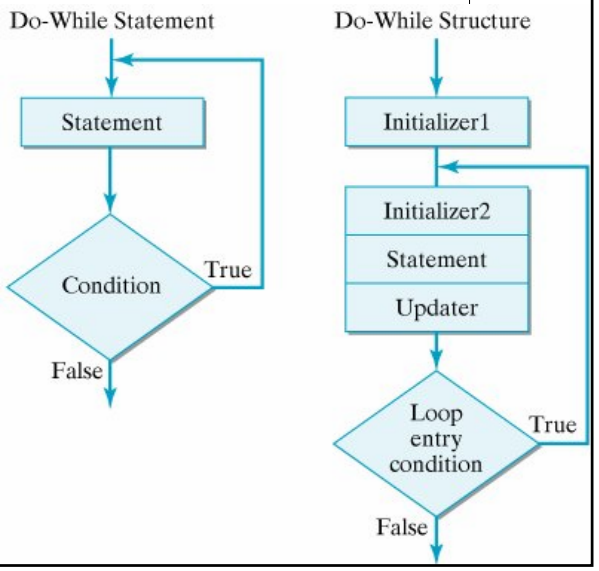
Laço *while*

```
N=100;
while (N != 1) {
  System.out.print(N + " ");
  if (N % 2 == 0)
      N = N / 2;
  else
      N = 3 * N + 1;
}
System.out.println(N);
```

Laços *while* e *do-while*



Laços *while* e *do-while*



Exemplo

```
import java.io.*;
public class Average {
 private KeyboardReader reader = new KeyboardReader();
private double pergunteLeia() {
    reader.prompt("Digite uma nota: " + "(9999 sai) ");
    double grade = reader.getKeyboardDouble();
    return grade;
 }
```

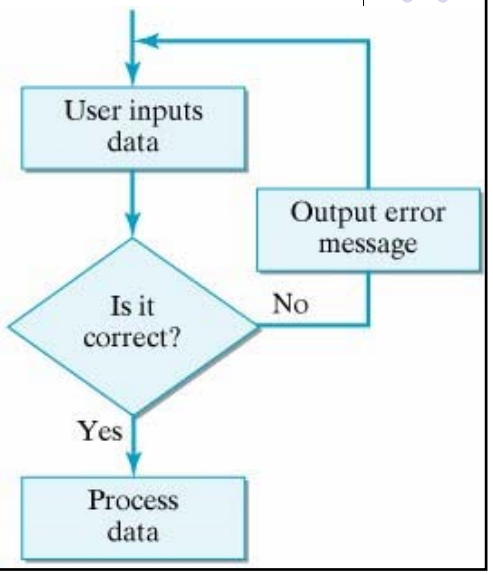
Exemplo

```
public double inputAndAverageGrades() {
   double runningTotal = 0;
   int count = 0;
   double grade = pergunteLeia();
   while (grade != 9999) {
     runningTotal += grade;
     count++;
     grade = promptAndRead();
   }
   if (count > 0)
     return runningTotal / count;
   else
     return 0;
}
```

Exemplo

```
public static void main(String argv[]) {
  System.out.println("Calcula a media de notas");
  Average avg = new Average();
  double average = avg.inputAndAverageGrades();
  if (average == 0)
     System.out.println("You didn't enter any grades.");
  else
     System.out.println("Your average is " + average);
} }
```

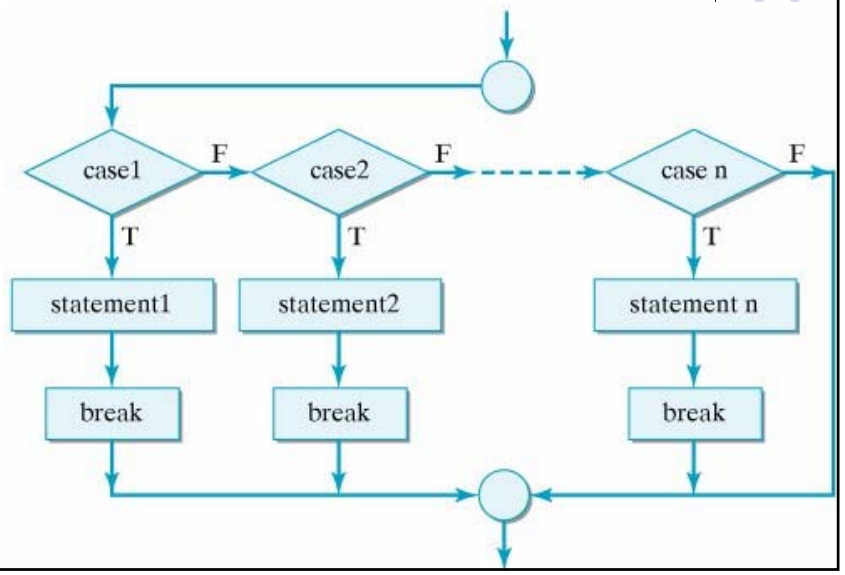
Validação de dados



Validação de dados

```
 public double getKeyboardDouble()
{   return Double.parseDouble(readKeyboard());
 }
//
 public double leValidaDouble()
{
 do {
    String str = readKeyboard();
}while(str.isDouble());
}
```

Decisão multidirecional



Decisão multidirecional

```
int m = 2;
if (m == 1)
    System.out.print(" m = 1");
else if (m == 2)
    System.out.print(" m = 2");
else if (m == 3)
    System.out.print(" m = 3");
else
    System.out.print(" default case");
```

Decisão multidirecional

```
int m = 2;
switch (m)
{  case 1:
       System.out.print(" m = 1");
       break;
   case 2:
       System.out.print(" m = 2");
       break;
   case 3:
       System.out.print(" m = 3");
       break;
   default:
       System.out.print(" default case");
}
```

Código estruturado