Control Statements

Control Statements

- A *statement* is the smallest standalone element in the code that expresses some actions to be performed.

```
int x = 10;
```

- A *control statement* determines the flow of program execution, whether to branch, loop or move to different statement.
- There are *3 types* of control statements:
  - Selection
  - Iteration
  - Jump

Selection

- These statements determine the flow of next statement based on a condition.
- There are *2 types* of selection statements:
  - If
  - Switch

if

Ternary Operator
*condition **?** expression 1 **:** expression 2*

***if** (condition)*
      statement 1;
else
      statement 2;

```java
int age = 20;
boolean canVote;

canVote = (age >= 18) ? true : false;
System.out.println(canVote); // true


if (age >= 18)
    canVote = true;
else
    canVote = false;

System.out.println(canVote); // true
```

if

- **else** part is optional.
- For single statement, braces are optional.
- For multi statements, braces are must.

```
if (condition) {
    statement 1;
}
else {
    statement 2;
}
```

```java
boolean canVote = false;

if (age >= 18)
    canVote = true;



if (age >= 18) {
    canVote = true;
}



if (age >= 18) {
    canVote = true;
    System.out.println(canVote);
}
```
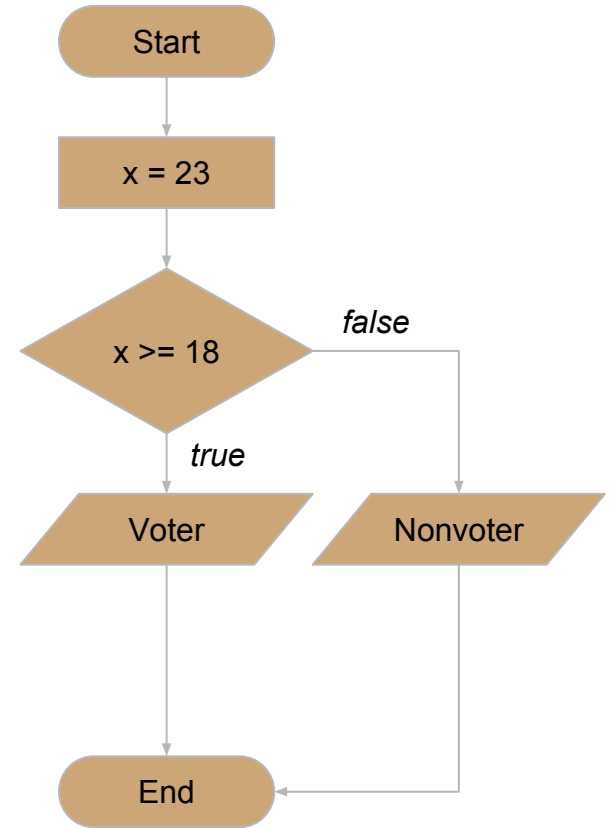
if: Flowchart

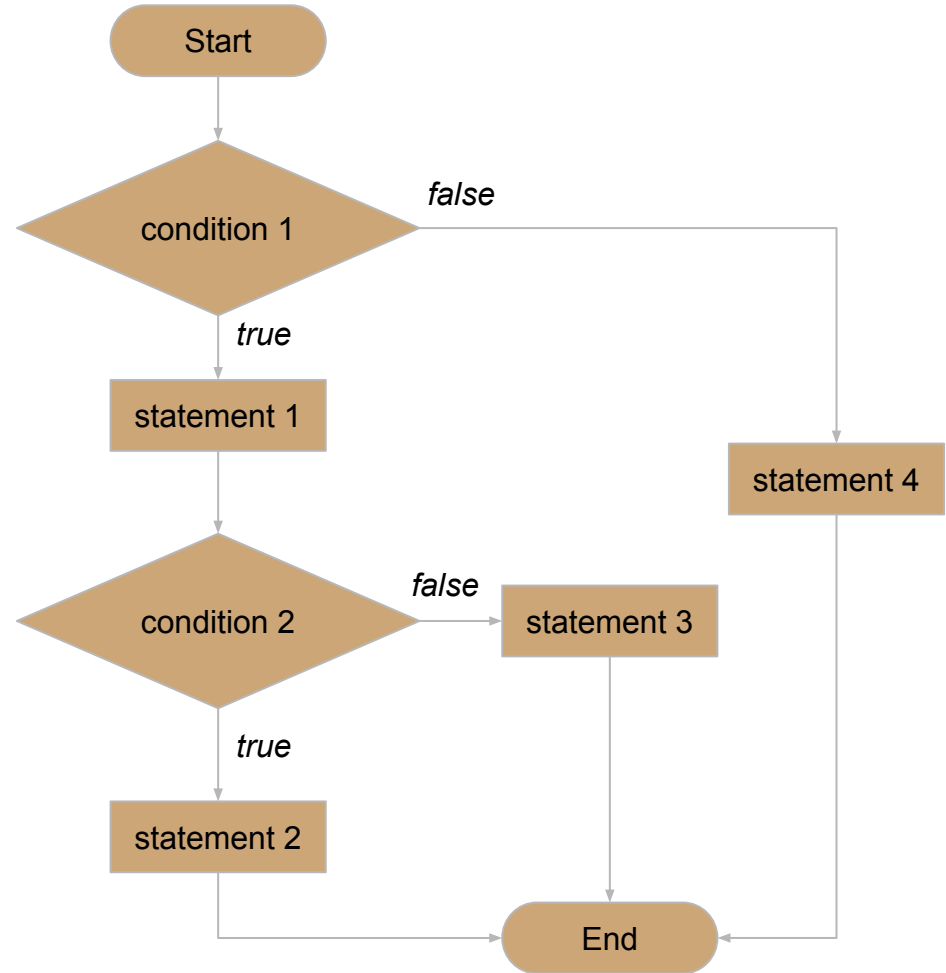**Problem:** Find whether a person is a voter from his/her age.

```java
int x = 23;

if (x >= 18) {
    System.out.println("Voter");
} else {
    System.out.println("Nonvoter");
}
```

Start

x = 23

x >= 18

false

true

Voter

Nonvoter

End

Nested if

```
if (condition 1) {
      statement 1;

      if (condition 2) {
            statement 2;
      }
      else {
            statement 3;
      }
}
else {
      statement 4;
}
```

if – else if – else

```java
int month = 1;
String name;

if (month == 1) {
    name = "January";
}
else if (month == 2) {
    name = "February";
}
…
…
else if (month == 12) {
    name = "December";
}
else {
    name = "N/A";
}

System.out.println(name); // January
```

switch

```java
int month = 1;
String name;

switch (month) {
    case 1:
        name = "January";
        break;
    case 2:
        name = "February";
        break;
    …
    …
    case 12:
        name = "December";
        break;
    default:
        name = "N/A";
}

System.out.println(name); // January
```

switch

```
switch (expression) {
      case value1:
              statement;
              statement;

              ….
              break;
      case value2:
              statement;

              ….
              break;

….
….

      case valueN;
              statement;

              …
              break;
      default:
              statement;

              ….

}
```

```
int month = 1;
String name;

switch (month) {
      case 1:
              name = "January";
              break;
      case 2:
              name = "February";
              break;
      …
      …
      case 12:
              name = "December";
              break;
      default:
              name = "N/A";
}

System.out.println(name); // January
```