

# Computer Science by AP Tutorial

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## Control Flow

Certainly! Here are clear, concise notes on **if-else statements** and **while loops** in both Java and Python, with example code for each.

## If-Else Statement

### What is it?

The **if-else** statement is a conditional control structure. It allows a program to execute certain code only if a condition is true, and optionally execute different code if the condition is false.

### Java Example

```
int age = 18;
if (age >= 18) {
    System.out.println("You are an adult.");
} else {
    System.out.println("You are not an adult.");
}
```

- If **age** is 18 or more, it prints "You are an adult."
- Otherwise, it prints "You are not an adult."

### Python Example

```
age = 18
if age >= 18:
    print("You are an adult.")
else:
    print("You are not an adult.")
```

- The logic is the same as the Java example.
- Notice Python uses indentation instead of curly braces.

## While Loop

### What is it?

A **while** loop repeatedly executes a block of code as long as a specified condition is true.

### Java Example

```
int count = 1;
while (count <= 5) {
    System.out.println("Count is: " + count);
    count++;
}
```

- This prints numbers 1 to 5.
- The loop continues as long as count is less than or equal to 5.

### Python Example

```
count = 1
while count <= 5:
    print("Count is:", count)
    count += 1
```

- This also prints numbers 1 to 5.
- Python uses indentation for the loop/

#### In summary:

- Use **if-else** to make decisions in your code.
- Use **while** loops to repeat actions as long as a condition is true.
- Java uses curly braces **{}**; Python uses indentation.