

What are the arithmetic operators used in programming?

Arithmetic operators commonly used in programming:

- **Addition (+)** → Adds two values.
Example: $5 + 3 = 8$
 - **Subtraction (-)** → Subtracts one value from another.
Example: $10 - 4 = 6$
 - **Multiplication (*)** → Multiplies two values.
Example: $7 * 2 = 14$
 - **Division (/)** → Divides one value by another.
Example: $20 / 5 = 4$
 - **Modulus (%)** → Returns the remainder after division.
Example: $17 \% 5 = 2$ (since 17 divided by 5 is 3 with remainder 2)
 - **Increment (++)** → Increases a value by 1 (used in languages like C, Java, C++).
Example: $x++$ if $x = 5 \rightarrow x = 6$
 - **Decrement (--)** → Decreases a value by 1.
Example: $y--$ if $y = 8 \rightarrow y = 7$
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What are the arithmetic operators used in programming?

Comparison (relational) operators commonly used in programming:

- **Equal to (==)** → Checks if two values are equal.
Example: $5 == 5 \rightarrow \text{true}$
 - **Not equal to (!=)** → Checks if two values are not equal.
Example: $7 != 3 \rightarrow \text{true}$
 - **Greater than (>)** → Checks if the left value is larger than the right.
Example: $10 > 6 \rightarrow \text{true}$
 - **Less than (<)** → Checks if the left value is smaller than the right.
Example: $4 < 9 \rightarrow \text{true}$
 - **Greater than or equal to (>=)** → Checks if the left value is larger than or equal to the right.
Example: $4 >= 3 \rightarrow \text{true}$
 - **Less than or equal to (<=)** → Checks if the right value is larger than or equal to the left.
Example: $3 <= 3 \rightarrow \text{true}$
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What are the Boolean operators used in programming?

Boolean (logical) operators used in programming:

- **AND (&& or and)** → Returns true if **both** conditions are true.
Example: $(5 > 2) \ \&\& \ (10 > 3) \rightarrow \text{true}$
 - **OR (|| or or)** → Returns true if **at least one** condition is true.
Example: $(4 > 7) \ || \ (8 > 2) \rightarrow \text{true}$
 - **NOT (! or not)** → Reverses the Boolean value.
Example: $!(5 > 2) \rightarrow \text{false}$
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What is a selection statement in programming?

A **selection statement** is a programming construct that lets the program **choose** which block of code to execute based on a condition.

Some of the common types of selection statements are:

- **if** → Executes code if condition is true.
- **if-else** → Executes one block if true, another if false.
- **if-else if ladder** → Checks multiple conditions in sequence.
- **switch** → Selects one option from many based on a variable's value.

In short **Selection statements** are used as **decision making tools** that control the flow of a program.

Draw a flow chart for the following scenarios

- 1: Check if a number is positive
 - 2: Check if a student passed (Passing marks is 40 out of 100)
 - 3: Check if a number is even or odd
 - 4: Compare two numbers and say which one is greater
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