Operators in Java
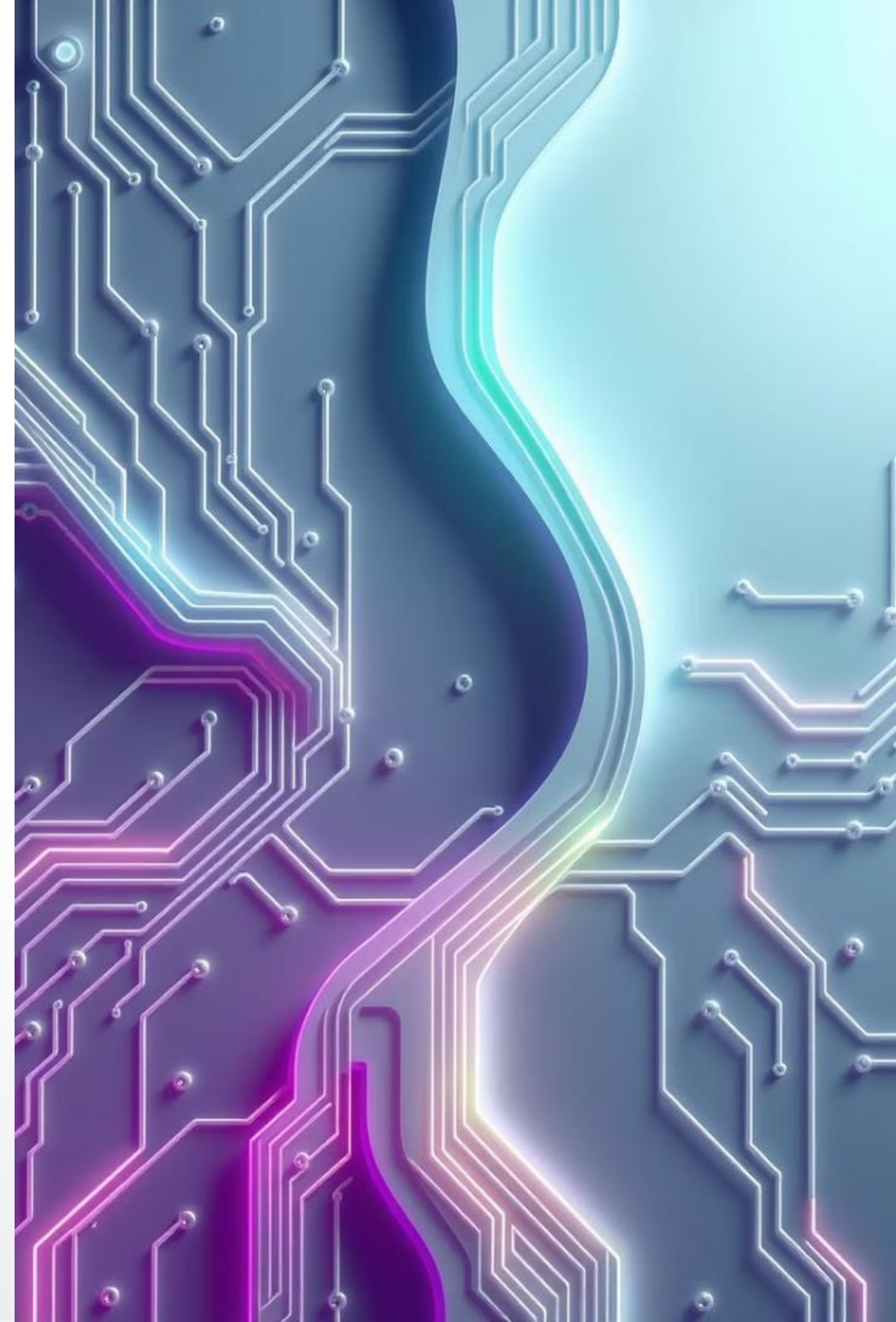
Explore the fundamental building blocks of Java programming

Road Map for Today

1. operation

2. operand

3. operators

4. Types of operators

5. Practical work

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Introduction to Operators

Symbols that perform operations on values and variables

Calculations

Arithmetic operators for basic math

Comparisons

Relational operators to compare values

Logic

Logical operators to combine boolean expressions

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Types of Operators

Java offers diverse operators for various purposes

1 Arithmetic Operators

Basic mathematical operations

2 Relational Operators

Compare values for equality, inequality, and more

3 Logical Operators

Combine boolean expressions using AND, OR, and NOT

4 comparison Operators

Comparing individual bits within data

5 Assignment Operators

Assign values to variables efficiently

6 Compound Operators

Compound of operations on

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Arithmetic Operators

Used for basic mathematical calculations

+	Addition
-	Subtraction
*	Multiplication
/	Division
%	Modulus (remainder)

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Arithmetic Operators Examples

Illustrative examples demonstrating arithmetic operator usage

Code

```
int a = 10; int b = 3; int sum = a + b; // sum = 13
int difference = a - b; // difference = 7 int
product = a * b; // product = 30 int quotient = a /
b; // quotient = 3
int remainder = a % b; // remainder = 1
```

Explanation

Variables declared with initial values.
Arithmetic operations performed and
results assigned to new variables.

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Relational Operators

Compare values for equality, inequality, and order

==	Equal to
!=	Not equal to
>	Greater than
<	Less than
>=	Greater than or equal to
<=	Less than or equal to

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Relational Operators Examples

Examples of using relational operators for comparisons

Code

```
int a = 5; int b = 10; boolean isEqual = (a
== b); // false boolean isNotEqual = (a !=
b); // true boolean isGreater = (a > b); //
false boolean isLess = (a < b); // true
```

Explanation

Comparisons between variables using relational operators, resulting in boolean values (true/false).

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Logical Operators

Combine multiple boolean expressions to form complex conditions

&&	AND
||	OR
!	NOT

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Logical Operators for AND

X	Y	X && Y
TRUE	FALSE	FALSE
FALSE	TRUE	FALSE
TRUE	TRUE	TRUE
FALSE	FALSE	FALSE

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Logical Operators for OR and NOT

A	B	A&&B (AND)	A||B (OR)	!A (NOT)
true	true	true	true	false
true	false	false	true	false
false	true	false	true	true
false	false	false	false	true

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Logical Operators Examples

Demonstrating the use of logical operators to combine conditions

Code

```
boolean a = true; boolean b = false; boolean
andResult = a && b; // false boolean orResult =
a || b; // true boolean notResult = !a; // false
```

Explanation

Boolean variables combined using AND, OR, and NOT, resulting in new boolean values.

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Compound Operators

Combine multiple opratsors expressions

+=	-=
*=	/=
%=	

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As a conclusion of this lesson

1. operation

2. operand

3. operators

4. Types of operators

5. Practical work

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Thanks!

Do you have any questions?
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