Boolean logic

Description

In Python (and in many programming languages), we can use these values:

```
true = True
false = False
```

Conditions (such as comparisons between numbers) return a boolean value:

```
print(5 > 3) # True
print(2 == 4) # False
```

Main logical operators

There are three fundamental logical operators in Boolean logic:

- **AND** (`and`): All conditions must be true
  Example: `True and False ? False`
- **OR** (`or`): At least one condition must be true
  Example: `True or False ? True`
- **NOT** (`not`): Reverses the value (true becomes false, and vice versa)
  Example: `not True ? False`

Practical examples

```
a = 5
b = 10

print(a > 0 and b < 20)    # True
```

```
print(a > 0 or b > 100)    # True
print(not (a > 3))         # False
```

Where is Boolean logic used?

- In programs, to make choices (if/else)
- In search engines, to combine keywords
- In electronic circuits, to turn components on or off
- In games, to decide what happens if a player wins or loses

Exercise

Try to say if these expressions are **True** or **False**:

```
7 > 3 and 2 == 2    ? _____
10 < 5 or 3 > 1     ? _____
not (4 <= 4)        ? _____
```

Category

1. Senza categoria

Tags

1. information_technology

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Author
lorenzo_wp