

Operator	Description	Example
>>	Right shift	5 >> 1 = 2

6. Identity Operators

Check whether two variables point to the same object.

Operator	Meaning	Example
is	True if same object	a is b
is not	True if different objects	a is not b

7. Membership Operators

Check if a value is in a sequence like list, tuple, or string.

Operator	Meaning	Example
in	True if value found	3 in
not in	True if value not found	4 not in

Expressions

An expression is a combination of variables, operators, and values that produces a result.

Example:

python

```
result = (5 + 3) * 2
print(result) # Output: 16
```

Conditional Statements in Python

Python uses conditional statements to perform different actions based on different conditions. These statements control the flow of a program by executing code blocks only when specified conditions are true.

1. if Statement

Executes a block of code if the condition is true.

Syntax:

```
python
```

```
if condition:  
    # code block to execute
```

Example:

```
python
```

```
age = 20  
if age >= 18:  
    print("Eligible to vote.")
```

Output:text

```
Eligible to vote.
```

2. if-else Statement

Specifies an alternative block of code to execute if the condition is false.

Syntax:

```
python
```

```
if condition:  
    # execute if condition is true  
else:  
    # execute if condition is false
```

Example:

```
python
```

```
age = 15  
if age >= 18:  
    print("Eligible to vote.")  
else:  
    print("Not eligible to vote.")
```

Output:text

```
Not eligible to vote.
```

3. if-elif-else Statement

Allows checking multiple conditions sequentially.

Syntax:

```
python
```

```
if condition1:  
    # execute if condition1 is true  
elif condition2:  
    # execute if condition2 is true  
else:
```

```
# execute if none of the above conditions are true
```

Example:

```
python
```

```
marks = 75
if marks >= 90:
    grade = "A"
elif marks >= 80:
    grade = "B"
elif marks >= 70:
    grade = "C"
else:
    grade = "F"
print(f"Grade: {grade}")
```

Output:text

```
Grade: C
```

4. Short Hand if

For executing a single statement when a condition is true, all on one line.

Example:

```
python
```

```
if age > 18: print("Adult")
```

5. Short Hand if-else (Ternary Operator)

Single-line conditional assignment or action.

Syntax:

```
python
```

```
value_if_true if condition else value_if_false
```

Example:

```
python
```

```
age = 20
status = "Adult" if age >= 18 else "Minor"
print(status)
```

Output:text

```
Adult
```

6. Match-Case Statement (Python 3.10+)

A more readable way to compare a variable against multiple values, similar to switch-case in other languages.

Example:

```
python
```

```
number = 2

match number:
    case 1:
        print("One")
    case 2 | 3:
```