

| 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:
```