Python Conditional Statements

Conditional statements in Python are used to execute specific code based on certain conditions.

1. if Statement

Executes a block of code if the condition is **True**.

Syntax:

```
if condition:
    # Code to execute if condition is True
```

Example:

```
age = 18
if age >= 18:
    print("You are eligible to vote.")
```

2. if-else Statement

Executes one block if the condition is **True** and another if it's **False**.

Syntax:

```
if condition:
    # Code to execute if condition is True
else:
    # Code to execute if condition is False
```

Example:

```
age = 16
if age >= 18:
    print("You can vote.")
else:
    print("You cannot vote.")
```

3. if-elif-else Statement

Used when there are multiple conditions to check.

Syntax:

```
if condition1:
    # Code if condition1 is True
elif condition2:
    # Code if condition2 is True
else:
    # Code if none of the above conditions are True
```

Example:

```
marks = 75
if marks >= 90:
    print("Grade: A")
elif marks >= 75:
    print("Grade: B")
else:
    print("Grade: C")
```

4. Nested if Statement

An **if** statement inside another **if** statement.

Syntax:

```
if condition1:
    if condition2:
        # Code if both conditions are True
```

Example:

```
age = 20
has_id = True
```

```
if age >= 18:
    if has_id:
        print("You can enter the club.")
    else:
        print("ID is required.")
else:
    print("You are underage.")
```

5. Short-Hand if (Ternary Operator)

A single-line if statement.

Syntax:

```
print(statement) if condition else print(statement)
```

Example:

```
num = 5
print("Positive") if num > 0 else print("Negative or Zero")
```

Conclusion

- **if** → Executes if condition is **True**
- **if-else** → Executes one block if **True**, another if **False**
- **if-elif-else** → Handles multiple conditions
- **Nested if** → Checks conditions inside another **if**
- **Short-hand if** → One-liner conditional statements