🐍Python Basics Course

Chapter: Conditional Statements

🐥1. Introduction to Conditional Statements

What is a Conditional Statement?

A **conditional statement** is used to **make decisions** in a program.

In simple words:

> Conditional statements allow a program to execute **different code** based on a **condition**.

Real-Life Example:

- If it rains → take umbrella
- If marks ≥ 40 → pass
- Else → fail

🐥2. `if` Statement

Definition:

The `if` statement executes a block of code **only if the condition is true**.

Syntax:

```
if condition:
    statement
```

📝**Important Notes:**

- Condition must return **True or False**
- Indentation (space) is mandatory in Python

Example 1: Simple `if`

```
age = 18
```

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

Example 2: Check Positive Number

```python
num = 5

if num > 0:
    print("Positive number")
```

🐥3. `if-else` Statement

Definition:

The `if-else` statement executes one block if condition is **true** and another block if condition is **false**.

Syntax:

```python
if condition:
    statement
else:
    statement
```

Example: Pass or Fail

```python
marks = 45

if marks >= 40:
    print("Pass")
else:
    print("Fail")
```

🐥4. Ternary Conditional Statement

Definition:

A **ternary conditional statement** is a **short form of if-else** written in a single line.

Syntax:

```
true_statement if condition else false_statement
```

Example:

```
age = 17
result = "Adult" if age >= 18 else "Minor"
print(result)
```

📝**Important Note:**

- Used for **simple conditions only**
- Makes code short and clean

🐥5. `if-elif-else` Statement

Definition:

The `if-elif-else` statement is used when there are **multiple conditions**.

Syntax:

```
if condition1:
    statement
elif condition2:
    statement
else:
    statement
```

Example: Grade System

```
marks = 75

if marks >= 80:
    print("Grade A")
elif marks >= 60:
    print("Grade B")
elif marks >= 40:
    print("Grade C")
else:
    print("Fail")
```

🐥6. Nested `if` Statement

Definition:

A **nested if statement** means using an `if` statement **inside another if statement**.

Syntax:

```
if condition1:
    if condition2:
        statement
```

Example: Eligibility Check

```
age = 20
citizen = True

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

📝**Explanation:**

- First `if` checks age
- Second `if` checks citizenship

🐥7. Common Comparison Operators Used

Operator	Meaning
`>`	Greater than
`<`	Less than
`>=`	Greater than or equal
`<=`	Less than or equal
`==`	Equal
`!=`	Not equal

🐥8. Complete Example Program

Program: Check Even or Odd

```
num = int(input("Enter a number: "))

if num % 2 == 0:
    print("Even number")
else:
    print("Odd number")
```

⭐Important Exam Notes

🔧 Conditional statements control program flow 🔧Indentation is compulsory in Python 🔧 `if` executes when condition is true 🔧 `elif` checks multiple conditions 🔧Ternary operator is short form of if-else 🔧Nested `if` contains another `if`

🍁9. Practice Programs (Exam Oriented)

✂️Write a program to check whether a number is positive or negative.

✒️Write a program to check whether a person is eligible to vote.

🛏️Write a program to find the largest of two numbers.

🌂Write a program to display grade based on marks.

🌡️ Write a program to check whether a number is divisible by 5.

🦦10. Practice Questions (Theory)

✂️Define conditional statement.

✒️Write syntax of `if` statement.

🛏️What is a ternary conditional statement?

🌂Differentiate between `if-else` and `if-elif-else`.

🌡️ What is nested `if` statement? Explain with example.

🌀Conclusion

In this chapter, students learned:

- Decision making using conditions
- Types of conditional statements
- Writing simple logical programs

Conditional statements are **very important** and form the **base of programming logic**.

🧱*Practice regularly to master decision making in Python!*