

# Python Conditional Statements – Detailed Notes

## 1. Introduction

Conditional statements allow us to make decisions in code based on certain conditions (True/False). They control program flow and work with boolean expressions.

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## 2. The if Statement

**Syntax:**

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

### Example 1: Simple Check

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

**Output:**

```
You are eligible to vote
```

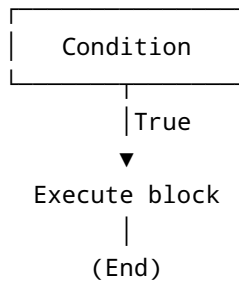
### Example 2: Using Variables

```
num = 10
if num > 0:
    print("Positive number")
```

**Output:**

```
Positive number
```

**Flow Diagram:**



### 3. The if-else Statement

**Syntax:**

```
if condition:
    # code if True
else:
    # code if False
```

#### Example 1: Voting Eligibility

```
age = 16
if age >= 18:
    print("Eligible to vote")
else:
    print("Not eligible to vote")
```

**Output:**

```
Not eligible to vote
```

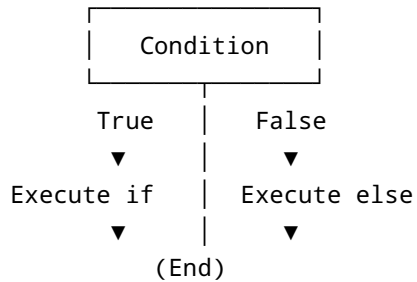
#### Example 2: Even/Odd Check

```
num = 7
if num % 2 == 0:
    print("Even")
else:
    print("Odd")
```

**Output:**

Odd

**Flow Diagram:**



#### 4. The if-elif-else Statement

**Syntax:**

```
if condition1:
    # block1
elif condition2:
    # block2
elif condition3:
    # block3
else:
    # default block
```

**Example 1: Grading System**

```
marks = 72
if marks >= 90:
    print("Grade A")
elif marks >= 75:
    print("Grade B")
elif marks >= 50:
    print("Grade C")
else:
    print("Fail")
```

**Output:**

Grade B

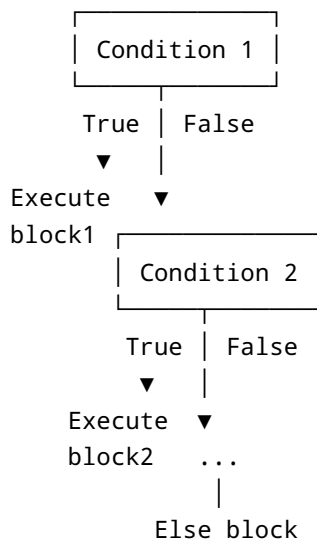
### Example 2: Ticket Pricing

```
age = 65
if age < 12:
    print("Ticket: ₹50")
elif age < 60:
    print("Ticket: ₹100")
else:
    print("Ticket: ₹70 (Senior Citizen Discount)")
```

#### Output:

Ticket: ₹70 (Senior Citizen Discount)

#### Flow Diagram:



## 5. Nested if Statements

#### Syntax:

```
if condition1:
    if condition2:
        # block when both are True
    else:
        # block when condition1 True, condition2 False
else:
    # block when condition1 False
```

### Example 1: Login System

```
username = "admin"
password = "1234"
if username == "admin":
    if password == "1234":
        print("Login Successful")
    else:
        print("Wrong Password")
else:
    print("Invalid Username")
```

#### Output:

Login Successful

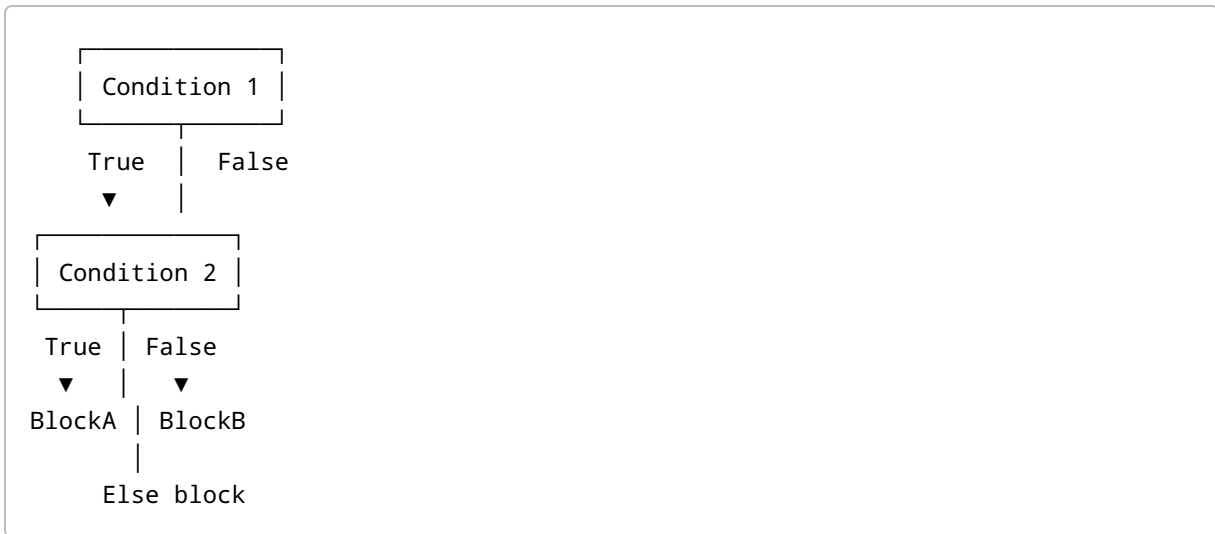
### Example 2: Shopping Discount

```
amount = 1200
is_member = True
if amount > 1000:
    if is_member:
        print("Discount: 20%")
    else:
        print("Discount: 10%")
else:
    print("No discount")
```

#### Output:

Discount: 20%

#### Flow Diagram:



## 6. Using Logical Operators in Conditions

### Example 1: Multiple Conditions with and

```
age = 25
citizen = "India"
if age >= 18 and citizen == "India":
    print("Eligible to vote in India")
else:
    print("Not Eligible")
```

**Output:**

```
Eligible to vote in India
```

### Example 2: Using or

```
day = "Sunday"
holiday = True
if day == "Sunday" or holiday:
    print("Holiday!")
else:
    print("Work day")
```

**Output:**

Holiday!

### Example 3: Using not

```
is_logged_in = False
if not is_logged_in:
    print("Please login first")
```

#### Output:

Please login first

## 7. Real-Life Scenarios

### ATM Withdrawal System

```
balance = 5000
withdraw = 2000
if withdraw <= balance:
    print("Transaction Successful")
    balance -= withdraw
    print("Remaining Balance:", balance)
else:
    print("Insufficient Balance")
```

### E-commerce Order Check

```
stock = 10
order = 5
if order <= stock:
    print("Order Placed")
else:
    print("Out of Stock")
```

### Movie Ticket Booking

```
age = 15
if age < 13:
```

```
    print("Not allowed for this movie")
elif age < 18:
    print("Allowed with parental guidance")
else:
    print("Allowed")
```

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## 8. Common Mistakes to Avoid

- ✗ Using = instead of == inside conditions
- ✗ Too many nested ifs → better to use elif
- ✗ Not covering the else case when needed