1. What is an `if-else` Statement?

Simple Definition:

Sometimes in life, you ask a question:

- **If I have money**, I'll order food.
- **Else**, I'll make Maggi.

When you want to choose between **two options** —
do one thing **if something is true**,
otherwise do something else —
you use `if-else`.

Real-Life Examples:

- **If it's raining**, take an umbrella,
  else go without it.
- **If you get 60+ marks**, you pass,
  else you fail.
- **If the door is locked**, use a key,
  else push it open.

In Python, this is written as:

```
if condition:
    # do this if condition is true
else:
    # do this if condition is false
```

Think of `if` as asking a **question**.
If the answer is **Yes/True**, do the first thing.
If the answer is **No/False**, do something else.

Code Example 1: Check Even or Odd

```
num = 7

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

What's happening?

- `num % 2 == 0` checks if the number is divisible by 2.
- If True → It's Even
- Else → It's Odd

Code Example 2: Age Check

```
age = 16

if age >= 18:
    print("You are an adult.")
else:
    print("You are a minor.")
```

Think like:

- *If age is 18 or more → say adult*

- *Otherwise → say minor*

Code Example 3: Secret Login

```
password = input("Enter your password: ")

if password == "1234":
    print("Login Successful!")
else:
    print("Wrong Password")
```

Code Example 4: Big or Small Number

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

if number > 100:
    print("Big number")
else:
    print("Small number")
```

Practice Questions (Use `if-else`):

1. Take a number.
   If it's divisible by 10, print `"Nice round number"`
   Else, print `"Not a round number"`

2. Ask the user their city name.
   If it's `"Delhi"`, print `"Capital City"`
   Else, print `"Some Other City"`

3. Input marks.
   If marks are 50 or above, print `"Pass"`

Else, print `"Fail"`

4. Ask for two numbers.
   If the first number is bigger, print `"First is bigger"`
   Else, print `"Second is bigger or both are equal"`

Example 1: Battery Check (for phone addicts 😄)

```
battery = 15

if battery < 20:
    print("Plug in your charger!")
else:
    print("You're good for now.")
```

Explanation:
If battery is less than 20%, remind to charge.

Example 2: College Entry Check

```
id_card = input("Do you have your college ID? (yes/no): ")

if id_card.lower() == "yes":
    print("Welcome to campus!")
else:
    print("Sorry, entry denied.")
```

Explanation:
Campus gate checks ID. If you don't have it — no entry.

Example 3: Food Ordering App

```
balance = 150
food_price = 120

if balance >= food_price:
    print("Order placed successfully 🍕")
else:
    print("Low balance! Add money to wallet.")
```

Example 4: Grade Result System

```
marks = int(input("Enter your marks: "))

if marks >= 40:
    print("Congrats! You passed 🎉")
else:
    print("Sorry! You failed 😔")
```

Example 5: Instagram Followers Brag 😎

```
followers = 1200

if followers >= 1000:
    print("You're an influencer now! 📱")
else:
    print("Keep going, you'll get there!")
```

Netflix Check

```
password = input("Enter your Netflix password: ")
if password == "net123":
```

```
    print("Enjoy your show 🎬")
else:
    print("Wrong password, try again!")
```

College Event Pass

```
has_pass = input("Do you have the event pass? (yes/no): ")
if has_pass == "yes":
    print("Welcome to the DJ Night! 🎉")
else:
    print("Sorry, entry only for pass holders.")
```

Late for class check

```
time = int(input("Enter current time (24hr format): "))

if time > 9:
    print("You are late for class ⏰")
else:
    print("You're on time, good job!")
```

Mobile Data Alert

```
data = int(input("Enter data left in MB: "))
if data < 500:
    print("Low data! Stop watching reels 📵")
else:
    print("Scroll all you want 😁")
```

1. What is `if-elif-else`?

Simple Definition:

When you have **more than two choices**, you use `if-elif-else`.

Think of it like a **menu with options**:

- If you're hungry → eat
- **Elif** you're sleepy → take a nap
- **Elif** you're bored → scroll Instagram
- Else → just chill

Syntax:

```
if condition1:
    # runs if condition1 is true
elif condition2:
    # runs if condition2 is true
elif condition3:
    # runs if condition3 is true
...
else:
    # runs if none are true
```

📌 `elif` stands for **"else if"**
📌 You can have as **many `elif` blocks** as needed
📌 `else` is optional, used if **none match**

Example 1: Grading System

```
marks = int(input("Enter your marks: "))

if marks >= 90:
    print("Grade: A 🏆")
elif marks >= 75:
    print("Grade: B 🎖️")
elif marks >= 60:
    print("Grade: C 👍")
elif marks >= 40:
    print("Grade: D 👌")
else:
    print("Fail 😢")
```

Example 2: Movie Ticket Pricing

```
age = int(input("Enter your age: "))

if age < 12:
    print("Ticket Price: ₹100 (Child)")
elif age <= 18:
    print("Ticket Price: ₹150 (Teen)")
elif age <= 60:
    print("Ticket Price: ₹200 (Adult)")
else:
    print("Ticket Price: ₹120 (Senior Citizen)")
```

Example 3: Mobile Notification System

```
battery = int(input("Enter battery percentage: "))

if battery >= 80:
    print("Battery full 🔋")
```

```
elif battery >= 50:
    print("Battery okay 👍")
elif battery >= 20:
    print("Battery low ⚠️")
else:
    print("Plug in charger now! 🚨")
```

Example 4: Daily Mood Selector 😄

```
mood = input("How are you feeling today? ")

if mood == "happy":
    print("Keep smiling! 😄")
elif mood == "sad":
    print("It's okay to feel sad. ❤️")
elif mood == "angry":
    print("Take deep breaths. 🧘")
else:
    print("Whatever you feel, we're here for you! 💙")
```

Fun Practice Questions for College Students

1. **Canteen Menu**
   Ask for a number (1–3):
   - 1 → "You selected Pizza"
   - 2 → "You selected Burger"
   - 3 → "You selected Pasta"
   - Else → "Invalid choice"
2. **Exam Marks Checker**

Input marks:

- 90+ → “Topper”
- 70–89 → “Good job”
- 50–69 → “Average”
- 40–49 → “Barely Passed”
- Below 40 → “Fail”

3. **College Entry Based on Day**

Ask the day:

- If Monday → "Lecture day"
- If Friday → "Fun Day!"
- If Sunday → "Holiday"
- Else → "Normal day"

4. **Temperature Advice**

Input temperature:

- 35+ → "Too hot, stay indoors"
- 25–34 → "Pleasant weather"
- 15–24 → "Cool breeze"

- <15 → "It's cold! Wear a jacket"

Why use `if-elif-else`?

- When you want your program to **choose only one option from many**
- It's **cleaner** than writing many `if` statements one after another

1. What is a Nested `if`?

Simple Definition:

A **nested `if`** means putting one `if` statement **inside another `if`**.

Think of it like:

> "If this is true, then let's check something else."

Real-Life Example:

- If you go to college:
  → Then if it's Monday:
  → Then you have a lecture

🧠 So we're checking:

1. Did you go to college?
2. Is it Monday?
3. Then show lecture info.

Syntax:

```
if condition1:
    if condition2:
        # this runs if both are True
    else:
        #this runs if only condition1 is True, but condition2 is False
else:
    # runs if condition1 is False
```

Example 1: College and Attendance

```
is_present = True
has_id = True

if is_present:
    if has_id:
```

```
        print("You are marked present ✅")
    else:
        print("Bring your ID card next time ❗")
else:
    print("You are absent ❌")
```

Explanation:

- First, check if student is present
- Then, check if they have an ID card

Example 2: Mobile Access Check

```
username = input("Enter username: ")
password = input("Enter password: ")

if username == "student":
    if password == "1234":
        print("Login Successful ✅")
    else:
        print("Wrong password ❌")
else:
    print("Unknown user ❌")
```

Example 3: Event Entry

```
age = int(input("Enter your age: "))
has_pass = input("Do you have the event pass? (yes/no): ")

if age >= 18:
    if has_pass == "yes":
        print("Enjoy the party 🎉")
```

```
    else:
        print("Pass required to enter ❌")
else:
    print("Sorry, 18+ only event 🚫")
```

Practice Questions

1. **Exam Check**
    - If marks ≥ 40
      → If marks ≥ 90 → Print “Topper”
      → Else → Print “Passed”
    - Else → Print “Failed”
2. **Student Login System**
    - If username is `"admin"`
      → If password is `"letmein"` → Print “Welcome Admin”
      → Else → Print “Incorrect password”
    - Else → Print “Access denied”
3. **Shopping Discount**
    - If purchase amount > 500
      → If it's your birthday → Extra 10% discount
      → Else → Normal 5% discount
    - Else → No discount
4. **Library Book Issuing**
    - If student is registered
      → If they have no pending fines → Allow book issue
      → Else → Block until fine paid
    - Else → Ask to register