📘 Context A to Z – Simple, Fun & Deep

🧑‍💻 *By: Hammad Bhai x GPT — Code Kings 👑*

🎬 Chapter List

1. **🍔 Context ka Buniyadi Taaruf**
2. **📱 Simple Analogy: Chat App**
3. **❌ Teen Levels of Context**
4. **🐍 Python Example (Beginner Friendly)**
5. **⚡ Advanced Tip (Pro Devs ke Liye)**
6. **🎉 Fun Q\&A**
7. **🏁 Summary & Next Steps**

1️⃣ 🍔 Context ka Buniyadi Taaruf

* **What?**

  > Context = "Wo pehle ki baatein jo AI ko yaad rehni chahiye, taa ke agli baat relevant ho."

* **Why?**

  * Bina context: AI har baar poochay "Kaun ho?", "Kya kaha?"
  * Context se: AI "Oh haan, main janta hoon!"

2️⃣ 📱 Simple Analogy: Chat App

1. **Tum:** "Hi, main Hammad hoon."
2. **AI:** "Hello Hammad!"
3. **Tum (2 min baad):** "Main Karachi se hoon."
4. **AI:** Agar yaad rakhega, bolega "Karachi kia scene hai?"

   * **Nahi yaad**: "Karachi koun si cheez?" 🙄

> **Context** = WhatsApp chat history—pehli lines scroll karke dekhna.

3️⃣ ❌ Teen Levels of Context

Level	Kya Rakhta?	Example
Basic	Sirf pehla message	"User: Hello"
Session	Pichhle 3–5 messages	"User: Hi" → "AI: Hello" → "User: Bye"
Persistent	User profile, preferences (DB me)	"User likes cricket" stored for next week

* **Newbie**: Basic ya Session context kaafi hai.
* **Pro**: Persistent context + summaries use karo.

4️⃣ 🐍 Python Example (Beginner Friendly)

```python
# Simple in-memory context
history = []

def chat(user_text):
    history.append({"role": "user", "content": user_text})
    # AI uses 'history' to reply
    reply = f"(AI replies based on {len(history)} messages)"
    history.append({"role": "assistant", "content": reply})
    print(reply)

# Usage
chat("Hey, I'm Hammad.")
chat("I love pizza.")
chat("What do you know about me?")
```

* `history` me sari baatein store hoti hain—AI isko prompt me bhejta hai.

5️⃣ ⚡ Advanced Tip (Pro Devs ke Liye)

1. **Sliding Window:**

   * Last N messages hi bhejo:

     ```python
     window = history[-5:]
     ```
2. **Summaries:**

   * Purane history ka short summary banao, fir send karo.
3. **Memory Store:**

   * "User likes cricket" ko DB me store karo, har session load karo.

6️⃣ 🎊 Fun Q\&A

* **Q:** Agar history bohot badi ho jaye?
  A: Summarize kardo ya oldest messages delete karo.

* **Q:** Agar user ne password bhej diya?
  A: Mask it! Guardrail lagao—context se remove karo.

* **Q:** Kaise debug karein?
  A:

  ```python
  print("=== CONTEXT ===")
  for msg in history:
      print(msg)
  ```