🧪 EXPERIMENT 6 — UDP Socket Programming

Aim:
Write a program using **UDP sockets** to transfer files (text, audio, video, etc.) between two machines.

Objectives:

1. Understand working of UDP sockets.
2. Study different methods associated with Client & Server UDP sockets.

Theory (Summary):

- **UDP (User Datagram Protocol):**
    - Connectionless and unreliable transport protocol.
    - No error checking or acknowledgment — focused on **speed**.
- **Use cases:** streaming audio/video, real-time gaming.
- **UDP Header:** 8 bytes only (faster than TCP).
- **Server Process:** uses socket(), bind(), recvfrom().
- **Client Process:** uses socket(), sendto().

Why UDP is faster than TCP:

- No handshake, no flow control, no retransmission.

Applications:

- Online games, live video/audio streaming, VoIP.

Conclusion:
UDP socket communication performed successfully; file transfer achieved.

🔹 Oral / Viva Questions and Answers

1. **What is UDP?**
   ➤ UDP (User Datagram Protocol) is a connectionless protocol used for fast data transfer.
2. **Difference between TCP and UDP?**
   ➤ TCP is reliable and ordered; UDP is faster but unreliable.
3. **Why is UDP faster?**
   ➤ It doesn't perform acknowledgment, flow control, or retransmission.
4. **Which socket type is used for UDP?**
   ➤ Datagram socket (SOCK_DGRAM).
5. **Can multiple clients connect to same UDP socket?**
   ➤ Yes, because UDP is connectionless; the server identifies clients by IP/port.

6. **On which OSI layer does UDP work?**
   ➤ Transport layer.