Tally Code Brewers 2024
References:

- https://www.researchgate.net/publication/253121932_XGet_a_highly_scalable_and_efficient_file_transfer_tool_for_clusters
  In this research paper, we got an overall understanding of the different network file transfer techniques and also understand which approach would be helpful for us to implement.
- ▶ **Python Socket Programming Tutorial**

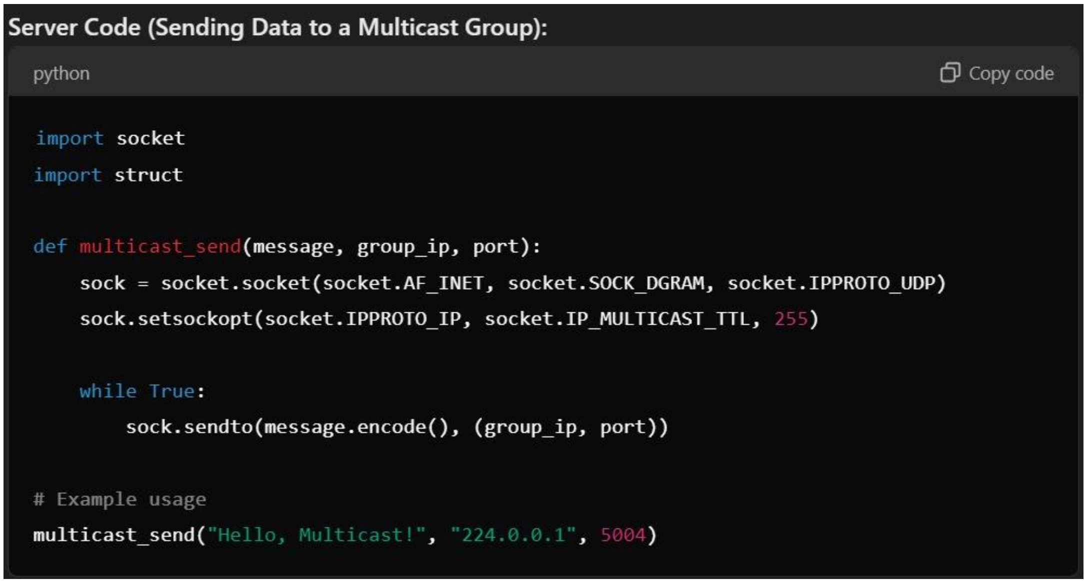
- ▶ **How to create a simple file transfer program using python**
  We understood how basic socket can be made for simple file transfers and connect multiple clients.
- ▶ **✔️ Windows 11 - How to Share Files, Folders & Drives Between Computers Over …**

- ▶ **WHATSAPP System Design: Chat Messaging Systems for Interviews**

- https://pypi.org/project/multicast_expert/
  We reviewed for using library packages to incorporate multicasting for file sharing

- https://www.linkedin.com/pulse/how-connect-two-computers-wirelessly-step-inderjeet-singh/

Gpt References for basic idea:



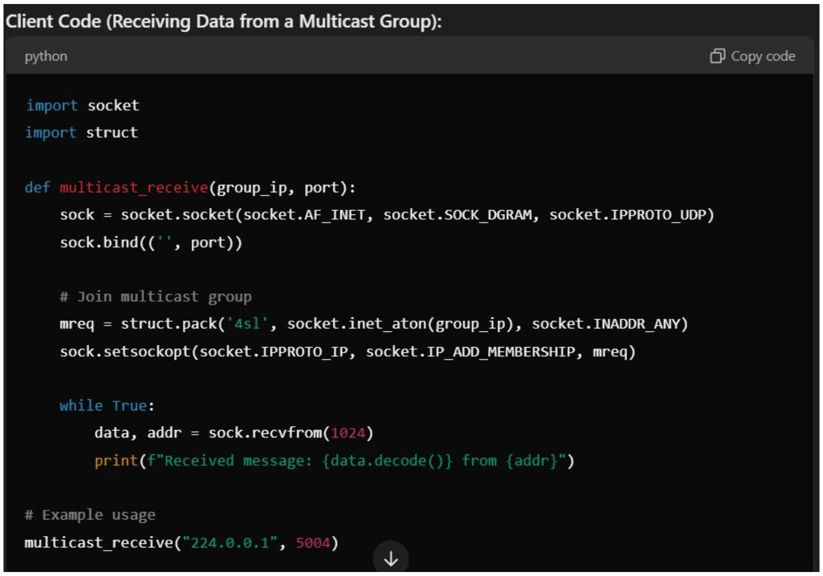
Server Code (Sending Data to a Multicast Group):

```python
import socket
import struct

def multicast_send(message, group_ip, port):
    sock = socket.socket(socket.AF_INET, socket.SOCK_DGRAM, socket.IPPROTO_UDP)
    sock.setsockopt(socket.IPPROTO_IP, socket.IP_MULTICAST_TTL, 255)

    while True:
        sock.sendto(message.encode(), (group_ip, port))

# Example usage
multicast_send("Hello, Multicast!", "224.0.0.1", 5004)
```



Client Code (Receiving Data from a Multicast Group):

```python
import socket
import struct

def multicast_receive(group_ip, port):
    sock = socket.socket(socket.AF_INET, socket.SOCK_DGRAM, socket.IPPROTO_UDP)
    sock.bind(('', port))

    # Join multicast group
    mreq = struct.pack('4sl', socket.inet_aton(group_ip), socket.INADDR_ANY)
    sock.setsockopt(socket.IPPROTO_IP, socket.IP_ADD_MEMBERSHIP, mreq)

    while True:
        data, addr = sock.recvfrom(1024)
        print(f"Received message: {data.decode()} from {addr}")

# Example usage
multicast_receive("224.0.0.1", 5004)
```