

```
import socket
import random

def server():
    s = socket.socket()
    s.bind(('127.0.0.1', 5001))

    s.listen(1)
    conn, _ = s.accept()

    while True:
        data = conn.recv(1024).decode()

        if not data:
            break

        print(f"received: {data}")

        if random.choice([True, True, False]):
            conn.send("ACK".encode())
            print("ACK sent")
        else:
            print("ACK dropped")

    conn.close()

if __name__ == '__main__':
    server()
```

```

import socket
import time

def client():
    s = socket.socket()
    s.connect(('127.0.0.1', 5001))
    s.settimeout(1)
    messages = ["1", "2", "3", "4"]

    for message in messages:
        sent = False

        while not sent:
            try:
                print(f"sending: {message}")
                s.send(message.encode())

                ack = s.recv(1024).decode()

                if ack == "ACK":
                    print(f"received: {ack}")
                    sent = True
                else:
                    print("resending")

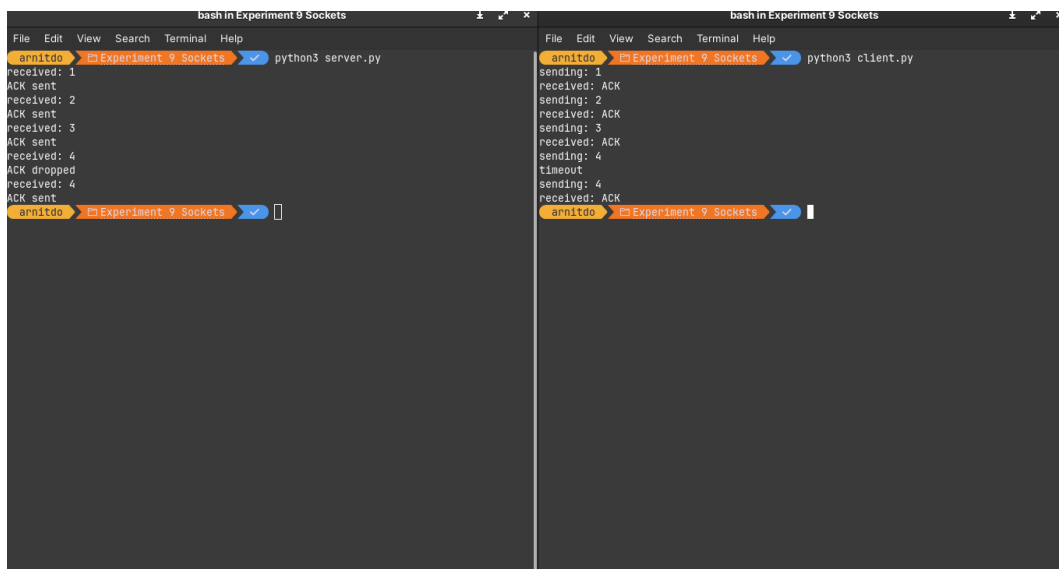
            except socket.timeout:
                print(f"timeout")

        time.sleep(1)

    s.close()

if __name__ == '__main__':
    client()

```



The image shows two terminal windows side-by-side, both titled "bash in Experiment 9 Sockets".

The left terminal window is running `python3 server.py`. Its output is as follows:

```

received: 1
ACK sent
received: 2
ACK sent
received: 3
ACK sent
received: 4
ACK dropped
received: 4
ACK sent

```

The right terminal window is running `python3 client.py`. Its output is as follows:

```

sending: 1
received: ACK
sending: 2
received: ACK
sending: 3
received: ACK
sending: 4
timeout
sending: 4
received: ACK

```