

## Sample Run:

### Shows:

- Certain packets were corrupted and your protocol was able to recover from it
- Certain packets were lost and your protocol was able to recover from it
- Certain packets were reordered and your protocol was able to recover from it
- Protocol successfully wrote and read a file from a remote server

```
"C:\Users\Kyle\PycharmProjects\Comms HW3\.venv\Scripts\python.exe" "C:\Users\Kyle\PycharmProjects\Comms HW3\rftp\launcher.py"
```

```
Please enter the file you want to upload: bf2024.jpg
```

```
Please enter the output file name (e.g., 'output.jpg'): bfouttest.jpg
```

```
Sender: Sent packet 0 to Network Simulator
```

```
Network Simulator: Packet lost!
```

```
Sender: Sent packet 1 to Network Simulator
```

```
Network Simulator: Forwarded packet to receiver at ('localhost', 9998)
```

```
Network Simulator: Forwarded packet back to sender at ('127.0.0.1', 9997)
```

```
Receiver: Out of order packet 1, buffering...
```

```
Network Simulator: Forwarded packet to receiver at ('localhost', 9998)
```

```
Receiver: Received corrupted packet, ignoring...
```

```
Network Simulator: Forwarded packet back to sender at ('127.0.0.1', 9998)
```

```
Receiver: Received corrupted packet, ignoring...
```

```
Sender: Sent packet 2 to Network Simulator
```

```
Network Simulator: Forwarded packet to receiver at ('localhost', 9998)
```

```
Network Simulator: Forwarded packet back to sender at ('127.0.0.1', 9997)
```

```
Receiver: Out of order packet 2, buffering...
```

```
Network Simulator: Forwarded packet to receiver at ('localhost', 9998)Receiver: Received corrupted packet, ignoring...
```

```
Network Simulator: Forwarded packet back to sender at ('127.0.0.1', 9998)
```

```
Receiver: Received corrupted packet, ignoring...
```

```
Sender: Sent packet 3 to Network Simulator
```

```
Network Simulator: Forwarded packet to receiver at ('localhost', 9998)
```

```
Network Simulator: Forwarded packet back to sender at ('127.0.0.1', 9997)
```

```
Receiver: Out of order packet 3, buffering...
```

```
Network Simulator: Forwarded packet to receiver at ('localhost', 9998)
```

```
Receiver: Received corrupted packet, ignoring...
```

```
Network Simulator: Forwarded packet back to sender at ('127.0.0.1', 9998)
```

```
Receiver: Received corrupted packet, ignoring...
```

```
Sender: Received ACK for 1
```

```
Sender: Timeout for packet 0, retransmitting...Sender: Received ACK for 2
```

```
Sender: Received ACK for 3
```

```
Network Simulator: Packet lost!
```

```
Sender: Timeout for packet 0, retransmitting...
```

```
Network Simulator: Forwarded packet to receiver at ('localhost', 9998)
```

```
Network Simulator: Forwarded packet back to sender at ('127.0.0.1', 9997)
```

```
Receiver: Received packet 0, delivering...
```

```
Receiver: Delivering buffered packet 1
```

```
Receiver: Delivering buffered packet 2
```

```
Receiver: Delivering buffered packet 3
```

```
Sender: Received ACK for 0
```

```
Sender: Sent packet 4 to Network Simulator
```

```
Network Simulator: Packet reordered!
```

```
Network Simulator: Forwarded packet to receiver at ('localhost', 9998)
```

```
Network Simulator: Forwarded packet back to sender at ('127.0.0.1', 9998)
```

```
Receiver: Received corrupted packet, ignoring...Network Simulator: Packet lost!
```

```
Receiver: Received corrupted packet, ignoring...
```

```
Sender: Sent packet 5 to Network Simulator
```

```
Network Simulator: Forwarded packet to receiver at ('localhost', 9998)
```

```
Receiver: Out of order packet 5, buffering...
```

```
Network Simulator: Forwarded packet back to sender at ('127.0.0.1', 9997)
```

```
Network Simulator: Forwarded packet to receiver at ('localhost', 9998)Receiver: Received corrupted packet, ignoring...
```

```
Receiver: Received corrupted packet, ignoring...Network Simulator: Forwarded packet back to sender at ('127.0.0.1', 9998)
```

```
Sender: Sent packet 6 to Network Simulator
```

```
Network Simulator: Forwarded packet to receiver at ('localhost', 9998)
```

Network Simulator: Forwarded packet back to sender at ('127.0.0.1', 9997)Receiver: Out of order packet 6, buffering...

Network Simulator: Packet corrupted!

Network Simulator: Forwarded packet to receiver at ('localhost', 9998)

Receiver: Received corrupted packet, ignoring...

Network Simulator: Forwarded packet back to sender at ('127.0.0.1', 9998)

Receiver: Received corrupted packet, ignoring...

Sender: Sent packet 7 to Network Simulator

Network Simulator: Forwarded packet to receiver at ('localhost', 9998)

Network Simulator: Forwarded packet back to sender at ('127.0.0.1', 9997)

Receiver: Out of order packet 7, buffering...

Network Simulator: Forwarded packet to receiver at ('localhost', 9998)Receiver: Received corrupted packet, ignoring...

Network Simulator: Forwarded packet back to sender at ('127.0.0.1', 9998)

Receiver: Received corrupted packet, ignoring...

Sender: Timeout for packet 4, retransmitting...Sender: Received ACK for 5

Sender: Received ACK for 6

Sender: Received ACK for 7

Network Simulator: Forwarded packet to receiver at ('localhost', 9998)

Network Simulator: Forwarded packet back to sender at ('127.0.0.1', 9997)

Receiver: Received packet 4, delivering...

Receiver: Delivering buffered packet 5

Receiver: Delivering buffered packet 6

Receiver: Delivering buffered packet 7

Network Simulator: Forwarded packet to receiver at ('localhost', 9998)

Receiver: Received corrupted packet, ignoring...

Network Simulator: Forwarded packet back to sender at ('127.0.0.1', 9998)

Receiver: Received corrupted packet, ignoring...

Sender: Received ACK for 4

Sender: Sent packet 8 to Network Simulator

Network Simulator: Packet corrupted!

Network Simulator: Forwarded packet to receiver at ('localhost', 9998)

Receiver: Out of order packet 4278190088, buffering...

Network Simulator: Forwarded packet back to sender at ('127.0.0.1', 9997)

Network Simulator: Forwarded packet to receiver at ('localhost', 9998)

Receiver: Received corrupted packet, ignoring...

Network Simulator: Forwarded packet back to sender at ('127.0.0.1', 9998)

Receiver: Received corrupted packet, ignoring...

Sender: Timeout for packet 8, retransmitting...

Network Simulator: Forwarded packet to receiver at ('localhost', 9998)

Network Simulator: Forwarded packet back to sender at ('127.0.0.1', 9997)

Receiver: Received packet 8, delivering...

Network Simulator: Forwarded packet to receiver at ('localhost', 9998)

Receiver: Received corrupted packet, ignoring...

Network Simulator: Forwarded packet back to sender at ('127.0.0.1', 9998)

Receiver: Received corrupted packet, ignoring...

Sender: Received ACK for 8

Sender: Sent end-of-transmission signal to Network Simulator

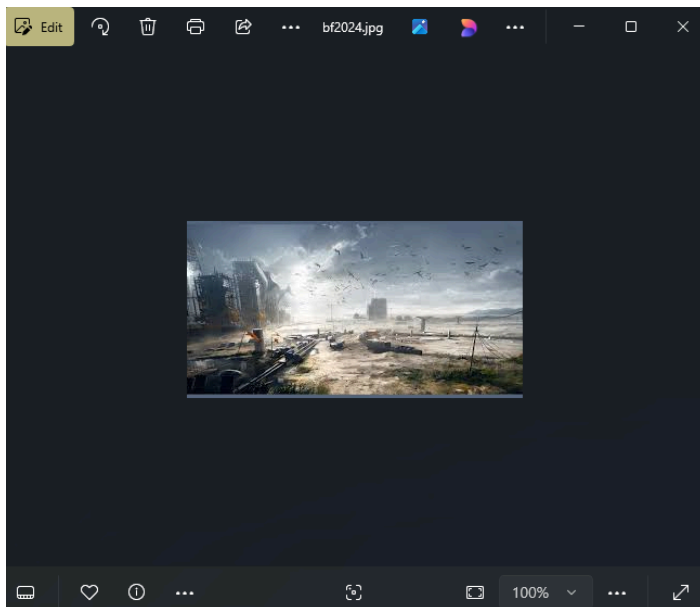
Network Simulator: Forwarded packet to receiver at ('localhost', 9998)Receiver: All packets received. Writing file to disk.

Network Simulator: Forwarded packet back to sender at ('127.0.0.1', 9997)

File transfer complete.

Process finished with exit code 0

### Original File:



### File Written to Server:

