```
nport socket
import sys
host = ''
port = 8888
try:
        s = socket.socket(socket.AF INET, socket.SOCK DGRAM)
        print('Socket created')
except socket.error, msg:
        print('failed to create socket. Error code: ' + str(msg[0]) + ' message ' + msg[1])
        sys.exit()
try:
        s.bind((host, port))
except socket.error, msg:
        print('bind failed. error code: ' + str(msg[0]) + ' message ' + msg[1])
print('Socket bind complete')
while True:
        d = s.recvfrom(1024)
        data = d[0]
        addr = d[1]
        if not data:
                break
        reply = 'OK...' + data
        s.sendto(reply, addr)
        print('Message[' + addr[0] + ':' + str(addr[1]) + '] - ' + data.strip())
s.close()
mininet@mininet-vm:~/5$ netcat -vv localhost 8888 -u\
```

```
mininet@mininet-vm:~/5$ netcat -vv localhost 8888 -u\
> Connection to localhost 8888 port [udp/*] succeeded!
OK...XOK...XOK...XOK...XOK...X

Message[127.0.0.1:36511] - X
```

## Scenario 1

```
Q / ▷ /mnt/c/users/scott/0/De/F/16/5 / gt 🎖 main !1
                                                                Q / ▷ /mnt/c/users/scott/OneDrive/Desktop/Fall 2022/164/5 / ght 🎖 main !1
   python3 client.py
                                                                python3 server.py
Enter message to send. Press enter to exit: message 1
                                                             Socket created
Message[Client] -
                                                             Socket bind complete
                        Packet: 0, message 1, ÷F
                                                             Message[44745 to 127.0.0.1] -
                        Data: message 1
                                                                                      Packet: 0, message 1, ÷F
                        Ack: 0
                                                                                      Data: message 1
Message[Server] -
                                                                                      Seq: 0
                                                             Message[127.0.0.1 to 44745] -
                        Packet: 0,0K...message 1,
                        Data: OK...message 1
                                                                                      Packet: 0,0K...message 1,
                        Ack: 0
                                                                                      Data: OK...message 1
Enter message to send. Press enter to exit: hello world
                                                                                      Ack: 0
Message[Client] -
                                                             Message[44745 to 127.0.0.1] -
                        Packet: 1,hello world,<Ù
                                                                                      Packet: 1,hello world,<Ù
                        Data: hello world
                                                                                      Data: hello world
                        Ack: 1
Message[Server] -
                                                             Message[127.0.0.1 to 44745] -
                        Packet: 1,0K...hello world,(È
                                                                                      Packet: 1,0K...hello world,(È
                        Data: OK...hello world
                                                                                      Data: OK...hello world
                        Ack: 1
                                                                                      Ack: 1
Enter message to send. Press enter to exit: message 3
                                                             Message[44745 to 127.0.0.1] -
Message[Client] -
                                                                                      Packet: 0, message 3, õF
                        Packet: 0, message 3, õF
                                                                                      Data: message 3
                        Data: message 3
                                                                                      Seq: 0
                        Ack: 0
                                                             Message[127.0.0.1 to 44745] -
Message[Server] -
                                                                                      Packet: 0,0K...message 3,
                                                                                      Data: OK...message 3
                        Packet: 0,0K...message 3,
                        Data: OK...message 3
                                                                                      Ack: 0
                        Ack: 0
Enter message to send. Press enter to exit:
```

## Scenario 2

```
♥ / mnt/c/users/scott/OneDrive/Desktop/Fall 2022/164/5 / git 
P main !1

  Q / ▷ /mnt/c/users/scott/0/De/F/16/5 / git $2 main !1
  python3 client.py
                                                                python3 server.py
Enter message to send. Press enter to exit: message 1
                                                             Socket created
Message[Client] -
                                                             Socket bind complete
                                                             Message[53227 to 127.0.0.1] -
                        Packet: 0, message 1, ÷F
                        Data: message 1
                                                                                      Packet: 0, message 1, ÷F
                        Ack: 0
                                                                                      Data: message 1
Message[Server] -
                                                                                      Seq: 0
                        Packet: 0,0K...message 1,
                                                             Message[127.0.0.1 to 53227] -
                        Data: OK...message 1
                                                                                      Packet: 0,0K...message 1,
                        Ack: 0
                                                                                      Data: OK...message 1
Enter message to send. Press enter to exit: hello world
                                                                                      Ack: 0
Message[Client] -
                                                             Message[53227 to 127.0.0.1] -
                        Packet: 1,hello world,<Ù
                                                                                      Packet: 1,hello world,<Ùl
                        Data: hello world
                                                                                      Data: hello world
                        Ack: 1
                                                                                      Sea: 1
DEMO PART 2: PACKET LOSS
                                                             Message[53227 to 127.0.0.1] -
Corrupting packet 1, hello world, < U...
                                                                                      Packet: 1,hello world,<Ù
Timeout reached for packet "1, hello world, <Ù". resending.
                                                                                      Data: hello world
                                                                                      Sea: 1
Message[Server] -
                                                             Message[127.0.0.1 to 53227] -
                        Packet: 1,0K...hello world,(È
                                                                                      Packet: 1,0K...hello world,(È
                        Data: OK...hello world
                                                                                      Data: OK...hello world
                                                                                      Ack: 1
                        Ack: 1
Enter message to send. Press enter to exit: hello world
                                                             Message[53227 to 127.0.0.1] -
Message[Client] -
                                                                                      Packet: 0, hello world, =Ù
                                                                                      Data: hello world
                        Packet: 0.hello world.=Ù
                        Data: hello world
                                                                                      Sea: 0
                        Ack: 0
                                                             Message[127.0.0.1 to 53227] -
Message[Server] -
                                                                                      Packet: 0,0K...hello world,)È
                                                                                      Data: OK...hello world
                        Packet: 0,0K...hello world,)È
                        Data: OK...hello world
                                                                                      Ack: 0
                        Ack: 0
                                                             Message[53227 to 127.0.0.1] -
Enter message to send. Press enter to exit: helo world
                                                                                      Packet: 1,helo world,Ѱl
Message[Client] -
                                                                                      Data: helo world
                        Packet: 1,helo world,Ѱ
                                                                                      Sea: 1
                        Data: helo world
                                                             Message[53227 to 127.0.0.1] -
                        Ack: 1
                                                                                      Packet: 1.helo world.Ѱl
DEMO PART 2: PACKET LOSS
                                                                                      Data: helo world
Corrupting packet 1, helo world, No...
                                                                                      Seq: 1
Timeout reached for packet "1,helo world,Ño". resending..
                                                             Message[53227 to 127.0.0.1] -
                                                                                      Packet: 1, helo world, No
Corrupting packet 1, helo world, N°...
                                                                                      Data: helo world
Timeout reached for packet "1,helo world,Ño". resending..
                                                                                      Sea: 1
                                                             Message[127.0.0.1 to 53227] -
Message[Server] -
                                                                                      Packet: 1,0K...helo world,]
                        Packet: 1,0K...helo world,]
                                                                                      Data: OK...helo world
                        Data: OK...helo world
                                                                                      Ack: 1
                        Ack: 1
Enter message to send. Press enter to exit:
```

## Scenario 3

```
Q / ▷ /mnt/c/users/scott/OneDrive/Desktop/Fall 2022/164/5 / st ? main !1
   Q / ▷ /mnt/c/users/scott/0/De/F/16/5 / git 🍹 main !2
   python3 client.py
                                                                 python3 server.py
Enter message to send. Press enter to exit: message 1
                                                              Socket created
Message[Client] -
                                                              Socket bind complete
                                                              DEMO PART 3: TIMEOUT
                        Packet: 0, message 1, ÷F
                                                              Message[48483 to 127.0.0.1] -
                        Data: message 1
                        Ack: 0
                                                                                      Packet: 0, message 1, ÷F
Timeout reached for packet "0, message 1, ÷F". resending...
                                                                                      Data: message 1
Timeout reached for packet "0, message 1, ÷F". resending...
                                                                                      Seq: 0
Message[Server] -
                                                              Message[127.0.0.1 to 48483] -
                        Packet: 0,0K...message 1,
                                                                                      Packet: 0,0K...message 1,
                        Data: OK...message 1
                                                                                      Data: OK...message 1
                        Ack: 0
                                                                                      Ack: 0
Enter message to send. Press enter to exit: hello world
                                                              Message[48483 to 127.0.0.1] -
Message[Client] -
                                                                                      Packet: 0, message 1, ÷F
                        Packet: 1, hello world, <Ù
                                                                                      Data: message 1
                        Data: hello world
                                                                                      Seq: 0
                        Ack: 1
                                                              Message[48483 to 127.0.0.1] -
Message[Server] -
                                                                                      Packet: 0, message 1, ÷F
                        Packet: 1,0K...hello world,(È
                                                                                      Data: message 1
                        Data: OK...hello world
                                                                                      Sea: 0
                        Ack: 1
                                                              Message[48483 to 127.0.0.1] -
                                                                                      Packet: 1,hello world,<Ù
Enter message to send. Press enter to exit: hi
Message[Client] -
                                                                                      Data: hello world
                                                                                      Seq: 1
                        Packet: 0,hi,;j
                        Data: hi
                                                              Message[127.0.0.1 to 48483] -
                        Ack: 0
                                                                                      Packet: 1,0K...hello world,(È
                                                                                      Data: OK...hello world
Timeout reached for packet "0,hi,;j". resending...
Timeout reached for packet "0,hi,;j". resending...
                                                                                      Ack: 1
Message[Server] -
                                                              DEMO PART 3: TIMEOUT
                        Packet: 0,0K...hi,ºÅ
                                                              Message[48483 to 127.0.0.1] -
                        Data: OK...hi
                                                                                      Packet: 0,hi,;j
                        Ack: 0
                                                                                      Data: hi
Enter message to send. Press enter to exit:
                                                                                      Sea: 0
                                                              Message[127.0.0.1 to 48483] -
                                                                                      Packet: 0,0K...hi,ºÅ
                                                                                      Data: OK...hi
                                                                                      Ack: 0
                                                              Message[48483 to 127.0.0.1] -
                                                                                      Packet: 0,hi,;j
                                                                                      Data: hi
                                                                                      Seq: 0
                                                              Message[48483 to 127.0.0.1] -
                                                                                      Packet: 0,hi,;j
                                                                                      Data: hi
                                                                                      Seq: 0
```