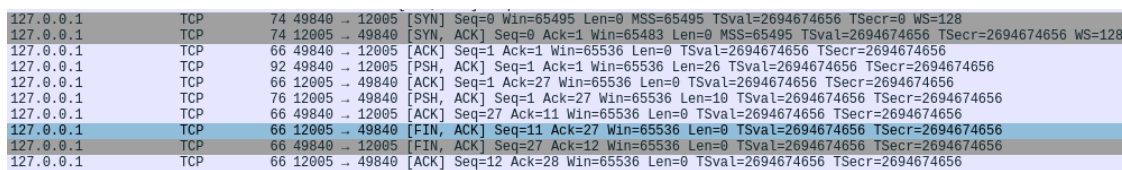


# Computing Homework 2

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127.0.0.1	TCP	74	49840	→	12005	[SYN]	Seq=0 Win=65495 Len=0 MSS=65495 TSval=2694674656 TSecr=0 WS=128
127.0.0.1	TCP	74	12005	→	49840	[SYN, ACK]	Seq=0 Ack=1 Win=65483 Len=0 MSS=65495 TSval=2694674656 TSecr=2694674656 WS=128
127.0.0.1	TCP	66	49840	→	12005	[ACK]	Seq=1 Ack=1 Win=65536 Len=0 TSval=2694674656 TSecr=2694674656
127.0.0.1	TCP	92	49840	→	12005	[PSH, ACK]	Seq=1 Ack=1 Win=65536 Len=26 TSval=2694674656 TSecr=2694674656
127.0.0.1	TCP	66	12005	→	49840	[ACK]	Seq=1 Ack=27 Win=65536 Len=0 TSval=2694674656 TSecr=2694674656
127.0.0.1	TCP	76	12005	→	49840	[PSH, ACK]	Seq=1 Ack=27 Win=65536 Len=10 TSval=2694674656 TSecr=2694674656
127.0.0.1	TCP	66	49840	→	12005	[ACK]	Seq=27 Ack=11 Win=65536 Len=0 TSval=2694674656 TSecr=2694674656
127.0.0.1	TCP	66	12005	→	49840	[FIN, ACK]	Seq=11 Ack=27 Win=65536 Len=0 TSval=2694674656 TSecr=2694674656
127.0.0.1	TCP	66	49840	→	12005	[FIN, ACK]	Seq=27 Ack=12 Win=65536 Len=0 TSval=2694674656 TSecr=2694674656
127.0.0.1	TCP	66	12005	→	49840	[ACK]	Seq=12 Ack=28 Win=65536 Len=0 TSval=2694674656 TSecr=2694674656

Figure 1: A Screenshot of Packet Capture

1. From the above capture, we may see that there are two packets exchanged to establish a connection. The first, which we can see originates from the client (49840 → 12005) initiates the connection. This is indicated by the [SYN] flag, or synchronize, being set to 1, which essentially asks the server to connect. The server replies (12005 → 49840) with a packet of [SYN, ACK], both set to 1, which signifies that the connection may be established, and the server acknowledges the receipt of the first packet.
2. We can see that the port number of the client is 49840. We know this because the two ports involved are 12005 and 49840, and we know that the client can not be 12005, since we set the server port number to that value. Thus, the client must be 49840.
3. We can identify the segments that carry data by the Push field, or rather [PSH] flag, being set to 1. We can thus see, that there are two such packets, one sent to the server (carrying the numerical combination), and one sent to the client (carrying the RESULT:X data). We can identify the amount of “bytes on wire” by looking at the length descriptor of each of those packets. Thus, we can see that the data packet from the client to the server is 92 bytes in length, and the data packet from the server to the client is 76 bytes.
4. The message sent from the client to the server is the one of length 92. The actual ASCII encoding is:

0000	00 00 00 00 00 00 00 00 00 00 00 00 08 00 45 00	.....E.
0010	00 4e a3 0d 40 00 40 06 99 9a 7f 00 00 01 7f 00	.N..@.@.....
0020	00 01 c2 b0 2e e5 76 7d 11 ba d0 8d 5c a9 80 18	.....v}.....
0030	02 00 fe 42 00 00 01 01 08 0a a0 9d 78 e0 a0 9d	...B.....x...
0040	78 e0 31 32 2d 32 33 2d 35 36 2d 35 2d 39 35 2d	x.12-23-56-5-95-
0050	33 2d 35 35 2d 32 34 2d 39 2d 33 34	3-55-24-9-34

We can see the actual string of numerical values following the header of this packet in the last two lines of the ASCII encoding.