Inlämning 1, ET1524

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Task A

0.0.1 Task A4

Running the sample code went perfectly fine. Both UDP and TCP worked flawlessly. Only minor issue is that I had to figure out what my ip was and enter it in the correct place. Python installation was no issue, its pre installed in most linux enviorments.

Task B

0.0.2 Task B1 / B2

```
import socket

server = "www.ingonline.nu"
port = 80
path = "/tictactoe/index.php"
data = "board=oxoxoxeee"

url = path + "?" + data
sock = socket.socket(socket.AF_INET, socket.SOCK_STREAM)
sock.connect((server, 80))
sock.send(
    "GET {path} HTTP/1.1\nHost:{server}\nConnection: close\n\n".format(server=server,
        path=url).encode())
response = sock.recv(1024)
sock.close()
print(response.decode())
```

0.0.3 Task B3

Request printout

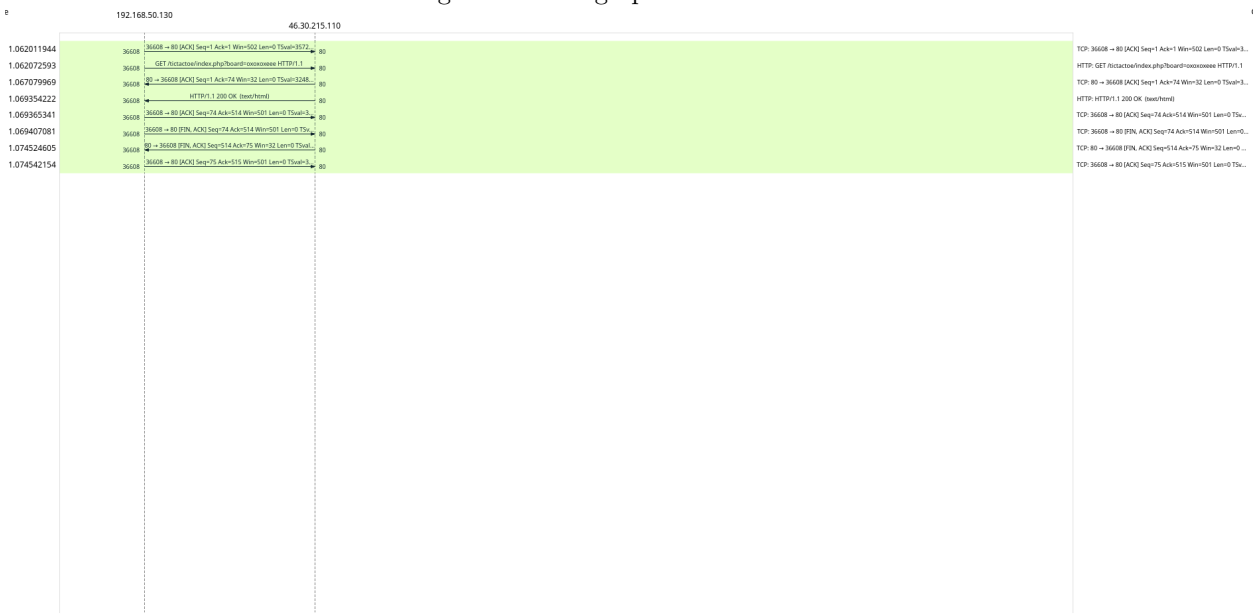
```
No.
 Time
 Source
 Destination
 Protocol Length Info
284221 2538.665803553 192.168.50.130
 46.30.215.110
 HTTP
 139
 GET /tictactoe/index.php?board=oxoxoxeee
HTTP/1.1
Frame 284221: 139 bytes on wire (1112 bits), 139 bytes captured (1112 bits) on interface enp4s0, id 0
Ethernet II, Src: ASUSTekC_59:ff:12 (24:4b:fe:59:ff:12), Dst: ASUSTekC_c2:3a:e0 (04:42:1a:c2:3a:e0)
Internet Protocol Version 4, Src: 192.168.50.130, Dst: 46.30.215.110
Transmission Control Protocol, Src Port: 36002, Dst Port: 80, Seq: 1, Ack: 1, Len: 73
Hypertext Transfer Protocol
GET /tictactoe/index.php?board=oxoxoxeee HTTP/1.1\n
Host:www.ingonline.nu\n
\n
[Full request URI: http://www.ingonline.nu/tictactoe/index.php?board=oxoxoxeee]
[HTTP request 1/1]
```

[Response in frame: 284223]

Response printout

```
No.
 Time
 Source
 Destination
 Protocol Length Info
284223 2538.673574207 46.30.215.110
 192.168.50.130
 HTTP
 579
 HTTP/1.1 200 OK (text/html)
Frame 284223: 579 bytes on wire (4632 bits), 579 bytes captured (4632 bits) on interface enp4s0,
id 0
Ethernet II, Src: ASUSTekC_c2:3a:e0 (04:42:1a:c2:3a:e0), Dst: ASUSTekC_59:ff:12 (24:4b:fe:59:ff:12)
Internet Protocol Version 4, Src: 46.30.215.110, Dst: 192.168.50.130
Transmission Control Protocol, Src Port: 80, Dst Port: 36002, Seq: 1, Ack: 74, Len: 513
Hypertext Transfer Protocol
HTTP/1.1 200 OK\r\n
Date: Sat, 23 Apr 2022 13:47:39 GMT\r\n
Server: Apache\r\n
X-Powered-By: PHP/7.4.29\r\n
Vary: Accept-Encoding\r\n
Content-Type: text/html; charset=UTF-8\r\n
X-Varnish: 547921195\r\n
Age: 0\r\n
Via: 1.1 varnish (Varnish/7.1)\r\n
Accept-Ranges: bytes\r\n
Content-Length: 223\r\n
Connection: keep-alive\r\n
\r\n
[HTTP response 1/1]
[Time since request: 0.007770654 seconds]
[Request in frame: 284221]
[Request URI: http://www.ingonline.nu/tictactoe/index.php?board=oxoxoxeee]
File Data: 223 bytes
Line-based text data: text/html (11 lines)
<html>\r\n
\r\n
<head>\r\n
<TITLE>Tic-Tac-Toe</TITLE>\r\n
</head>\r\n
\r\n
<body>\r\n
\r\n
<b> Tic-Tac-Toe (3x3)</b><br>\r\n
<br><u>Before turn</u><br>o x o<br>x o x<br>e e e<br><br><br><u>After turn</u><br>o e o<br>x
o x<br>x e e<br></body>\r\n
</html>
```

Figure 1: Flow graph from wireshark



Task B4

Creating the web browser wasn't to hard. I used the http request in the book as a baseline, and from there added the required headers I needed. I had some issues with the GET path, but later realized that index.php was in a subfolder from the root. I used a fString in python to build the request, which is'nt the best approach for readability or maintainability, but works great in this case. I had some issues using wireshark but that was due to me keeping captureing on while working, so the amount of packets was huge, therefore slowing down my filtering, and making the flow graph very hard to read.

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