

ASSIGNMENT FOR MODULE 3

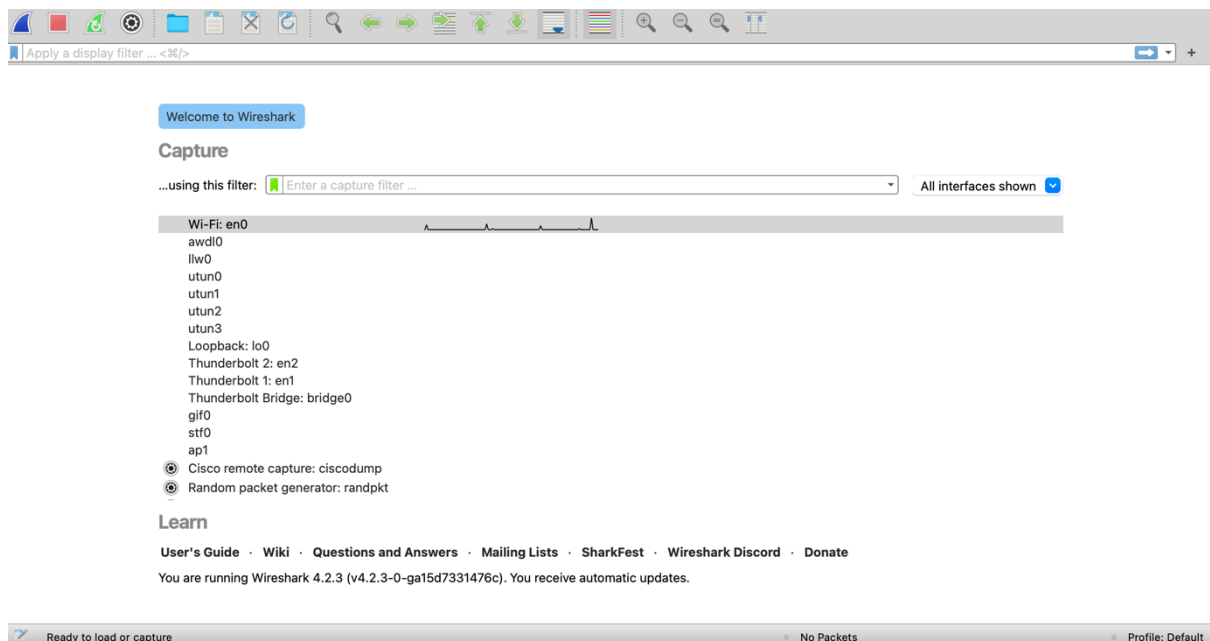
STUDENT NAME: AKOGUN ABIODUN

**ASSIGNMENT TITLE:
UNDERSTANDING HTTP PACKET ANALYSIS USING WIRESHARK**

Question 1

CAPTURE NETWORK TRAFFIC:

1. **I open a Wireshark and start a new capture session.**



2. **Choose the appropriate network interface for capturing, begin capturing traffic by clicking the 'start' button on the WI-FI**

No.	Time	Source	Destination	Protocol	Length	Info
62	7.828436	192.168.1.168	192.168.1.168	TCP	66	443 → 49417 [ACK] Seq=7006 Ack=20872 Win=4194560 Len=0 TSval=21529144 TSecr=258.
64	7.939711	52.178.17.233	192.168.1.168	TLSv1..	165	Application Data
65	7.939959	192.168.1.168	52.178.17.233	TCP	66	49417 → 443 [ACK] Seq=18828 Ack=7006 Win=130944 Len=0 TSval=2586600051 TSecr=21.
66	7.944949	192.168.1.168	52.178.17.233	TLSv1..	682	Application Data
67	7.945207	192.168.1.168	52.178.17.233	TCP	1494	49417 → 443 [ACK] Seq=19444 Ack=7006 Win=131072 Len=1428 TSval=2586600056 TSecr.
68	7.945208	192.168.1.168	52.178.17.233	TCP	1494	49417 → 443 [ACK] Seq=20872 Ack=7006 Win=131072 Len=1428 TSval=2586600056 TSecr.
69	7.945210	192.168.1.168	52.178.17.233	TCP	1494	49417 → 443 [ACK] Seq=22300 Ack=7006 Win=131072 Len=1428 TSval=2586600056 TSecr.
70	7.945211	192.168.1.168	52.178.17.233	TCP	1494	49417 → 443 [ACK] Seq=23728 Ack=7006 Win=131072 Len=1428 TSval=2586600056 TSecr.
71	7.945213	192.168.1.168	52.178.17.233	TCP	1494	49417 → 443 [ACK] Seq=25156 Ack=7006 Win=131072 Len=1428 TSval=2586600056 TSecr.
72	7.945214	192.168.1.168	52.178.17.233	TCP	1494	49417 → 443 [ACK] Seq=26584 Ack=7006 Win=131072 Len=1428 TSval=2586600056 TSecr.
73	7.945216	192.168.1.168	52.178.17.233	TCP	1494	49417 → 443 [ACK] Seq=28012 Ack=7006 Win=131072 Len=1428 TSval=2586600056 TSecr.
74	7.945217	192.168.1.168	52.178.17.233	TCP	1494	49417 → 443 [ACK] Seq=29440 Ack=7006 Win=131072 Len=1428 TSval=2586600056 TSecr.
75	7.945218	192.168.1.168	52.178.17.233	TCP	1494	49417 → 443 [ACK] Seq=30868 Ack=7006 Win=131072 Len=1428 TSval=2586600056 TSecr.
76	7.945246	192.168.1.168	52.178.17.233	TLSv1..	444	Application Data
77	7.961013	52.178.17.233	192.168.1.168	TCP	66	443 → 49417 [ACK] Seq=7006 Ack=20872 Win=4194560 Len=0 TSval=21529144 TSecr=258.
78	7.961054	52.178.17.233	192.168.1.168	TCP	66	443 → 49417 [ACK] Seq=7006 Ack=23728 Win=4194560 Len=0 TSval=21529146 TSecr=258.
79	7.964030	52.178.17.233	192.168.1.168	TCP	66	443 → 49417 [ACK] Seq=7006 Ack=28012 Win=4194560 Len=0 TSval=21529148 TSecr=258.
80	7.964731	52.178.17.233	192.168.1.168	TCP	66	443 → 49417 [ACK] Seq=7006 Ack=29440 Win=4193280 Len=0 TSval=21529148 TSecr=258.
81	7.965821	52.178.17.233	192.168.1.168	TCP	66	443 → 49417 [ACK] Seq=7006 Ack=32296 Win=4194560 Len=0 TSval=21529149 TSecr=258.
82	8.000098	192.168.1.168	52.178.17.233	TCP	444	[TCP Retransmission] 49417 → 443 [PSH, ACK] Seq=32296 Ack=7006 Win=131072 Len=3.
83	8.015086	52.178.17.233	192.168.1.168	TCP	78	443 → 49417 [ACK] Seq=7006 Ack=32674 Win=4194304 Len=0 TSval=21529198 TSecr=258.
84	8.049512	52.178.17.233	192.168.1.168	TLSv1..	165	Application Data
85	8.049653	192.168.1.168	52.178.17.233	TCP	66	49417 → 443 [ACK] Seq=32674 Ack=7105 Win=130944 Len=0 TSval=2586600161 TSecr=21.
86	11.156575	fe80::628d:26ff:fe...	ff02::1	ICMPv6	142	Router Advertisement from 60:8d:26:09:d0:ec
87	13.417786	192.168.1.168	185.230.212.176	TLSv1..	124	Application Data
88	13.455907	185.230.212.176	192.168.1.168	TLSv1..	129	Application Data
89	13.456118	192.168.1.168	185.230.212.176	TCP	66	49400 → 443 [ACK] Seq=59 Ack=64 Win=2047 Len=0 TSval=396049009 TSecr=2721119943

> Frame 1: 111 bytes on wire (888 bits), 111 bytes captured (888 bits) on interface en0, id 0

> Ethernet II, Src: Apple_a6:15:0c (14:7d:da:a6:15:0c), Dst: Arcadyan_09:d0:ec (60:8d:26:09:d0:ec)

> Internet Protocol Version 6, Src: 2a00:23c8:9441:3701:b846:7269:3044:5396, Dst: 2a03:2880:f289:1d0:face:b00c

Wi-Fi: en0: -live capture in progress

Packets: 89 - Displayed: 89 (100.0%)

Profile: Default

Question 2: ANALYZE HTTP PACKETS

1. Locate the HTTP packets by using the filter 'http' in the Wireshark filter bar.

No.	Time	Source	Destination	Protocol	Length	Info
2536	631.082093	192.168.1.103	224.0.0.251	MDNS	156	Standard query 0x0000 PTR lb_dns-sd_udp.local, "QM" question PTR _companion-L
2537	631.388426	fe80::c0e:0e60:2e3...	ff02::fb	MDNS	176	Standard query 0x0000 PTR lb_dns-sd_udp.local, "QM" question PTR _companion-L
2538	631.595503	fe80::628d:26ff:fe...	fe80::c0e:5273:35e...	ICMPv6	86	Neighbor Solicitation for fe80::c0e:5273:35e:a9f9 from 60:8d:26:09:d0:ec
2539	631.595643	fe80::c0e:5273:35e...	fe80::628d:26ff:fe...	ICMPv6	78	Neighbor Advertisement fe80::c0e:5273:35e:a9f9 (sol)
2540	633.366787	fe80::c0e:5273:35e...	fe80::628d:26ff:fe...	ICMPv6	86	Neighbor Solicitation for fe80::628d:26ff:fe09:d0ec from 14:7d:da:a6:15:0c
2541	633.376084	fe80::628d:26ff:fe...	fe80::c0e:5273:35e...	ICMPv6	78	Neighbor Advertisement fe80::628d:26ff:fe09:d0ec (rtr, sol)
2542	633.845963	192.168.1.103	224.0.0.251	MDNS	156	Standard query 0x0000 PTR lb_dns-sd_udp.local, "QM" question PTR _companion-L
2543	634.153956	fe80::c0e:0e60:2e3...	ff02::fb	MDNS	176	Standard query 0x0000 PTR lb_dns-sd_udp.local, "QM" question PTR _companion-L
2544	640.847453	192.168.1.168	185.230.212.176	TLSv1..	124	Application Data
2545	640.847891	2a00:23c8:9441:370...	2a02:26f0:5700:78b...	TLSv1..	110	Application Data
2546	640.848295	2a00:23c8:9441:370...	2a02:26f0:5700:78b...	TCP	86	57610 → 443 [FIN, ACK] Seq=1044 Ack=7763 Win=130752 Len=0 TSval=1363619447 TSecr.
2547	640.862647	2a02:26f0:5700:78b...	2a00:23c8:9441:370...	TCP	86	443 → 57610 [ACK] Seq=7763 Ack=1044 Win=64128 Len=0 TSval=1446909108 TSecr=1363.
2548	640.863522	2a02:26f0:5700:78b...	2a00:23c8:9441:370...	TLSv1..	110	Application Data
2549	640.863523	2a02:26f0:5700:78b...	2a00:23c8:9441:370...	TCP	86	443 → 57610 [RST, ACK] Seq=7787 Ack=1045 Win=64128 Len=0 TSval=1446909110 TSecr.
2550	640.885026	185.230.212.176	192.168.1.168	TLSv1..	129	Application Data
2551	640.885241	192.168.1.168	185.230.212.176	TCP	66	49400 → 443 [ACK] Seq=1799 Ack=1954 Win=2047 Len=0 TSval=396676444 TSecr=272174.
2552	642.754802	192.168.1.103	224.0.0.251	MDNS	156	Standard query 0x0000 PTR lb_dns-sd_udp.local, "QM" question PTR _companion-L
2553	643.061802	fe80::c0e:0e60:2e3...	ff02::fb	MDNS	176	Standard query 0x0000 PTR lb_dns-sd_udp.local, "QM" question PTR _companion-L
2554	643.780509	fe80::628d:26ff:fe...	2a00:23c8:9441:370...	ICMPv6	86	Neighbor Solicitation for 2a00:23c8:9441:3701:b846:7269:3044:5396 from 60:8d:26.
2555	643.780605	fe80::c0e:5273:35e...	fe80::628d:26ff:fe...	ICMPv6	78	Neighbor Advertisement 2a00:23c8:9441:3701:b846:7269:3044:5396 (sol)
2556	645.826839	fe80::628d:26ff:fe...	ff02::1	ICMPv6	142	Router Advertisement from 60:8d:26:09:d0:ec
2557	647.057680	2a03:2880:f289:1d0...	2a00:23c8:9441:370...	TCP	125	5222 → 57608 [PSH, ACK] Seq=1478 Ack=455 Win=66816 Len=39 TSval=1293624081 TSecr.
2558	647.058021	2a00:23c8:9441:370...	2a03:2880:f289:1d0...	TCP	86	57608 → 5222 [ACK] Seq=455 Ack=1517 Win=131008 Len=0 TSval=521619197 TSecr=1293.
2559	647.058831	2a00:23c8:9441:370...	2a03:2880:f289:1d0...	TCP	123	57608 → 5222 [PSH, ACK] Seq=455 Ack=1517 Win=131072 Len=37 TSval=521619197 TSecr.
2560	647.108095	2a03:2880:f289:1d0...	2a00:23c8:9441:370...	TCP	86	5222 → 57608 [ACK] Seq=1517 Ack=492 Win=66816 Len=0 TSval=1293624154 TSecr=5216.
2561	649.412602	Arcadyan_09:d0:ec	Apple_a6:15:0c	ARP	60	Who has 192.168.1.168? Tell 192.168.1.254
2562	649.412690	Apple_a6:15:0c	Arcadyan_09:d0:ec	ARP	42	192.168.1.168 is at 14:7d:da:a6:15:0c

> Frame 1: 111 bytes on wire (888 bits), 111 bytes captured (888 bits) on interface en0, id 0

> Ethernet II, Src: Apple_a6:15:0c (14:7d:da:a6:15:0c), Dst: Arcadyan_09:d0:ec (60:8d:26:09:d0:ec)

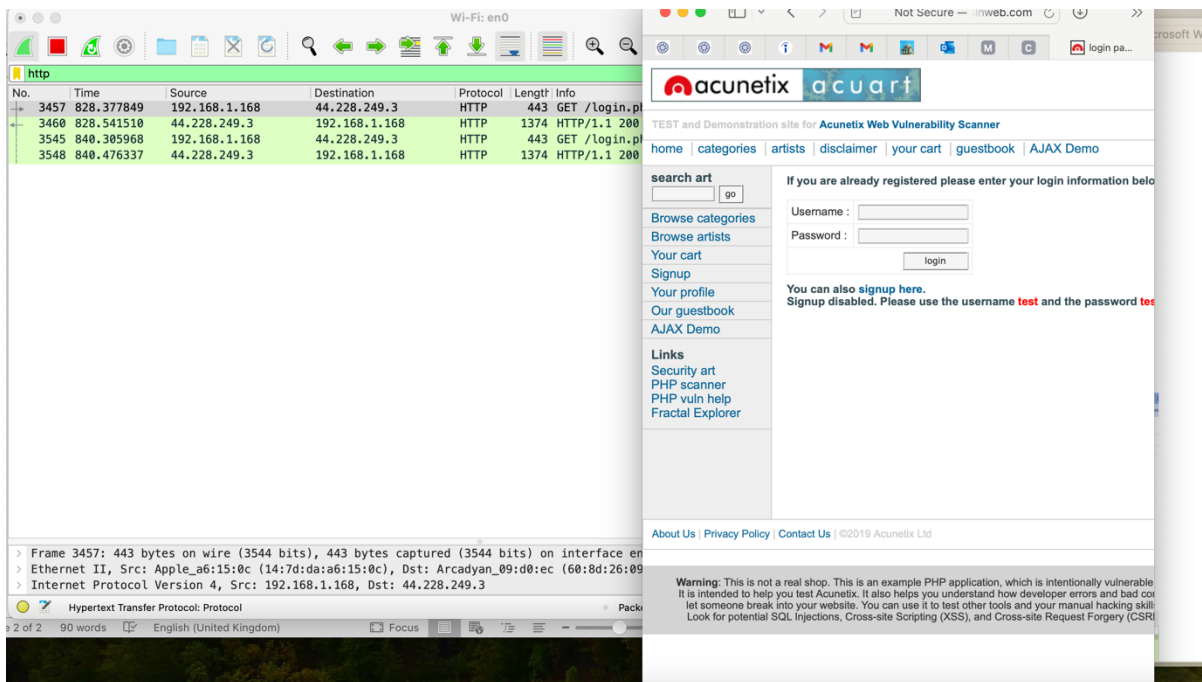
> Internet Protocol Version 6, Src: 2a00:23c8:9441:3701:b846:7269:3044:5396, Dst: 2a03:2880:f289:1d0:face:b00c

Hypertext Transfer Protocol: Protocol

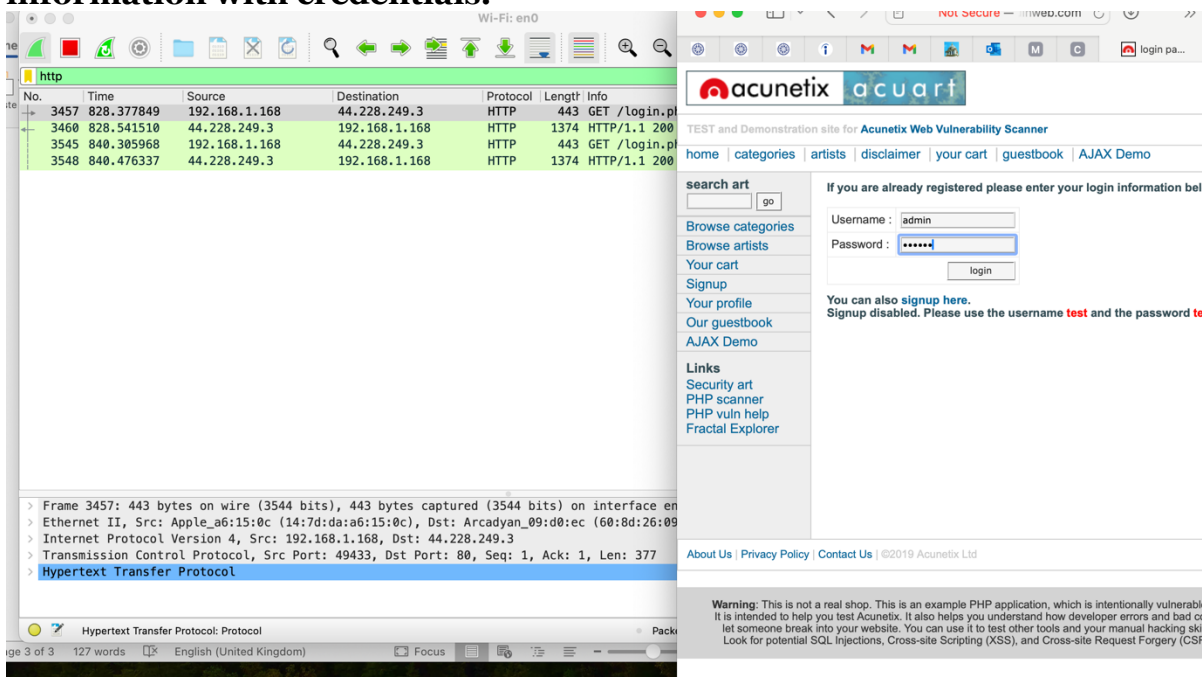
Packets: 2562 - Displayed: 2562 (100.0%)

Profile: Default

- 2: Identify the packets related to the login process. Look for the POST request to the login endpoint. (<http://testphp.vulnweb.com/login.php>)



Question 3: EXTRACT INFORMATION (USERNAME & PASSWORD) Enter the username and password and go to the Wireshark and you will find the list of information. Select userinfo. php and it will show all the detailed information with credentials.



After entering user name and password

The screenshot shows a Wireshark packet capture of an HTTP session. The packet list on the left shows several packets, with packet 5024 (No. 1283.170984) being a POST request to /userinfo.php. The packet details pane on the right shows the structure of the packet, including Ethernet II, Internet Protocol Version 4, and Hypertext Transfer Protocol. The packet bytes pane at the bottom shows the raw data of the packet.

No.	Time	Source	Destination	Protocol	Length	Info
3457	828.377849	192.168.1.168	44.228.249.3	HTTP	443	GET /login.php HTTP/1.1
3460	828.541510	44.228.249.3	192.168.1.168	HTTP	1374	HTTP/1.1 200 OK (text/html)
3545	840.305968	192.168.1.168	44.228.249.3	HTTP	443	GET /login.php HTTP/1.1
3548	840.476337	44.228.249.3	192.168.1.168	HTTP	1374	HTTP/1.1 200 OK (text/html)
5024	1283.170984	192.168.1.168	44.228.249.3	HTTP	89	POST /userinfo.php HTTP/1.1 (application/x-www-form-ur...
5027	1283.337979	44.228.249.3	192.168.1.168	HTTP	342	HTTP/1.1 302 Found (text/html)
5029	1283.377019	192.168.1.168	44.228.249.3	HTTP	490	GET /login.php HTTP/1.1
5032	1283.542289	44.228.249.3	192.168.1.168	HTTP	1374	HTTP/1.1 200 OK (text/html)

Frame 5024: 89 bytes on wire (712 bits), 89 bytes captured (712 bits) on interface en0, Ethernet II, Src: Apple_a6:15:0c (14:7d:da:a6:15:0c), Dst: Arcadyan_09:d0:ec (60:8d:26:09:d0:ec), Internet Protocol Version 4, Src: 192.168.1.168, Dst: 44.228.249.3, Transmission Control Protocol, Src Port: 49433, Dst Port: 80, Seq: 1, Ack: 1, Len: 377, Hypertext Transfer Protocol


Select Post/userinfo. php and it will give you detailed information.

The screenshot shows the same Wireshark packet capture as above, but with a red arrow pointing to the POST request to /userinfo.php (packet 5024). The packet details pane on the right shows the structure of the packet, including Ethernet II, Internet Protocol Version 4, and Hypertext Transfer Protocol. The packet bytes pane at the bottom shows the raw data of the packet.

No.	Time	Source	Destination	Protocol	Length	Info
3457	828.377849	192.168.1.168	44.228.249.3	HTTP	443	GET /login.php HTTP/1.1
3460	828.541510	44.228.249.3	192.168.1.168	HTTP	1374	HTTP/1.1 200 OK (text/html)
3545	840.305968	192.168.1.168	44.228.249.3	HTTP	443	GET /login.php HTTP/1.1
3548	840.476337	44.228.249.3	192.168.1.168	HTTP	1374	HTTP/1.1 200 OK (text/html)
5024	1283.170984	192.168.1.168	44.228.249.3	HTTP	89	POST /userinfo.php HTTP/1.1 (application/x-www-form-ur...
5027	1283.337979	44.228.249.3	192.168.1.168	HTTP	342	HTTP/1.1 302 Found (text/html)
5029	1283.377019	192.168.1.168	44.228.249.3	HTTP	490	GET /login.php HTTP/1.1
5032	1283.542289	44.228.249.3	192.168.1.168	HTTP	1374	HTTP/1.1 200 OK (text/html)

Frame 5024: 89 bytes on wire (712 bits), 89 bytes captured (712 bits) on interface en0, Ethernet II, Src: Apple_a6:15:0c (14:7d:da:a6:15:0c), Dst: Arcadyan_09:d0:ec (60:8d:26:09:d0:ec), Internet Protocol Version 4, Src: 192.168.1.168, Dst: 44.228.249.3, Transmission Control Protocol, Src Port: 49433, Dst Port: 80, Seq: 1, Ack: 1, Len: 377, Hypertext Transfer Protocol

Examine the HTTP POST request payload for any parameters containing login information. The username and password may be encoded or encrypted.



No.	Time	Source	Destination	Protocol	Length	Info
3457	828.377849	192.168.1.168	44.228.249.3	HTTP	443	GET /login.php HTTP/1.1
3460	828.541510	44.228.249.3	192.168.1.168	HTTP	1374	HTTP/1.1 200 OK (text/html)
3545	840.305968	192.168.1.168	44.228.249.3	HTTP	443	GET /login.php HTTP/1.1
3548	840.476337	44.228.249.3	192.168.1.168	HTTP	1374	HTTP/1.1 200 OK (text/html)
5024	1283.170984	192.168.1.168	44.228.249.3	HTTP	89	POST /userinfo.php HTTP/1.1 (application/x-www-form-ur...
5027	1283.337979	44.228.249.3	192.168.1.168	HTTP	342	HTTP/1.1 302 Found (text/html)
5029	1283.377019	192.168.1.168	44.228.249.3	HTTP	490	GET /login.php HTTP/1.1
5032	1283.542289	44.228.249.3	192.168.1.168	HTTP	1374	HTTP/1.1 200 OK (text/html)