

1.Run nslookup to obtain the IP address of the web server for the Indian Institute of Technology in Bombay, India: www.iitb.ac.in.

What is the IP address of www.iitb.ac.in

```
C:\Users\dings>nslookup www.iitb.ac.in
服务器:  UnKnown
Address:  192.168.43.1

非权威应答:
名称:     www.iitb.ac.in
Address:  103.21.124.133
```

103.21.124.133

2.What is the IP address of the DNS server that provided the answer to your nslookup command in question 1 above?

```
C:\Users\dings>nslookup www.iitb.ac.in
服务器:  UnKnown
Address:  192.168.43.1

非权威应答:
名称:     www.iitb.ac.in
Address:  103.21.124.133
```

192.168.43.1

3.Did the answer to your nslookup command in question 1 above come from an authoritative or non-authoritative server?

non-authoritative server

4. Use the nslookup command to determine the name of the authoritative name server for the iitb.ac.in domain. What is that name? (If there are more than one authoritative servers, what is the name of the first authoritative server returned by nslookup)? If you had to find the IP address of that authoritative name server, how would you do so?

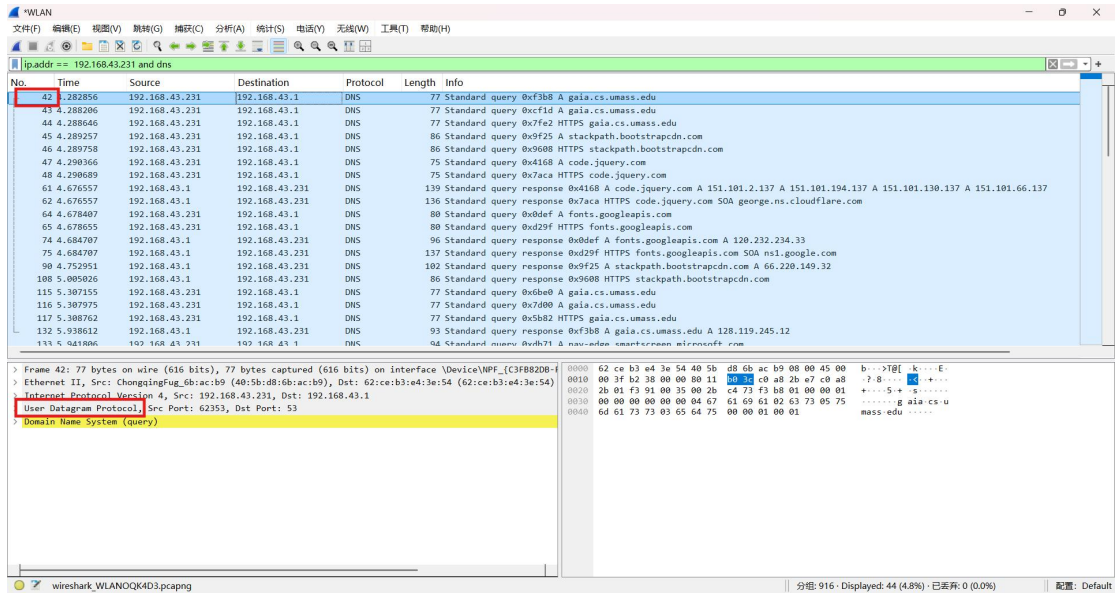
```
C:\Users\dings>nslookup -type=NS iitb.ac.in
服务器: UnKnown
Address: 192.168.43.1

非权威应答:
iitb.ac.in      nameserver = dns2.iitb.ac.in
iitb.ac.in      nameserver = dns3.iitb.ac.in
iitb.ac.in      nameserver = dns1.iitb.ac.in

dns1.iitb.ac.in internet address = 103.21.125.129
dns2.iitb.ac.in internet address = 103.21.126.129
dns3.iitb.ac.in internet address = 103.21.127.129
```

dns2.iitb.ac.in; 103.21.126.129

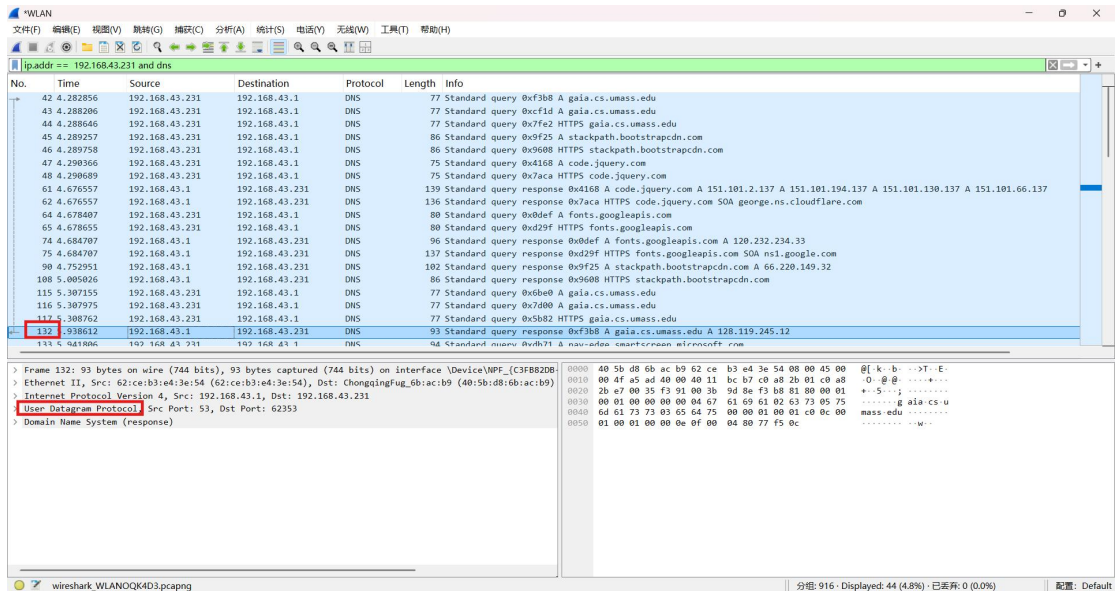
5. Locate the first DNS query message resolving the name gaia.cs.umass.edu. What is the packet number in the trace for the DNS query message? Is this query message sent over UDP or TCP?



42;UDP

6.Now locate the corresponding DNS response to the initial DNS query.

What is the packet number in the trace for the DNS response message? Is this response message received via UDP or TCP?



132; UDP

7.What is the destination port for the DNS query message? What is the source port of the DNS response message?

53;53

8.To what IP address is the DNS query message sent?

229	5.135637	172.26.68.207	10.8.4.4	DNS	77 Standard query 0x9
247	5.154636	10.8.4.4	172.26.68.207	DNS	93 Standard query res

10.8.4.4

9.Examine the DNS query message. How many “questions” does this DNS message contain? How many “answers” answers does it contain?

```
Domain Name System (query)
  Transaction ID: 0x9933
  > Flags: 0x0100 Standard query
    Questions: 1
    Answer RRs: 0
    Authority RRs: 0
    Additional RRs: 0
  > Queries
```

1;0

10.Examine the DNS response message to the initial query message. How many “questions” does this DNS message contain? How many “answers” answers does it contain?

Domain Name System (response)

```
Transaction ID: 0x9933
> Flags: 0x8180 Standard query response, No
Questions: 1
Answer RRs: 1
Authority RRs: 0
Additional RRs: 0
> Queries
> Answers
```

1;1

11. The web page for the base file

http://gaia.cs.umass.edu/kurose_ross/index.php references the image object

http://gaia.cs.umass.edu/kurose_ross/header_graphic_book_9E1.jpg, which, like the base webpage, is on gaia.cs.umass.edu. What is the packet number in the trace for the initial HTTP GET request for the base file http://gaia.cs.umass.edu/kurose_ross/? What is the packet number in the trace of the DNS query made to resolve gaia.cs.umass.edu so that this initial HTTP request can be sent to the gaia.cs.umass.edu IP address?

What is the packet number in the trace of the received DNS response?

What is the packet number in the trace for the HTTP GET request for the image object

http://gaia.cs.umass.edu/kurose_ross/header_graphic_book_9E1.jpg?

What is the packet number in the DNS query made to resolve

gaia.cs.umass.edu so that this second HTTP request can be sent to the gaia.cs.umass.edu IP address? Discuss how DNS caching affects the answer to this last question.

ip.addr == 172.26.68.207 && http						
no.	Time	Source	Destination	Protoc	Leng	Info
44	3.929996	172.26.68.207	128.119.245.12	HTTP	498	GET /kurose_ross/ HTTP/1.1
53	4.218818	128.119.245.12	172.26.68.207	HTTP	650	HTTP/1.1 301 Moved Permanently (text/
54	4.221179	172.26.68.207	128.119.245.12	HTTP	507	GET /kurose_ross/index.php HTTP/1.1
64	4.494040	128.119.245.12	172.26.68.207	HTTP	1209	HTTP/1.1 200 OK (text/html)
66	4.518237	172.26.68.207	128.119.245.12	HTTP	418	GET /kurose_ross/custom.css HTTP/1.1
71	4.518830	172.26.68.207	128.119.245.12	HTTP	403	GET /kurose_ross/favicon.ico HTTP/1.1

44;

36	3.407183	172.26.68.207	10.8.4.4	DNS	77	Standard query 0x7fd4 A gaia.cs.umass.edu
37	3.409873	10.8.4.4	172.26.68.207	DNS	93	Standard query response 0x7fd4 A gaia.cs.umass.edu A 128.
38	3.410737	172.26.68.207	128.119.245.12	TCP	66	13193 → 80 [SYN] Seq=0 Win=65535 Len=0 MSS=1460 WS=256 SA
41	3.674372	128.119.245.12	172.26.68.207	TCP	66	80 → 13193 [SYN, ACK] Seq=0 Ack=1 Win=29200 Len=0 MSS=146
42	3.674492	172.26.68.207	128.119.245.12	TCP	54	13193 → 80 [ACK] Seq=1 Ack=1 Win=65280 Len=0
43	3.929843	172.26.68.207	10.8.4.4	DNS	75	Standard query 0x33a5 A code.jquery.com
44	3.929996	172.26.68.207	128.119.245.12	HTTP	498	GET /kurose_ross/ HTTP/1.1

36;

36	3.407183	172.26.68.207	10.8.4.4	DNS	77	Standard query 0x7fd4 A gaia.cs.umass.edu
37	3.409873	10.8.4.4	172.26.68.207	DNS	93	Standard query response 0x7fd4 A gaia.cs.umass.edu A 128.119.245.12
43	3.929843	172.26.68.207	10.8.4.4	DNS	75	Standard query 0x33a5 A code.jquery.com
45	3.930072	172.26.68.207	10.8.4.4	DNS	76	Standard query 0xda1d A cdn.isdelivr.net

37;

366	4.789647	128.119.245.12	172.26.68.207	HTTP	1349	HTTP/1.1 200 OK (application/javascript)
367	4.790667	172.26.68.207	128.119.245.12	HTTP	482	GET /kurose_ross/header_graphic_book_9E_1.jpg HTTP/1.1
450	7.372704	128.119.245.12	172.26.68.207	HTTP	857	HTTP/1.1 200 OK (JPEG JFIF image)
1548	169.814684	172.26.68.207	120.241.131.233	HTTP	774	POST /mmtls/00003014 HTTP/1.1
1551	169.834554	120.241.131.233	172.26.68.207	HTTP	623	HTTP/1.1 200 OK

367;

没有第二个请求的 DNS 查询；因为查询的答案已存在于缓存中，因此该消息将不会被发送

12.What is the destination port for the DNS query message? What is the source port of the DNS response message?

53; 53

13.To what IP address is the DNS query message sent? Is this the IP address of your default local DNS server?

25	2.213598	172.26.68.207	10.8.4.4	DNS	76	Standard query	0x0002	A	www.cs.umass.edu
35	3.292089	10.8.4.4	172.26.68.207	DNS	92	Standard query response	0x0002	A	www.cs.umass.edu A 128.119.240.9

10.8.4.4; 是

14.Examine the DNS query message. What “Type” of DNS query is it?

Does the query message contain any “answers”?

```
Domain Name System (query)
  Transaction ID: 0x0002
  > Flags: 0x0100 Standard query
    Questions: 1
    Answer RRs: 0
    Authority RRs: 0
    Additional RRs: 0
  < Queries
    > www.cs.umass.edu: type A, class IN
    [Response In: 35]
```

A; 不包含任何答案

15.Examine the DNS response message to the query message. How many

“questions” does this DNS response message contain? How many

“answers”?

1; 1

16.To what IP address is the DNS query message sent? Is this the IP

address of your default local DNS server?

10.8.4.4; 是

17.Examine the DNS query message. How many questions does the query have? Does the query message contain any “answers”?

1; 不包含答案

18.Examine the DNS response message (in particular the DNS response message that has type “NS”). How many answers does the response have? What information is contained in the answers? How many additional resource records are returned?

Questions: 1

Answer RRs: 3

Authority RRs: 0

Additional RRs: 3

Queries

> umass.edu: type NS, class IN

Answers

✓ umass.edu: type NS, class IN, ns ns3.umass.edu

Name: umass.edu

Type: NS (2) (authoritative Name Server)

Class: IN (0x0001)

Time to live: 3600 (1 hour)

Data length: 6

Name Server: ns3.umass.edu

> umass.edu: type NS, class IN, ns ns1.umass.edu

> umass.edu: type NS, class IN, ns ns2.umass.edu

Additional records

✓ ns2.umass.edu: type A, class IN, addr 128.119.10.28

Name: ns2.umass.edu

Type: A (1) (Host Address)

Class: IN (0x0001)

Time to live: 3600 (1 hour)

Data length: 4

Address: 128.119.10.28

> ns1.umass.edu: type A, class IN, addr 128.119.10.27

> ns3.umass.edu: type A, class IN, addr 69.16.40.18

[\[Request In: 46\]](#)

[Time: 1.563211000 seconds]

3; umass.edu、Name; 3

批改文件夹：

<https://web.ugreen.cloud/web/#/share/51e32fc403a94ac883a5dcfb004ccb72>

提取码：KK89