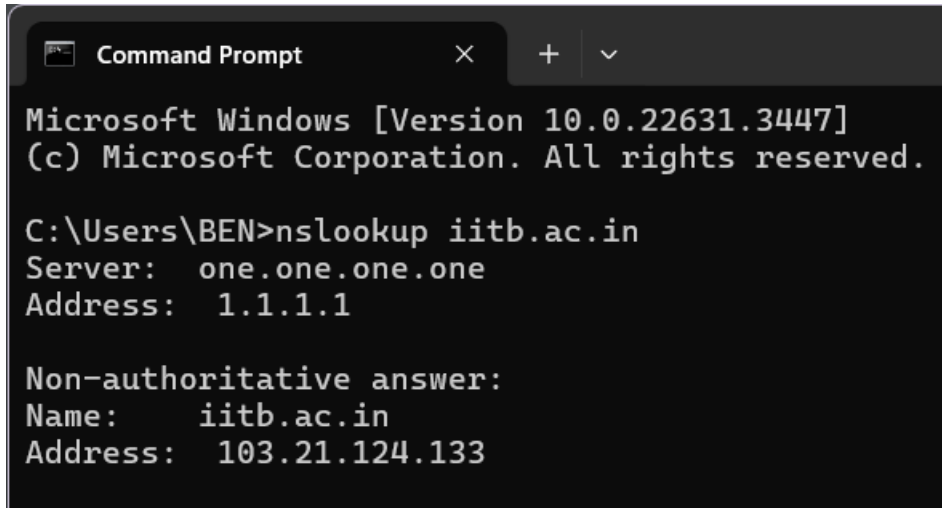


## BİLGİSAYAR AĞLARI – TAKE HOME EXAM-III

**1. nslookup**

a. nslookup komutunu kullanarak iitb.ac.in sunucusuna ait IP adresini bulunuz. Ekran görüntüsü ile gösteriniz.



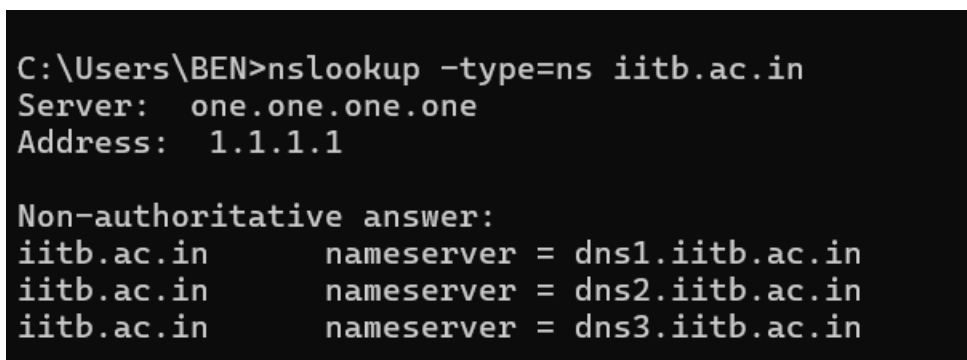
```
Microsoft Windows [Version 10.0.22631.3447]
(c) Microsoft Corporation. All rights reserved.

C:\Users\BEN>nslookup iitb.ac.in
Server:     one.one.one.one
Address:    1.1.1.1

Non-authoritative answer:
Name:       iitb.ac.in
Address:    103.21.124.133
```

b. iitb.ac.in sunucusuna ait güvenilir (authoritative) DNS sunucularını elde etmek için nslookup sorgusunu gerekli parametreler ile yeniden çalıştırınız.

- type = ns kullanımı DNS kayıtlarında kullanılan bir türdür



```
C:\Users\BEN>nslookup -type=ns iitb.ac.in
Server:     one.one.one.one
Address:    1.1.1.1

Non-authoritative answer:
iitb.ac.in  nameserver = dns1.iitb.ac.in
iitb.ac.in  nameserver = dns2.iitb.ac.in
iitb.ac.in  nameserver = dns3.iitb.ac.in
```

- Kaç farklı güvenilir DNS sunucusundan bilgi aldınız?

3 farklı Güvenilir DNS sunucusundan bilgi aldık:

1. dns1.iitb.ac.in
2. dns2.iitb.ac.in
3. dns3.iitb.ac.in

- Bu sunucuların IP adresleri nelerdir? Ekran görüntüsü ile gösteriniz.

```
C:\Users\BEN>nslookup iitb.ac.in dns1.iitb.ac.in
Server:  dns1.iitb.ac.in
Address:  103.21.125.129

Name:     iitb.ac.in
Address:  103.21.124.133
```

```
C:\Users\BEN>nslookup iitb.ac.in dns2.iitb.ac.in
Server:  dns2.iitb.ac.in
Address:  103.21.126.129

Name:     iitb.ac.in
Address:  103.21.124.133
```

```
C:\Users\BEN>nslookup iitb.ac.in dns3.iitb.ac.in
Server:  dns3.iitb.ac.in
Address:  103.21.127.129

Name:     iitb.ac.in
Address:  103.21.124.133
```

## 2. Wireshark

a. İstedığınız bir yöntemle bilgisayarınıza ait IP adresini bulunuz.

```
C:\Users\BEN>ipconfig

Windows IP Configuration

Ethernet adapter Ethernet 3:

    Connection-specific DNS Suffix  . : 
    Link-local IPv6 Address . . . . . : fe80::be07:7c18:f24b:170%16
    IPv4 Address. . . . . : 192.168.56.1
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 

Wireless LAN adapter Yerel Ağ Bağlantısı* 1:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . : 

Wireless LAN adapter Yerel Ağ Bağlantısı* 12:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . : 

Wireless LAN adapter Yaman:

    Connection-specific DNS Suffix  . : 
    Link-local IPv6 Address . . . . . : fe80::7d06:2aa3:a4ad:e956%12
    IPv4 Address. . . . . : 192.168.0.37
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.0.1
```

b. Bilgisayarınızdaki DNS önbellegini temizleyiniz.

```
C:\Users\BEN>ipconfig /flushdns

Windows IP Configuration

Successfully flushed the DNS Resolver Cache.
```

c. İstedığınız bir internet tarayıcısını açarak önbellegini temizleyiniz.

d. Wireshark programını yönetici olarak çalıştırınız. Paket yakalama işlemini başlatınız.

e. İnternet tarayıcısında [www.ietf.org](http://www.ietf.org) adresini ziyaret ediniz. Paket yakalama işlemini durdurarak yakalanmış paketlerin bulunduğu dosyayı kaydediniz. (Format:OgrNo\_Odev3.pcapng) ①

f. Görüntüleme filtresi (display filter) ile bilgisayarınızın IP bilgisini içeren paketleri görüntüleyiniz.

Yakalanmış paketleri içeren dosyadaki bilgilere göre aşağıdaki soruları cevaplandırınız. Tüm cevaplarınızı uygun ekran görüntüsü ile gösteriniz.

1. DNS sorgu (query) ve cevap (response) mesajlarını bulunuz. Bu mesajlar TCP veya UDP protokollerinden hangisi ile gönderilmiştir?

No.	Time	Source	Destination	Protocol	Length	Info
12	2024-05-14 21:52:52.405097	192.168.0.37	1.1.1.1	DNS	72	Standard query 0x745b A www.ietf.org
13	2024-05-14 21:52:52.609063	1.1.1.1	192.168.0.37	DNS	104	Standard query response 0x745b A www.ietf.org A 104.16.44.99 A 104.16.45.99
15	2024-05-14 21:52:52.610316	192.168.0.37	1.1.1.1	DNS	72	Standard query 0x6e25 A www.ietf.org
16	2024-05-14 21:52:52.641990	1.1.1.1	192.168.0.37	DNS	104	Standard query response 0x6e25 A www.ietf.org A 104.16.44.99 A 104.16.45.99
17	2024-05-14 21:52:52.642627	192.168.0.37	1.1.1.1	DNS	72	Standard query 0xba4c AAAA www.ietf.org
18	2024-05-14 21:52:52.681692	1.1.1.1	192.168.0.37	DNS	128	Standard query response 0xba4c AAAA www.ietf.org AAAA 2606:4700::6810:2d63 AAAA 2606:4700::6810:2c63
74	2024-05-14 21:52:53.246987	192.168.0.37	1.1.1.1	DNS	75	Standard query 0x2356 A static.ietf.org
84	2024-05-14 21:52:53.312280	1.1.1.1	192.168.0.37	DNS	107	Standard query response 0x2356 A static.ietf.org A 104.16.44.99 A 104.16.45.99
85	2024-05-14 21:52:53.313101	192.168.0.37	1.1.1.1	DNS	75	Standard query 0xe162 A static.ietf.org
90	2024-05-14 21:52:53.359721	1.1.1.1	192.168.0.37	DNS	107	Standard query response 0xe162 A static.ietf.org A 104.16.44.99 A 104.16.45.99
91	2024-05-14 21:52:53.360050	192.168.0.37	1.1.1.1	DNS	75	Standard query 0xd3e5 AAAA static.ietf.org
110	2024-05-14 21:52:53.432127	1.1.1.1	192.168.0.37	DNS	131	Standard query response 0xd3e5 AAAA static.ietf.org AAAA 2606:4700::6810:2c63 AAAA 2606:4700::6810:2d63
542	2024-05-14 21:52:54.976141	192.168.0.37	1.1.1.1	DNS	78	Standard query 0x2761 A analytics.ietf.org
547	2024-05-14 21:52:55.161657	1.1.1.1	192.168.0.37	DNS	110	Standard query response 0x2761 A analytics.ietf.org A 104.16.44.99 A 104.16.45.99
548	2024-05-14 21:52:55.164057	192.168.0.37	1.1.1.1	DNS	78	Standard query 0x5840 A analytics.ietf.org
564	2024-05-14 21:52:55.235651	1.1.1.1	192.168.0.37	DNS	110	Standard query response 0x5840 A analytics.ietf.org A 104.16.44.99 A 104.16.45.99

No.	Time	Source	Destination	Protocol	Length	Info
12	2024-05-14 21:52:52.4...	192.168.0.37	1.1.1.1	DNS	72	Standard query 0x745b A www.ietf.org

Wireshark - Packet 12 - 20010011013\_Odev3.pcapng

- Frame 12: 72 bytes on wire (576 bits), 72 bytes captured (576 bits) on interface \Device\NPF\_{61353D1F-5179-46CB-86AD-F3FA9C187009}, id 0
- Ethernet II, Src: Intel\_8f:c4:29 (cc:d9:ac:8f:c4:29), Dst: ZyxelCommuni\_f5:53:8c (b8:d5:26:f5:53:8c)
- Internet Protocol Version 4, Src: 192.168.0.37, Dst: 1.1.1.1
- User Datagram Protocol, Src Port: 52668, Dst Port: 53
- Domain Name System (query)

Query -> User Datagram Protocol(UDP)

No.	Time	Source	Destination	Protocol	Length	Info
13	2024-05-14 21:52:52.6...	1.1.1.1	192.168.0.37	DNS	104	Standard query response 0x745b A www.ietf.org A 104.16.44.99 A 104.16.45.99

Wireshark - Packet 13 - 20010011013\_Odev3.pcapng

- Frame 13: 104 bytes on wire (832 bits), 104 bytes captured (832 bits) on interface \Device\NPF\_{61353D1F-5179-46CB-86AD-F3FA9C187009}, id 0
- Ethernet II, Src: ZyxelCommuni\_f5:53:8c (b8:d5:26:f5:53:8c), Dst: Intel\_8f:c4:29 (cc:d9:ac:8f:c4:29)
- Internet Protocol Version 4, Src: 1.1.1.1, Dst: 192.168.0.37
- User Datagram Protocol, Src Port: 53, Dst Port: 52668
- Domain Name System (response)

Response -> User Datagram Protocol(UDP)

2. DNS sorgu mesajının port numarası nedir?

Görselde'de görüldüğü üzere Query'nin port numarası 52668'tür.

No.	Time	Source	Destination	Protocol	Length	Info
12	2024-05-14 21:52:52.4...	192.168.0.37	1.1.1.1	DNS	72	Standard query 0x745b A www.ietf.org

Wireshark - Packet 12 - 20010011013\_Odev3.pcapng

- Frame 12: 72 bytes on wire (576 bits), 72 bytes captured (576 bits) on interface \Device\NPF\_{61353D1F-5179-46CB-86AD-F3FA9C187009}, id 0
- Ethernet II, Src: Intel\_8f:c4:29 (cc:d9:ac:8f:c4:29), Dst: ZyxelCommuni\_f5:53:8c (b8:d5:26:f5:53:8c)
- Internet Protocol Version 4, Src: 192.168.0.37, Dst: 1.1.1.1
- User Datagram Protocol, Src Port: 52668, Dst Port: 53
- Source Port: 52668
- Destination Port: 53
- Length: 38
- Checksum: 0xc306 [unverified]
- [Checksum Status: Unverified]
- [Stream index: 0]
- [Timestamps]
- UDP payload (30 bytes)
- Domain Name System (query)

3. DNS cevap mesajının port numarası nedir?

Görselde'de görüldüğü üzere Response'un port numarası 53'tür.

No.	Time	Source	Destination	Protocol	Length	Info
13	2024-05-14 21:52:52.6...	1.1.1.1	192.168.0.37	DNS	104	Standard query response 0x745b A www.ietf.org A 104.16.44.99 A 104.16.45.99

Wireshark - Packet 13 - 20010011013\_Odev3.pcapng

- Frame 13: 104 bytes on wire (832 bits), 104 bytes captured (832 bits) on interface \Device\NPF\_{61353D1F-5179-46CB-86AD-F3FA9C187009}, id 0
- Ethernet II, Src: ZyxelCommuni\_f5:53:8c (b8:d5:26:f5:53:8c), Dst: Intel\_8f:c4:29 (cc:d9:ac:8f:c4:29)
- Internet Protocol Version 4, Src: 1.1.1.1, Dst: 192.168.0.37
- User Datagram Protocol, Src Port: 53, Dst Port: 52668
- Source Port: 53
- Destination Port: 52668
- Length: 70
- Checksum: 0xac31 [unverified]
- [Checksum Status: Unverified]
- [Stream index: 0]
- [Timestamps]
- UDP payload (62 bytes)
- Domain Name System (response)

4. DNS sorgu mesajını inceleyiniz. Bu sorgu mesajı herhangi bir cevap (answer) içermekte midir? İçeriyorsa bu cevabın içeriği nedir?

0 answer içermektedir o yüzden cevabın içeriğinde görüntülenemez

```

Domain Name System (query)
  Transaction ID: 0x745b
  Flags: 0x0100 Standard query
  Questions: 1
  Answer RRs: 0
  Authority RRs: 0
  Additional RRs: 0

```

```

Additional RRs: 0
Queries
  www.ietf.org: type A, class IN
    Name: www.ietf.org
    [Name Length: 12]
    [Label Count: 3]
    Type: A (1) (Host Address)
    Class: IN (0x0001)
    [Response In: 13]

```

5. DNS cevap mesajını inceleyiniz. Kaç tane cevap (answer) içermektedir? Bu cevapların her birinin içeriği nedir?

2 tane answer içermektedir.

```

UDP payload (62 bytes)
Domain Name System (response)
  Transaction ID: 0x745b
  Flags: 0x8180 Standard query response, No error
  Questions: 1
  Answer RRs: 2
  Authority RRs: 0
  Additional RRs: 0

```

Bu cevapların her birinin içeriği :

```

Answers
  www.ietf.org: type A, class IN, addr 104.16.44.99
  www.ietf.org: type A, class IN, addr 104.16.45.99
  [Request In: 12]
  [Time: 0.203966000 seconds]

```

```
Class: IN (0x0001)
▼ Answers
  ▼ www.ietf.org: type A, class IN, addr 104.16.44.99
    Name: www.ietf.org
    Type: A (1) (Host Address)
    Class: IN (0x0001)
    Time to live: 160 (2 minutes, 40 seconds)
    Data length: 4
    Address: 104.16.44.99
  ▼ www.ietf.org: type A, class IN, addr 104.16.45.99
    Name: www.ietf.org
    Type: A (1) (Host Address)
    Class: IN (0x0001)
    Time to live: 160 (2 minutes, 40 seconds)
    Data length: 4
    Address: 104.16.45.99
```