

Lab 3

Question 1. What is the IP address of www.cecs.anu.edu.au. What type of DNS query is sent to get this answer?

Answer:

```
z5190861@vx6:/tmp_amd/reed/export/reed/1/z5190861$ dig www.cecs.anu.edu.a

; <<>> DiG 9.9.5-9+deb8u18-Debian <<>> www.cecs.anu.edu.au
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 26310
;; flags: qr rd ra; QUERY: 1, ANSWER: 2, AUTHORITY: 3, ADDITIONAL: 7

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 4096
;; QUESTION SECTION:
;www.cecs.anu.edu.au.      IN      A

;; ANSWER SECTION:
www.cecs.anu.edu.au.      3045    IN      CNAME   rproxy.cecs.anu.edu.au.
rproxy.cecs.anu.edu.au.  3051    IN      A       150.203.161.98

;; AUTHORITY SECTION:
cecs.anu.edu.au.          219     IN      NS       ns2.cecs.anu.edu.au.
cecs.anu.edu.au.          219     IN      NS       ns4.cecs.anu.edu.au.
cecs.anu.edu.au.          219     IN      NS       ns3.cecs.anu.edu.au.

;; ADDITIONAL SECTION:
ns2.cecs.anu.edu.au.      2394    IN      A        150.203.161.36
ns2.cecs.anu.edu.au.      2394    IN      AAAA     2001:388:1034:2905::24
ns3.cecs.anu.edu.au.      219     IN      A        150.203.161.50
ns3.cecs.anu.edu.au.      2394    IN      AAAA     2001:388:1034:2905::32
ns4.cecs.anu.edu.au.      219     IN      A        150.203.161.38
ns4.cecs.anu.edu.au.      2394    IN      AAAA     2001:388:1034:2905::26

;; Query time: 0 msec
;; SERVER: 129.94.242.2#53(129.94.242.2)
;; WHEN: Sat Mar 14 15:34:10 AEDT 2020
;; MSG SIZE rcvd: 271
```

The IP address is 150.203.161.98

Type A

Question 2. What is the canonical name for the CECS ANU web server? Suggest a reason for having an alias for this server.

Answer:

Canonical name: rproxy.cecs.anu.edu.au

Alias is useful for running multiple services. And alias is also easy for users to remember and type in the address field.

Question 3. What can you make of the rest of the response (i.e. the details available in the Authority and Additional sections)?

Answer:

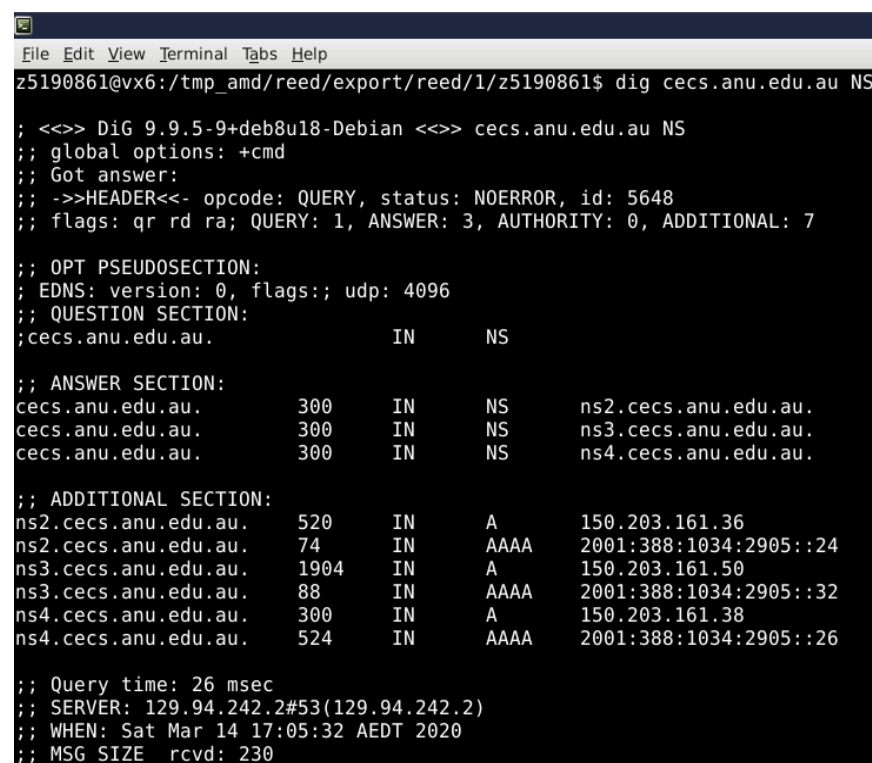
Authority section: NS records, three authority servers: ns2.cecs.anu.edu.au, ns4.cecs.anu.edu.au, ns3.cecs.anu.edu.au

Additional section: type A, DNS authority servers map to the DNS authority server IP addresses.

Question 4. What is the IP address of the local nameserver for your machine?

Answer: IP address: 129.94.242.2

Question 5. What are the DNS nameservers for the “cecs.anu.edu.au” domain (note: the domain name is cecs.anu.edu.au and not www.cecs.anu.edu.au)? Find out their IP addresses? What type of DNS query is sent to obtain this information?



```
File Edit View Terminal Tabs Help
z5190861@vx6:/tmp_amd/reed/export/reed/1/z5190861$ dig cecs.anu.edu.au NS

;; <<>> DiG 9.9.5-9+deb8u18-Debian <<>> cecs.anu.edu.au NS
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 5648
;; flags: qr rd ra; QUERY: 1, ANSWER: 3, AUTHORITY: 0, ADDITIONAL: 7

;; OPT PSEUDOSECTION:
;; EDNS: version: 0, flags:; udp: 4096
;; QUESTION SECTION:
;cecs.anu.edu.au.          IN      NS

;; ANSWER SECTION:
cecs.anu.edu.au.          300     IN      NS      ns2.cecs.anu.edu.au.
cecs.anu.edu.au.          300     IN      NS      ns3.cecs.anu.edu.au.
cecs.anu.edu.au.          300     IN      NS      ns4.cecs.anu.edu.au.

;; ADDITIONAL SECTION:
ns2.cecs.anu.edu.au.      520     IN      A        150.203.161.36
ns2.cecs.anu.edu.au.      74      IN      AAAA     2001:388:1034:2905::24
ns3.cecs.anu.edu.au.      1904    IN      A        150.203.161.50
ns3.cecs.anu.edu.au.      88      IN      AAAA     2001:388:1034:2905::32
ns4.cecs.anu.edu.au.      300     IN      A        150.203.161.38
ns4.cecs.anu.edu.au.      524     IN      AAAA     2001:388:1034:2905::26

;; Query time: 26 msec
;; SERVER: 129.94.242.2#53(129.94.242.2)
;; WHEN: Sat Mar 14 17:05:32 AEDT 2020
;; MSG SIZE rcvd: 230
```

NS query

ns2.cecs.anu.edu.au -> 150.203.161.36

ns3.cecs.anu.edu.au -> 150.203.161.50

ns4.cecs.anu.edu.au -> 150.203.161.38

Question 6. What is the DNS name associated with the IP address 111.68.101.54? What type of DNS query is sent to obtain this information?

Answer:

```
z5190861@vx6:/tmp_amd/reed/export/reed/1/z5190861$ dig -x 111.68.101.54

; <<>> DiG 9.9.5-9+deb8u18-Debian <<>> -x 111.68.101.54
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 2036
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 2, ADDITIONAL: 3

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 4096
;; QUESTION SECTION:
;54.101.68.111.in-addr.arpa.      IN      PTR

;; ANSWER SECTION:
54.101.68.111.in-addr.arpa. 689 IN      PTR      webserver.seecs.nust.edu.pk.

;; AUTHORITY SECTION:
101.68.111.in-addr.arpa. 64204 IN      NS       ns1.hec.gov.pk.
101.68.111.in-addr.arpa. 64204 IN      NS       ns2.hec.gov.pk.

;; ADDITIONAL SECTION:
ns1.hec.gov.pk.             689      IN      A        103.4.93.5
ns2.hec.gov.pk.             689      IN      A        103.4.93.6

;; Query time: 0 msec
;; SERVER: 129.94.242.2#53(129.94.242.2)
;; WHEN: Sat Mar 14 17:18:04 AEDT 2020
;; MSG SIZE rcvd: 172
```

DNS name: webserver.seecs.nust.edu.pk

PTR query

Question 7. Run dig and query the CSE nameserver (129.94.242.33) for the mail servers for Yahoo! Mail (again the domain name is yahoo.com, not www.yahoo.com). Did you get an authoritative answer? Why? (HINT: Just because a response contains information in the authoritative part of the DNS response message does not mean it came from an authoritative name server. You should examine the flags in the response to determine the answer)

Answer:

```

z5190861@vx6:/tmp_amd/reed/export/reed/1/z5190861$ dig @129.94.242.33 yahoo.com MX

;<<> DiG 9.9.5-9+deb8u18-Debian <<> @129.94.242.33 yahoo.com MX
; (1 server found)
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 41895
;; flags: qr rd ra; QUERY: 1, ANSWER: 3, AUTHORITY: 5, ADDITIONAL: 10

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 4096
;; QUESTION SECTION:
;yahoo.com.                IN      MX

;; ANSWER SECTION:
yahoo.com.                1800    IN      MX      1 mta7.am0.yahoodns.net.
yahoo.com.                1800    IN      MX      1 mta5.am0.yahoodns.net.
yahoo.com.                1800    IN      MX      1 mta6.am0.yahoodns.net.

;; AUTHORITY SECTION:
yahoo.com.                2838    IN      NS      ns5.yahoo.com.
yahoo.com.                2838    IN      NS      ns3.yahoo.com.
yahoo.com.                2838    IN      NS      ns1.yahoo.com.
yahoo.com.                2838    IN      NS      ns4.yahoo.com.
yahoo.com.                2838    IN      NS      ns2.yahoo.com.

;; ADDITIONAL SECTION:
ns1.yahoo.com.            322269 IN      A       68.180.131.16
ns1.yahoo.com.            59847   IN      AAAA    2001:4998:130::1001
ns2.yahoo.com.            278071 IN      A       68.142.255.16
ns2.yahoo.com.            59847   IN      AAAA    2001:4998:140::1002
ns3.yahoo.com.            767     IN      A       27.123.42.42
ns3.yahoo.com.            767     IN      AAAA    2406:8600:f03f:1f8::1003
ns4.yahoo.com.            423616 IN      A       98.138.11.157
ns5.yahoo.com.            75893   IN      A       202.165.97.53
ns5.yahoo.com.            3074    IN      AAAA    2406:2000:ff60::53

;; Query time: 156 msec
;; SERVER: 129.94.242.33#53(129.94.242.33)
;; WHEN: Sat Mar 14 17:34:49 AEDT 2020
;; MSG SIZE rcvd: 399

```

No, there is no authoritative answer.

Flags: qr rd ra

Reason: CSE machine does not have the authority to access the authority answer of Yahoo.

Question 8. Repeat the above (i.e. Question 7) but use one of the nameservers obtained in Question 5. What is the result?

```

z5190861@vx6:/tmp_amd/reed/export/reed/1/z5190861$ dig @ns2.cecs.anu.edu.au yahoo.com MX

;<<> DiG 9.9.5-9+deb8u18-Debian <<> @ns2.cecs.anu.edu.au yahoo.com MX
; (1 server found)
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: REFUSED, id: 54429
;; flags: qr rd; QUERY: 1, ANSWER: 0, AUTHORITY: 0, ADDITIONAL: 1
;; WARNING: recursion requested but not available

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 4096
;; QUESTION SECTION:
;yahoo.com.                IN      MX

;; Query time: 8 msec
;; SERVER: 150.203.161.36#53(150.203.161.36)
;; WHEN: Sat Mar 14 17:49:02 AEDT 2020
;; MSG SIZE rcvd: 38

```

Status: REFUSED

There is no result.

Question 9. Obtain the authoritative answer for the mail servers for Yahoo! mail. What type of DNS query is sent to obtain this information?

Answer:

```
File Edit View Terminal Tabs Help
z5190861@vx6:/tmp_amd/reed/export/reed/1/z5190861$ dig @ns1.yahoo.com yahoo.com MX

; <<>> DiG 9.9.5-9+deb8u18-Debian <<>> @ns1.yahoo.com yahoo.com MX
; (1 server found)
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 38423
;; flags: qr aa rd; QUERY: 1, ANSWER: 3, AUTHORITY: 5, ADDITIONAL: 10
;; WARNING: recursion requested but not available

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1272
;; QUESTION SECTION:
;yahoo.com.                IN      MX

;; ANSWER SECTION:
yahoo.com.                1800    IN      MX      1 mta5.am0.yahoodns.net.
yahoo.com.                1800    IN      MX      1 mta7.am0.yahoodns.net.
yahoo.com.                1800    IN      MX      1 mta6.am0.yahoodns.net.

;; AUTHORITY SECTION:
yahoo.com.                172800  IN      NS      ns5.yahoo.com.
yahoo.com.                172800  IN      NS      ns2.yahoo.com.
yahoo.com.                172800  IN      NS      ns1.yahoo.com.
yahoo.com.                172800  IN      NS      ns3.yahoo.com.
yahoo.com.                172800  IN      NS      ns4.yahoo.com.

;; ADDITIONAL SECTION:
ns1.yahoo.com.            1209600 IN      A       68.180.131.16
ns2.yahoo.com.            1209600 IN      A       68.142.255.16
ns3.yahoo.com.            1800    IN      A       27.123.42.42
ns4.yahoo.com.            1209600 IN      A       98.138.11.157
ns5.yahoo.com.            86400   IN      A       202.165.97.53
ns1.yahoo.com.            86400   IN      AAAA    2001:4998:130::1001
ns2.yahoo.com.            86400   IN      AAAA    2001:4998:140::1002
ns3.yahoo.com.            1800    IN      AAAA    2406:8600:f03f:1f8::1003
ns5.yahoo.com.            86400   IN      AAAA    2406:2000:ff60::53

;; Query time: 146 msec
;; SERVER: 68.180.131.16#53(68.180.131.16)
;; WHEN: Sat Mar 14 17:54:08 AEDT 2020
;; MSG SIZE rcvd: 399
```

MX query

Question 10. In this exercise you simulate the iterative DNS query process to find the IP address of your machine (e.g. lyre00.cse.unsw.edu.au). First, find the name server (query type NS) of the "." domain (root domain). Query this nameserver to find the authoritative name server for the "au." domain. Query this second server to find the authoritative nameserver for the "edu.au." domain. Now query this nameserver to find

the authoritative nameserver for "unsw.edu.au". Next query the nameserver of unsw.edu.au to find the authoritative name server of cse.unsw.edu.au. Now query the nameserver of cse.unsw.edu.au to find the IP address of your host. How many DNS servers do you have to query to get the authoritative answer?

Answer:

```
File Edit View Terminal Tabs Help
z5190861@vx8:/tmp_amd/reed/export/reed/1/z5190861$ dig .NS
dig: '.NS' is not a legal name (empty label)
z5190861@vx8:/tmp_amd/reed/export/reed/1/z5190861$ clear
z5190861@vx8:/tmp_amd/reed/export/reed/1/z5190861$ dig . NS

; <<>> DiG 9.9.5-9+deb8u18-Debian <<>> . NS
;; global options: +cmd
;; Got answer:
;; ->HEADER<- opcode: QUERY, status: NOERROR, id: 6537
;; flags: qr rd ra; QUERY: 1, ANSWER: 13, AUTHORITY: 0, ADDITIONAL:
;
;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 4096
;; QUESTION SECTION:
; .                               IN      NS

;; ANSWER SECTION:
.       74172    IN      NS      a.root-servers.net.
.       74172    IN      NS      e.root-servers.net.
.       74172    IN      NS      b.root-servers.net.
.       74172    IN      NS      h.root-servers.net.
.       74172    IN      NS      i.root-servers.net.
.       74172    IN      NS      d.root-servers.net.
.       74172    IN      NS      f.root-servers.net.
.       74172    IN      NS      c.root-servers.net.
.       74172    IN      NS      g.root-servers.net.
.       74172    IN      NS      j.root-servers.net.
.       74172    IN      NS      l.root-servers.net.
.       74172    IN      NS      k.root-servers.net.
.       74172    IN      NS      m.root-servers.net.

;; ADDITIONAL SECTION:
a.root-servers.net. 164721 IN      A       198.41.0.4
a.root-servers.net. 196514 IN      AAAA    2001:503:ba3e::2:30
b.root-servers.net. 233339 IN      A       199.9.14.201
b.root-servers.net. 407721 IN      AAAA    2001:500:200::b
c.root-servers.net. 215956 IN      A       192.33.4.12
c.root-servers.net. 25388  IN      AAAA    2001:500:2::c
d.root-servers.net. 306365 IN      A       199.7.91.13
d.root-servers.net. 25388  IN      AAAA    2001:500:2d::d
e.root-servers.net. 57989  IN      A       192.203.230.10
e.root-servers.net. 66428  IN      AAAA    2001:500:a8::e
f.root-servers.net. 308365 IN      A       192.5.5.241
f.root-servers.net. 516539 IN      AAAA    2001:500:2f::f
g.root-servers.net. 227234 IN      A       192.112.36.4
g.root-servers.net. 206848 IN      AAAA    2001:500:12::d0d
h.root-servers.net. 312972 IN      A       198.97.190.53
i.root-servers.net. 393588 IN      A       192.36.148.17
j.root-servers.net. 520253 IN      A       192.58.128.30
j.root-servers.net. 60322  IN      AAAA    2001:503:c27::2:30
k.root-servers.net. 308197 IN      A       193.0.14.129
k.root-servers.net. 65190  IN      AAAA    2001:7fd::1
```

step 1:

```

z5190861@vx8:/tmp_amd/reed/export/reed/1/z5190861$ dig @198.41.0.4 lyre00.cse.unsw.edu.au NS
; <<>> DiG 9.9.5-9+deb8u18-Debian <<>> @198.41.0.4 lyre00.cse.unsw.edu.au NS
; (1 server found)
; global options: +cmd
; Got answer:
; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 30130
; flags: qr rd; QUERY: 1, ANSWER: 0, AUTHORITY: 9, ADDITIONAL: 19
; WARNING: recursion requested but not available

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1472
;; QUESTION SECTION:
;lyre00.cse.unsw.edu.au.                IN      NS

;; AUTHORITY SECTION:
au.                172800  IN      NS      a.au.
au.                172800  IN      NS      c.au.
au.                172800  IN      NS      d.au.
au.                172800  IN      NS      m.au.
au.                172800  IN      NS      n.au.
au.                172800  IN      NS      q.au.
au.                172800  IN      NS      r.au.
au.                172800  IN      NS      s.au.
au.                172800  IN      NS      t.au.

;; ADDITIONAL SECTION:
a.au.                172800  IN      A        58.65.254.73
c.au.                172800  IN      A        162.159.24.179
d.au.                172800  IN      A        162.159.25.38
m.au.                172800  IN      A        156.154.100.24
n.au.                172800  IN      A        156.154.101.24
q.au.                172800  IN      A        65.22.196.1
r.au.                172800  IN      A        65.22.197.1
s.au.                172800  IN      A        65.22.198.1
t.au.                172800  IN      A        65.22.199.1
a.au.                172800  IN      AAAA     2407:6e00:254:306::73
c.au.                172800  IN      AAAA     2400:cb00:2049:1::a29f:18b3
d.au.                172800  IN      AAAA     2400:cb00:2049:1::a29f:1926
m.au.                172800  IN      AAAA     2001:502:2eda::24
n.au.                172800  IN      AAAA     2001:502:ad09::24
q.au.                172800  IN      AAAA     2a01:8840:be::1
r.au.                172800  IN      AAAA     2a01:8840:bf::1
s.au.                172800  IN      AAAA     2a01:8840:c0::1
t.au.                172800  IN      AAAA     2a01:8840:c1::1

;; Query time: 117 msec
;; SERVER: 198.41.0.4#53(198.41.0.4)
;; WHEN: Sat Mar 14 22:04:15 AEDT 2020
;; MSG SIZE rcvd: 591

```

step 2:

```

z5190861@vx8:/tmp_amd/reed/export/reed/1/z5190861$ dig @58.65.254.73 lyre00.cse.unsw.edu.au NS
; <<>> DiG 9.9.5-9+deb8u18-Debian <<>> @58.65.254.73 lyre00.cse.unsw.edu.au NS
; (1 server found)
; global options: +cmd
; Got answer:
; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 43578
; flags: qr rd; QUERY: 1, ANSWER: 0, AUTHORITY: 4, ADDITIONAL: 9
; WARNING: recursion requested but not available

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 4096
;; QUESTION SECTION:
;lyre00.cse.unsw.edu.au.                IN      NS

;; AUTHORITY SECTION:
edu.au.            86400  IN      NS      s.au.
edu.au.            86400  IN      NS      q.au.
edu.au.            86400  IN      NS      r.au.
edu.au.            86400  IN      NS      t.au.

;; ADDITIONAL SECTION:
q.au.                86400  IN      A        65.22.196.1
r.au.                86400  IN      A        65.22.197.1
s.au.                86400  IN      A        65.22.198.1
t.au.                86400  IN      A        65.22.199.1
q.au.                86400  IN      AAAA     2a01:8840:be::1
r.au.                86400  IN      AAAA     2a01:8840:bf::1
s.au.                86400  IN      AAAA     2a01:8840:c0::1
t.au.                86400  IN      AAAA     2a01:8840:c1::1

;; Query time: 16 msec
;; SERVER: 58.65.254.73#53(58.65.254.73)
;; WHEN: Sat Mar 14 22:05:28 AEDT 2020
;; MSG SIZE rcvd: 291

```

step 3:

```

z5190861@vx8:/tmp_amd/reed/export/reed/1/z5190861$ dig @65.22.196.1 lyre00.cse.unsw.edu.au NS
; <<>> DiG 9.9.5-9+deb8u18-Debian <<>> @65.22.196.1 lyre00.cse.unsw.edu.au NS
; (1 server found)
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 23583
;; flags: qr rd; QUERY: 1, ANSWER: 0, AUTHORITY: 3, ADDITIONAL: 6
;; WARNING: recursion requested but not available

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 4096
;; QUESTION SECTION:
;lyre00.cse.unsw.edu.au.                IN      NS

;; AUTHORITY SECTION:
unsw.edu.au.                900      IN      NS      ns2.unsw.edu.au.
unsw.edu.au.                900      IN      NS      ns1.unsw.edu.au.
unsw.edu.au.                900      IN      NS      ns3.unsw.edu.au.

;; ADDITIONAL SECTION:
ns1.unsw.edu.au.            900      IN      A        129.94.0.192
ns2.unsw.edu.au.            900      IN      A        129.94.0.193
ns3.unsw.edu.au.            900      IN      A        192.155.82.178
ns1.unsw.edu.au.            900      IN      AAAA     2001:388:c:35::1
ns2.unsw.edu.au.            900      IN      AAAA     2001:388:c:35::2

;; Query time: 56 msec
;; SERVER: 65.22.196.1#53(65.22.196.1)
;; WHEN: Sat Mar 14 22:09:54 AEDT 2020
;; MSG SIZE rcvd: 209

```

step 4:

```

z5190861@vx8:/tmp_amd/reed/export/reed/1/z5190861$ dig @129.94.0.192 lyre00.cse.unsw.edu.au NS
; <<>> DiG 9.9.5-9+deb8u18-Debian <<>> @129.94.0.192 lyre00.cse.unsw.edu.au NS
; (1 server found)
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 45368
;; flags: qr rd; QUERY: 1, ANSWER: 0, AUTHORITY: 2, ADDITIONAL: 5
;; WARNING: recursion requested but not available

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 4096
;; QUESTION SECTION:
;lyre00.cse.unsw.edu.au.                IN      NS

;; AUTHORITY SECTION:
cse.unsw.edu.au.            10800    IN      NS      beethoven.orchestra.cse.unsw.edu.au.
cse.unsw.edu.au.            10800    IN      NS      maestro.orchestra.cse.unsw.edu.au.

;; ADDITIONAL SECTION:
beethoven.orchestra.cse.unsw.edu.au. 10800    IN      A        129.94.172.11
beethoven.orchestra.cse.unsw.edu.au. 10800    IN      A        129.94.208.3
beethoven.orchestra.cse.unsw.edu.au. 10800    IN      A        129.94.242.2
maestro.orchestra.cse.unsw.edu.au. 10800    IN      A        129.94.242.33

;; Query time: 4 msec
;; SERVER: 129.94.0.192#53(129.94.0.192)
;; WHEN: Sat Mar 14 22:10:21 AEDT 2020
;; MSG SIZE rcvd: 171

```

step 5:


```

z5190861@vx8:/tmp_amd/reed/export/reed/1/z5190861$ dig @129.94.172.11 lyre00.cse.unsw.edu.au A
; <<> DiG 9.9.5-9+deb8u18-Debian <<> @129.94.172.11 lyre00.cse.unsw.edu.au A
; (1 server found)
;; global options: +cmd
;; Got answer:
;; ->HEADER<<- opcode: QUERY, status: NOERROR, id: 18570
;; flags: qr aa rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 2, ADDITIONAL: 3

;; OPT PSEUDOSECTION:
;; EDNS: version: 0, flags:; udp: 4096
;; QUESTION SECTION:
;lyre00.cse.unsw.edu.au.          IN      A

;; ANSWER SECTION:
lyre00.cse.unsw.edu.au. 3600    IN      A      129.94.210.20

;; AUTHORITY SECTION:
cse.unsw.edu.au.        3600    IN      NS      beethoven.orchestra.cse.unsw.edu.au.
cse.unsw.edu.au.        3600    IN      NS      maestro.orchestra.cse.unsw.edu.au.

;; ADDITIONAL SECTION:
maestro.orchestra.cse.unsw.edu.au. 3600 IN A      129.94.242.33
beethoven.orchestra.cse.unsw.edu.au. 3600 IN A      129.94.242.2

;; Query time: 0 msec
;; SERVER: 129.94.172.11#53(129.94.172.11)
;; WHEN: Sat Mar 14 22:11:57 AEDT 2020
;; MSG SIZE rcvd: 155

```

Totally 5 queries.

My IP address is 129.94.210.20

Question 11. Can one physical machine have several names and/or IP addresses associated with it?

Answer: Yes. One machine may have more than one network interface, and one network interface is associated with more than one IP address.