

Exercise 3

Q1:

```
:: ANSWER SECTION:
www.eecs.berkeley.edu. 71730 IN CNAME live.eecs.pantheonsite.io.
live.eecs.pantheonsite.io. 289 IN CNAME fel.edge.pantheon.io.
fel.edge.pantheon.io. 300 IN A 23.185.0.1
```

The IP address of `www.eecs.berkeley.edu` is `23.185.0.1`. The type of DNS query is “A”, which means sent to get the IPV4 address.

Q2:

As the figure showed in Q1, the canonical name is “`live.eecs.pantheonsite.io`” and the “`live.eecs.pantheonsite.io`” has the canonical name that “`fel.edge.pantheon.io`”

Aliases (when present) are easier to remember than host canonical names. Applications can call DNS to obtain the canonical hostname corresponding to the host alias and the IP address of the host.

Q3:

```
:: AUTHORITY SECTION:
edge.pantheon.io. 239 IN NS ns-233.awsdns-29.com.
edge.pantheon.io. 239 IN NS ns-1213.awsdns-23.org.
edge.pantheon.io. 239 IN NS ns-2013.awsdns-59.co.uk.
edge.pantheon.io. 239 IN NS ns-644.awsdns-16.net.

:: ADDITIONAL SECTION:
ns-233.awsdns-29.com. 38009 IN A 205.251.192.233
ns-644.awsdns-16.net. 20184 IN A 205.251.194.132
ns-1213.awsdns-23.org. 139012 IN A 205.251.196.189
ns-2013.awsdns-59.co.uk. 62038 IN A 205.251.199.221
ns-2013.awsdns-59.co.uk. 62038 IN AAAA 2600:9000:5307:dd00::1
```

In the Authority section, each line is what is the name server corresponding to the URL, and in the Additional section: each line corresponds the IPV4 and IPV6 addresses of its name server.

Q4:

```
:: Query time: 0 msec
:: SERVER: 129.94.242.2#53(129.94.242.2)
:: WHEN: Tue Oct 11 00:39:09 AEDT 2022
:: MSG SIZE rcvd: 369
```

the IP address of the local nameserver for my machine is `129.94.242.2`

Q5:

```

z5338602@vx03:~$ dig eecs.berkeley.edu NS
; <<> DiG 9.16.33-Debian <<> eecs.berkeley.edu NS
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 52902
;; flags: qr rd ra; QUERY: 1, ANSWER: 5, AUTHORITY: 0, ADDITIONAL: 10
;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 4096
;; QUESTION SECTION:
;eecs.berkeley.edu.          IN      NS
;; ANSWER SECTION:
eecs.berkeley.edu.          53723   IN      NS      ns.CS.berkeley.edu.
eecs.berkeley.edu.          53723   IN      NS      adns3.berkeley.edu.
eecs.berkeley.edu.          53723   IN      NS      ns.eecs.berkeley.edu.
eecs.berkeley.edu.          53723   IN      NS      adns1.berkeley.edu.
eecs.berkeley.edu.          53723   IN      NS      adns2.berkeley.edu.

```

the DNS nameservers for the “eecs.berkeley.edu.” is the responding of the Answer section in the figure like the ns.CS.berkeley.edu and so on.

Q6 :

```

z5338602@vx03:~$ dig -x 111.68.101.54
; <<> DiG 9.16.33-Debian <<> -x 111.68.101.54
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 56482
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 2, ADDITIONAL: 1
;; 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. 1787 IN   PTR    webserver.seecs.nust.edu.pk.

```

The DNS name is webserver.seecs.nust.edu.pk. Send the query “PTR” to obtain this information.

Q7:

```

z5338602@vx03:~$ dig @129.94.242.33 yahoo.com MX
; <<> DiG 9.16.33-Debian <<> @129.94.242.33 yahoo.com MX
; (1 server found)
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 35658
;; flags: qr rd ra; QUERY: 1, ANSWER: 3, AUTHORITY: 5, ADDITIONAL: 10

```

In the last line, it has not include the “aa” (which means the authoritative answer), so I do not get an authoritative answer. The reason that we do not get an authoritative answer is that we are using the CSE server request the answer.

Q8 :

```

z5338602@vx03:~$ dig ns.CS.berkeley.edu
; <<> DiG 9.16.33-Debian <<> ns.CS.berkeley.edu
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 49960
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 3, ADDITIONAL: 7
;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 4096
;; QUESTION SECTION:
;ns.CS.berkeley.edu.          IN      A
;; ANSWER SECTION:
ns.CS.berkeley.edu.          56040   IN      A        169.229.60.61

```

The result is the name server' s IPV4 address, is 169.229.60.61

Q9 :

```
z5338602@vx03:~$ dig @202.165.97.53 yahoo.com MX
; <<> DiG 9.16.33-Debian <<> @202.165.97.53 yahoo.com MX
; (1 server found)
;; global options: +cmd
;; Got answer:
;; ->HEADER<<- opcode: QUERY, status: NOERROR, id: 27251
;; flags: qr aa rd; QUERY: 1, ANSWER: 3, AUTHORITY: 0, ADDITIONAL: 1
;; WARNING: recursion requested but not available
```

"202.165.97.53" is the IP address of the Yahoo domain name. Using the MX query to obtain this information.

Q10:

The query include:

Dig . NS

Dig @198.41.0.4 au.

Dig @162.159.25.38 edu.au.

Dig @65.22.196.1 unsw.edu.au.

Dig @129.94.0.192 lyre00.cse.unsw.edu.au A

Dig @129.94.242.2 lyre00.cse.unsw.edu.au A

```
; <<> DiG 9.16.33-Debian <<> @129.94.242.2 lyre00.cse.unsw.edu.au A
; (1 server found)
;; global options: +cmd
;; Got answer:
;; ->HEADER<<- opcode: QUERY, status: NOERROR, id: 64942
;; 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: 129.94.242.2#53(129.94.242.2)
;; WHEN: Tue Oct 11 01:48:04 AEDT 2022
;; MSG SIZE rcvd: 177
```

There is a aa(authoritative answer) in the answer, so it is in the end.

So I have to query 6 servers to get the authoritative answer?

Q11:

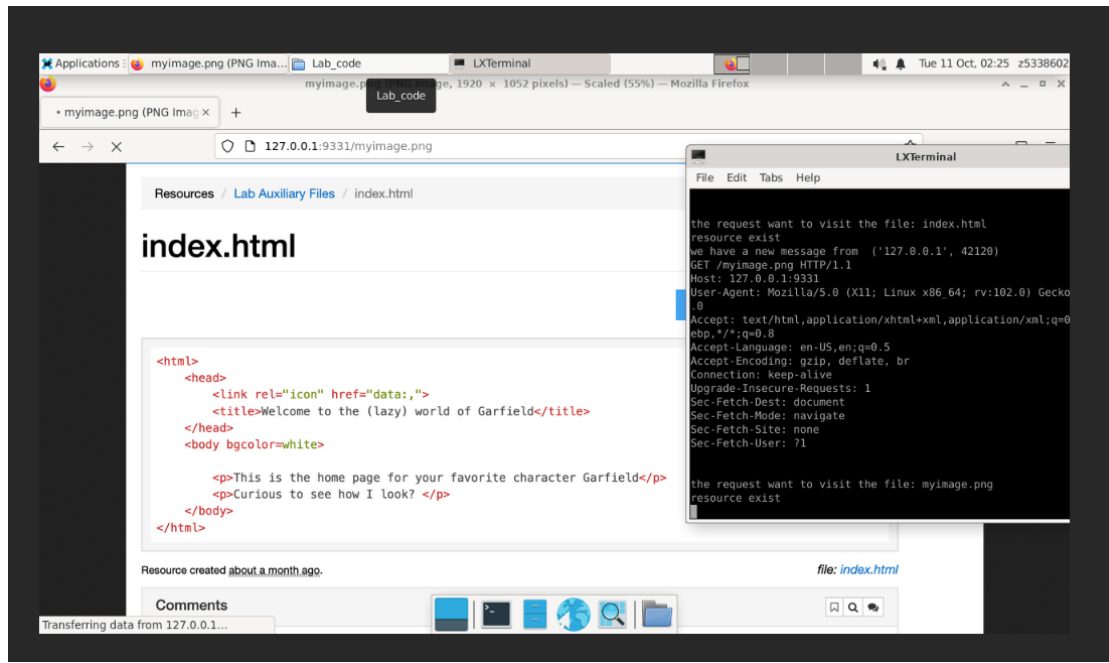
Yes, A computer can have more than one ip address at a time. We can have multiple IP addresses in a single computer with following ways:

1. Add additional Network Adaptor in the system
2. Add Another IP Address in the same network adaptor.

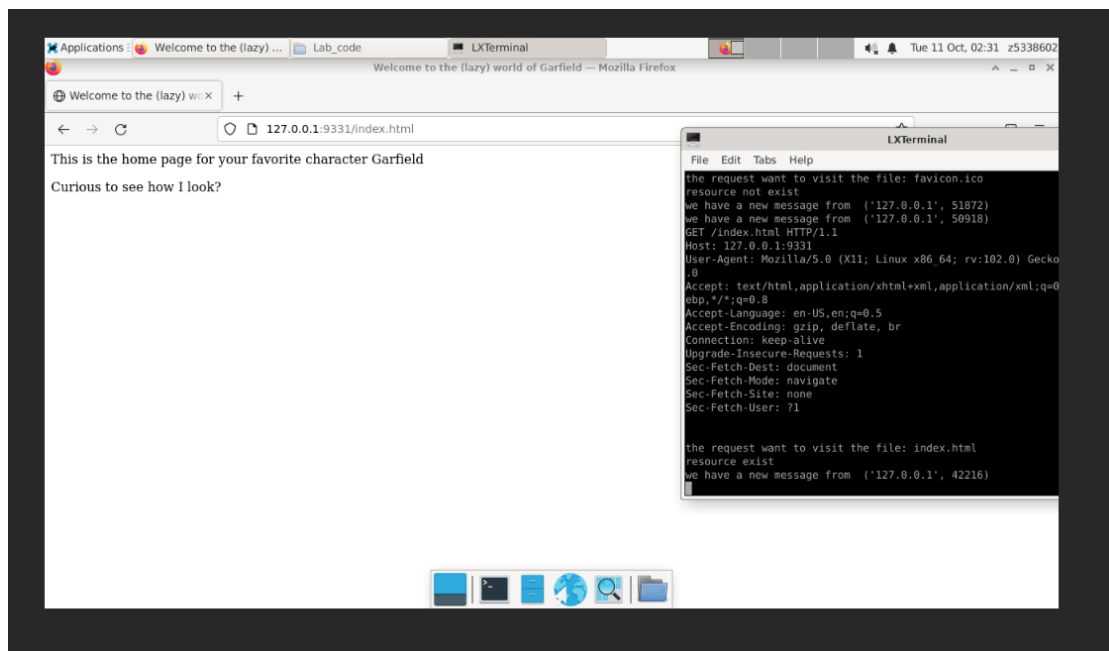
Exercise 4

The python version is python 3.

Firstly, find a exist png file.



Then, find a exist html file



Lastly, find a not exist html file.

