SYSTEM PRACTICUM REPORT

CS307 - ASSIGNMENT 4

Group 1

Ravi Kumar (B19191)

Prashant Kumar (B19101)

Gaurav Sahitya (B19083)

Saloni Patidar (B19111)

Sagar tarafdar (B19110)

Shubham Saurav (B19222)

Question 1 (Exploring IP addresses):

A.

Saloni's Laptop:

IP Address using ipconfig/ifconfig = 172.16.22.203

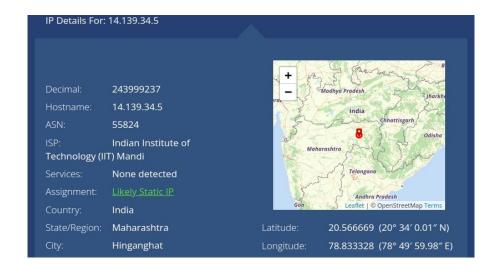
```
saloni@saloni=MP-Pavilion=Notebook=15-bc5xxx:=$ ifconfig
eno1: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500
    ether 80:e8:2c:23:3c:51 txqueuelen 1000 (Ethernet)
    RX packets 0 bytes 0 (0.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 0 bytes 0 (0.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 1000 (Local Loopback)
    RX packets 13565 bytes 1225370 (1.2 MB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 13565 bytes 1225370 (1.2 MB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

virbr0: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500
    inet 192.168.122.1 netmask 255.255.255.0 broadcast 192.168.122.255
    ether 52:54:00:48:ce:b1 txqueuelen 1000 (Ethernet)
    RX packets 0 bytes 0 (0.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 0 bytes 0 (0.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

wlo1: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 172.16.22.203 netmask 255.255.255.0 broadcast 172.16.22.255
    inet6 fe80:i6dee:66ed:dodd:cddf prefixlen 64 scopeid 0x20link> ether c0:b5:d7:24:1f:6f txqueuelen 1000 (Ethernet)
    RX packets 591893 bytes 507031211 (507.0 MB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 309621 bytes 52240023 (52.2 MB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

IP Address using ip2location.com = 14.139.34.5



Shubham's Laptop

IP Address using ipconfig/ifconfig = 172.16.8.196

```
Wireless LAN adapter Wi-Fi:

Connection-specific DNS Suffix .: gateway.iitmandi.ac.in
Link-local IPv6 Address . . . : fe80::b9f2:fe5a:5d75:621f%4
IPv4 Address . . . . . : 172.16.8.196
Subnet Mask . . . . . . . : 255.255.255.0
Default Gateway . . . . : 172.16.8.1

Ethernet adapter Bluetooth Network Connection:

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

IP Address using ip2location.com = 14.139.34.5

Your IP Address	Domain	Is Proxy
14.139.34.5	iitmandi.ac.in	No
Country	Net Speed	Proxy Type
India	DSL	
Region	IDD & Area Code	Proxy ASN
Maharashtra	+(91) 080	
City	ZIP Code	Security Threat
Hinganghat	442307	
Coordinates	Weather Station	Proxy Last Seen
20.56667, 78.83333	Wardha (INXX0137)	35)
ISP	Elevation	Address Type
Indian Institute of Technology (IIT) Mandi	209 m	(U) Unicast

Ravi's Laptop:

IP Address using ipconfig/ifconfig = 192.169.118.36

IP Address using ip2location.com = 205.253.126.104

Observations:

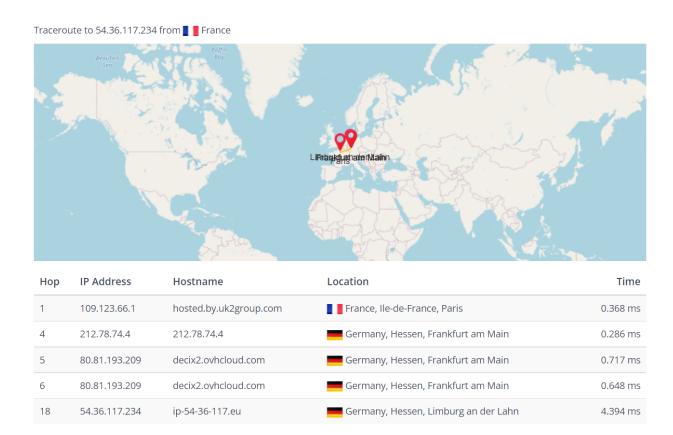
From the above IP Addresses we can say that they are not same in any cases. There is a mismatch between IP addresses obtained from ifconfig/ipconfig and from ip2location.

The reason for this is that there are categories in IP Addresses - Private IPs and Public IPs. Also in the first two cases we can see that Saloni's IP from IP2Location and Shubham's IP from IP2Location are same because they were connected to same WIFI network i.e., IIT Mandi WIfi. The IP provided by ifconfig is Private IP on the network of IIT Mandi and IP obtained from ip2location is the public IP of the IIT Mandi Gateway.

В.

```
C:\Users\91960>tracert 54.36.117.234
Tracing route to ip-54-36-117.eu [54.36.117.234]
over a maximum of 30 hops:
                 1 ms
                          1 ms 192.168.35.238
  2
                                 Request timed out.
                45 ms
                                10.72.120.3
      176 ms
                         38 ms
                         163 ms
                74 ms
      201 ms
                                172.26.27.131
      180 ms
               238 ms
                         49 ms 172.26.127.34
                                 Request timed out.
                                 Request timed out.
  8
                                 Request timed out.
  9
                                 Request timed out.
 10
                                 Request timed out.
 11
      240 ms
               187 ms
                        240 ms
                                103.198.140.174
 12
               201 ms
                        213 ms
                                103.198.140.213
      284 ms
 13
      281 ms
               203 ms
                         210 ms
                                ovh.mrs.franceix.net [37.49.232.27]
 14
                                 Request timed out.
 15
                                 Request timed out.
 16
                                 Request timed out.
      419 ms
                        435 ms par-gsw-sbb1-nc5.fr.eu [54.36.50.228]
 17
               285 ms
      246 ms
               377 ms
                        295 ms be102.sbg-g2-nc5.fr.eu [91.121.215.218]
 19
                         280 ms be105.fra-fr5-sbb2-nc5.de.eu [91.121.215.197]
      228 ms
               210 ms
                                 fra1-lim1-g2-8k.de.eu [94.23.122.247]
 20
      291 ms
 21
                                 Request timed out.
                                 Request timed out.
 22
 23
                                 Request timed out.
 24
                                 Request timed out.
 25
                                 Request timed out.
 26
                                 Request timed out.
 27
                                 Request timed out.
      237 ms
               235 ms
                        238 ms ip-54-36-117.eu [54.36.117.234]
 Trace complete.
```

Traceroute to Server In France



Traceroute using ip2location service

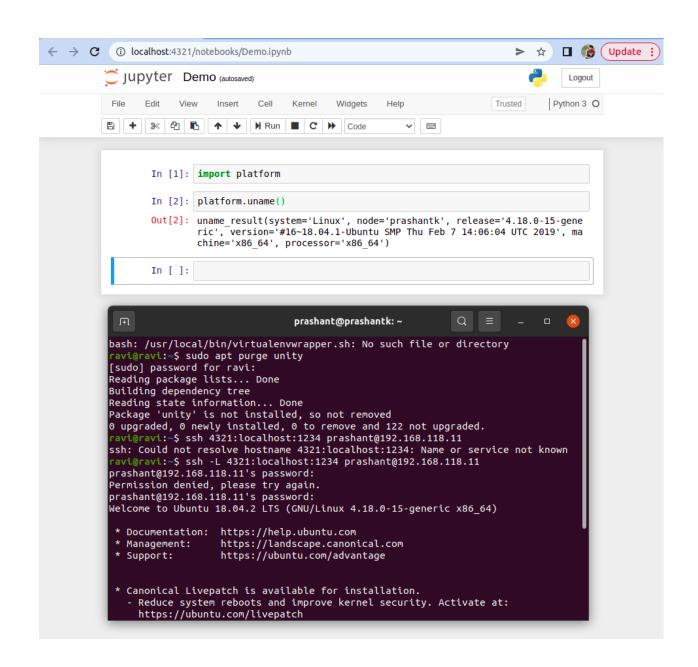
C.

a. Running the *jupyter notebook* at the specified port, **jupyter notebook --no-browser --port 1234**

This will start the jupyter notebook at the host without the browser open.

b. Establishing the connection from the host machine, ssh 4321:localhost:1234 remote@<IP of Remote>

This will establish a ssh connection to the *remote* user and create a tunnel that will bind the *4321* port of the *localhost* to the *1234* port of the *remote* user.



Question 2 (Client-Server File Transfer):

Server

```
Server started listenting on port 1110 ...
Client 1 connected.
In MAIN LOOP
DEBUG: read - 1024
DATA - reqFile try.txt
arg 1: reqFile
arg 2: try.txt
In fread 1024
file send complete
In MAIN LOOP
```

Client

```
t_folder$ ./client 127.0.0.1

Connection with Server 127.0.0.1 at port 1110

reqFile try.txt

hello!!

filename 1 : try.txt

Requested file try.txt is available. Do you want to downlaod the file? [Y/N]

Y

filename 1 : try.txt

In send_start

We are sending the file

filename - try.txt

In fwrite while loop

data_len: 24

In fwrite while loop

File successfully sent!
```

Question 3 (Error Control):

Server

```
Server is on
Listening for incoming connections at port 2001
Connection Accepted
;) No Error
;) No Error
```

Client