1. Muestra las conexiones activas de tu equipo, visualizando el proceso que realiza la conexión y las direcciones y puertos de origen y destino, la información obtenida tiene que ser parecida a la siguiente:

```
C:\Windows\system32>netstat -b

Conexiones activas
```

```
[NVIDIA Web Helper.exe]
  TCP    127.0.0.1:55528        DESKTOP-3043F1H:55511   ESTABLISHED
[NVIDIA Share.exe]
  TCP    127.0.0.1:55624        DESKTOP-3043F1H:55625   ESTABLISHED
[PlexScriptHost.exe]
  TCP    127.0.0.1:55625        DESKTOP-3043F1H:55624   ESTABLISHED
[PlexScriptHost.exe]
  TCP    127.0.0.1:55645        DESKTOP-3043F1H:55646   ESTABLISHED
[Plex Dlna Server.exe]
  TCP    127.0.0.1:55646        DESKTOP-3043F1H:55645   ESTABLISHED
[Plex Dlna Server.exe]
  TCP    127.0.0.1:55647        DESKTOP-3043F1H:55648   ESTABLISHED
[Plex Dlna Server.exe]
  TCP    127.0.0.1:55648        DESKTOP-3043F1H:55647   ESTABLISHED
[Plex Dlna Server.exe]
  TCP    127.0.0.1:55649        DESKTOP-3043F1H:55650   ESTABLISHED
[Plex Dlna Server.exe]
  TCP    127.0.0.1:55650        DESKTOP-3043F1H:55649   ESTABLISHED
[Plex Dlna Server.exe]
  TCP    127.0.0.1:55651        DESKTOP-3043F1H:55652   ESTABLISHED
[Plex Dlna Server.exe]
  TCP    127.0.0.1:55652        DESKTOP-3043F1H:55651   ESTABLISHED
[Plex Dlna Server.exe]
  TCP    127.0.0.1:55653        DESKTOP-3043F1H:55654   ESTABLISHED
[Plex Dlna Server.exe]
  TCP    127.0.0.1:55654        DESKTOP-3043F1H:55653   ESTABLISHED
[Plex Dlna Server.exe]
  TCP    127.0.0.1:55655        DESKTOP-3043F1H:55656   ESTABLISHED
[Plex Dlna Server.exe]
  TCP    127.0.0.1:55656        DESKTOP-3043F1H:55655   ESTABLISHED
[Plex Dlna Server.exe]
  TCP    127.0.0.1:55657        DESKTOP-3043F1H:55658   ESTABLISHED
[Plex Dlna Server.exe]
  TCP    127.0.0.1:55658        DESKTOP-3043F1H:55657   ESTABLISHED
[Plex Dlna Server.exe]
  TCP    127.0.0.1:55659        DESKTOP-3043F1H:55660   ESTABLISHED
[Plex Dlna Server.exe]
  TCP    127.0.0.1:55660        DESKTOP-3043F1H:55659   ESTABLISHED
[Plex Dlna Server.exe]
  TCP    127.0.0.1:60094        DESKTOP-3043F1H:60095   ESTABLISHED
[firefox.exe]
  TCP    127.0.0.1:60095        DESKTOP-3043F1H:60094   ESTABLISHED
[firefox.exe]
  TCP    127.0.0.1:60098        DESKTOP-3043F1H:60099   ESTABLISHED
[firefox.exe]
  TCP    127.0.0.1:60099        DESKTOP-3043F1H:60098   ESTABLISHED
[firefox.exe]
  TCP    127.0.0.1:60104        DESKTOP-3043F1H:60105   ESTABLISHED
[firefox.exe]
  TCP    127.0.0.1:60105        DESKTOP-3043F1H:60104   ESTABLISHED
[firefox.exe]
  TCP    127.0.0.1:60127        DESKTOP-3043F1H:60128   ESTABLISHED
[firefox.exe]
  TCP    127.0.0.1:60128        DESKTOP-3043F1H:60127   ESTABLISHED
[firefox.exe]
```

2. Obtén la lista completa de IP's de los equipos conectados a la red del aula.

```
basedatos@basedatos-VirtualBox:~$ nmap -sP 192.168.25.0/24

Starting Nmap 7.60 ( https://nmap.org ) at 2020-03-06 10:00 CET
Nmap scan report for 192.168.25.9
Host is up (0.00063s latency).
Nmap scan report for 192.168.25.11
Host is up (0.00064s latency).
Nmap scan report for 192.168.25.106
Host is up (0.0065s latency).
Nmap scan report for 192.168.25.107
Host is up (0.0065s latency).
Nmap scan report for 192.168.25.109
Host is up (0.0012s latency).
Nmap scan report for 192.168.25.110
Host is up (0.0064s latency).
Nmap scan report for 192.168.25.117
Host is up (0.0057s latency).
Nmap scan report for 192.168.25.118
Host is up (0.0046s latency).
Nmap scan report for 192.168.25.119
Host is up (0.0044s latency).
Nmap scan report for 192.168.25.121
Host is up (0.0041s latency).
Nmap scan report for 192.168.25.122
Host is up (0.0039s latency).
```

```
Nmap scan report for 192.168.25.125
Host is up (0.0031s latency).
Nmap scan report for 192.168.25.126
Host is up (0.0029s latency).
Nmap scan report for 192.168.25.129
Host is up (0.0024s latency).
Nmap scan report for 192.168.25.138
Host is up (0.0048s latency).
Nmap scan report for 192.168.25.139
Host is up (0.0046s latency).
Nmap scan report for 192.168.25.148
Host is up (0.0031s latency).
Nmap scan report for 192.168.25.158
Host is up (0.0015s latency).
Nmap scan report for 192.168.25.179
Host is up (0.00062s latency).
Nmap scan report for 192.168.25.185
Host is up (0.00039s latency).
Nmap done: 256 IP addresses (20 hosts up) scanned in 2.46 seconds
basedatos@basedatos-VirtualBox:~$
```

3. Consulta tu tabla caché de traducción de direcciones IP a direcciones MAC.

```
basedatos@basedatos-VirtualBox:~$ arp
Dirección                     TipoHW  DirecciónHW            Indic Máscara
          Interfaz
_gateway                      ether   52:54:00:12:35:02   C
          enp0s3
10.0.2.3                      ether   52:54:00:12:35:03   C
          enp0s3
basedatos@basedatos-VirtualBox:~$
```

4. Obtener la dirección MAC del adaptador de red de algún compañero sabiendo cual es su dirección IP.

```
kevmar@PC04:~$ ping 192.168.25.122
PING 192.168.25.122 (192.168.25.122) 56(84) bytes of data.
64 bytes from 192.168.25.122: icmp_seq=1 ttl=64 time=0.168 ms
64 bytes from 192.168.25.122: icmp_seq=2 ttl=64 time=0.278 ms
64 bytes from 192.168.25.122: icmp_seq=3 ttl=64 time=0.296 ms
64 bytes from 192.168.25.122: icmp_seq=4 ttl=64 time=0.284 ms
64 bytes from 192.168.25.122: icmp_seq=5 ttl=64 time=0.202 ms
^C
--- 192.168.25.122 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4077ms
rtt min/avg/max/mdev = 0.168/0.245/0.296/0.053 ms
kevmar@PC04:~$ arp
Dirección              TipoHW  DirecciónHW        Indic Máscara          Inter
faz
192.168.25.11          ether   44:37:e6:e5:db:1f  C                      enp2s
0
192.168.25.1           ether   04:18:d6:a1:03:0b  C                      enp2s
0
192.168.25.122         ether   44:8a:5b:c2:77:cb  C                      enp2s
0
192.168.25.10          ether   04:18:d6:a1:03:0b  C                      enp2s
0
kevmar@PC04:~$
```

5. Muestra toda la información de la configuración de tu adaptador de red (IP, MAC, máscara, gateway y dns).

```
kevmar@PC04:~$ nmcli device show enp2s0
GENERAL.DISPOSITIVO:                    enp2s0
GENERAL.TIPO:                           ethernet
GENERAL.HWADDR:                         44:8A:5B:C2:86:DA
GENERAL.MTU:                            1500
GENERAL.ESTADO:                         100 (conectado)
GENERAL.CONEXIÓN:                       Conexión cableada 2
GENERAL.CON-RUTA:                       /org/freedesktop/NetworkManager/ActiveCo
nnection/0
WIRED-PROPERTIES.PORTADOR:              encendido
IP4.DIRECCIÓN[1]:                       192.168.25.121/24
IP4.PUERTA DE ENLACE:                   192.168.25.10
IP4.RUTA[1]:                            dst = 169.254.0.0/16, nh = 0.0.0.0, mt =
 1000
IP4.DNS[1]:                             192.168.25.10
IP6.DIRECCIÓN[1]:                       fe80::eb50:e0c7:3e5c:dc28/64
IP6.PUERTA DE ENLACE:
kevmar@PC04:~$
```

6. Averigua consultando al servidor DNS a que dirección de Internet le corresponde la siguiente IP: 158.42.4.23

```
basedatos@basedatos-VirtualBox:~$ host 158.42.4.23
23.4.42.158.in-addr.arpa domain name pointer ias.cc.upv.es.
basedatos@basedatos-VirtualBox:~$
```

7. Muestra el camino que siguen los paquetes para llegar a la anterior IP.

```
basedatos@basedatos-VirtualBox:~$ traceroute 158.42.4.23
traceroute to 158.42.4.23 (158.42.4.23), 30 hops max, 60 byte packets
 1  _gateway (10.0.2.2)  0.263 ms  0.104 ms  0.099 ms
 2  192.168.25.1 (192.168.25.1)  0.628 ms  0.807 ms  0.703 ms
 3  172.28.130.1 (172.28.130.1)  1.362 ms  1.220 ms  0.995 ms
 4  1.red-81-46-16.customer.static.ccgg.telefonica.net (81.46.16.1)  2.309 ms  2.642 ms  2.459 ms
 5  217.red-217-124-114.static.ccgg.telefonica.net (217.124.114.217)  11.754 ms 37.red-217-124-112.static.ccgg.telefonica.net (217.124.112.37)
13.442 ms  13.251 ms
 6  * * *
 7  157.red-80-58-84.staticip.rima-tde.net (80.58.84.157)  59.397 ms  59.355 ms  59.296 ms
 8  145.red-80-58-97.staticip.rima-tde.net (80.58.97.145)  59.234 ms  59.181 ms  59.127 ms
 9  58.red-80-58-106.staticip.rima-tde.net (80.58.106.58)  59.073 ms  11.858 ms  11.723 ms
10  241.red-80-58-88.staticip.rima-tde.net (80.58.88.241)  8.255 ms  8.165 ms  8.075 ms
11  10.21.0.1 (10.21.0.1)  7.969 ms  7.820 ms  7.702 ms
12  10.21.0.2 (10.21.0.2)  11.400 ms  11.311 ms  11.222 ms
13  172.27.111.22 (172.27.111.22)  10.644 ms  10.578 ms  9.142 ms
14  172.27.111.50 (172.27.111.50)  11.353 ms  11.284 ms  11.226 ms
15  172.27.111.126 (172.27.111.126)  9.897 ms  11.075 ms  9.372 ms
16  172.27.111.10 (172.27.111.10)  10.886 ms  10.835 ms  10.792 ms
17  1.red-193-152-56.static.ccgg.telefonica.net (193.152.56.1)  11.095 ms  11.056 ms  11.001 ms
18  149.red-80-58-72.staticip.rima-tde.net (80.58.72.149)  11.435 ms  11.787 ms  12.103 ms
19  * * *
20  140.red-81-46-9.customer.static.ccgg.telefonica.net (81.46.9.140)  9.447 ms  9.338 ms  9.262 ms
21  rediris.baja.espanix.net (193.149.1.26)  73.041 ms rediris.alta.espanix.net (185.79.175.154)  11.668 ms rediris.baja.espanix.net (193.149.1
.26)  72.980 ms
22  130.206.245.122 (130.206.245.122)  19.418 ms  18.575 ms  18.573 ms
23  upv-principal.red.rediris.es (130.206.211.194)  19.956 ms  20.287 ms  19.987 ms
24  * * *
25  * * *
26  * * *
27  * * *
28  * * *
29  * * *
30  * * *
basedatos@basedatos-VirtualBox:~$
```

8. Muestra los puertos abiertos del ordenador del profesor indicando que utilidad tienen.

```
kevmar@PC04:~$ ping PC00.local
PING PC00.local (192.168.25.11) 56(84) bytes of data.
64 bytes from 192.168.25.11: icmp_seq=1 ttl=64 time=0.121 ms
64 bytes from 192.168.25.11: icmp_seq=2 ttl=64 time=0.099 ms
64 bytes from 192.168.25.11: icmp_seq=3 ttl=64 time=0.160 ms
^C
--- PC00.local ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2031ms
rtt min/avg/max/mdev = 0.099/0.126/0.160/0.028 ms
kevmar@PC04:~$
```

```
basedatos@basedatos-VirtualBox: ~
Archivo  Editar  Ver  Buscar  Terminal  Ayuda
basedatos@basedatos-VirtualBox:~$ sudo nmap 192.168.25.11
[sudo] contraseña para basedatos:

Starting Nmap 7.60 ( https://nmap.org ) at 2020-03-10 12:12 CET
Nmap scan report for 192.168.25.11
Host is up (0.00057s latency).
Not shown: 996 closed ports
PORT     STATE SERVICE
22/tcp   open  ssh
111/tcp  open  rpcbind
139/tcp  open  netbios-ssn
445/tcp  open  microsoft-ds

Nmap done: 1 IP address (1 host up) scanned in 3.25 seconds
basedatos@basedatos-VirtualBox:~$
```