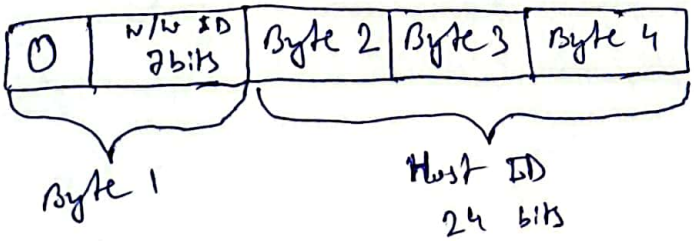
ASSIGNMENT-1

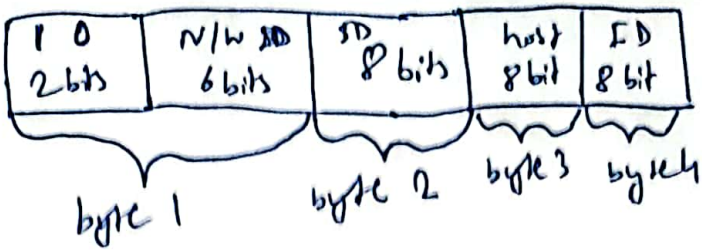
1. Discuss the different classes of internet protocol.

Internet protocol defines the format of the data to be send via internet or LAN. IP address is the identifier that allows information to connect with networks and data. There are series of numbers seperated by dots '.' that contains location information and makes devices accessible for communication. There are 5 classes of IP and each class got a valid range. IP address has two parts. Host ID and Network ID. The order of bits in the first octate determines the class of IP.

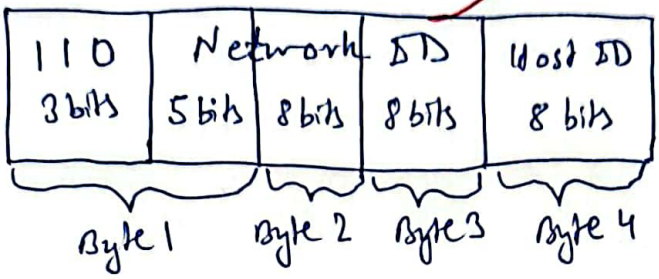
- Class A : This IP address class is used in network that has large no. of host. Network ID is 8 bits and Host ID is 24 bits. The higher order bit of each octate is set to 0. and remaining 7 bits determines the Network ID. Next 24 bits Host ID determines the host. Hence the default subnet mask is 255.x.x.x The range of class A IP is 1.x.x.x to 126.x.x.x



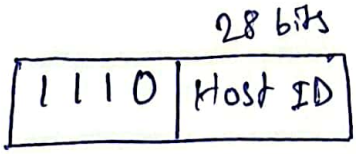
- Class B: This IP address class is used where network id is medium to large. The higher order bits of first octate is set to 10. The network ID has total 16 bits and host id has total 16 bits. The remaing 6 bits of first byte and 8 bits of second byte. Total 14 bits determine network ID. Next 16 bits determine host ID. The default subnet mask is 255. 255. x, x, and the range of class B is between 128.0.0.0 to 191.255.255.255.



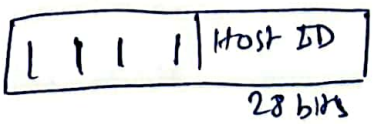
- Class C: This type of IP address are used in small sized networks. The network ID is of 24 bits and host ID is of 8 bits. The higher order bits of the first octate is set to 110. The subnet mask is 255.255.255.x and the range of class C IP is 192.0.0.x to 223.255.255.x



- Class D: This class IP address is reserved for multitasking purpose. In multitasking data is not destined to a particular host, that is why there is no need to extract host address from the IP address. and this class doesn't have any subnet mask. The higher order bits of the first octate is set to 1110. The range of Class D is 224.0.0.0 to 239.255.255.255



- Class E: This class is resered for experiment and research purpose. The higher order bit of this class is set to 1111. There is no default subnet mask. for this class. Range of class E is 240.0.0.0-255.255.255.255.



2. Execute the following commands and write the output.

(i) ipconfig :- This command shows the IP configuration. It shows whether we've established a connection from our computer using ethernet cable or through wifi LAN adapter

Output :- Windows IP Configuration

Ethernet adapter Ethernet :

Connection-specific DNS Suffix . :

Link-local IPv6 address . . . . . : fe80::b734:afdf:f31e:e7b7%9

IPv4 Address . . . . . : 7.7.6.115

Subnet Mask . . . . . : 255.255.248.0

Default Gateway . . . . . : 7.7.7.7

(ii) ipconfig /all :- This command is used to see the physical or MAC address of the system.

Output : Windows IP configuration

.

.

.

Ethernet adapter Ethernet

Connection specific DNS Suffix :

Description . . . : Realtek Gaming GbE Family Controller

Physical Address . . : 1C-1B-0D-E2-F0-E2

DHCP enabled . : Yes

.

.

.

(iii) ping :- In order to check that any IP address is reachable from our system or not, ping command is used.

ping 127.0.0.1

Output :- pinging 127.0.0.1 with 32 bytes of data

Reply from 127.0.0.1 : bytes = 32 time < 1ms TTL = 128
Reply from 127.0.0.1 : bytes = 32 time < 1ms TTL = 128
Reply from 127.0.0.1 : bytes = 32 time < 1ms TTL = 128
Reply from 127.0.0.1 : bytes = 32 time < 1ms TTL = 128

Ping statistics for 127.0.0.1 :

Packets : Sent = 4, Received = 4, Lost = 0 (0% loss),

Approximate round trip times in milli-seconds :

Minimum = 0ms, Maximum = 0ms, Average = 0ms

(iv) nslookup : This command will ask the DNS server for the IP address of the given server. After writing this command we need to write the name of server whose IP address we want to fetch.

Output : Default Server : Unknown
Address : 10.13.204.1
> www.google.com
Server : Unknown
Address : 10.13.204.1.
non-authoritative answer :
Name : www.google.com
Address : 2404:6800:4007:817::2004
142.250.77.132

(v) netstat : This command displays various statistics about computers active TCP/IP connections.

Output : Active connections

Proto	Local Address	Foreign Address	State
TCP	192.168.0.11:1521	DUB44688	ESTABLISHED
TCP	192.168.0.11:49688	DUB1521	ESTABLISHED
⋮	⋮	⋮	⋮

TCP 192.168.0.11:50432 DUB4523 ESTABLISHED

(vi) tracert : It is useful for troubleshooting large networks where several paths can lead to the same point or where many intermediate components are involved.

tracert google.com

Output: Tracing route to google.com [192.250.192.78] over a maximum of 30 hops.

1	<1 ms	<1 ms	0.0.0.0
2	2ms	1ms	math.brain-tech.org [111.93.138.141]
:	:	:	:
10	46ms	45ms	74.125.242.129

Trace complete

(vii) arp -a: ARP stands for Address Resolution protocol. It will show the IP address along with IP & MAC address of the connected router.

Output: Interface: 192.168.0.11 ..... 0xd

Internet Address	Physical Address	Type
192.168.0.1	58-d5-6e-9e-3f-26	dynamic
192.168.0.255	ff-21-7f-f8-ff-e2	static
:	:	:
239.255.255.250	01-00-5e-7f-ff-fa	static

(viii) hostname: It is used to obtain the DNS (Domain Name System) name and set the system's hostname or NIS (Network Information System) domain name

Output:- BWU CPU658

17/8/23