Dt: 14/3/23

Network layer

logical Addressing (IP protocols)

IPv4

32 bits long

At the same time, two devices connected to Internet can't have the same IP.

If a device has multiple connections to internet, it will have multiple IP addresses (eg Router)

Address space of IPv4 - 2^{32}

Dotted Decimal / Binary Notation.

128 . 34 . 58 . 110

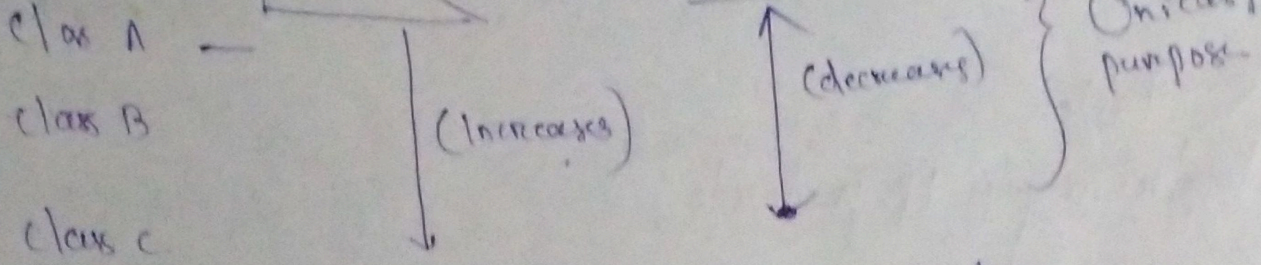
10000000 . 00100010 . 00111010 . 01101110

Classful Addressing

class A B C D E.

1st byte 2nd byte 3rd byte 4th byte

	1st byte
class A	0 (0-127)
Class B	10 (128-191)
Class C	110 (192-223)
Class D	1110 (224-239)
Class E	1111 (240-255)



Class D - Multicast Class E - Reserved

Since block sizes are too big, wastage of addresses

Net id / Host id

	Net id length	Host id length
class A	8 bits	24 bits
class B	16 bits	16 bits
class C	24 bits	8 bits

class A	255.0.0.0
class B	255.255.0.0
class C	255.255.255.0

Classless Addressing

Addresses are allocated in terms of blocks

1. The addresses in a block must be continuous
2. # of a " " " " n " " an exponent of 2
3. First address " " " " " evenly divisible by no. of addresses in a block.

Mask in classless addressing

mask varies in 0 - 32.

w.x.y.z/n

w.x.y.z is one of the address in the block.

n is the mask.

First address in the block

w.x.y.z/n

Set the right most 32-n bits in w.x.y.z to all 0's.

w.x.y.z/n

Set the ~~left~~ right most 32-n " " w.x.y.z to all 1's.

Total no. of addresses = 2^{32-n}