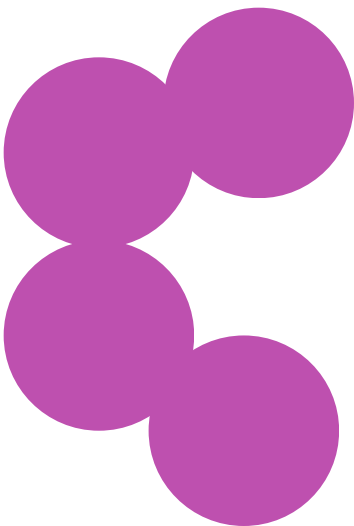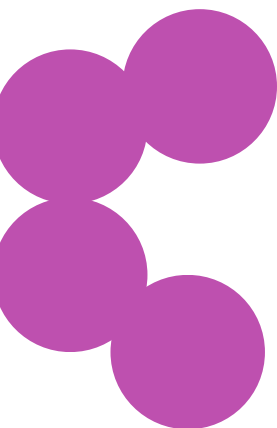# MODULE 2

IP Addressing

Octets and Dotted-Decimal Notation

11010001101001011100100000000001

11010001.10100101.11001000.00000001
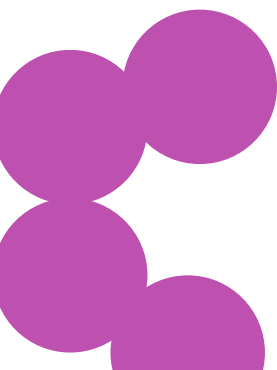8 bits. 8 bits. 8 bits. 8 bits

209.165.200.1

- Class A (0.0.0.0 - 127.255.255.255.255)

(Network 127 is reserved for loopback and internal testing)

- Class B (128.0.0.0 - 191.255.255.255)

- Class C (192.0.0.0 - 223.255.255.255)

- There is also a Class D multicast block consisting of 224.0.0.0 to 239.255.255.255 and

- Class E - 240.0.0.0 - 255.255.255.255 (Reserved for future use, except for the broadcast address 255.255.255.255)
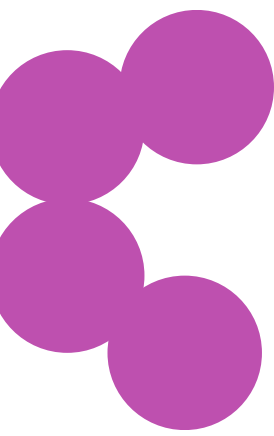
DEFAULT SUBNET MASK

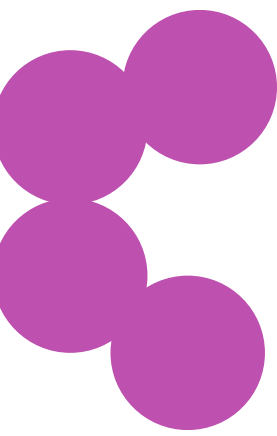Class A   255.0.0.0

Class B   255.255.0.0

Class C   255.255.255.0

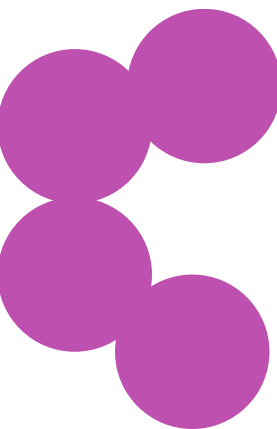| CIDR	Subnet Mask	CIDR	Subnet Mask
/8	255.0.0.0	/21	255.255.248.0
/9	255.128.0.0	/22	255.255.252.0
/10	255.192.0.0	/23	255.255.254.0
/11	255.224.0.0	/24	255.255.255.0
/12	255.240.0.0	/25	255.255.255.128
/13	255.248.0.0	/26	255.255.255.192
/14	255.252.0.0	/27	255.255.255.224
/15	255.254.0.0	/28	255.255.255.240
/16	255.255.0.0	/29	255.255.255.248
/17	255.255.128.0	/30	255.255.255.252
/18	255.255.192.0	/31	255.255.255.254
/19	255.255.224.0	/32	255.255.255.255
/20	255.255.240.0		

Public and Private IPv4 Addresses

- Public IPv4 addresses are addresses which are globally routed over the internet. Public IPv4 addresses must be unique.

- Private IPv4 addresses are not unique and can be used internally within any network. The long-term solution to IPv4 address depletion was IPv6.
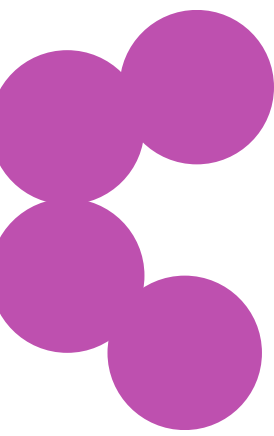
Private Address Space

Class A   10.0.0.0 to 10.255.255.255

Class B   172.16.0.0 to 172.31.255.255

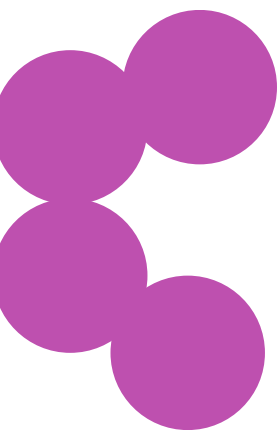Class C   192.168.0.0 to 192.168.255.255

Unicast

Unicast transmission refers to one device sending a message to one other device in one-to-one communications.

Broadcast

Broadcast transmission refers to a device sending a message to all the devices on a network in one-to-all communications.

Multicast

A multicast packet is a packet with a destination IP address that is a multicast address. IPv4 has reserved the 224.0.0.0 to 239.255.255.255 addresses as a multicast range.

THANK YOU