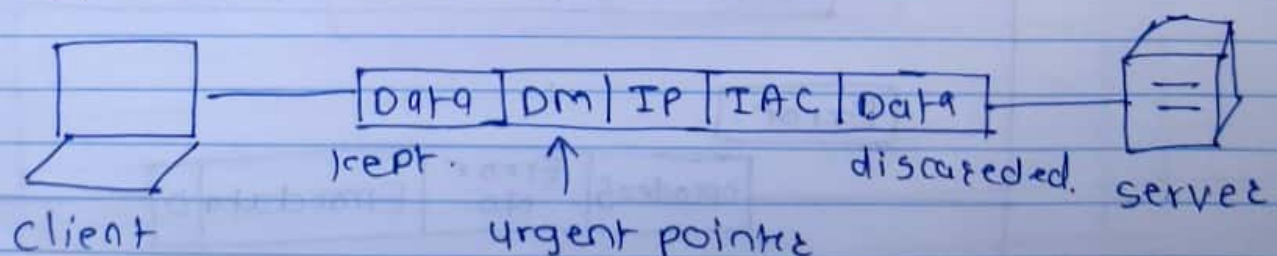ISE II   CN

Cp.1

→1)   <u>Out - of Band signaling :-</u>

- out of Band signaling uses one or more channels for transmitting data of voice information and one special out of band chanel for performing Signaling Functions such as estabish & reeminate comm⁰ link.

- To make control character effective in special situation, TELNET uses out of band signaling.

- In out of band sigaling the Telnet control character preceded by IAC is are sent to remote process.

- At TELNET, it embeded the sequence in the data stream & inseet a special charactoe call a Data Mark (DM) to inform TCP segment to set urgent bit & urgent pointer which points to the DM character.

- When receving procely recives data, it reads the data & discaed the data

- The DM character is wed as to sy as a synchronizatio character that switches the receiving procey from urgent mode to normal mode

client   kept.   ↑   discareded.   server
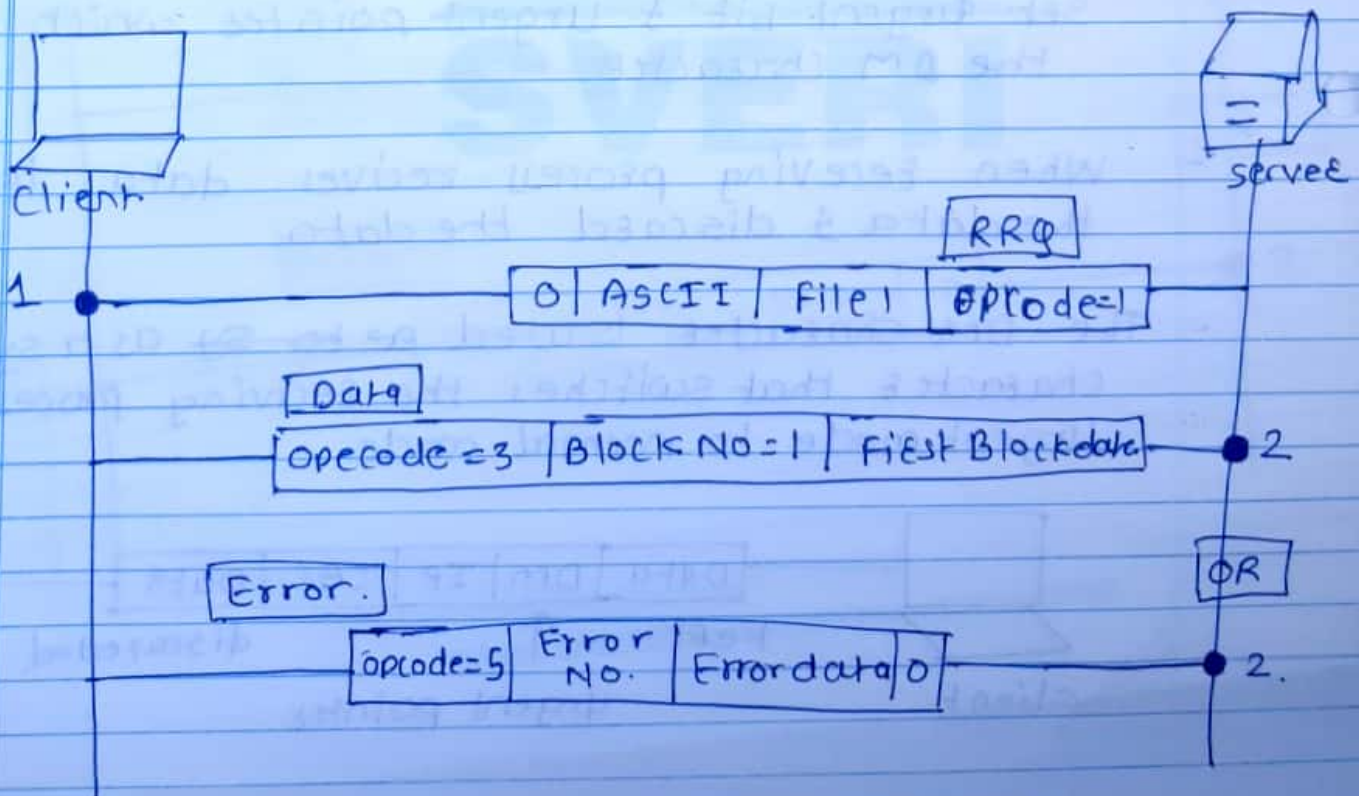   urgent pointer

Q.1

→ 2>

- TFTP uses the connectionless UDD services. so there is no Connection like TCP.

- In TFTP, there is an logical connection suchas the client & server are participating in protocol + exchanging TFTP messages.

- The port no. for TFTP is 69.

- TFTP uses RRQ, WRQ, ACK & Error message to establish connection.
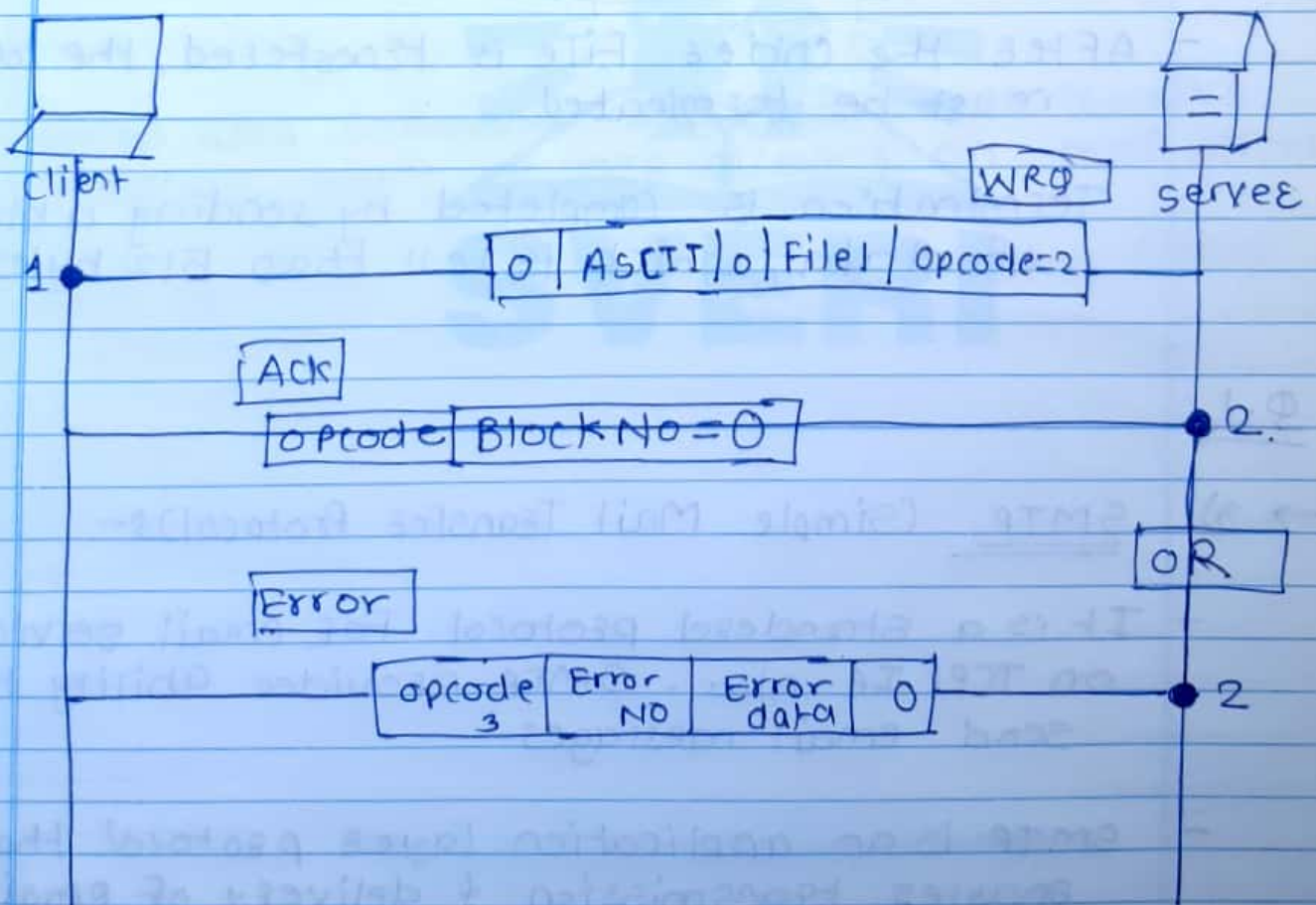
1) connection establishment :-

Connection can be established differently For both reading files & writing files.

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- In above, diagram, firstly the TFTP client sends RRQ message. The name of the file & transmission mode is defined in this msg.

- If the server can transfer the file, it responds positivly with data msg. containing first block of data.

- and if there is a problem, such as difficluty in opening file of permission is restricted then server responds negetivly by sending error message.

• For writing Files :-

- In above diagram, the for writing file The TFTP client wes WRQ message. The name of File & transmission mode is defined in that message

- If server can accept a copy of file, it sepnds positivly with Ack (Acknowledyomest) message using value of 0 for block no.

- and if there is an any error is occur then server Eesponds negetivly i.e, it serds Error message to client.
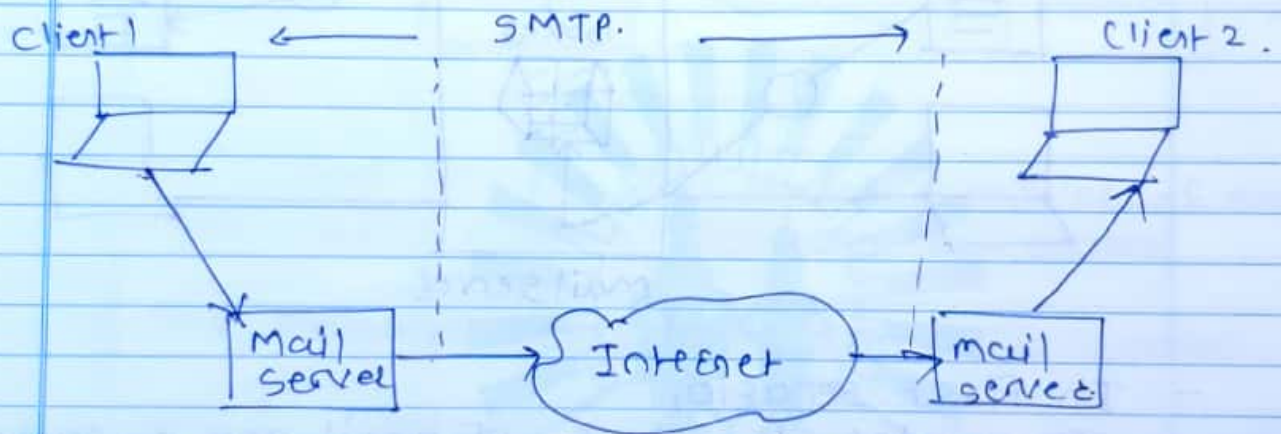
2) connection teemination :-

- Aftee the entire file is transfeeed, the connection must be teeminated

- Teeminaticn is completed by sending a block of data, which is less than 512 bytes.

Q.1

→ 3) SMTP (Simple Mail Teansfee Protocol) :-

- It is a standeed peotocol for email service on TCP/ IP nlw. SMTP peovides ability to send email messages

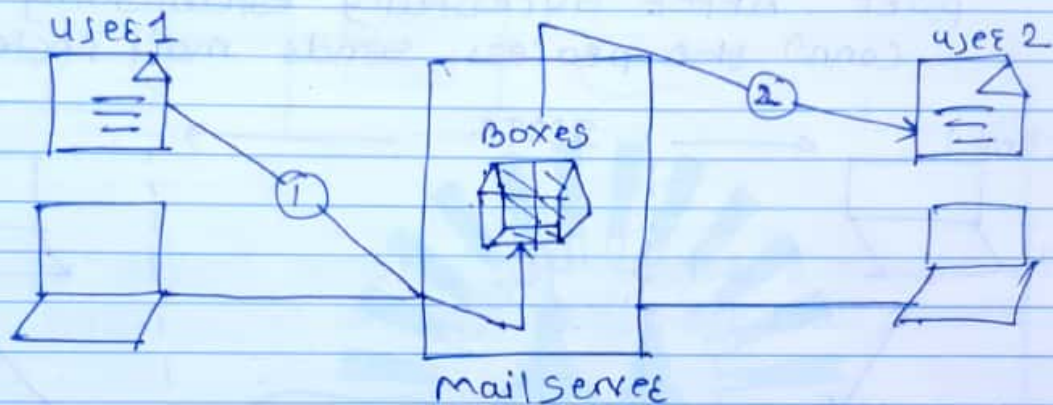- SMTP is an application layee peotocol. that enables teansmission & delivery of email over the inteenet.

- It also known as RFC 821 & RFC 2821.

- The SMTP server is always on listning mode

- It listen for TCP connection from any client, the SMTP process initiates a connection on that port. After sucessfully establishing the TCP conn⁷ the process sends mail instantly.

Client 1   ←———— SMTP. ————→   Client 2.

Mail Server ———→ Internet —→ mail server

- SMTP uses command and response to transfer message bet⁰ an MTA client & an MTA server.

- each command and reply are terminated by a two character. end-of-line token
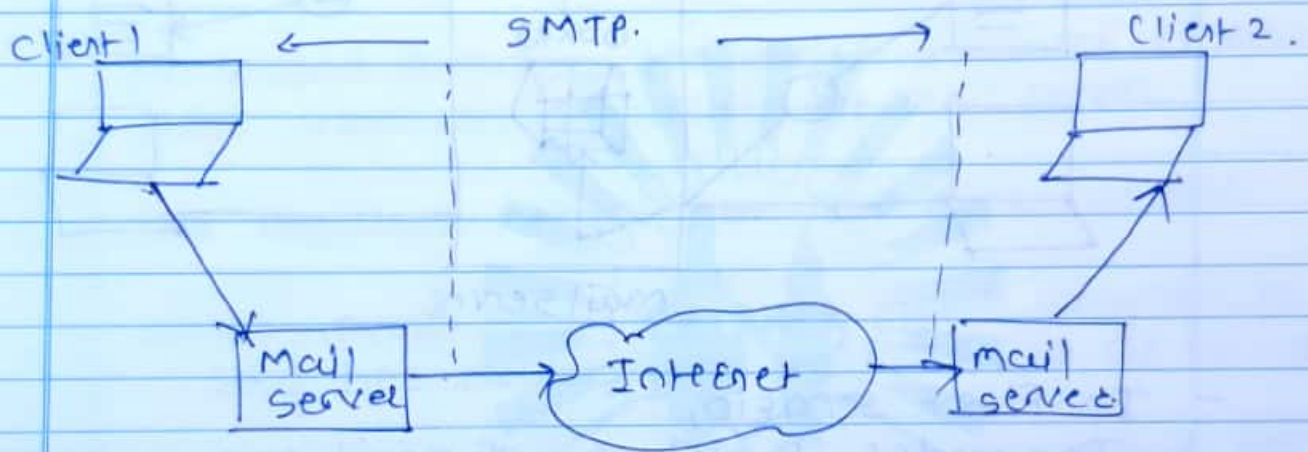
Q. 2

→ 1)   Email architecture :

-   It gives four senario :-

1) First senario :-

-   In First senario,
    The sender & reciver of email are on same mail server

-   user directly connected to a shared mail server where administrator has created one mailbox for each user where recived message are stored

-   A mailbox is part of local hard drive, a special file with permition restrictions.

-   when one user1 sends message user 2

-   user 1 searuns a user agent (UA) program to prepare the msg & stored it in user2 mailbox.

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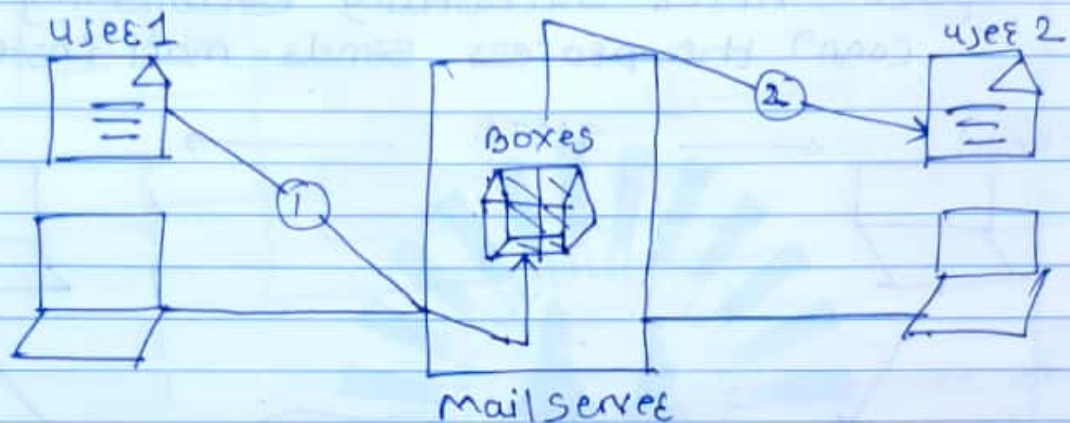

- SMTP uses command and response to transfer message betⁿ an MTA client & an MTA server.

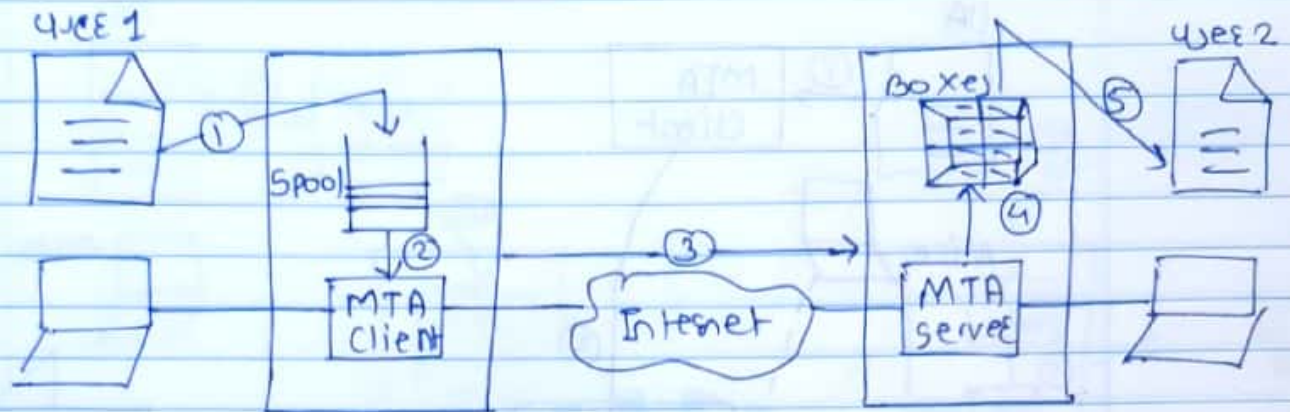- each command and reply are terminated by a two character. end-of-line token

Q. 2

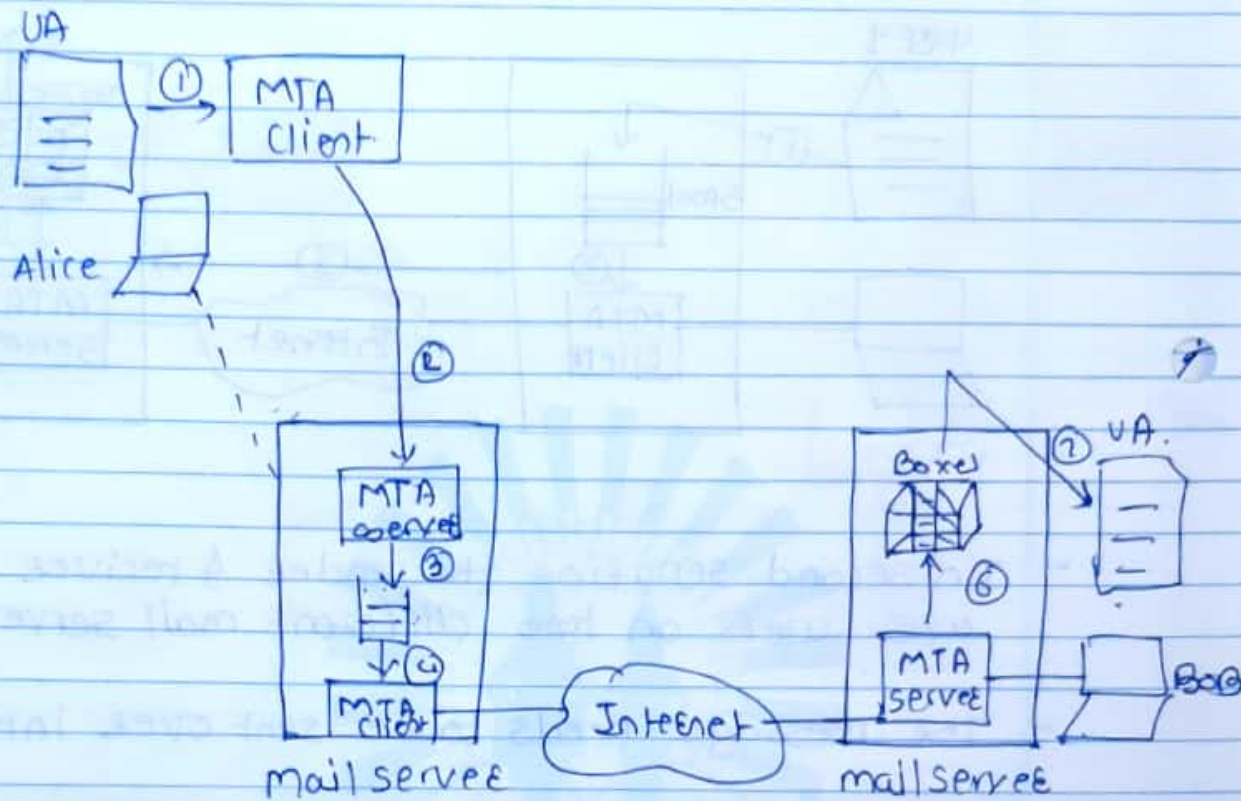→ 1) Email architecture :

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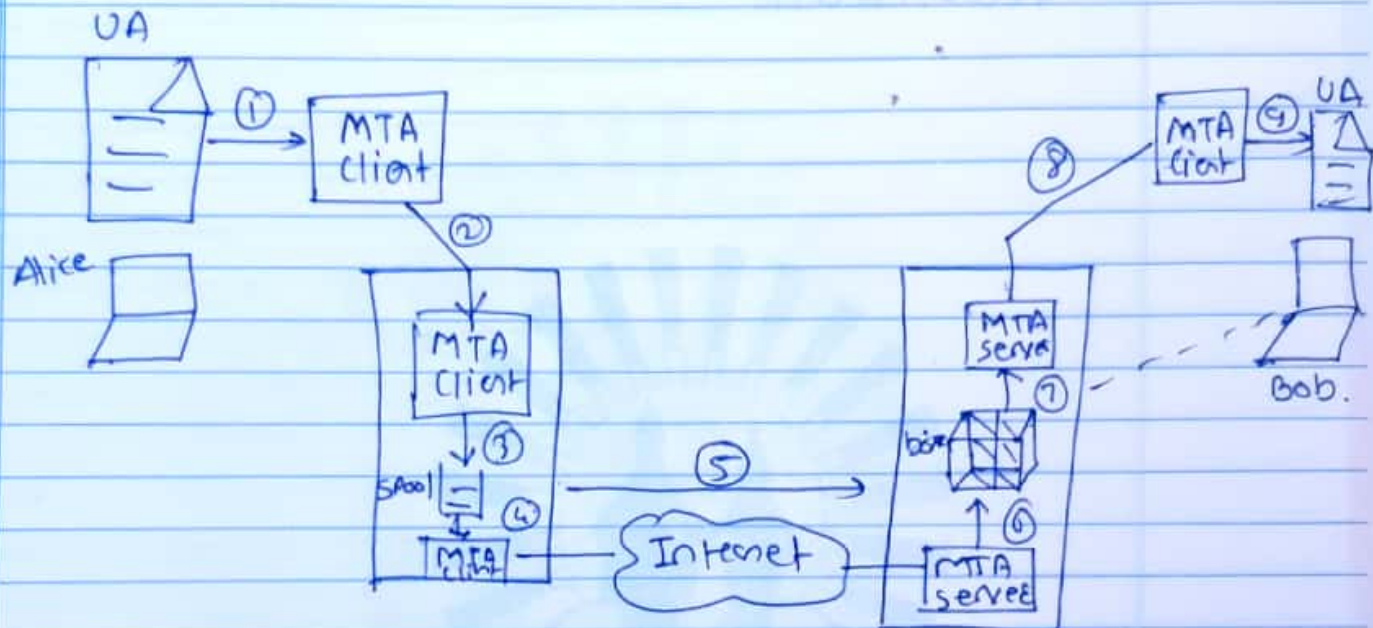
2) Second Scenario :-

User 1 User 2

- In second scenario, the sender & reciver of email are users on two different mail server.

- The message needs to be sent over internet.

- User 1 needs to use a user agent program to send her message to mail server at her ownsite

- The mail server at their site uses a queue to store messages waiting to be sent.

- User 2 also needs to a user agent program to retrive messages stored in mailbox of sys.

- The message, however needs to be sent through internet from user 1 site to user 2 sites.

- The server needs to run all the time because it does not known when client will ask for conn.

3) **Thied senario :-**

UA

Alice

MTA Client

MTA serve

MTA clie

mail servee

Internet

Boxes

MTA servee

UA

Bob

mail servee

- In this senario, the Alice is connected to mail servee & that uses one mail servee for handling emails, all wees to send their msg. to this mail servee.

- Alice needs a user agent to prepare her msg & then send msg through LAN or WAN.

- Alice call the user agent when tuen calls the MTA client. The MTA client establishes a conn^q with MTA servee on system.

- At this convinience, Bob wes his user agent to retive a message & reads it.

- That We need two paies of MTA Client-servee pgm

4) **Foueth senaeio:-**

UA

- The foueth senaeio both Alice & bobs weee connected to his mail served by WAN oe LAN.

- Aftee the msg has ~~eetived~~ amived at bobs mail servee, bob needs to retrive it. This is done by MAA (Mejuge acess agent).

- MAA is anothee client-servee program is a push pgm. the client pusheih the msg ~~Feum~~. to the servee.

- The MAA client servee pgm is a pull pgm. the client pulls the msg. to servee.

bob needs to pull pgm. The client needs to pull message from server.

- These four senarios are used in Email architecture.