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# Distributed Network Programming

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# Review

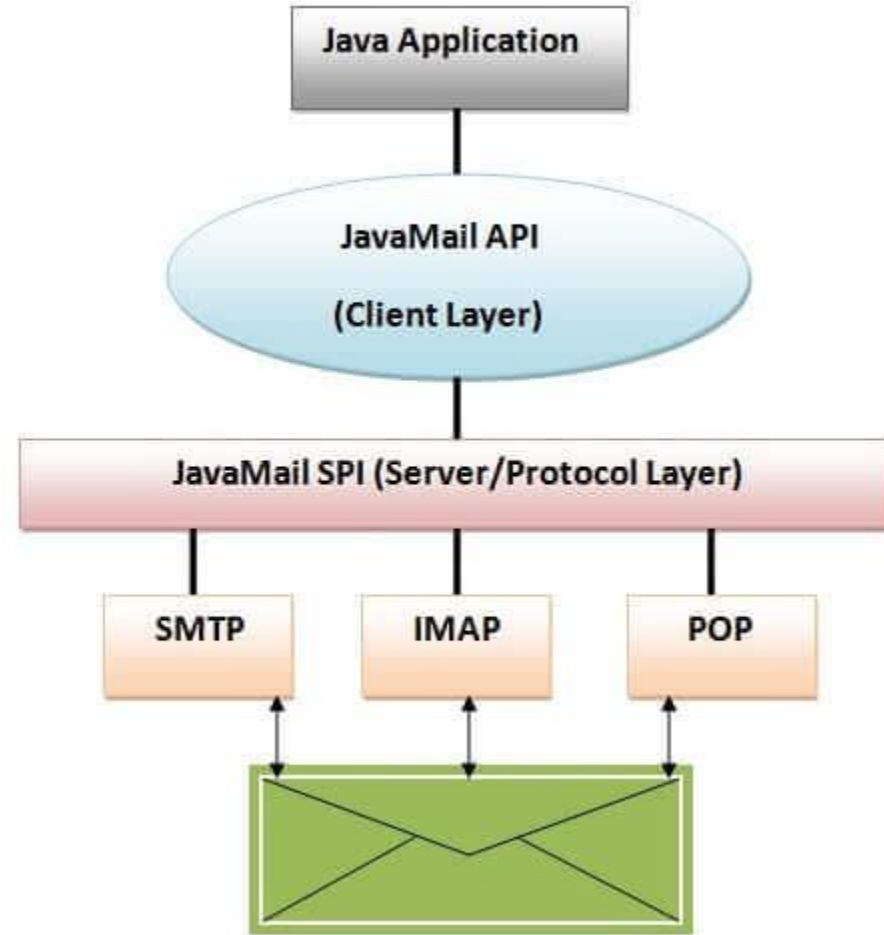
- Working with URLs and URL Connection Class
- Email Handling using Java Mail API

# Outline

- TCP
- UDP
- IP Address
- Ports
- Socket Programming using TCP and UDP
- Working with URLs and URL Connection Class
- Email Handling using Java Mail API
- Architecture of RMI
- Creating and Executing RMI applications
- Architecture of CORBA
- RMI vs CORBA
- IDL and Simple CORBA Program

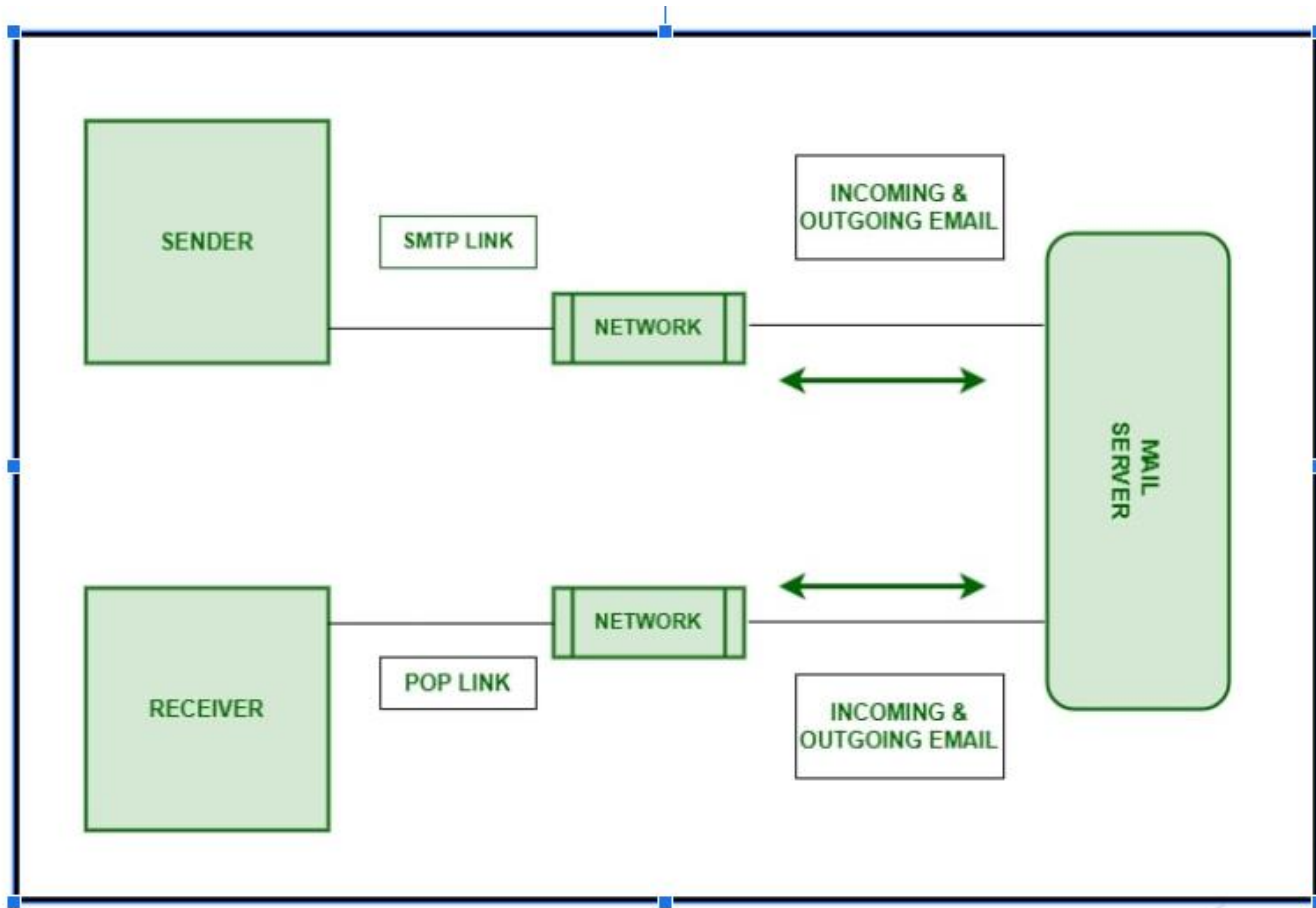
# JavaMail Architecture

- The java application uses JavaMail API to compose, send and receive emails.
- The JavaMail API uses SPI(Service Provider Interface) that provides the intermediary services to the java application to deal with the different protocols.

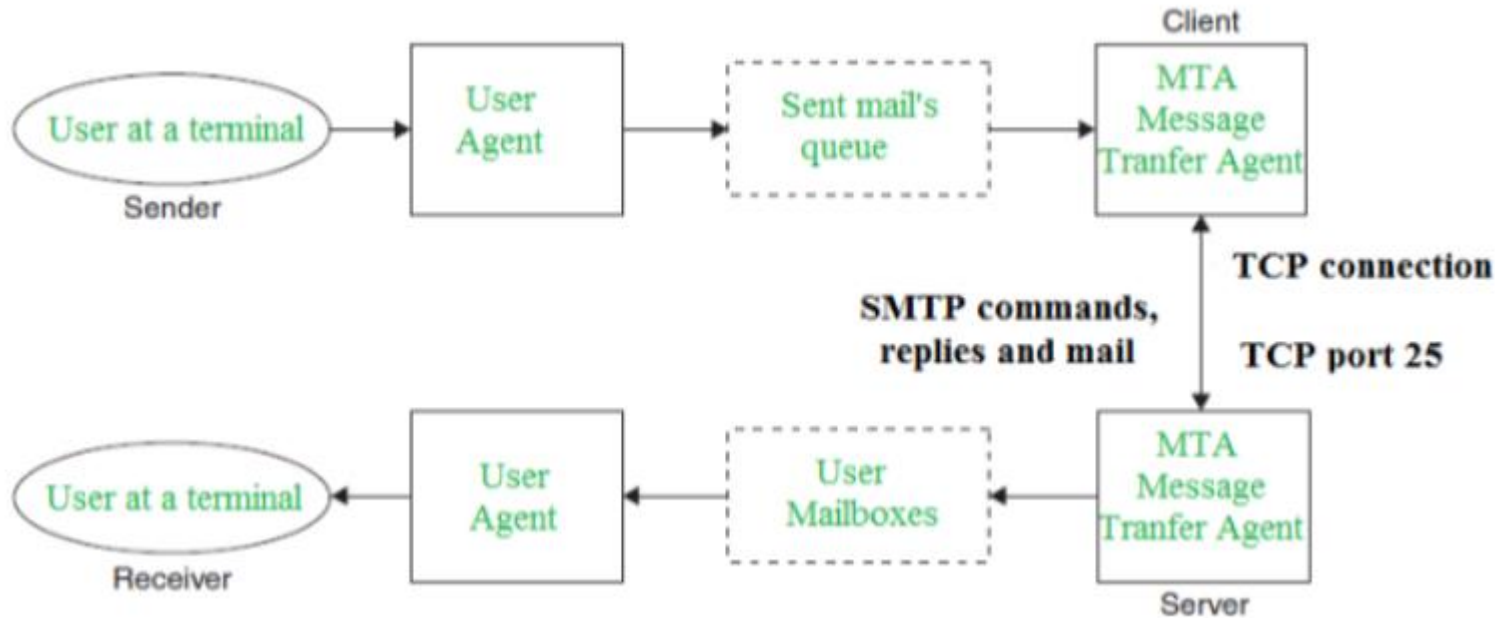


# Steps of using Java Mail API

- Configure the mail server properties such as the host and port.
- Establish a mail session with the configured properties
- Pass authentication details if required.
- Construct an email message using the MimeMessage class.
- Set the sender, recipients, subject, and body of the email
- Use the Transport class to send the message



# SMTP Model



1. Mail User Agent (MUA)
2. Mail Submission Agent (MSA)
3. Mail Transfer Agent (MTA)
4. Mail Delivery Agent (MDA)

# Working of SMTP

Communication between the sender and the receiver :

- The **sender's user agent prepares the message** and sends it to the MTA. The MTA's responsibility is to transfer the mail across the network to the receiver's MTA.
- To send mail, a system must have a client MTA, and to receive mail, a system must have a server MTA.

**Sending Emails:**

- Mail is **sent by a series of request and response messages** between the client and the server. The message which is sent across consists of a header and a body. A null line is used to terminate the mail header and everything after the null line is considered the body of the message, which is a sequence of ASCII characters.
- The message body contains the actual information read by the receipt.

**Receiving Emails:**

- The **user agent on the server-side checks the mailboxes at a particular time of intervals**. If any information is received, it informs the user about the mail.
- When the user tries to read the mail it displays a list of emails with a short description of each mail in the mailbox. **By selecting any of the mail users can view its contents** on the terminal.