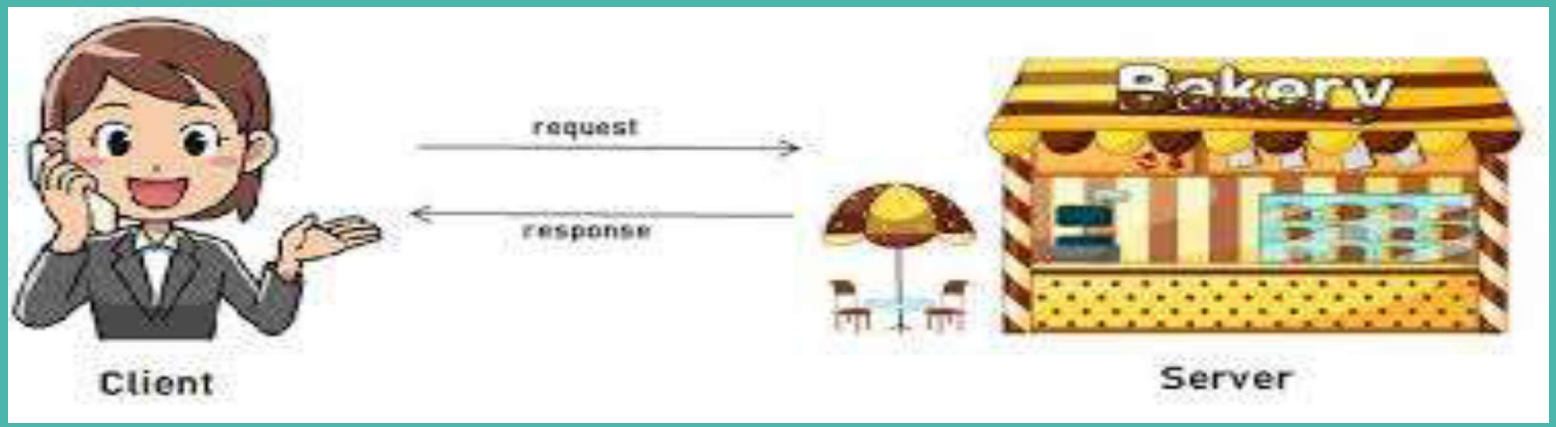
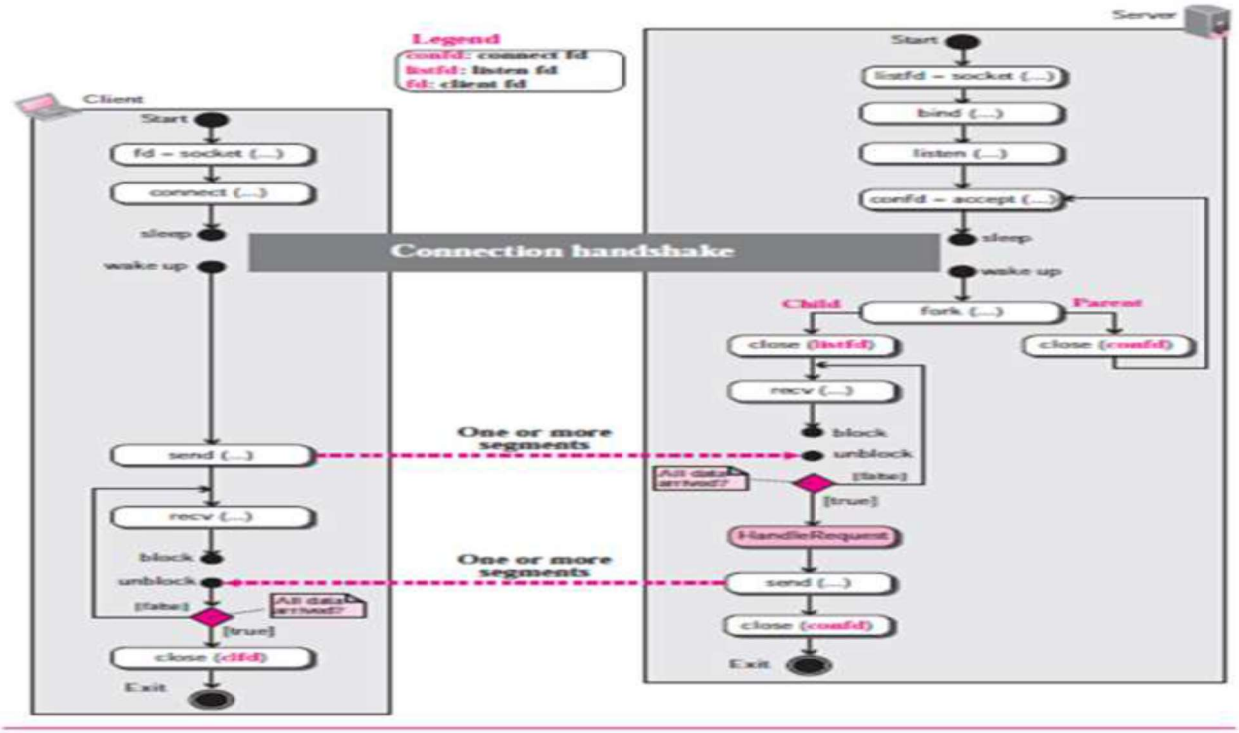
TCP CLIENT –SERVER AND PACKAGES

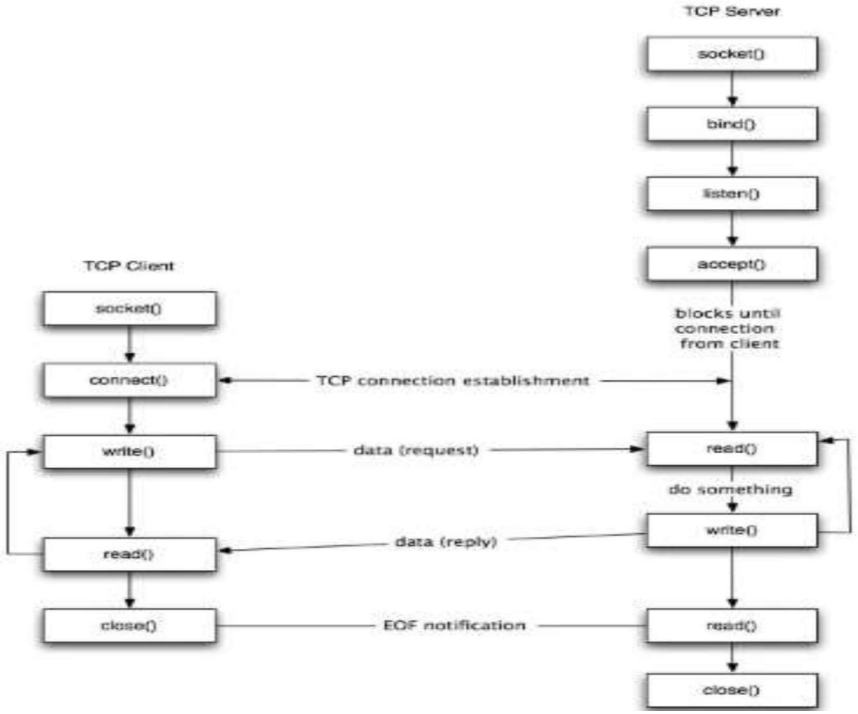


Client Server Program



Source: Behrouz A. Forouzan, "TCP IP Protocol Suite " 4th edition, 2010, McGraw-Hill ISBN: 0073376043

Client Server Program



Source: https://aticleworld.com/socket-programming-in-c-using-tcpip

Server Processing using TCP

- Create a socket using the socket() function in c.
- Initialize the socket address structure and bind the socket to an address using the bind() function.
- Listen for connections with the listen() function.
- Accept a connection with the accept() function system call.
- This call typically blocks until a client connects to the server.
- Receive and send data by using the recv() and send() function in c.
- Close the connection by using the close() function

Client Processing using TCP

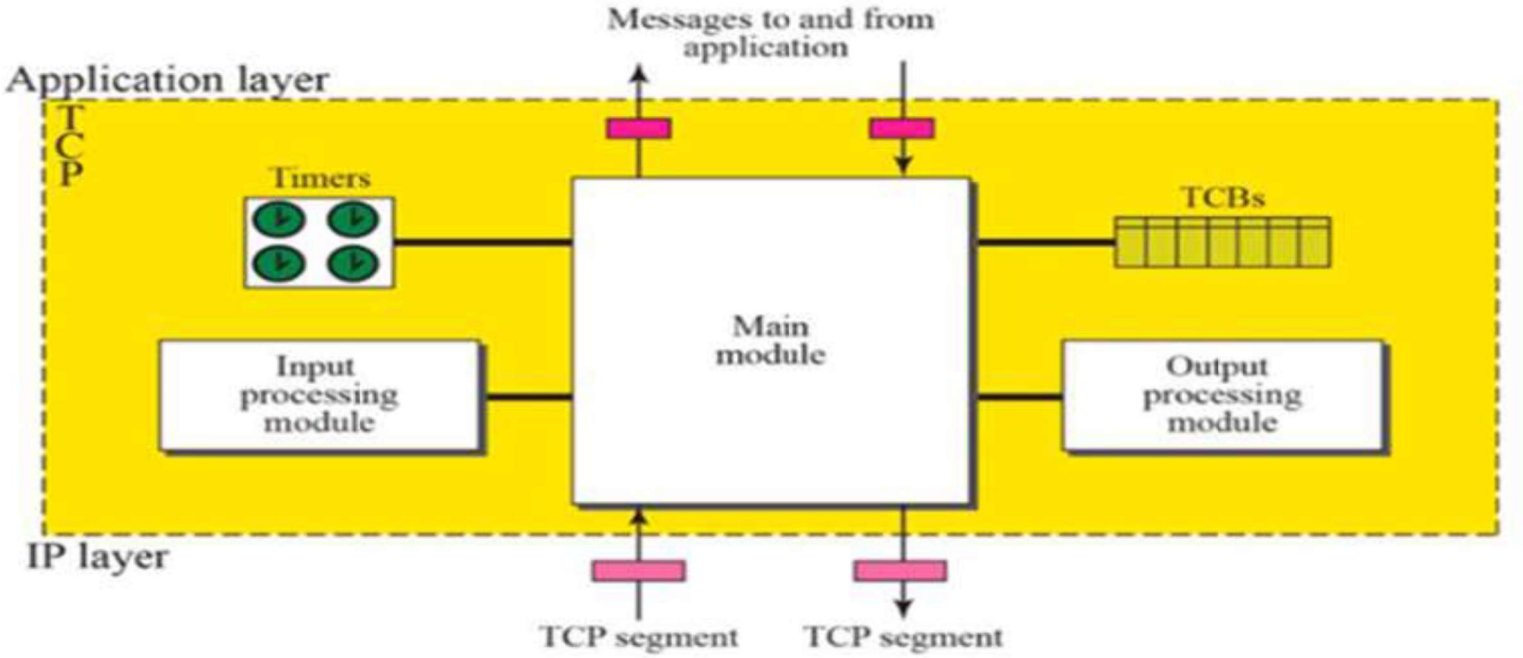
- Create a socket using the socket() function in c.
- Initialize the socket address structure as per the server and connect the socket to the address of the server using the connect();
- Receive and send the data using the recv() and send() functions.
- Close the connection by calling the close() function.

Input, Output Processing Module

TCP Package

- TCP is a stream-service,connection-oriented protocol with an involved state transition diagram.
- It uses flow and error control.
- It is so complex because actual code includes tens of thousands of lines.

TCP Package Diagram



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TCP Package

- TCP Package involves tables called Transmission control blocks
- A set of timers
- Three software modules:
  - Main module
  - ***An input processing module***
  - ***An output processing module***

Input Processing Module

- The Input processing module handles all the details which is required for the process of data or an Acknowledgement received when **TCP** is in the **ESTABLISHED STATE.**
- This module sends an **ACK** if needed.
- Takes care of the window size
- Performs Error checking and so on.

Output Processing Module

- The output processing module handles all the details needed to send out data received from application program when TCP is in the **ESTABLISHED STATE.**
- This module handles retransmission time-outs,persistent time-outs and so on.