Socket Programming Basics

Socket is a quick connection that allows the transmission of data between two processes on the same machine or different machines over a network. It is commonly used in client-server interaction, as sockets allow applications to communicate using the built-in mechanisms of the hardware and operating system.

A socket program is comprised of two main programs called the client and server. Here, the **client acts as the requester**, where it requests some data. The **server acts as the listener** and provides the client the requested data as the response.

Sr.No.	Term & Description
1	**Domain** The family of protocols that is used as the transport mechanism. These values are constants such as AF_INET, PF_INET, PF_UNIX, PF_X25, and so on.
2	**type** The type of communications between the two endpoints, typically SOCK_STREAM for connection-oriented protocols and SOCK_DGRAM for connectionless protocols.
3	**protocol** Typically zero, this may be used to identify a variant of a protocol within a domain and type.
4	**hostname** The identifier of a network interface – ▫ A string, which can be a host name, a dotted-quad address, or an IPV6 address

	▫ A zero-length string, which specifies INADDR_ANY, or ▫ An Integer, interpreted as a binary address in host byte order.
5	**port** Each server listens for clients calling on one or more ports. A port may be a Fixnum port number, a string containing a port number, or the name of a service.

Server Socket Methods

Sr.No.	Method & Description
1	**s.bind()** This method binds address (hostname, port number pair) to socket.
2	**s.listen()** This method sets up and start TCP listener.
3	**s.accept()** This passively accept TCP client connection, waiting until connection arrives (blocking).

Sr.No.	Method & Description
1	**s.connect()** This method actively initiates TCP server connection.

General Socket Methods

Sr.No.	Method & Description
1	**s.recv()** This method receives TCP message

	This method transmits TCP message
3	**s.recvfrom()** This method receives UDP message
4	**s.sendto()** This method transmits UDP message
5	**s.close()** This method closes socket
6	**socket.gethostname()** Returns the hostname.