# **HTTP**

# **The Hypertext Transfer Protocol (HTTP) is an application-level protocol for distributed, collaborative, hypermedia information systems.**

* **HTTP is a TCP/IP based communication protocol,**
* **This is the foundation for data communication for the World Wide Web (i.e. internet)**
* **The default port is TCP 80, but other ports can be used as well.**
* **HTTP protocol is used to deliver data (HTML files, image files, query results, etc.) on the World Wide Web.**
* There are three **basic features** that make HTTP a simple but powerful protocol:
  1. It's connectionless.
     + client and server knows about each other during current request and response only. Further requests are made on new connection like client and server are new to each other.
     + The server processes the request and sends a response back after which client disconnect the connection.
  2. It's media Independent
     + any type of data can be sent by HTTP as long as both the client and the server know how to handle the data content.
  3. It's stateless
     + The server and client are aware of each other only during a current request. Afterwards, both of them forget about each other. Due to this nature of the protocol, neither the client nor the browser can retain information between different requests across the web pages.
* The HTTP protocol is a request/response protocol based on the client/server based architecture
* An HTTP "client" is a program (Web browser or any other client) that establishes a connection to a server for the purpose of sending one or more HTTP request messages.
* An HTTP "server" is a program ( generally a web server like Apache Web Server or Internet Information Services IIS, etc. ) that accepts connections in order to serve HTTP requests by sending HTTP response messages.
* HTTP makes use of the Uniform Resource Identifier (URI) to identify a given resource and to establish a connection.
* There are four types of **HTTP message headers**:
  1. General-header.
     + These header fields have general applicability for both request and response messages.
  2. Request-header.
     + These header fields have applicability only for request messages.
  3. Response-header.
     + These header fields have applicability only for response messages.
  4. Entity-header.
     + These header fields define meta information about the entity-body or, if no body is present, about the resource identified by the request.
* An HTTP client sends an HTTP request to a server in the form of a request message which includes following format:
  1. A Request-line.
  2. Zero or more header (General|Request|Entity)fields followed by CRLF.
  3. An empty line (i.e.,a line with nothing preceding the CRLF)indicating the end of the header fields.
  4. Optionally a message-body.