Define the World Wide Web and describe its structure and components

> Tags: World Wide Web, Internet, Hypertext Transfer Protocol (http), GET,POST Method,

The World Wide Web

- Developed by **Tim Berners-Lee** at CERN
- Originally invented as an internal document-management system in 1989
- The Web has grown to become:
  -A primary source of news and information
  -An indispensable conduit for commerce
  -A popular hub for social interaction, entertainment and communication

How the Web Works: Information and Services

Web components combining to deliver information and services over the Internet

- Server and client software
- The **Hypertext** Transfer Protocol (http)
- Standards
- Mark-up languages

HTTP

Hypertext markup language

One computer (which is called a **client** and runs a program called a **web browser**)
asks
The other computer (which is called a **server** or **web server**) for the information it needs with a series of simple messages.

HTTP Made Simple

- `GET /path/to/file/index.html HTTP/1.0` >You request this
- `HTTP/1.0 200 OK` or >You get either this
- `HTTP/1.0 404 Not Found` > or this
- HTTP/1.0 200 OK
  Date: Fri, 31 Dec 1999 23:59:59 GMT

Content-Type: text/html
Content-Length: 1354

```
<html>
<body>
<h1>
(more file contents) . . .
</body>
</html>
```

HTTP: The GET/POST Method

The **GET** method is used to retrieve information from the given server using a given URL

- Requests using **GET** should only retrieve data and should have no other effect on the data.

The **POST** method is used for operations that have side effects and cannot be safely repeated.

- *For example,* transferring money from one bank account to another has side effects and should not be repeated without explicit approval by the user.

HTTP: Basic Features

HTTP is **connectionless**:

- The HTTP client, i.e., a browser initiates an HTTP request and after a request is made, the client disconnects from the server and waits for a response
- The server processes the request and re-establishes the connection with the client to send a response back.
  HTTP is **media independent**:
- It means, 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
- It is required for the client as well as the server to specify the content type.
  HTTP is **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 save information.