06
Server-side Programming

(MCA) CSA-507 Web Development
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Server

Server Evolution

- Computer connected to dumb terminals

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- More powerful computer connected to less powerful client computers

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- Software on a computing device

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Server

A computing system that provides resources, data, services, or programs to other computing systems (a.k.a. clients).

- File Server
- Application Server
- Web Servers
- Print Server
- Management Servers
- Proxy/Intermediary Server
- Virtual Servers

Client-Server Architecture

- A typical master-slave model

- Web Server remains available. Web Client requests a resource. Web Server provides the resources.
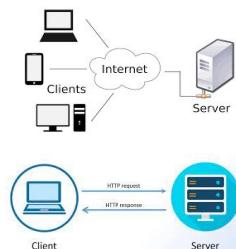
HTTP Request-Response Handling

- GET
    - REQUEST : Data through query string & headers
    - RESPONSE : Response body
- POST
    - REQUEST : Data sent through querystring, headers, request body
    - RESPONSE : Response body

HTTP

GET & POST w.r.t. Data

Characteristics	GET	POST
Cacheable	YES	Usually NO
Data Size Limitation	YES (limited to url length)	NO
Data encoding type (MIME-type)	application/x-www-form-urlencoded	application/x-www-form-urlencoded **or** multipart/form-data **or** text/plain (**or** *text/json*)*
Data Type Restriction	Only ASCII	NO
Data in Request body	NO	YES

Request – Data Encoding

application/x-www-form-urlencoded	multipart/form-data
POST /test HTTP/1.1 Host: foo.example Content-Type: application/x-www-form-urlencoded Content-Length: 27 field1=value1&field2=value2	POST /test HTTP/1.1 Host: foo.example Content-Type: multipart/form-data;boundary="boundary" --boundary Content-Disposition: form-data; name="field1" value1 --boundary Content-Disposition: form-data; name="field2"; filename="example.txt" value2 --boundary--

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Encoding in a web form

- Encoding the form
    - <form action="/action_page.php" method="post" enctype="multipart/form-data"> </form>

- Encoding form element
    - <input type="submit" formenctype="multipart/form-data" value="SEND">
    - Overrides the former

File Handling

- File storage
    - File server
    - Binary files in database
- File upload/download
- PUT method

Session Management

- Session
    - each live connected instance between client-server
- Session Data
    - Implicit session ID *
    - Server session data variables
    - Cookies/ LocalStorage/ SessionStorage in client

Database Transactions

- Client connects through server side scripts to transact in DB
- Database abstraction layer / API in Server side scripting
- Database driver for implementation
- Database, usually a process on a system
- SQL injection and prepared statements

Libraries, Templating Engines & Frameworks

- Library
- Template Engine
- Framework (MVC)