ABOUT IP ADDRESS AND MAC ADRESS ,PORT ,HTTP METHODS :

* An Internet Protocol (IP) address is the unique identifying number assigned to every device connected to the internet.
* Every device with an internet connection has an IP address, whether it's a computer, laptop, IoT device, or even toys.  The IP addresses allow for the efficient transfer of data between two connected devices, allowing machines on different networks to talk to each other.

MAC ADDRESS:

* A MAC address (media access control address) is **a 12-digit hexadecimal number assigned to each device connected to the network**.
* Primarily specified as a [unique identifier](https://www.techtarget.com/iotagenda/definition/unique-identifier-UID) during device manufacturing, the MAC address is often found on a device's network interface card ([NIC](https://www.techtarget.com/searchnetworking/definition/network-interface-card)).
* The MAC address belongs to the [data link layer](https://www.techtarget.com/searchnetworking/definition/Data-Link-layer) of the Open Systems Interconnection ([OSI](https://www.techtarget.com/searchnetworking/definition/OSI))

HTTP METHODS :

* The primary or most-commonly-used HTTP verbs (or methods, as they are properly called) are POST, GET, PUT, and DELETE. These correspond to create, read, update, and delete (or CRUD) operations, respectively.

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| HTTP VERB | CRUD | DESCRIPTION |
| **POST** | CREATE | Used to create new resources  NOT SAFE - NOT IDEMPOTENT  Making two identical POST will duplicate the resource |
| **GET** | READ | Retrieve a representation of a resource  SAFE - IDEMPOTENT  Multiple identical requests return the same result |
| **PUT** | UPDATE | Update or Create a resource  NOT SAFE - IDEMPOTENT  Multiple identical requests will update the same resource |
| **DELETE** | DELETE | Used to delete a resource  NOT SAFE - IDEMPOTENT §  Multiple identical requests will delete same resource |

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| § | Calling DELETE on a resource a second time will often return a 404 (NOT FOUND) since it was already removed and therefore is no longer findable. This, by some opinions, makes DELETE operations no longer idempotent, however, the end-state of the resource is the same. Returning a 404 is acceptable and communicates accurately the status of the call. |

IDEMPOTENCE

Clients can make that same call repeatedly while producing the same result.

In other words, making multiple identical requests has the same effect as making a single request. Note that while idempotent operations produce the same result on the server (no side effects), the response itself may not be the same (e.g. a resource's state may change between requests).