

Web frameworks : Introduction

- Real world web address are not nice, memorable strings that you can remember.
- They are special numbers like `63.245.215.20` (known as `ipv4` OR `ipv6` addresses).
- What is IP address?

A simple video from popular YouTuber - <https://www.youtube.com/watch?v=gVzQuRrD4xw>

How internet works?

URL Uniform Resource Locator

URI Uniform Resource Identifier

Internet is network of networks connecting billions of computers.

What is `HTTP` ?

`Hypertext Transfer Protocol` is an application level protocol used for communication between web applications.

How web works?

You type URL in browser (client) → internet service provider (TCP/IP protocol) → DNS server finds real IP address → application server → application

Let's create a first website

```
pip install flask
```

Flask

```
from flask import Flask

app = Flask(__name__)

@app.route("/")
def hello_world():
    return "<p>Hello, World!</p>"
```

Concept of socket

- An application on client side can communicate with an application on server by knowing combination of 3 things -
 - Protocol type
 - IP address
 - port number
- `Socket address = protocol type + IP address + port number`
- A *socket* is one endpoint of a two-way communication link between two programs running on the network.

What is the IP Address `127.0.0.1` ?

- If you want to visit a website, you type the website address to your browser's address bar, for example, `https://google.com`.
- The Domain Name Server (DNS) matches the address to a numeric IP address corresponding to that name. In the case of `Google`, this IP address could be something like `104.23.24.33`. This is how it is done for every website you visit.
- Localhost is not an exception to this. So, if you type `localhost` to your browser's address bar, it transforms to the IP address `127.0.0.1`.
- This `127.0.0.1` IP address is reserved for local servers on computers.

- Sometimes, you can replace `127.0.0.1` with word `localhost` as your computer understands the reference.
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What is port number?

- Port number identifies a specific process to which an Internet or other network message is to be forwarded when it arrives at a server.
 - Port number for application is provided by kernel of Operating System.
 - Port numbers are logical interfaces used by communication protocols.
 - Popular port numbers and their associated protocols / applications (We can change these default ports)
 - HTTP – Port 80
 - HTTPS – Port 443
 - SSH - port 22
 - MySQL - port 3306
 - Redis - port 6379
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Web frameworks

- Even before let's understand literal meaning of `framework`. In short, framework is nothing but guideline.
- Web framework is guideline to create an web application.