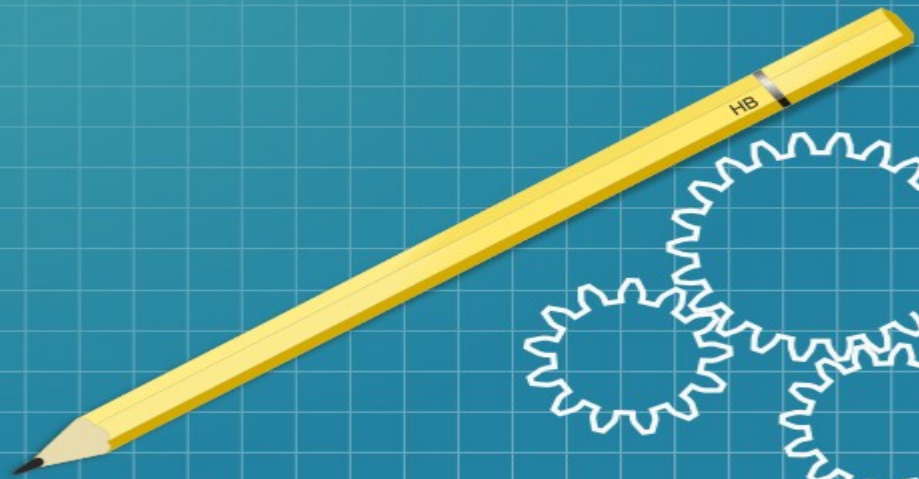
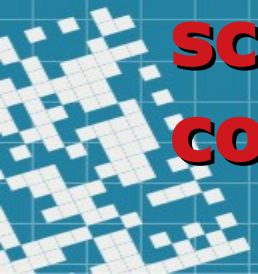
WEB DEVELOPMENT

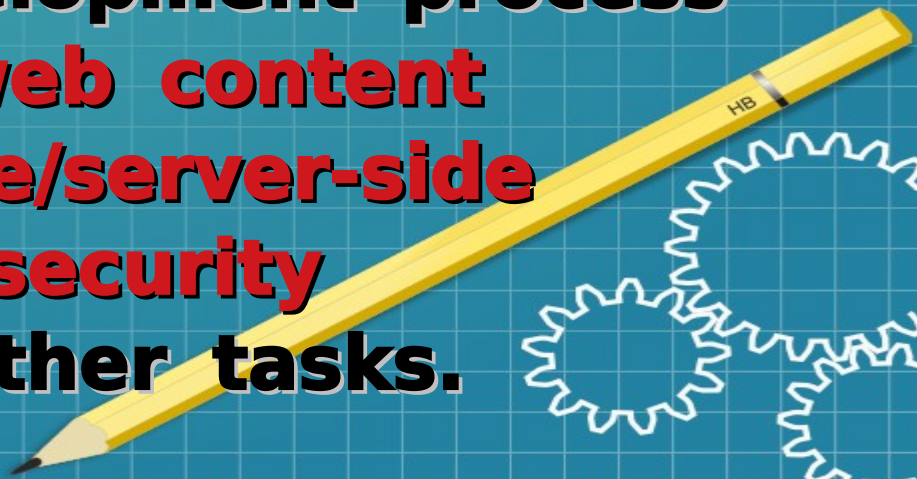
IEEE NITK



WHAT IS WEB DEVELOPMENT ?

Web development broadly refers to the tasks associated with developing websites for hosting via intranet or internet. The web development process includes web design, web content development, client-side/server-side scripting and network security configuration, among other tasks.



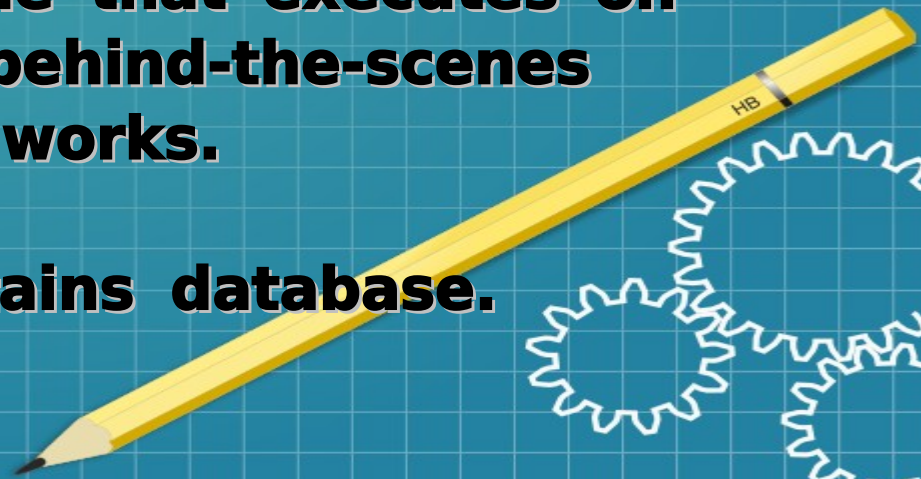


WHAT DOES WEB DEVELOPER DO ?

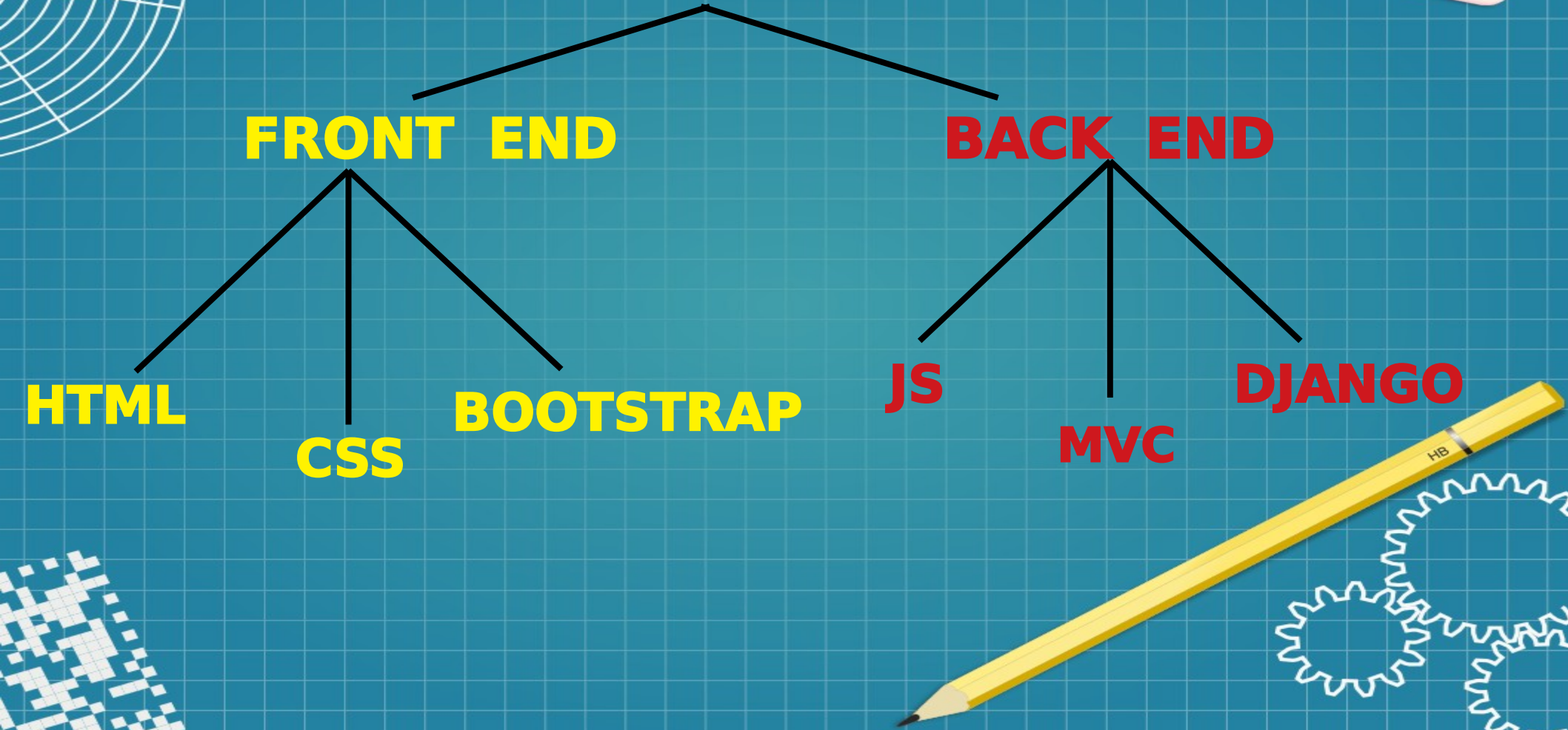
Client-side scripting :The code that executes in web browser and determines what customer and clients will see when they open your website.

Server-side scripting :The code that executes on Web server and powers the behind-the-scenes mechanics of how a website works.

Database Management :Maintains database.



PARTS OF WEB DEVELOPMENT



HTML

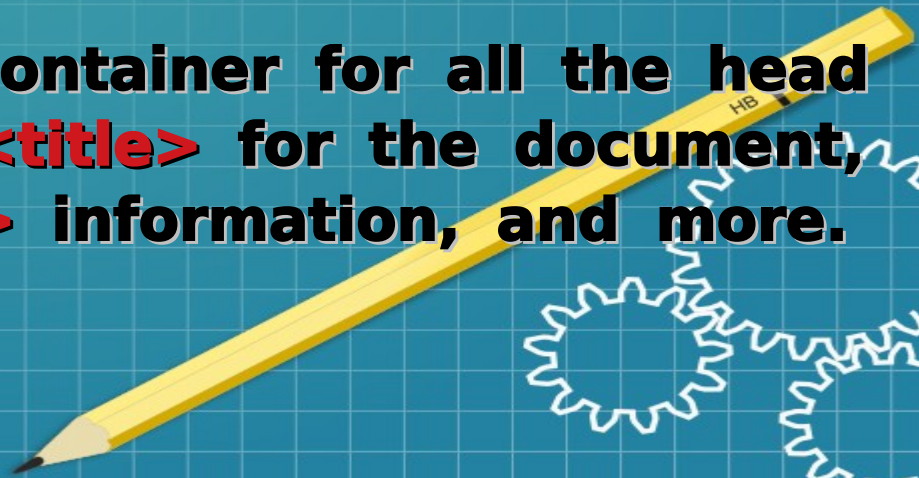
```
<!DOCTYPE html>
<html>
<head>
<title>Page Title</title>
</head>
<body>

<h1>This is a Heading</h1>
<p>This is a paragraph.</p>

</body>
</html>
```

TAGS IN HTML

The <!DOCTYPE html> declaration defines this document to be HTML5.

<HTML> is the root element of html,all others tags are contained in this.

The <HEAD> element is a container for all the head elements, it can include a <title> for the document, <scripts>, <styles>, <meta> information, and more.

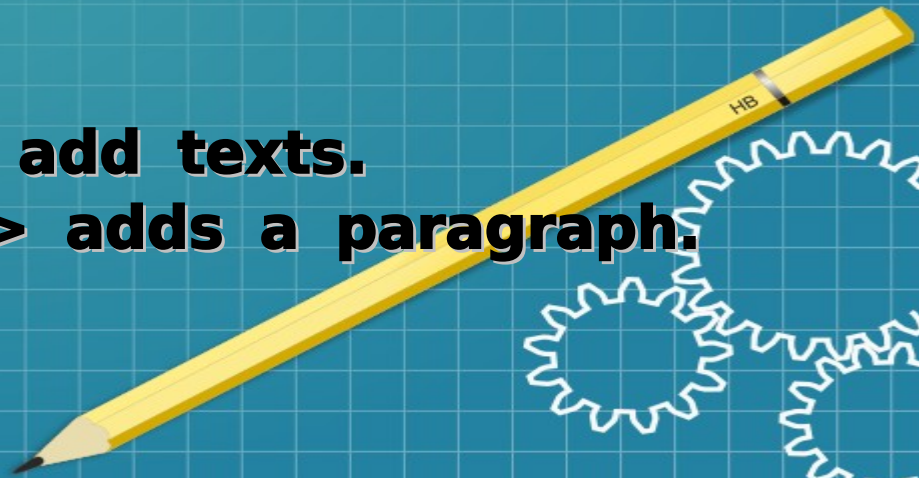


TAGS IN HTML

The <title> tag is required in all HTML documents and it defines the title of the document.

The <body> element contains all the contents of an HTML document, such as text, hyperlinks, images, tables, lists, etc.

The <h1>, <p> are tags to add texts.
<h1> adds heading and <p> adds a paragraph.



CSS

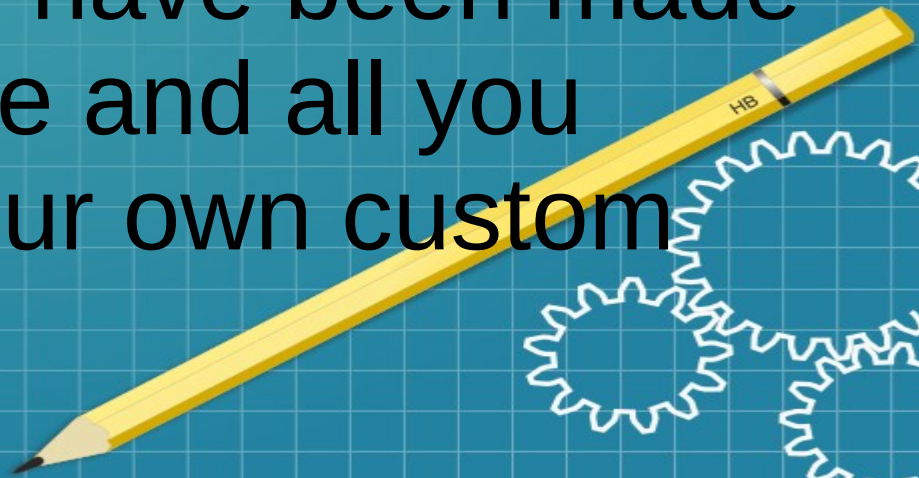
- **CSS** stands for **Cascading Style Sheets**
- **CSS** describes how HTML elements should be displayed on screen, paper, or in other media
- **CSS** saves a lot of work. It can control the layout of multiple web pages all at once
- **External stylesheets are stored in CSS files**
- **CSS** is used to define **styles** for your web pages, including the **design, layout and variations in display for different devices and screen sizes.**

How is CSS helpful?

- The style definitions are normally saved in external .css files.
- With an external stylesheet file, you can change the look of an entire website by changing just one file

CSS Templates

- Templates can be used to save alot more work as designs have been made earlier using CSS code and all you have to do is make your own custom changes to it.



Responsivenes of a Webpage

- **Responsive web design (RWD)** makes your web page look good on **all devices.**
- Responsive web design uses only **HTML and CSS.**
- Responsive web design is not a program or a JavaScript.
- Web pages can be viewed using many different devices: **desktops, tablets, and phones**. Your web page should look good, and be easy to use, regardless of the device.
- Web pages should not leave out information to fit smaller devices, but rather adapt its content to fit any device:
- **It is called responsive web design when you use CSS and HTML to resize, hide, shrink, enlarge, or move the content to make it look good on any screen.**

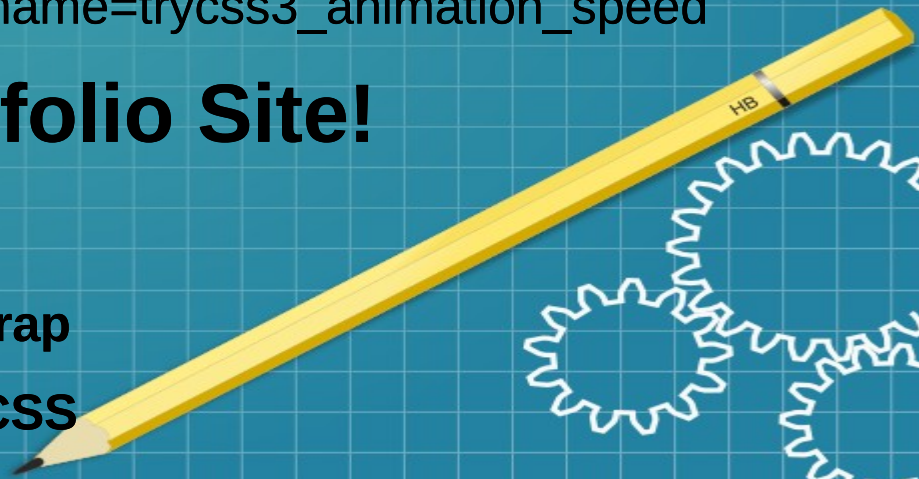
Practical Exercise

- **CSS** Template:
  https://www.w3schools.com/w3css/tryit.asp?filename=tryw3css_templates_food_blog&stacked=h
- **Try animations on your Website:**

  https://www.w3schools.com/Css/tryit.asp?filename=trycss3_animation1

  https://www.w3schools.com/Css/tryit.asp?filename=trycss3_animation_speed
- **Try making your own Portfolio Site!**

  Example:
- **https://nimbus98.github.io/ - CSS + Bootstrap**
- **https://saurabhagarwala.github.io/ - Pure CSS**



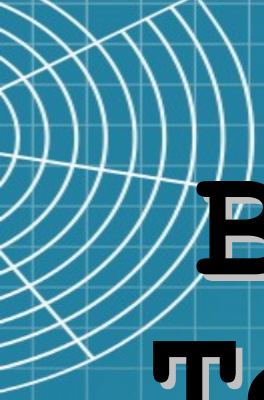
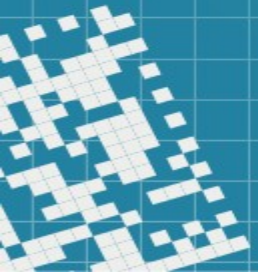
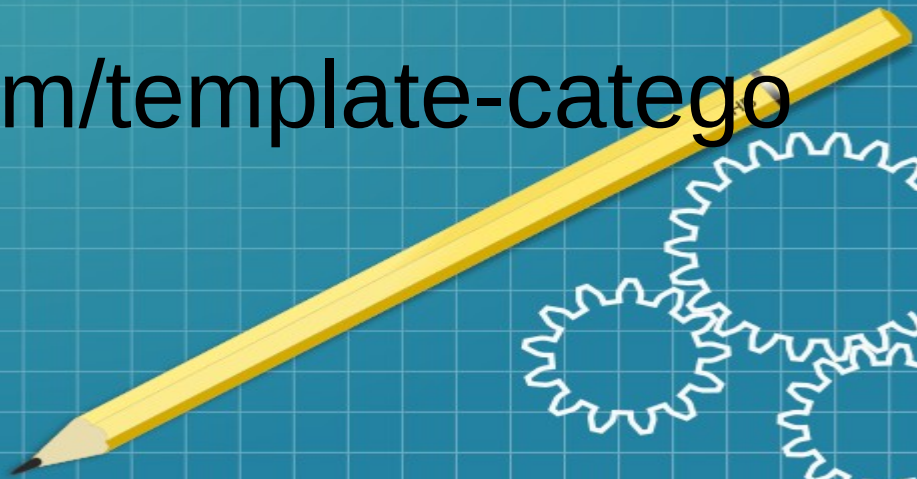
BOOTSTRAP

It is a **free and open-source front-end framework** for designing websites and web applications. It contains HTML- and CSS-based design templates for typography, forms, buttons, navigation and other interface components, as well as optional JavaScript extensions.

In order to get started with the library, visit w3schools: **https://www.w3schools.com/bootstrap/default.asp**

Bootstrap and It's Templates Resources

- http://getbootstrap.com/
- **Templates Resource:** https://startbootstrap.com/template-categories/all/

JAVASCRIPT

JavaScript, often abbreviated as JS, is a high-level, interpreted programming language. It is characterized as dynamic, weakly typed, prototype-based and multi-paradigm. Alongside HTML and CSS, JavaScript is one of the three core technologies of the World Wide Web.

It is used in both front and backend development.

Backend Frameworks like Node.js, and **Frontend Frameworks** like Angular and React JS, **Databases**, like MongoDB and CouchDB, use JavaScript.

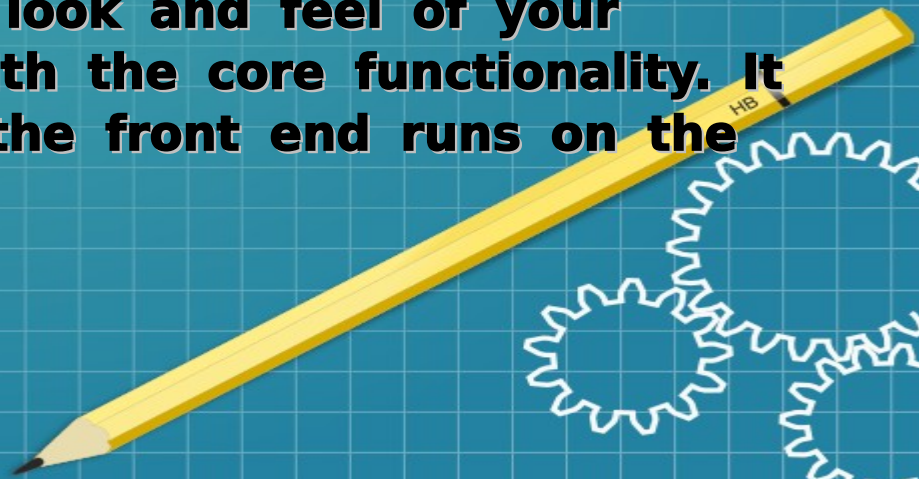
It is used to program the behavior of web pages.

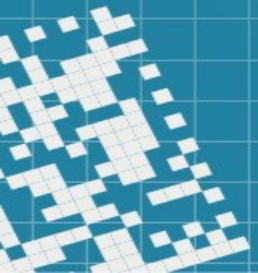
Example: http://jsfiddle.net/tnLbt45p/7/

What is Back-End?

Backend basically deals with the core business logic of the application like processing data, storing data on the database or retrieving it, performing transactions, etc. It's the machinery that works behind the scenes—everything the end user doesn't see or directly interact with, but that powers what's happening.

Basically, front end deals with the look and feel of your website and the back end deals with the core functionality. It runs on the server side where as the front end runs on the client side.





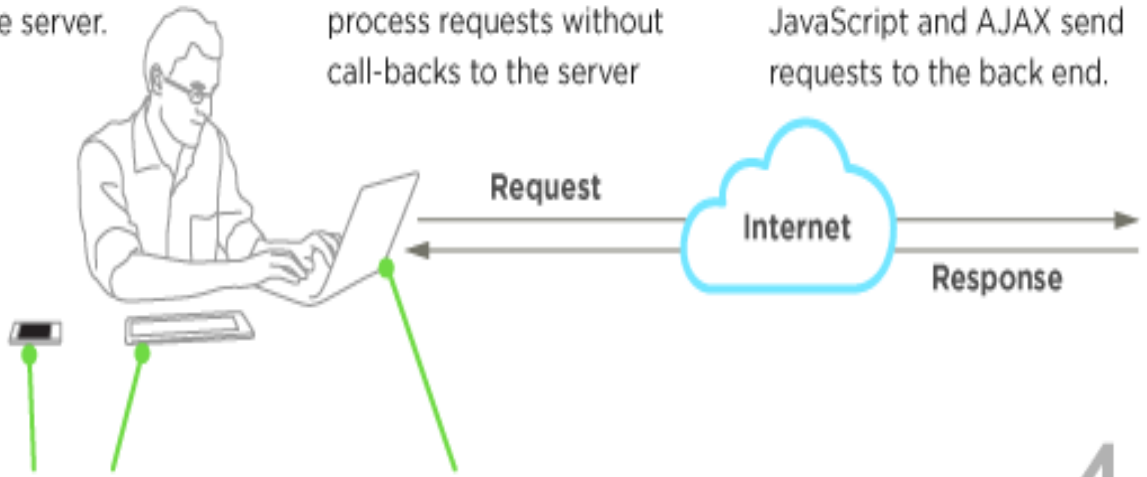
FRONT-END DEVELOPMENT

Upwork

1 A site is loaded in a browser from the server.

2 **Client-side scripts** Run in the browser and process requests without call-backs to the server

3 When a call to the database **is** required JavaScript and AJAX send requests to the back end.



5 **Server-side scripts** process the data, then update the site—populating drop-down menus, loading products to a page, updating a user profile, and more.

Responsive front-end design allows a site to adapt to a user's device.

Everything a user sees in the browser is a mix of **HTML**, **CSS**, and **JavaScript**.

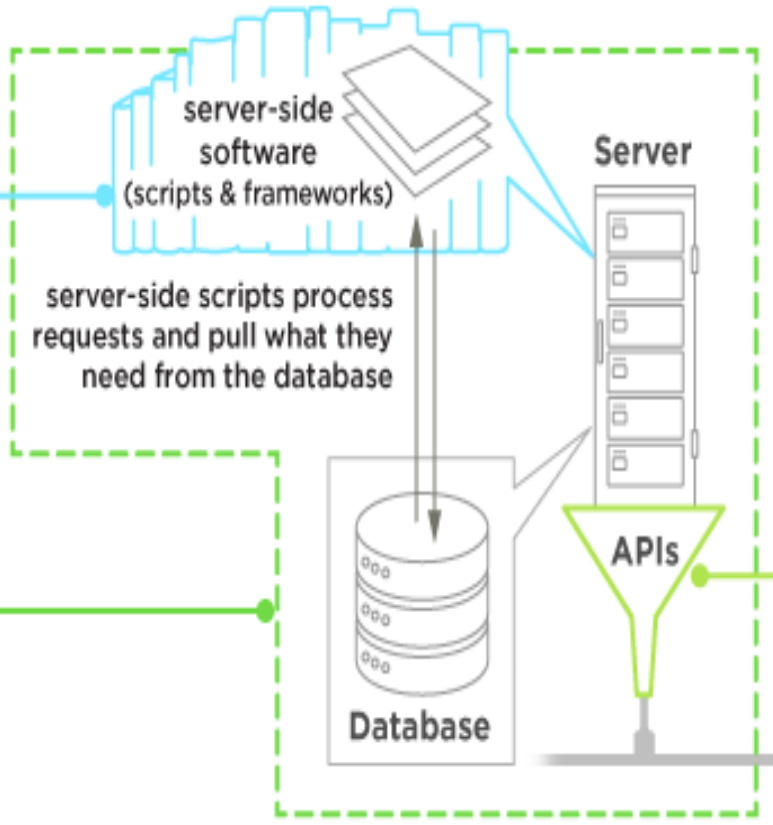
4 The **back-end server-side scripts** process the request, pull what they need from the database then send it back.

BACK-END DEVELOPMENT & FRAMEWORKS IN SERVER SIDE SOFTWARE

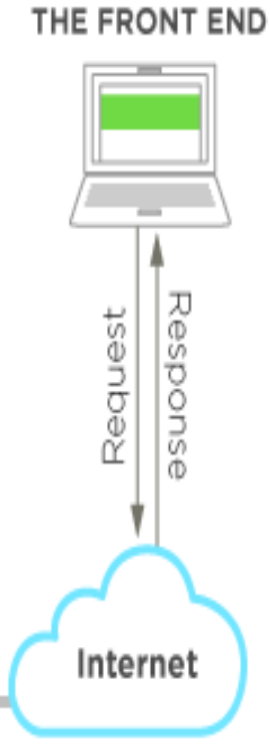
Upwork™

FRAMEWORKS are libraries of server-side programming languages that construct the back-end structure of a site.

The **"STACK"** comprises the database, server-side framework, server, and operating system (OS).

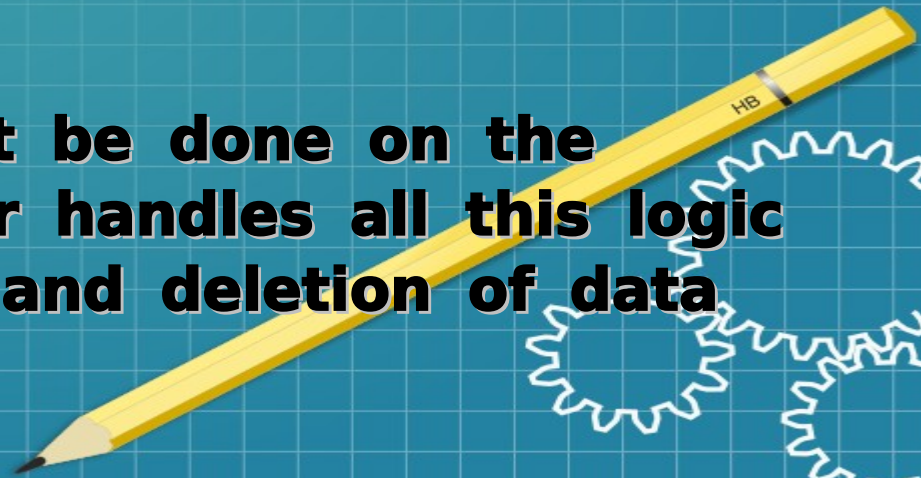


APIs structure how data is exchanged between a database and any software accessing it.



Why do we need a separate Backend:

1 .Structured code
2. Security - Because browsers should not be given access to the entire database. Only access should be given to specific parts of the code that he/she is authorized to see.
3. Its simpler
4. It has better performance.
5. Most data processing cannot be done on the browser(client side). The server handles all this logic and makes processing, adding and deletion of data easier.
E.g. User authentication

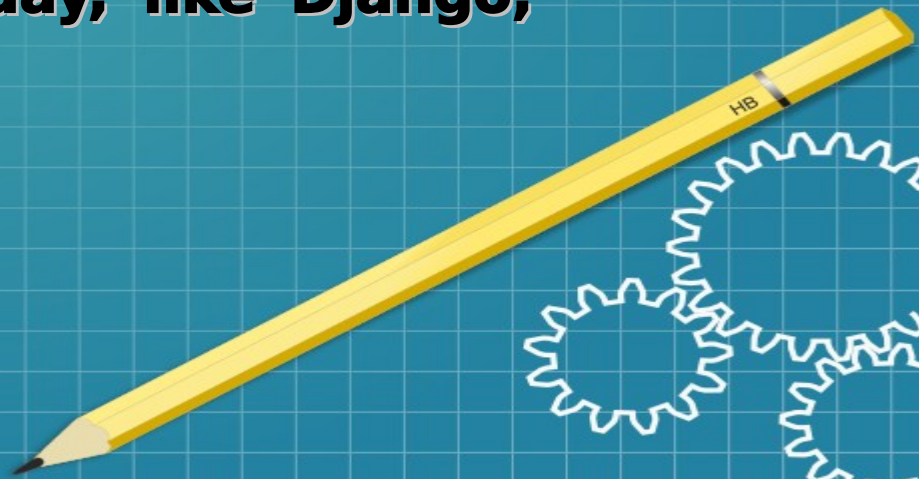


(Model-View-Controller)

MVC Architecture:

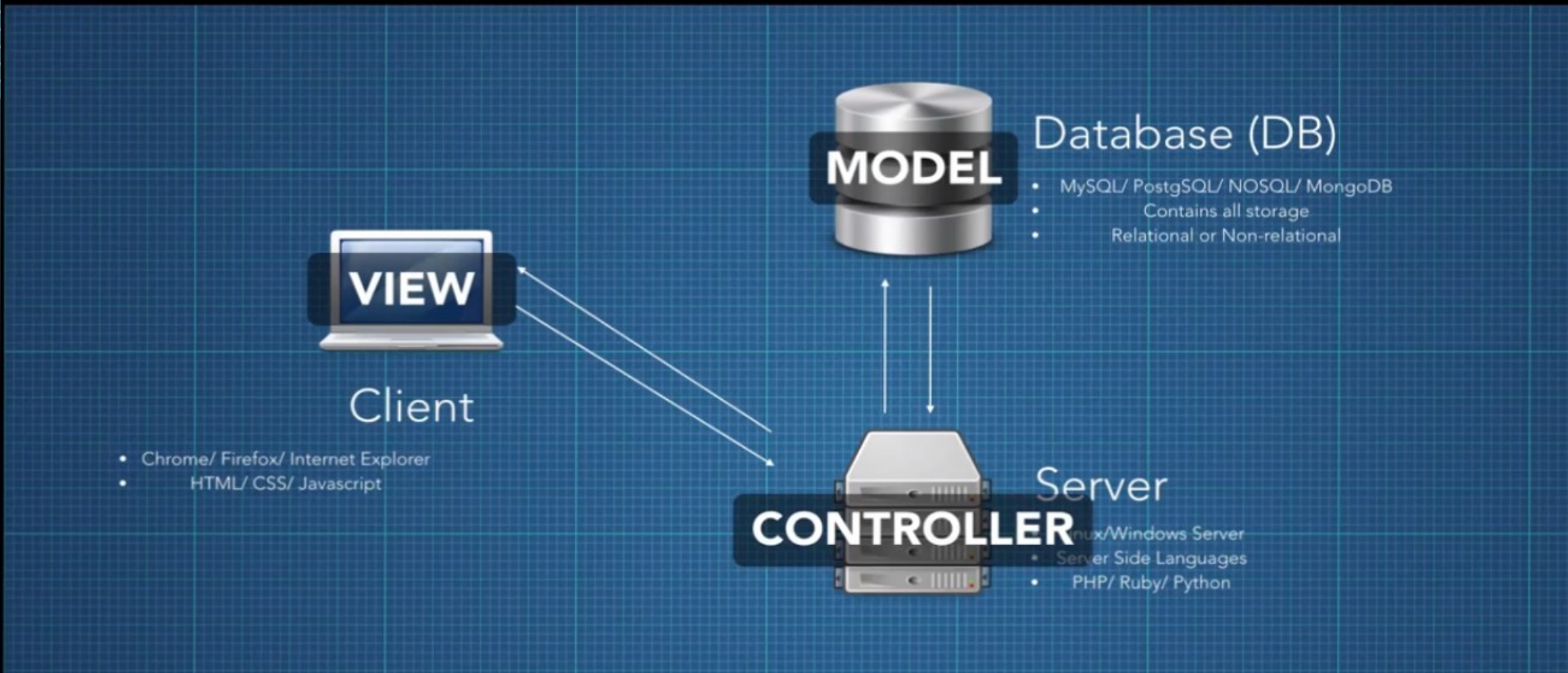
One of the most common architecture used for backend development.

It is a way to structure your web applications and it just describes the way in which your web application is going to be built. It is a very common paradigm, used by a lot of web frameworks today, like Django, RubyOnRails.



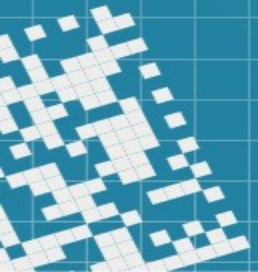
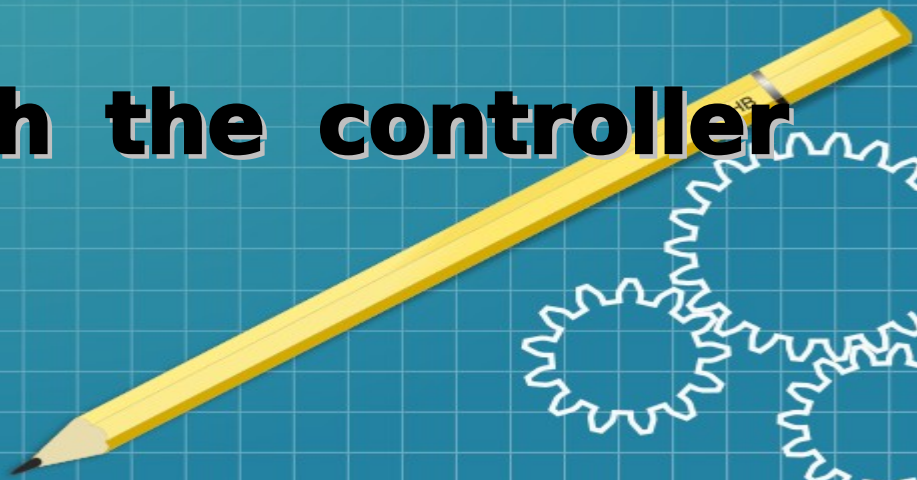
HOW DOES A WEBSITE WORK?

THE FLOW



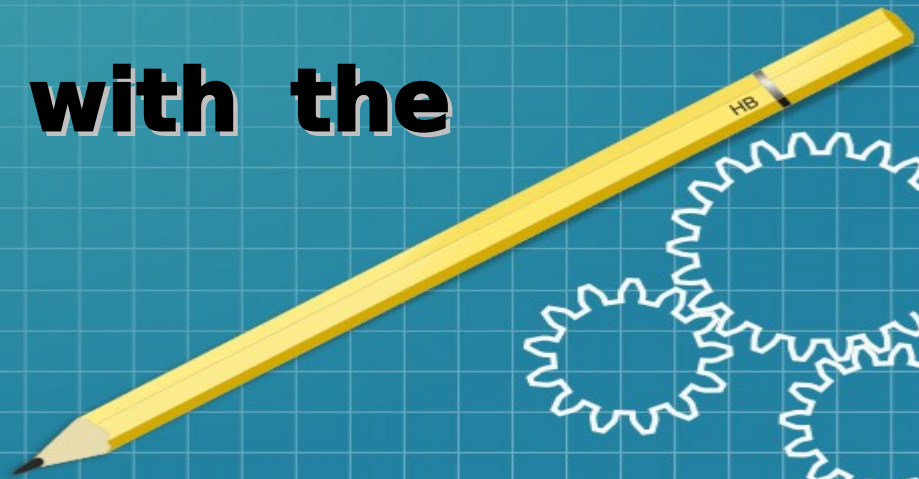
Characteristics of the models are:

1. **Adding and retrieving data from the database**
2. **Processing data from or to the database**
3. **Interacts only with the controller**

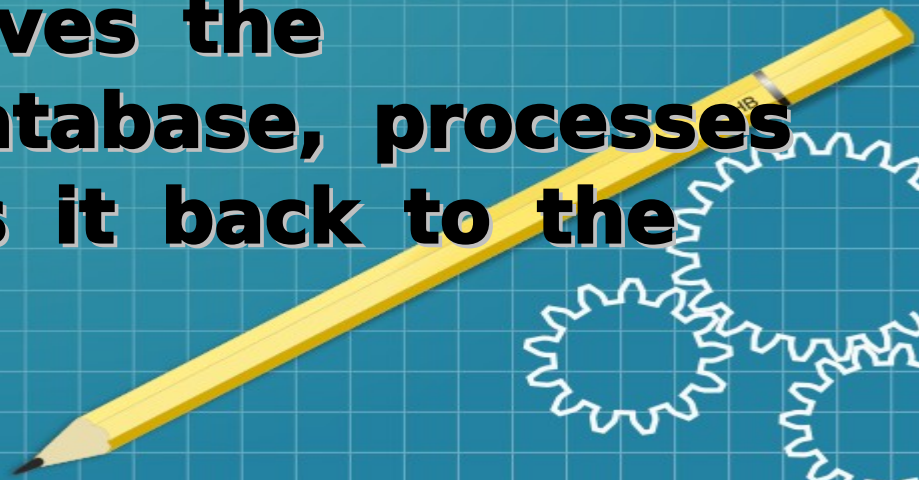
View:

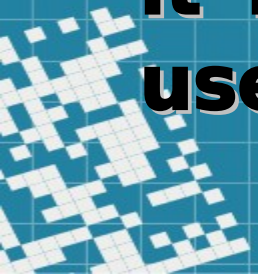
1. It is how the user interacts with the application
2. It is the only thing that the user can see
3. It interacts only with the controller.



Controller:

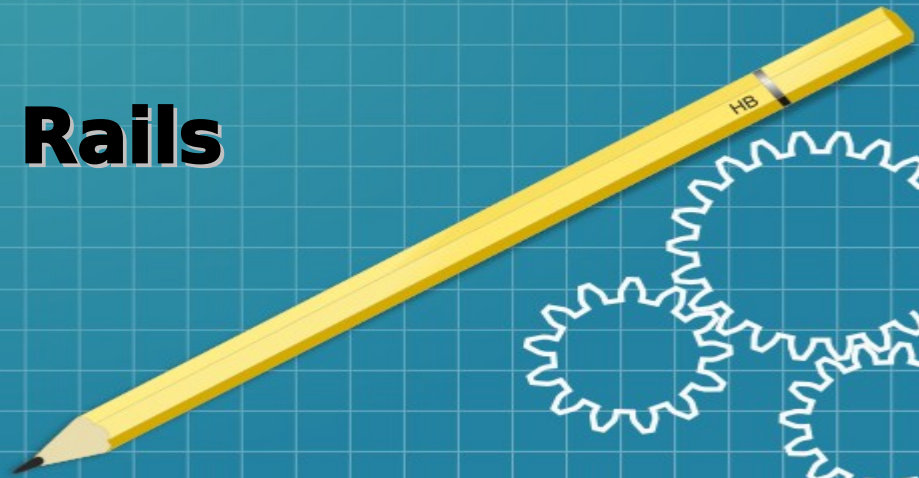
1. Deals with the server-side logic
2. Processes GET/POST requests.
3. Sort of the middle-man, receives a request from the user, takes the required action, if required receives the information from the database, processes it back, and then sends it back to the user as required.





Popular Languages and Frameworks used for backend development:

- **Python with Django**
- **PHP with Laravel**
- **Ruby with Ruby on Rails**



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- Saharsh:-saharshsonu40@gmail.com/8861116298

LINKS

Html: https://www.w3schools.com/html/default.asp

Bootstrap:
https://www.w3schools.com/bootstrap/bootstrap_get_started.asp

Introdution to Backend:
https://www.upwork.com/hiring/development/a-beginners-guide-to-back-end-development/

A tutorial to make a BlogApp using Django:
https://www.youtube.com/watch?v=n-FTlQ7Djqc&list=PL4cUxeGkcC9ib4HsrXEYpQnTOTZE1x0uc

FEEDBACK

https://docs.google.com/forms/d/e/1FAIpQLSdZE9w370BmgXn_bawJygKZDF_9DomtPjtQ7cjRfAGW9auK7w/viewform?usp=sf_link