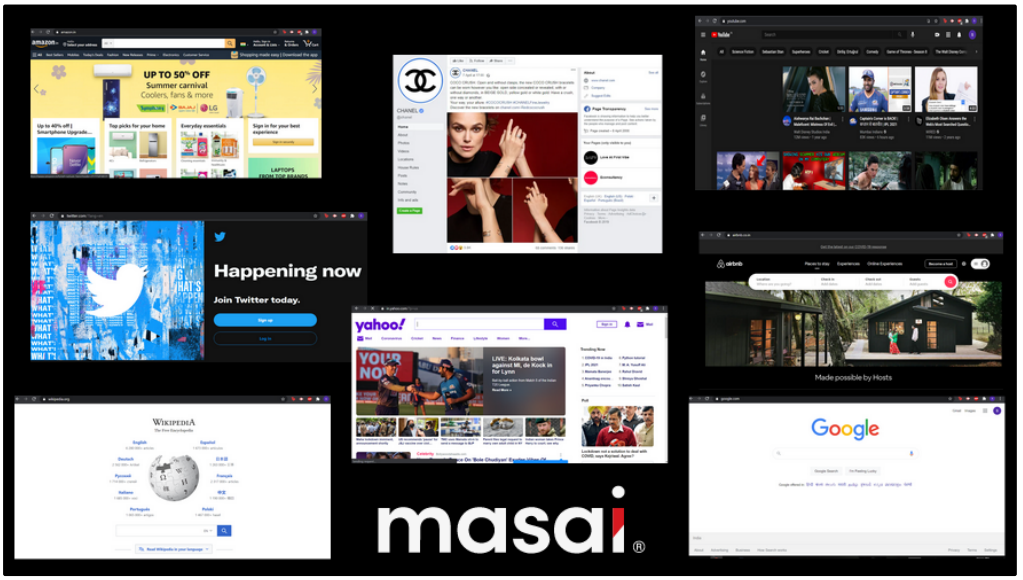
Lecture 1 : Introduction To FSD

Why Web Dev: Browser is the new OS!



Browsers were created to link pages with information (largely text, with some images). But today, the browser is used for everything from watching entertaining videos to learning to code, sharing messages/photos with friends, and even for secure banking:

1. Youtube - is for uploading and sharing all kinds of videos, which could be personal, movie trailers, do it yourself videos, news items, anything that users want
2. Amazon - for online shopping
3. Facebook, Twitter - for social networking with family, friends, workmates
4. Google, Yahoo - these are search engines and provide email services too
5. Wikipedia - online encyclopedia that can be both read and added to by users

What is Web Dev exactly: Key components

Web Development is the building and maintenance of websites. It's what makes a website

What makes a website

1. **look great**
2. **work fast,** and
3. **provide the intended user experience**

Here are the key components of web development:

HTML, CSS, JS

Instructor Task (5 mins): High-level view of HTML CSS JS

HTML, CSS and JS are the three key technologies/programming languages involved in web dev.

- HTML provides the **structure** of the webpage,
- CSS adds **color & design** and
- JavaScript provides **interactivity** to it.

HTML vs CSS vs Javascript

- https://codepen.io/rcyou/pen/QEObEk/
- It may sound CSS is unimportant but check out http://www.csszengarden.com/ .

Data

Data

Role of data on the web.

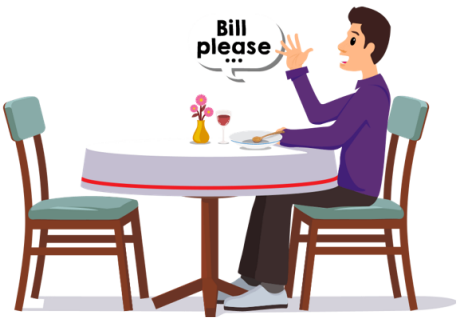
- Data plays a key role in our life. There could be a lot of sources from where data can be generated like Meteorological Data, Natural Data, Financial Data, etc.
- When we use applications like Facebook, Instagram, Twitter, Whatsapp, etc, we use to spend a lot of time. Hence, we are generating the data.
- The data is used by the companies, so they can generate some valuable information like in the case of Amazon, they will generate offers for you based on your shopping history.

Frontend vs Backend vs Database Interaction

- Frontend gives you interactivity through which we can interact with the platform. The platform could be any like Swiggy, Zomato, Amazon, Facebook etc.
- The backend provides processing, What to search, What to save, etc.
- The database stores the data.
- Each of the above operates on data only.

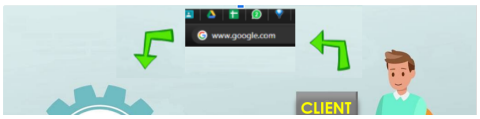
Server / Client Model

When you search for something on Google, your query goes to Google (servers) via the internet. Then a response is sent back by Google, which is shown by your browser (client). This is how most of the web works.



You (Client) are like a customer in the restaurant and the Server is like the waiter taking your order (or, request). The waiter takes your order into the kitchen and comes out with the food (response).

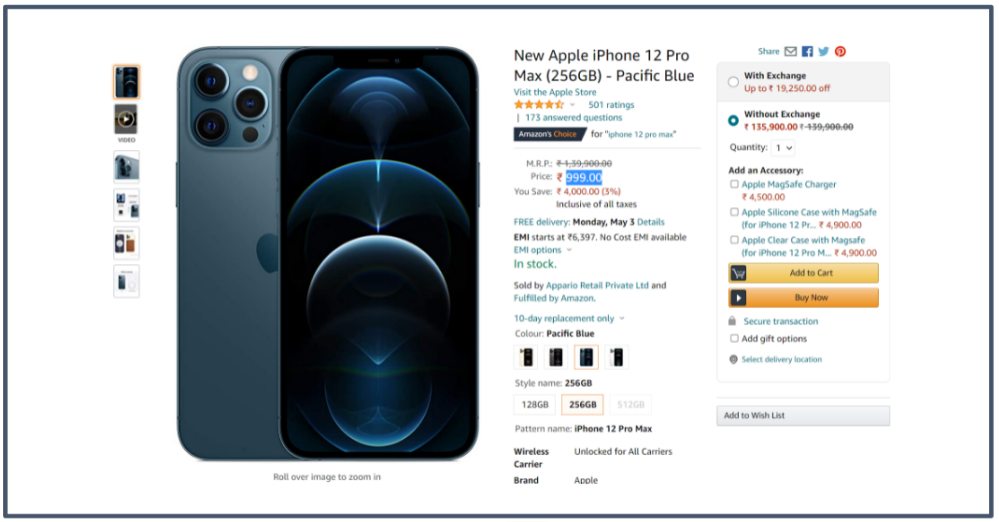
You don't need to go to the chef for the main course, to the bartender for drinks, to the cashier for bill - the waiter handles all those (services) for you!



In a similar way, when you type in a website address, you send a request to the server which then processes that request and sends the appropriate response, like text or video etc. This response is then shown or rendered by your browser (client).

Change the price of any product on Amazon!

If the webpage is rendered on the browser on ***your*** computer - you should be able to change it! Well, you can .. once you know where to look :)



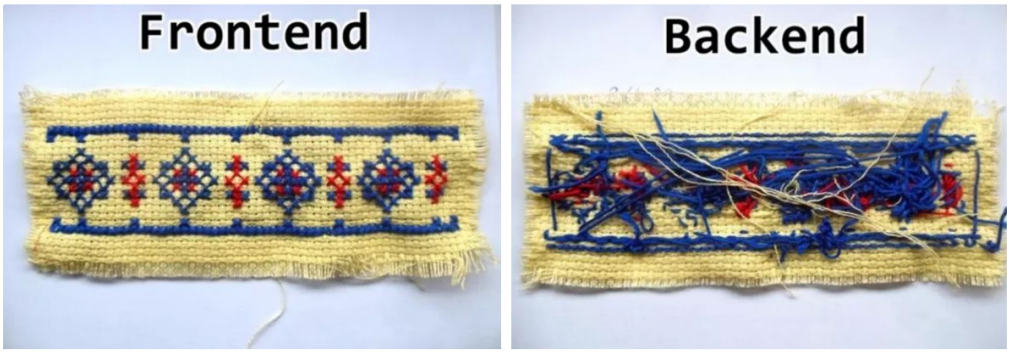
1. Go to any (expensive) product's page - say this iPhone.
2. Now select the price you want to change, right-click and choose Inspect. This will show the code for that element (see Fig 1).
3. Now click on the 3 dots and then choose Edit HTML as shown in Fig 2.
4. Change the price as shown in Fig 3 and voila!

Why the changes disappeared on refreshing?

The page is being sent by Amazon's server. We have only changed the client copy on our computer, not on Amazon's server. Hence when we open the same URL in another tab (or refresh - which resends our request and gets a new response), Amazon's server returns the

request and gets a new response), Amazon's server returns the product page with the original price.

Backend / Frontend / FSD



A good website is a combination of a great user interface and a robust codebase. Frontend and Backend are a lot like different parts of a car. Frontend represents all of the elements a user will see. They are the stylish look of the car and the plush interiors. Backend represents all of the elements of a car you can't see that make it work, like a powerful engine, carbon-fibre chassis.

Ask the students what the below image means, to drive home the point that:

To build a great website, a good-looking frontend is as important as a solid backend.

Internet

Everyone and their mother has literally used the internet in some form or another. So what is it, really?

The Internet is a vast network that connects computers all over the world.

Ratatype

https://www.ratatype.com/groups/4738641/