

INTRODUCTION

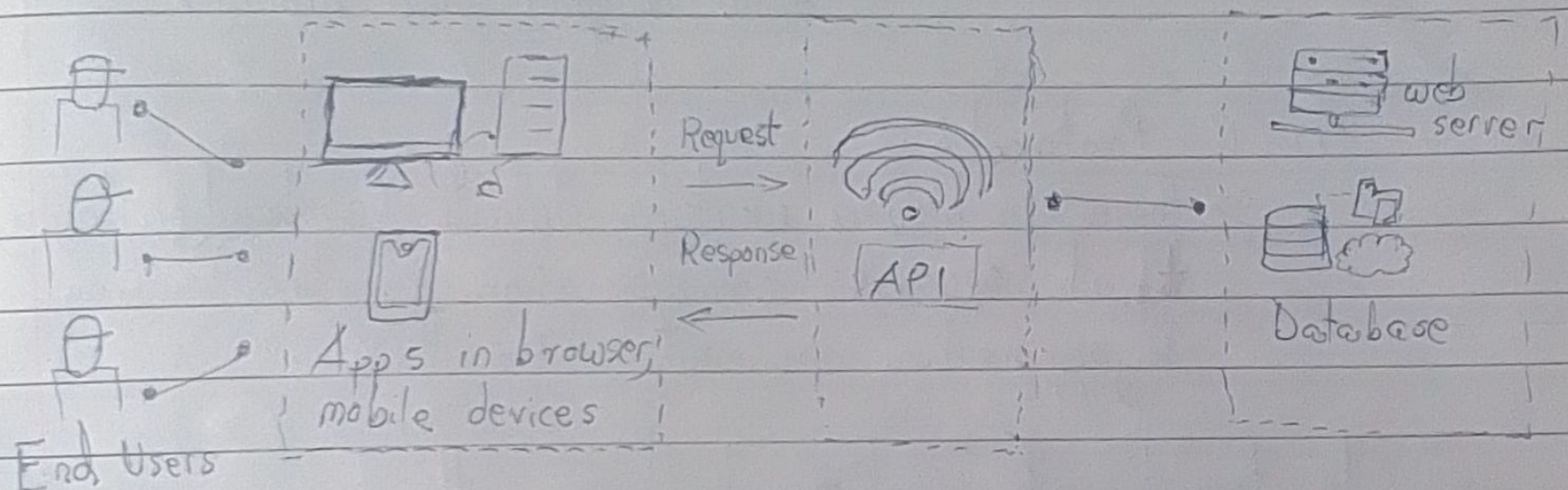
TO

WEB DEVELOPMENT



# Building single page applications with React JS that use REST APIs built with Node.js.

## What is an API?



Requests are processed from an application to the web server through the API's Uniform Resource Identifier (URI).  
Note URI is divided in two types: URL (Locator) and URN (Names).

Some important API that use HTTP are:  
REST - Representational state Transfer.  
SOAP - Simple Object Access point  
GraphQL



# Fundamentals of Web apps

The first rule of Web development:

Always keep the Developer console open on your web browser

HTTP - Protocol:

→ These are hidden working details (abstraction layer) that specifies communication for transmitting hypermedia documents like HTML.

In traditional web applications, the browser is "dumb". It only fetches HTML data from the server. Creating a server is done using: eg: Express, Python Flask, Ruby on Rails or Java spring.

Running Application logic in the browser.

→ The browser executes a HTTP GET request to the server to get an HTML document. Fetches  
→ Within this HTML further instructions await completing the logic of the application by fetching more documents such as JSON data and scripts like main.js and CSS style sheets.



## Event handlers and callback functions.

An event handler is a <sup>(block of code)</sup> function that is invoked by an event listener. / specific event

Event handler functions are called callback function.

The browser invokes the function at an appropriate time when the event has occurred.

## Document Object Model or DOM

The functioning of the browser is based on the idea of depicting <sup>portrays</sup> HTML elements as a tree.

The DOM, is an API that enables programmatic modification of the element trees corresponding to web pages.

You can manipulate Document object on the console, but if the changes are not sent to the server, reloading the page will revert the changes manipulated.

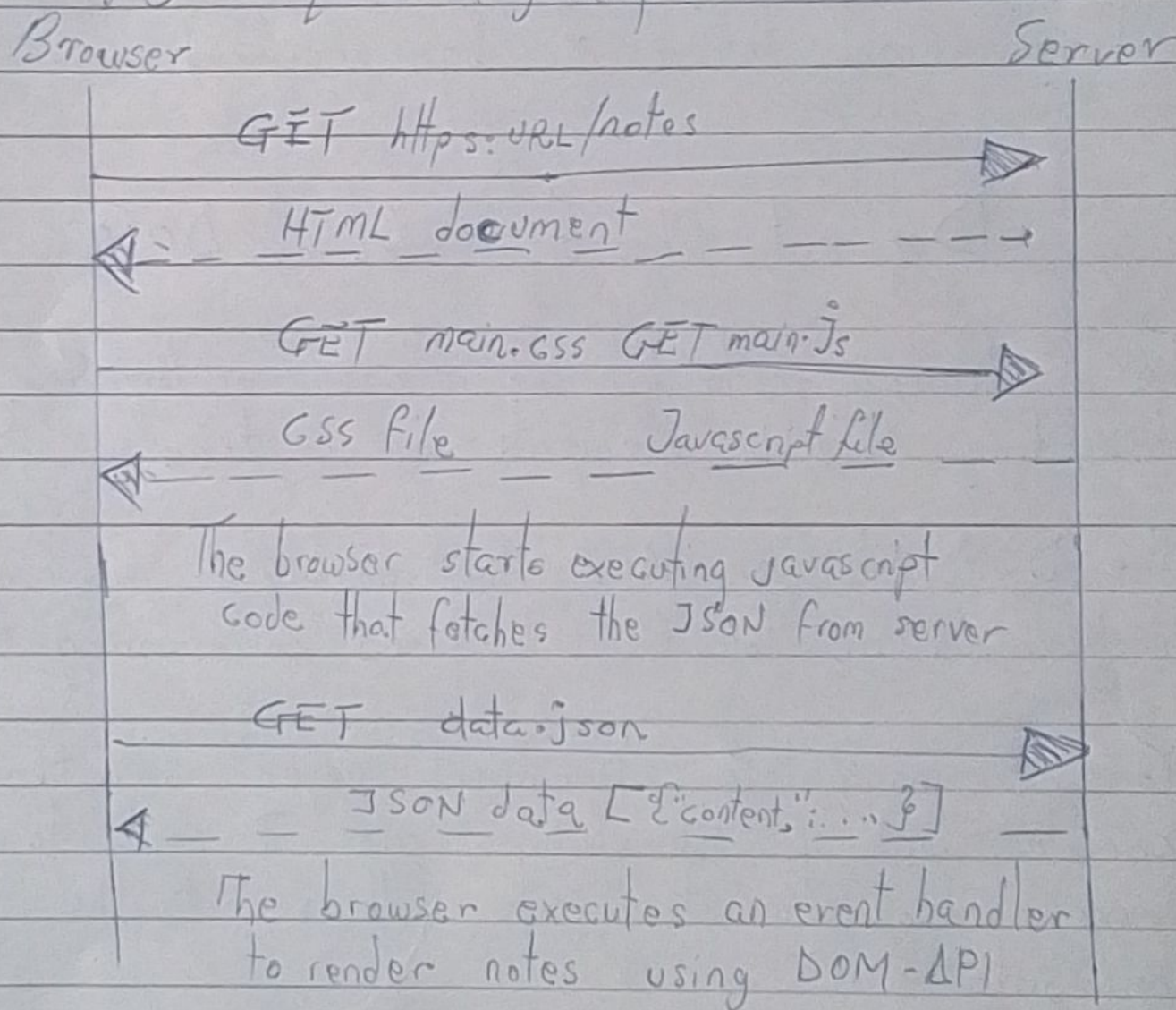


→ CSS

A stylesheet language which is used to determine the appearance of web pages.

→ Loading a page containing Javascript - review.

Fig. Sequence diagram of a traditional website



→ Forms and HTTP POST

When you fill a form, the POST method is used to send data to the server, but this doesn't complete with one HTTP request, there are a series similar to GET method that are triggered when you use POST in order to retrieve the newly added data.



# AJAX : Asynchronous Javascript and XML

Introduced in 2005 allowed the fetching of content using javascript included within the HTML

Before this all data were fetched using HTML code.

## Single page App

SPA-style websites don't fetch all of their pages separately, but instead comprise only one HTML page fetched from the server, the contents of which are manipulated with Javascript that executes in the browser.

Meaning, it uses a single URL, the javascript ~~script~~ updates the page and sends the changes to the server without redirecting the page

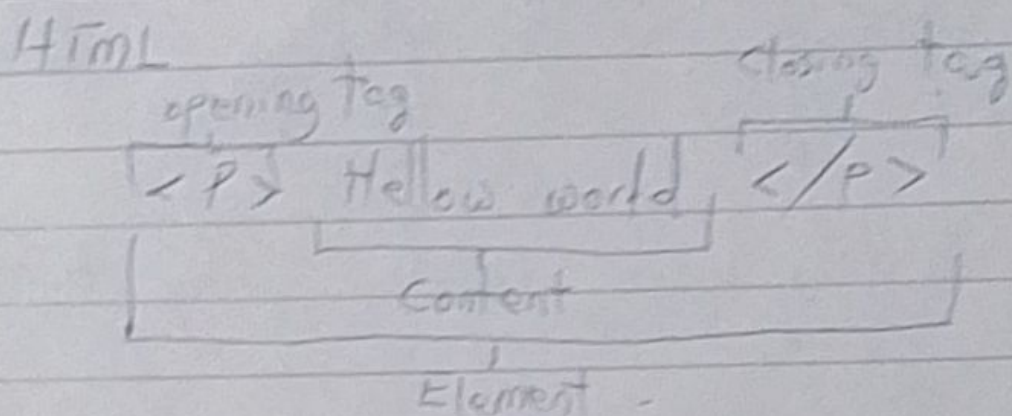
## Javascript Fatigue

Means there are too many frameworks, tools, libraries that it could be overwhelming to choose

Focus on fundamentals.



## Basic Review



`<P class = "editor.note" > ... </P>`

Attribute

• You can nest element `<P> ... <strong>..</strong> </P>`

Void elements : No closing content

## Anatomy of an HTML document

```
<!doctype html>
<html lang = "en-US">
  <head>
    <meta charset="utf-8"/>
    <meta name="viewport" content="width=device-width">
    <title> ... </title>
  </head>
  <body>
    ...
  </body>
</html>
```



## CSS

To link a CSS file to an HTML3 Open the HTML and within the head element (b/n its tags) add

```
<link href = "path" rel = "stylesheet" />
```

### Anatomy of a CSS rule set

selector ← P {  
color: red;  
} ← P  
Property ←  
declaration

Property value

### CSS Box method

