Welcome to Javascript

WEB APPLICATION

Web application - 3 tier Architecture

1. **Front-end:**

- Anything that a user faces is a part of Frontend.
- Frontend development has everything to do from design to dynamism of a web application.

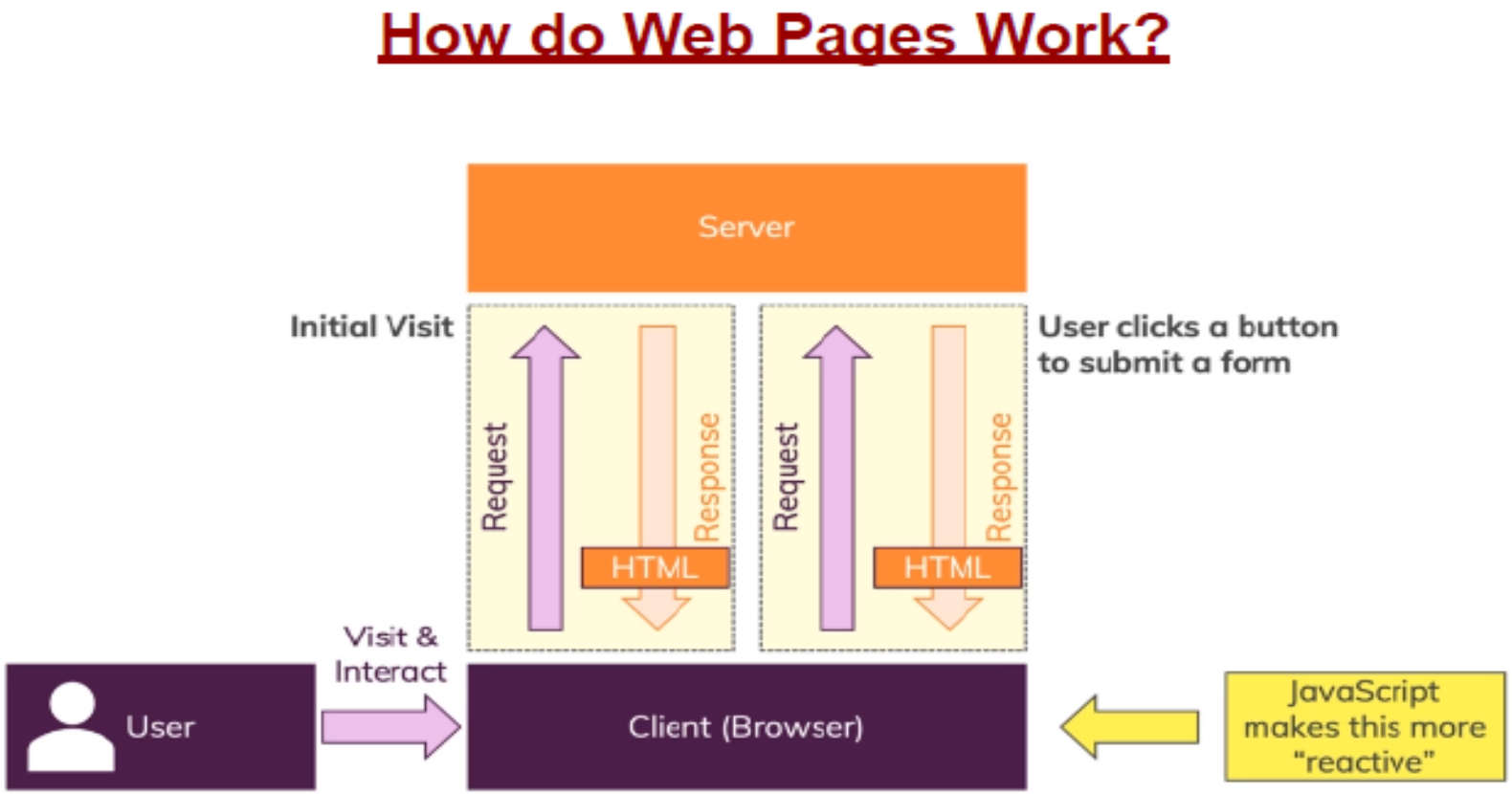
2. **Back-end:**

- Backend is like the brain.
- It has everything to do with the logical.
- It also takes care of data storage and management by connecting to the database.
- It can combine various services to produce the desired results.

3. **Database:**

- Used to store data.

HOW DO WEB PAGES WORK?



HISTORY OF JAVASCRIPT

Brief Overview of the JavaScript History

1995	Netscape introduces “LiveScript” / “JavaScript”
1996	Microsoft releases its own version for IE
Late 1996	JavaScript submitted to ECMA International to start standardization
1997 - 2005	Standardization efforts, Microsoft didn't really join and support the standardized JS version though
2006 - 2011	Huge progress in JavaScript ecosystem, Microsoft eventually joined forces

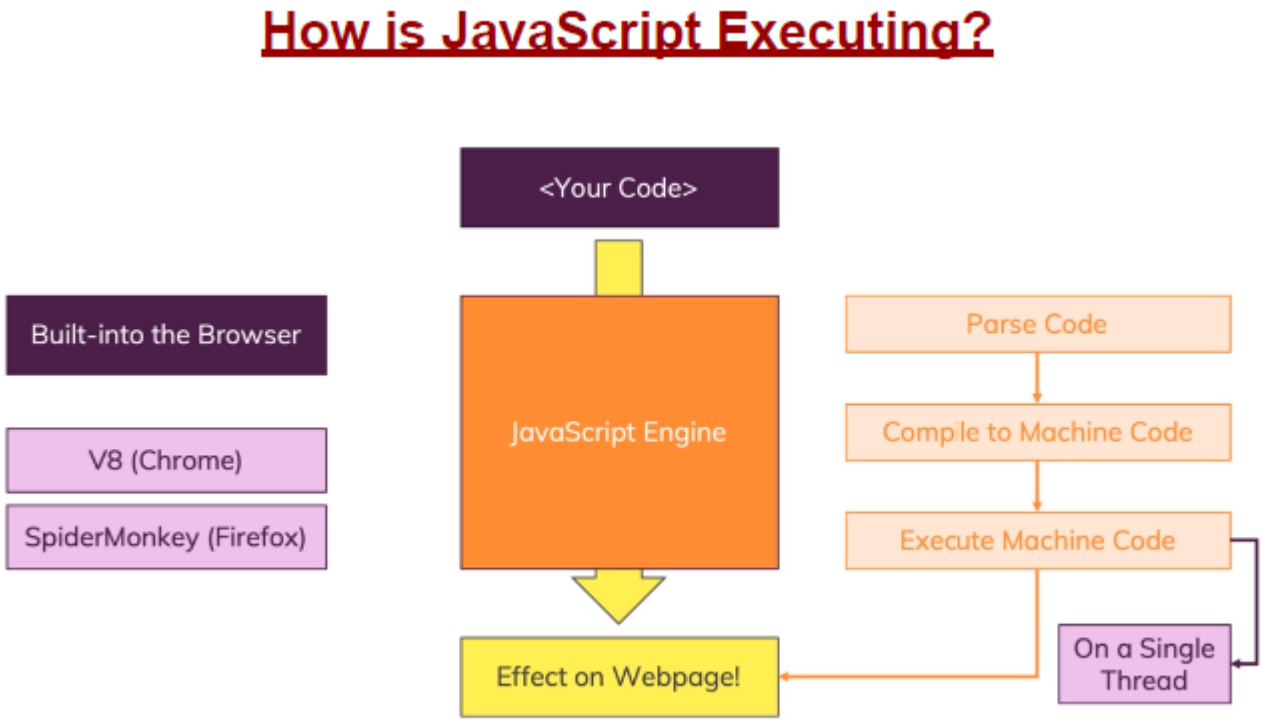
What is JavaScript?

- JavaScript is a client side scripting language (interpreted programming language)
- JavaScript make web pages interactive
- Open source and cross-platform
- Case sensitive
- Most commonly used as a part of web pages
- JS was created to make web pages more Dynamic (Change content on a page directly from inside the browser)
- Supported by all major browsers and enabled by default

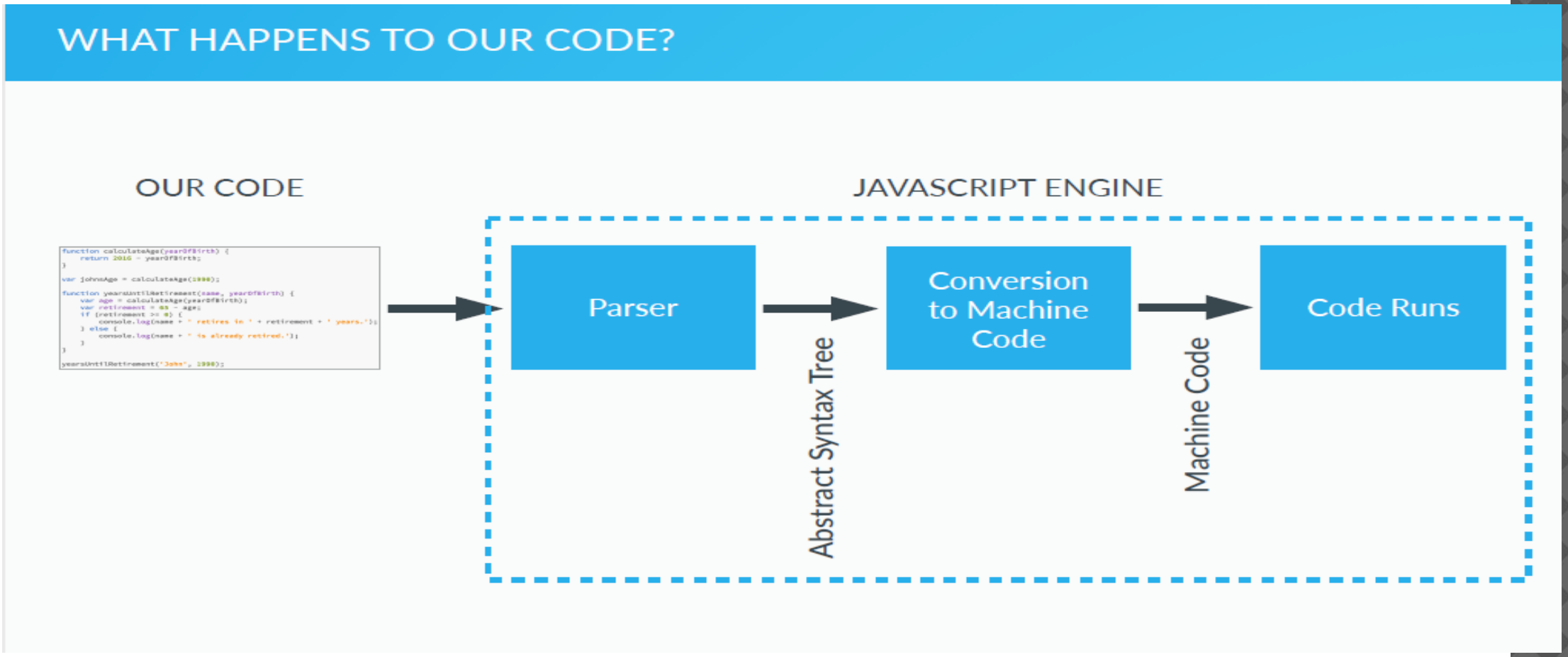
WHAT IS JAVASCRIPT

- JavaScript is a lightweight, cross-platform, object-oriented computer programming language
- JavaScript is one of the three core technologies of web development
- Today, JavaScript can be used in different places:
  - **Client-side: JavaScript was traditionally only used in the browser**
  - Server-side: Thanks to node.js, we can use JavaScript on the server as well
- Javascript is what made modern web development possible:
  - Dynamic effects and interactivity
  - Modern web applications that we can interact with
- **Frameworks/libraries like React and Angular are 100% based on JavaScript: you need to master JavaScript in order to use them!**

HOW JAVASCRIPT WORKS



JAVASCRIPT ENGINE



WHAT JAVASCRIPT CAN DO?

- Add new HTML to the page, change the existing content, modify styles. (**DOM Manipulation**).
- React to user actions, Execute on mouse clicks, pointer movements, key presses. (Events)
- Send requests over the network to remote servers, read and write files (Ajax).
- Get and set cookies, ask questions to the visitor, show messages.
- Remember the data on the client-side ("local storage").

Advantages of JavaScript

- Executed on the client side.
- Instance response to the visitors.
- Rich interfaces.
- Speed.
- Less server interaction.

Disadvantages of JavaScript

- Code Always Visible.
- **Stop Render** : JavaScript single error can stop rendering with the entire site. However browsers are extremely tolerant of JavaScript errors.
- Less Security.

Why JavaScript?

- JavaScript adds behavior to web pages
- Show or hide more information with the click of a button
- Change the color of a button when the mouse hovers over it
- Less server interaction
- Immediate feedback to the visitors

HTML, CSS & JavaScript

What's the Difference?

HTML

Hypertext Markup Language

Create the structure

- Controls the layout of the content
- Provides structure for the web page design
- The fundamental building block of any web page

CSS

Cascading Style Sheet

Stylize the website

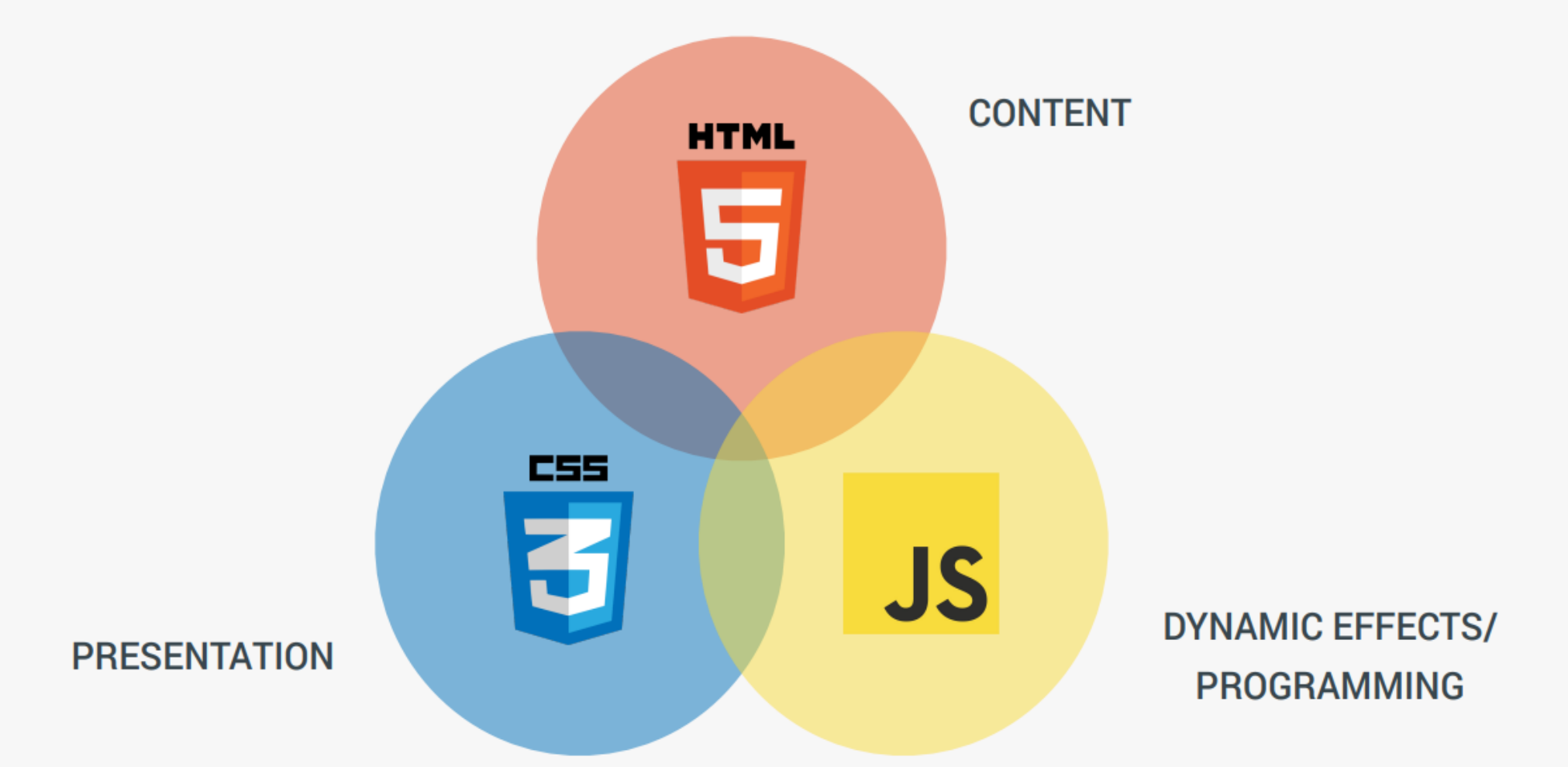
- Applies style to the web page elements
- Targets various screen sizes to make web pages responsive
- The fundamental building block of any web page

Javascript

Increase interactivity

- Adds interactivity to a web page
- Handles complex functions and features
- Programmatic code which enhances functionality

FEATURES


HTML
CONTENT
CSS
PRESENTATION
JS
DYNAMIC EFFECTS/
PROGRAMMING

UNDERSTANDING

CONTENT

PRESENTATION

DYNAMIC EFFECTS/
PROGRAMMING

NOUNS

`<p></p>`

means "paragraph"

ADJECTIVES

```
p {color: red;}
```

means "the paragraph text is red"

VERBS

```
p.hide();
```

means "hide the paragraph"

JS in Browser side vs Server side

Browser-side	"Other" (e.g. Server-side)
JavaScript was invented to create more dynamic websites by executing in the browser!	Google's JavaScript Engine (V8) was extracted to run JavaScript anywhere (called "Node.js")
JavaScript can manipulate the HTML code, CSS, send background Http requests & much more	Node.js can be executed on any machine and is therefore often used to build web backends (server-side JavaScript)
JavaScript CAN'T access the local filesystem, interact with the operating system etc	Node.js CAN access the local filesystem, interact with the operating system etc. It CAN'T manipulate HTML or CSS

Separate Module!

How to Add JavaScript

- **Internal JS** - Internal JavaScript code is code that's placed anywhere within the web page between the HTML tags

```
<script>
 alert("Happy Learning");
</script>
```

- **External JS**
  - JavaScript code placed in a file separate from the HTML code is called external Javascript.
  - External JavaScript code is written and used in the same way as internal Javascript.
  - The file should have the ".js" extension.

```
<script src="myScript.js"></script>
```