

# Frontend Developer Reference Cheat Sheet

## DOM vs BOM

DOM (Document Object Model):

- Represents the structure and content of a webpage.
- JavaScript can use the 'document' object to interact with it.
- Example: `document.getElementById("btn").textContent = "Click me!"`

BOM (Browser Object Model):

- Represents the browser environment, not the page content.
- Provides access to 'window', 'navigator', 'location', etc.
- Example: `window.alert("Hello!")`, `navigator.userAgent`

## What is CORS (Cross-Origin Resource Sharing)?

- Security feature to control cross-domain resource sharing.
- Prevents frontend apps from accessing APIs not explicitly allowed by the backend.
- To allow access, the server must return: `Access-Control-Allow-Origin: <your-frontend-url>`
- Errors like 'No Access-Control-Allow-Origin header' indicate CORS rejection.

## What is a Reactive Framework?

- Automatically updates the UI when the data/state changes.
- Avoids manual DOM updates.
- Used in Vue, React, Angular.

Example (Vue):

```
data() { return { count: 0 }; }
```

Updating 'count' automatically updates the displayed number.

## Vue vs React

Vue:

- Framework using templates + JS.
- Easier for beginners with two-way binding.

React:

- Library using JSX (JS + HTML syntax).
- More flexible, but requires deeper JS understanding.
- One-way data flow with component state/hooks.

## What is Virtual DOM?

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- An in-memory copy of the real DOM.
- Used by React and Vue for performance.
- Instead of updating the DOM directly, changes are made to the virtual DOM, then diffed and applied efficiently to the real DOM.

## What is SASS / SCSS?

- A CSS preprocessor that adds variables, nesting, mixins, functions.
- SCSS is a newer, more CSS-like syntax of SASS.

Example:

```
$main-color: #333;  
nav { ul { li { a { color: $main-color; } } } }
```

## What are Build Tools?

- Tools that optimize code for production (e.g., bundling, minifying, transpiling).

Examples:

- Webpack: bundles JS, CSS, assets.
- Vite: fast build tool with dev server.
- Babel: transpiles modern JS to older JS.
- ESLint/Prettier: code quality and formatting.
- npm/yarn/pnpm: package managers for JS libraries.

## HTTP vs HTTPS

HTTP:

- Unsecured, data sent in plain text.
- Not suitable for production.

HTTPS:

- Secured with SSL/TLS encryption.
- Enables secure features like service workers, geolocation, secure cookies.
- Always use HTTPS for production apps.

## What is SPA (Single Page Application)?

- A web app that loads a single HTML page and dynamically updates it.
- Uses JavaScript routing (react-router, vue-router) for navigation.
- Fast user experience; no page reloads.
- SEO requires extra setup like SSR (Server-Side Rendering).