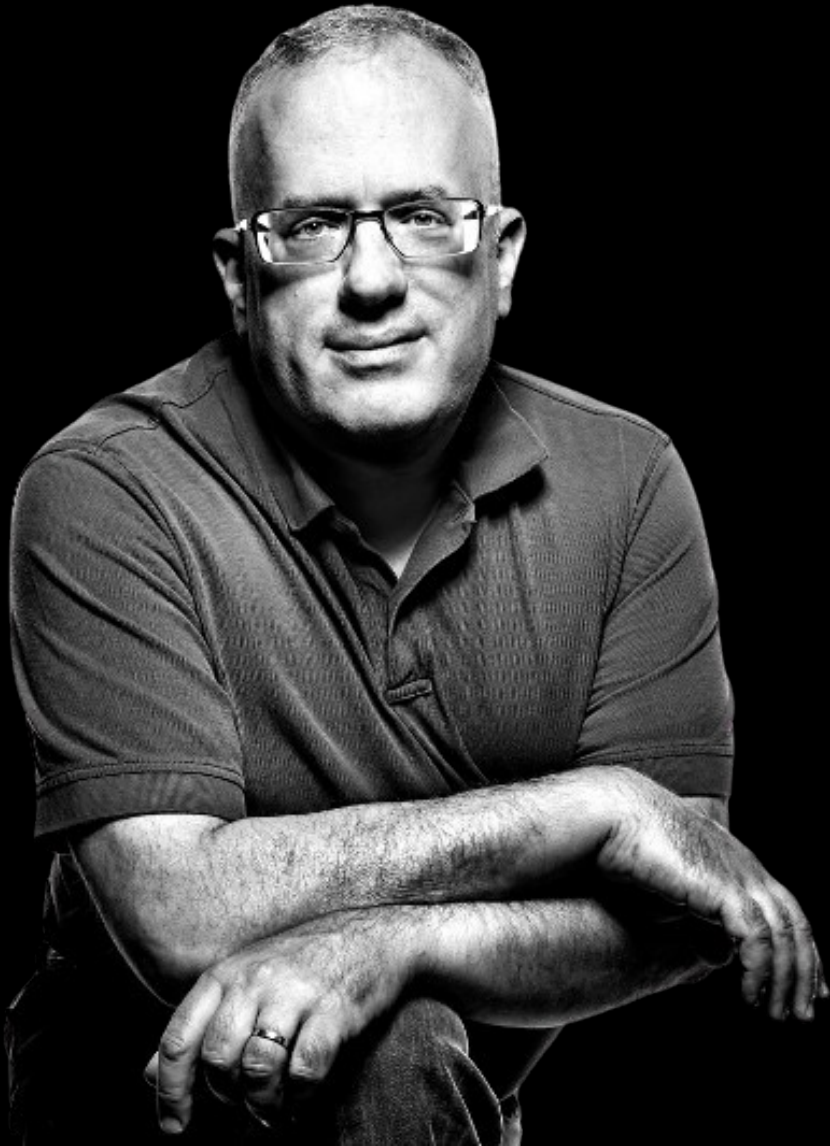


History of JavaScript



1. JavaScript was originally named Mocha, then renamed to LiveScript, and finally JavaScript to capitalize on the popularity of Java at the time.
2. JavaScript was created by Brendan Eich in 1995 while he was working at Netscape Communications Corporation.
3. JavaScript is an interpreted language, meaning it is executed line by line.

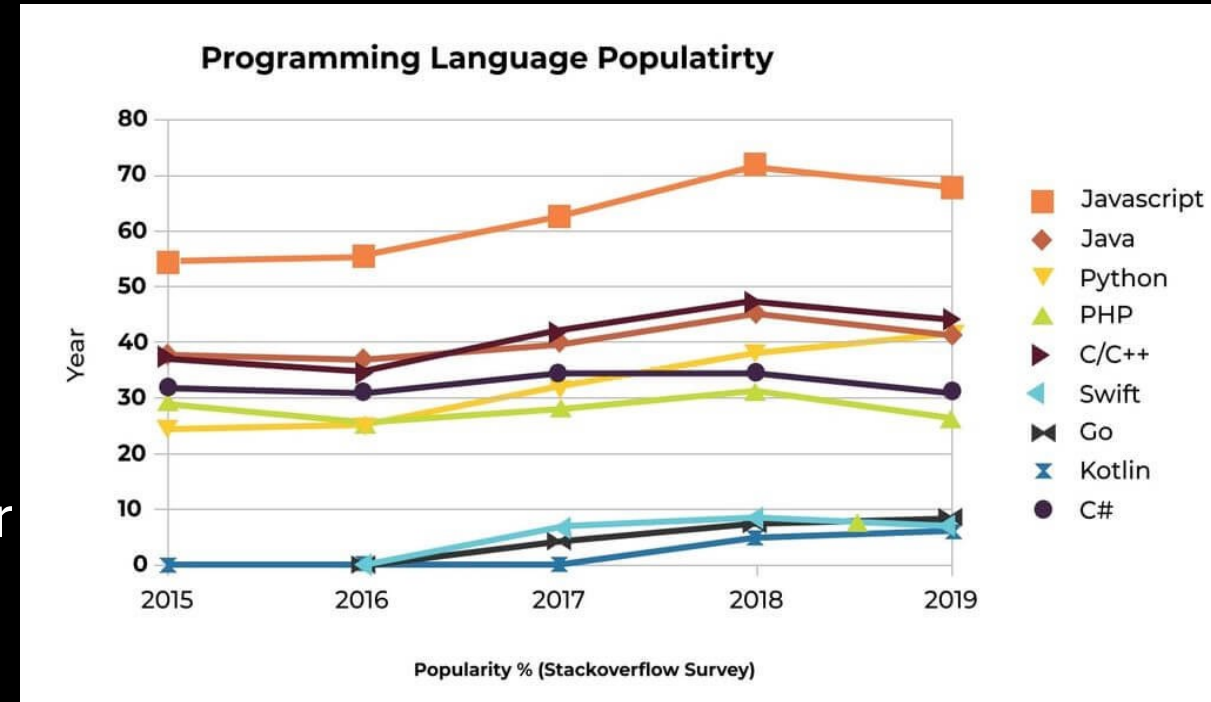
What is JavaScript

1. **JavaScript** is a high-level, **dynamic programming language** commonly used for creating interactive effects within web browsers.
2. **Actions:** Enables **interactivity**.
3. **Updates:** Alters page **without reloading**.
4. **Events:** **Responds** to user actions.
5. **Data:** **Fetches and sends** info to server.



Popularity of JavaScript

1. JavaScript is one of the most popular programming languages in the world, consistently ranking at the top in surveys and job listings.
2. Average JavaScript Dev Salary in India:
 - Entry-Level (0-1 year): Around ₹3,50,000 per annum.
 - Mid-Level (2-5 years): Approximately ₹6,00,000 to ₹10,00,000 per annum.
 - Experienced (5+ years): Can exceed ₹10,00,000 per annum, potentially reaching up to ₹20,37,500.

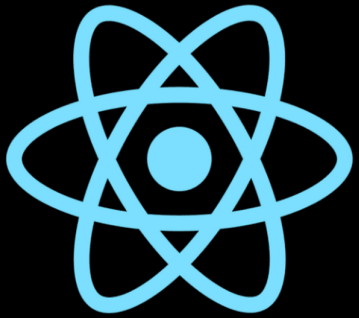


Applications of JavaScript



1. **HTML:** Defines the **structure and content** of the **website**.
2. **CSS:** Specifies the **appearance and layout** of the **website**.
3. **JavaScript:** Adds **interactivity and dynamic behavior** to the **website**.

Applications of JavaScript



React JS



Web Applications:

- **React:** A library for building user interfaces, maintained by Facebook.
- **Angular:** A platform for building mobile and desktop web applications, maintained by Google.
- **Vue.js:** A progressive framework for building user interfaces.

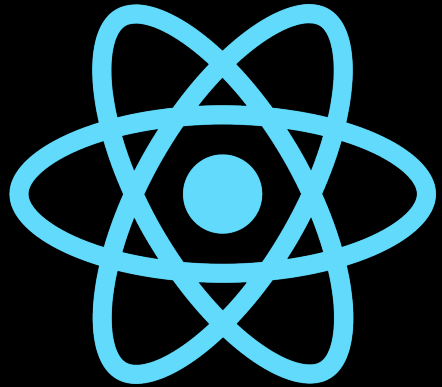
Applications of JavaScript



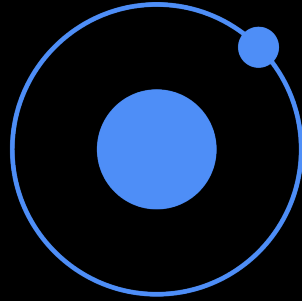
Server-Side:

- **Node.js**: Allows JavaScript to run on the server, used for building scalable network applications.
- **Express.js**: A minimal and flexible Node.js web application framework.

Applications of JavaScript



React Native



ionic



Mobile Applications:

- **React Native:** Builds mobile apps using JavaScript and React.
- **Ionic:** A framework for building cross-platform mobile apps with web technologies like HTML, CSS, and JavaScript.
- **NativeScript:** Allows building native iOS and Android apps using JavaScript or TypeScript.

Applications of JavaScript



BuildTools:

- **Webpack:** A **module bundler** for JavaScript applications.
- **Parcel:** A fast, **zero-configuration** web application bundler.
- **Gulp:** A toolkit to **automate tasks** in your development workflow.

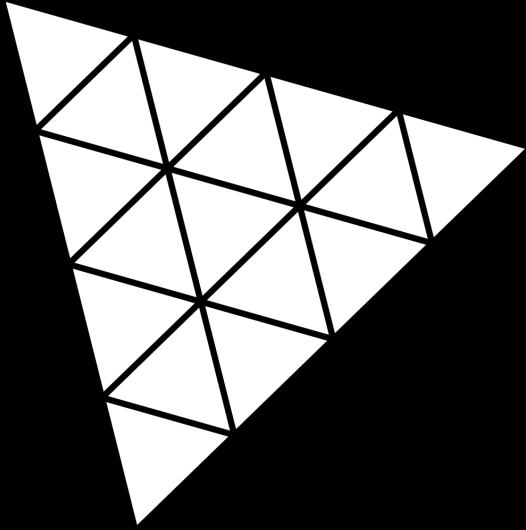
Applications of JavaScript



Desktop Applications:

- **Electron:** Allows building **cross-platform desktop applications** using HTML, CSS, and JavaScript.
- **NW.js:** A framework for building **native applications** with web technologies.

Applications of JavaScript

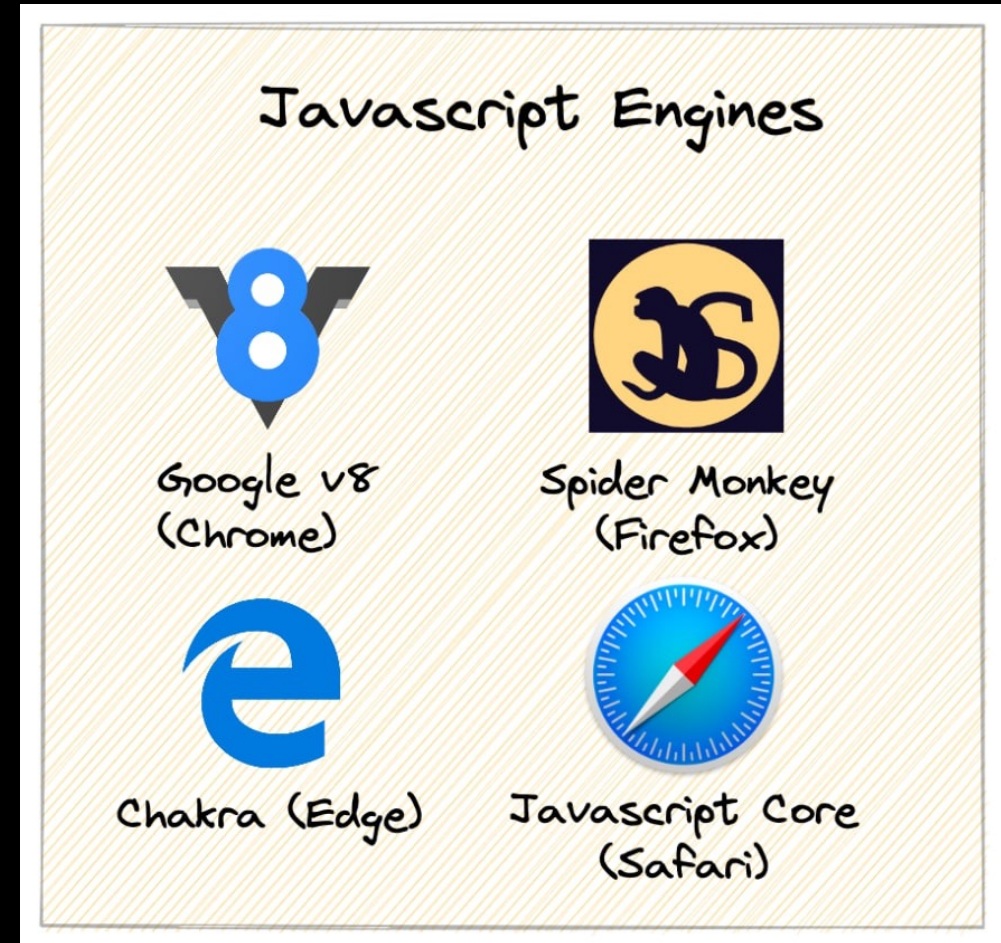


Cameras and Speakers:

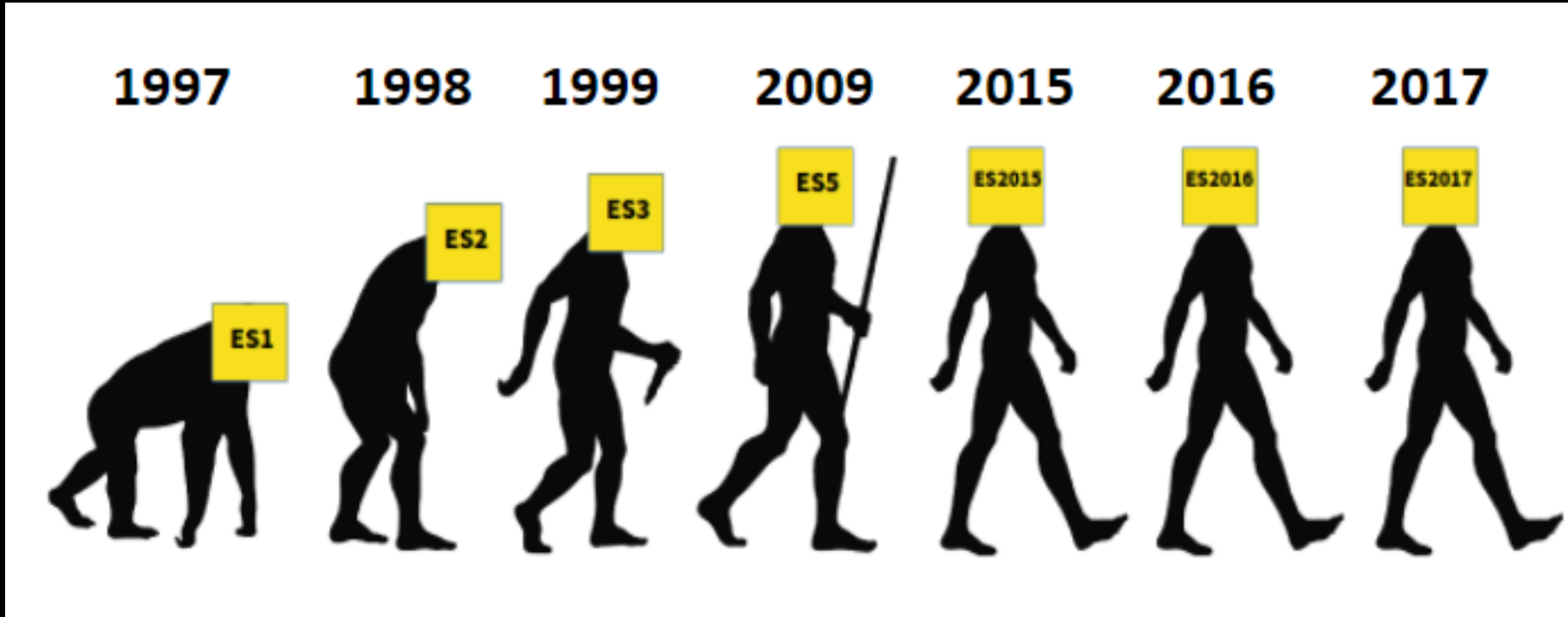
- **Three.js**: A library that makes **WebGL - 3D programming** for the web - easier to use.
- **WebRTC**: A technology that **enables peer-to-peer** audio, video, and data sharing.
- **Howler.js**: A JavaScript **audio library** for the modern web.

Runtime Environment

1. **Provides** infrastructure to **execute JavaScript** code.
2. **Core:** Includes a **JavaScript** engine (e.g., **V8**, **SpiderMonkey**).
3. **Browser Environment:** Offers APIs for **DOM manipulation**, events, and network requests.
4. **Node.js:** Extends **JavaScript** capabilities to server-side programming.
5. **Asynchronous Support:** Handles **non-blocking operations** with event loops, callbacks, and promises.

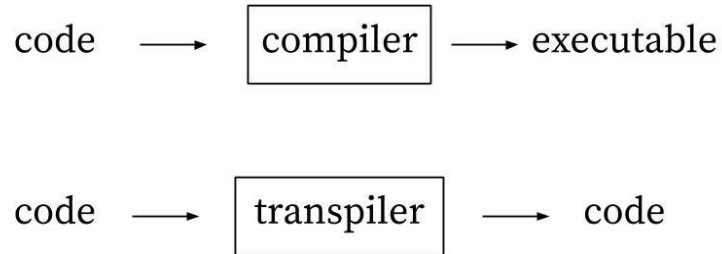


JavaScript vs ECMA



1. **ECMAScript** is the **standardized specification** developed by **ECMA International** that defines the **core features, syntax, and functionalities** of JavaScript and similar scripting languages.
2. **JavaScript** is the **actual language** implementation.

JavaScript vs TypeScript



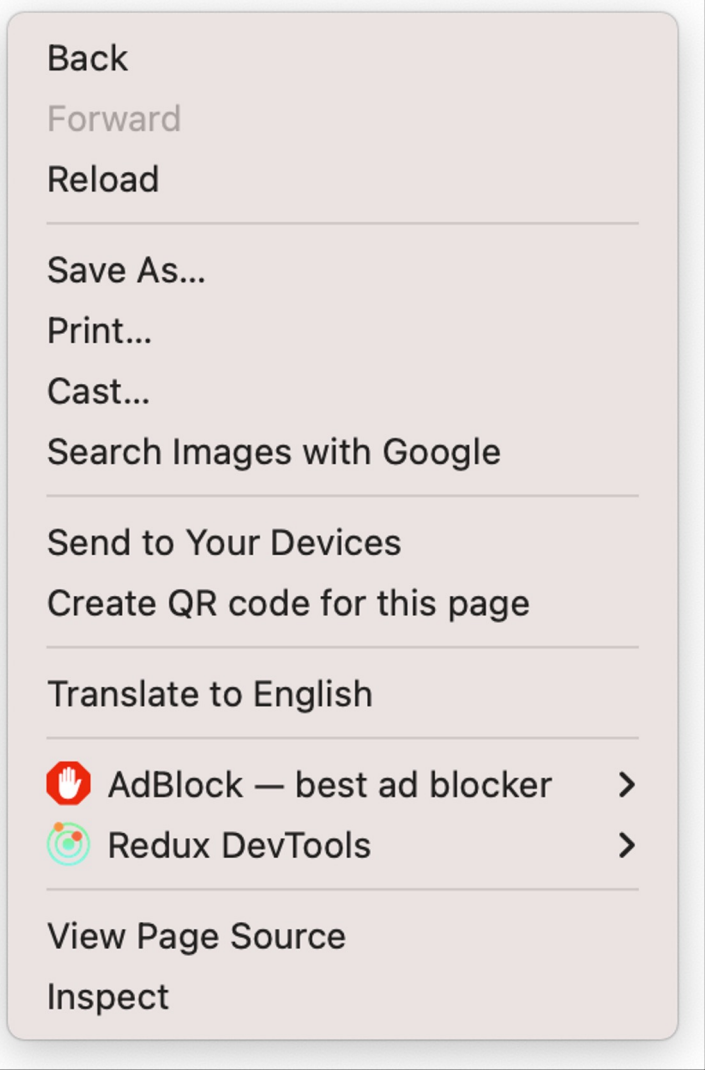
1. JavaScript runs at the **client side** in the browser.
2. Coffee Script / **TypeScript** are **transpiled** to **JavaScript**.



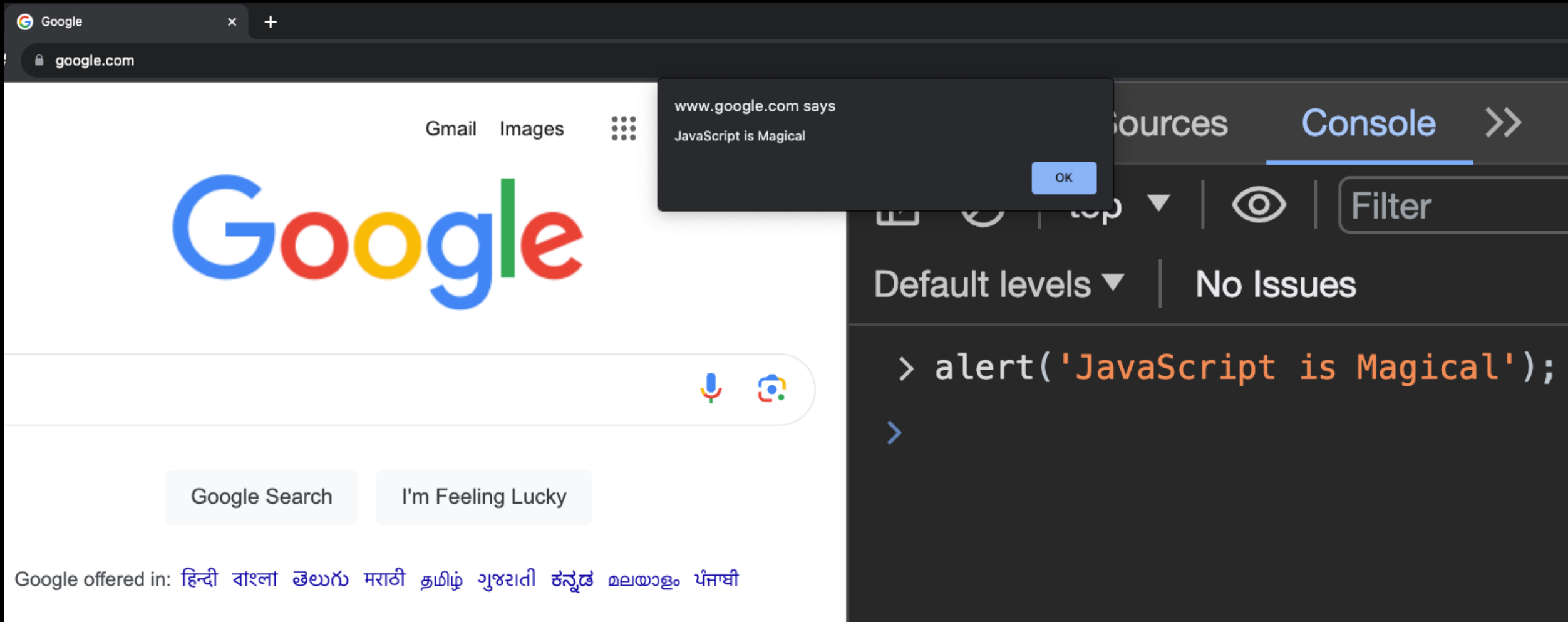
JavaScript vs TypeScript

Feature	JavaScript (JS)	TypeScript (TS)
Definition	A dynamic, high-level scripting language.	A statically typed superset of JavaScript.
Typing	Dynamically typed.	Statically typed with optional type annotations.
Compilation	Interpreted by browsers.	Transpiles to JavaScript before execution.
Error Detection	Errors detected at runtime.	Errors caught at compile-time.
Tooling Support	Basic tooling, less support for large-scale projects.	Enhanced tooling support with features like IntelliSense.
Learning Curve	Easier to learn for beginners.	Slightly steeper learning curve due to static typing.
Code Maintenance	Can be harder to maintain and debug in large codebases.	Easier to maintain and refactor due to static types.
Development Speed	Faster for small projects and prototyping.	Potentially slower initial development but saves time in the long run with fewer bugs.
Community and Usage	Widely used, especially in web development.	Growing rapidly, especially in large-scale applications.
Example Usage	<code>var x = 10;</code>	<code>let x: number = 10;</code>

JavaScript in Console (Inspect)

- 
- A screenshot of a browser's right-click context menu. The menu is light gray with a thin border. It contains several options: 'Back', 'Forward', 'Reload', 'Save As...', 'Print...', 'Cast...', 'Search Images with Google', 'Send to Your Devices', 'Create QR code for this page', 'Translate to English', 'AdBlock — best ad blocker' (with a red hand icon and a right arrow), 'Redux DevTools' (with a green target icon and a right arrow), 'View Page Source', and 'Inspect' at the bottom.
1. Allows **real-time editing** of **HTML/CSS/JS**
 2. **Run Scripts**: Test code in console.
 3. **Debug**: Locate and fix errors.
 4. **Modify DOM**: Change webpage elements.
- Errors: View error messages.

JavaScript in Console (Alert)



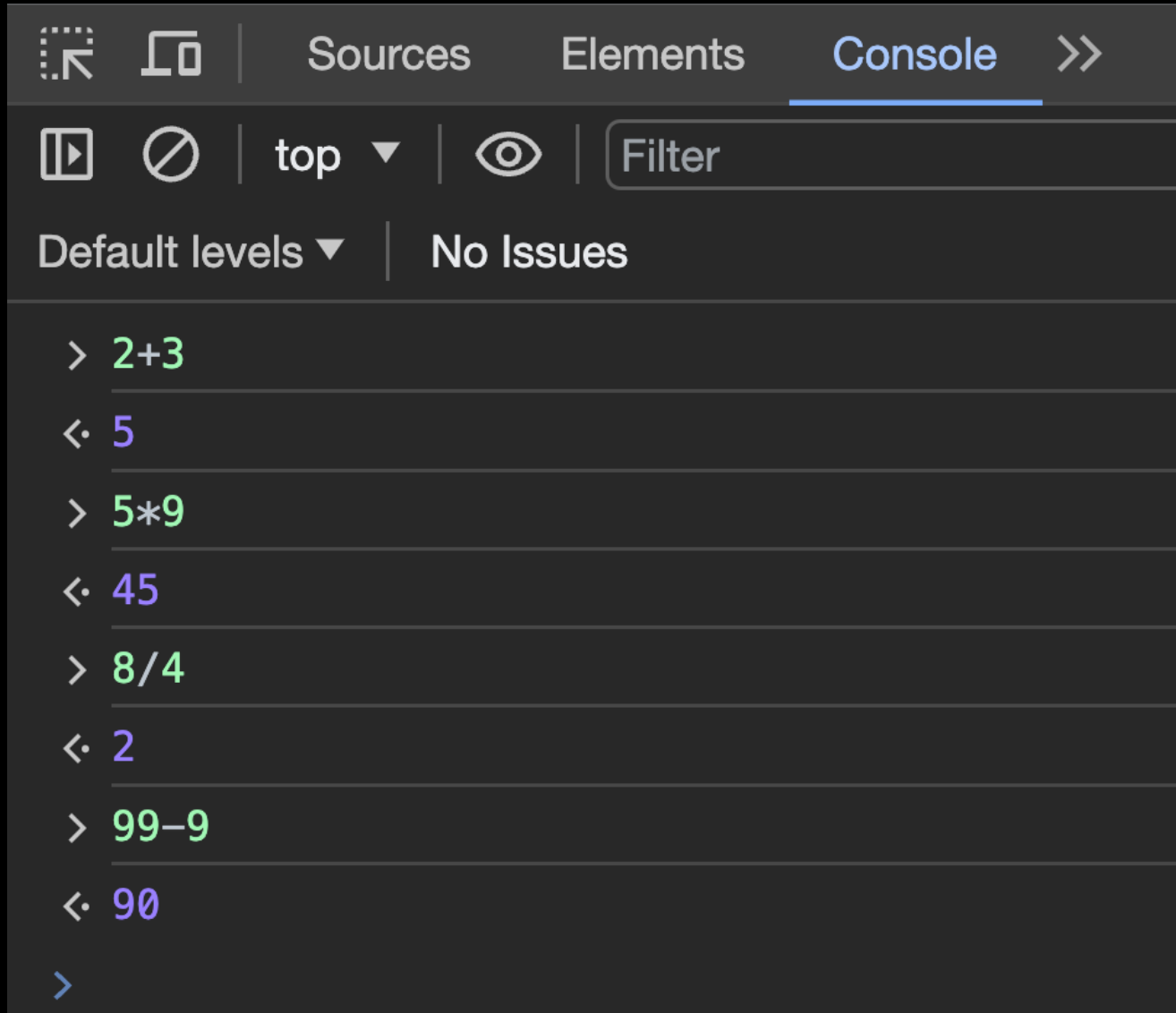
The image shows a screenshot of the Google homepage in a web browser. The browser's address bar shows 'google.com'. The Google logo is prominently displayed in the center. To the right of the logo, there are links for 'Gmail' and 'Images'. Below the logo is a search bar with a microphone icon and a 'Google Search' button. To the right of the search bar is a button labeled 'I'm Feeling Lucky'. At the bottom of the page, there is a line of text in Hindi: 'Google offered in: हिन्दी बांग्ला తెలుగు मराठी தமிழ் ગુજરાતી ಕನ್ನಡ മലയാളം ਪੰਜਾਬੀ'.

Overlaid on the right side of the browser window is the Chrome DevTools console. The 'Console' tab is selected, showing 'No Issues'. The console log displays the following JavaScript code:

```
> alert('JavaScript is Magical');  
>
```

An alert dialog box is visible in the center of the browser window, displaying the message: 'www.google.com says JavaScript is Magical'. The dialog has an 'OK' button.

JavaScript in Console (Math)



The screenshot shows a web browser's developer console with the 'Console' tab selected. The interface includes a toolbar with icons for opening the console, toggling the console, and a 'Filter' input field. Below the toolbar, the console displays a series of JavaScript commands and their results. The commands are: `> 2+3`, `< 5`, `> 5*9`, `< 45`, `> 8/4`, `< 2`, `> 99-9`, and `< 90`. The prompt character `>` is green, and the result character `<` is purple. The results are displayed on the same line as the command, separated by a space. The console also shows 'Default levels' and 'No Issues'.

```
> 2+3
< 5
> 5*9
< 45
> 8/4
< 2
> 99-9
< 90
>
```

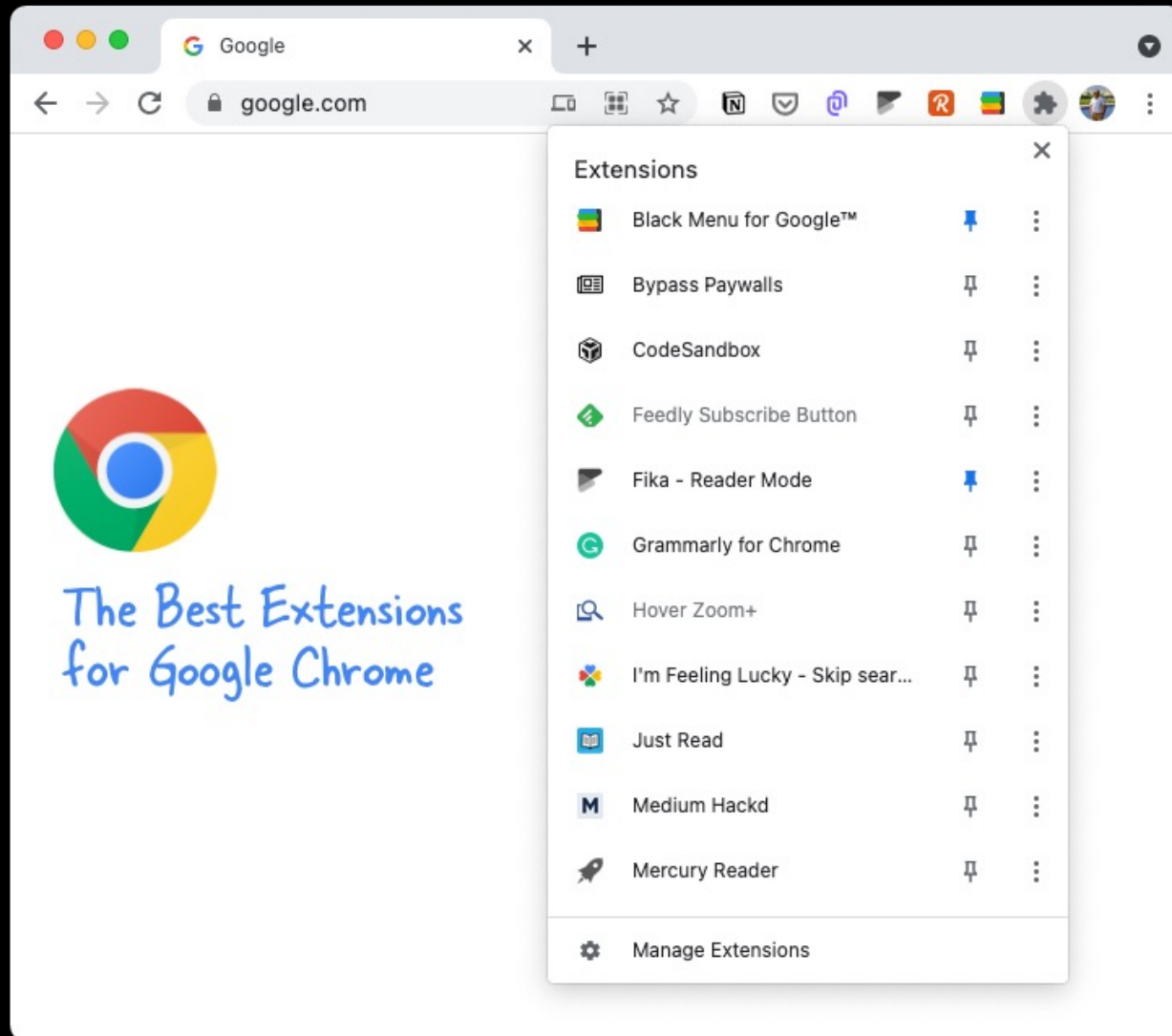
Console can be used
as a Calculator

DOM Manipulation



1. Change **HTML**
2. Change **CSS**
3. Perform **Actions**

Chrome Extensions



1. **Create Features:** Add new functionalities to Chrome.
2. **Interact with Web:** Modify or read webpage content.
3. **API Access:** Use Chrome's built-in functions.
4. **User Experience:** Enhance or customize browsing.

Practice Exercise

1. Use an **alert** to display Good Morning.
2. **Display** your name in a **popup**.
3. Using Math calculate the following:
=> **75-25**
=> **3+3-5**
4. Change **Facebook** page to display **“I am Learning JS”**

