

Full-Stack Development

Full-stack development is the engineering practice of working on all aspects of a web application, from the part the user interacts with (the **frontend**) to the behind-the-scenes machinery that makes it run (the **backend**). A full-stack developer has a comprehensive skill set that allows them to build a complete, functional web application from start to finish.

- **Frontend (Client-Side):** This is the visual aspect of the application that the user views and interacts with in his or her web browser. It takes care of user interface (UI) and user experience (UX). The frontend consists of the core technologies **HTML**, **CSS** and **JavaScript**.
- **Backend (Server-Side):** This is the engine of the application. It operates as a server and handles the application, data processing, database interface, user management and security, and back-end connectivity.
- **Database:** This is where data of all the application, including user profiles, posts, or product information, are stored, organized and accessed.

The portfolio demonstrates these concepts through interactive visualizations and a skills showcase.

How the Demos Work: A Detailed Explanation

1. **Interactive Tech Visualization:** This feature presents a central "Full Stack" element with "Frontend," "Backend," and "Database" elements orbiting it like planets. This visual metaphor helps to explain the relationship between the different parts of the stack.
 - **Structure:** This visualization is set up by the **index.html** file using a main container that has three distinct "planet" elements and a central element. To enable individual styling and animation, each planet is assigned a distinct identifier in the HTML.
 - **Animation:** The circular "orbit" motion is created entirely in the **style.css** file. The planets' motion is specified by the **@keyframes** CSS animation rule. During a 10-second loop, this rule revolves the planets around the central point. Because each planet has a unique animation starting delay, they all show up at different points in the orbit.
 - **Interactivity:** This visualization is interactive thanks to the **app.js** file. It has a function that locates each "planet" element and adds event listeners to it. The JavaScript code makes the planet slightly larger to show that it is selected, shows a tooltip with its name (such as "Frontend"), and momentarily pauses the CSS

animation when the user moves their mouse over a planet. The JavaScript code hides the tooltip and continues the animation when the mouse moves away.

2. **Skills Showcase with Progress Rings:** This section visually represents proficiency in Frontend, Backend, and Database design using animated circular progress bars. This gives a quick and appealing summary of the developer's skills.
 - **Structure:** In **index.html**, each skill category has a dedicated section containing an SVG (Scalable Vector Graphics) element. SVG is a way to create graphics using XML-based text. Inside the SVG, there are two circles drawn on top of each other: a faint background circle and a brightly colored foreground circle that represents the progress. The desired percentage is stored in a custom HTML attribute called `data-progress`.
 - **Animation:** **App.js** is where the animation's magic happens. A JavaScript function is called when the portfolio's "Full Stack" section is displayed. For every skill, this function retrieves the percentage from the `data-progress` attribute. The amount of the colored circle's border that should be visible is then determined using a mathematical formula involving the circle's circumference. To create the animation effect, a CSS property called `stroke-dashoffset` is smoothly changed from a value that renders the circle's border completely invisible to the calculated value that displays the accurate percentage. This gives the impression that the ring is "filling up." Each ring fills up sequentially because the animations for each ring are a little bit delayed.

Full Stack Development

Mastering the complete web development lifecycle with cutting-edge technologies and professional expertise.

5+ Technologies
10+ Projects
100% Dedication

