

Portfolio Website Documentation

Overview:

This website is a dynamic, responsive portfolio page featuring multiple sections such as the navigation bar, hero section, about section, skills, portfolio gallery, and a contact form. It uses HTML, CSS, and JavaScript to create an interactive and visually appealing user experience, with responsive design support for mobile and tablet devices.

Technologies Used:

1. HTML (HyperText Markup Language):

- Used to structure the content of the webpage.
- Includes semantic tags for different sections (e.g., `<nav>`, `<header>`, `<section>`, `<footer>`).
- Form elements for the contact form (e.g., `<input>`, `<textarea>`, `<button>`).

2. CSS (Cascading Style Sheets):

- Used for styling the layout, including colors, typography, spacing, and positioning.
- **Flexbox** and **Grid Layout** for responsive design and proper element positioning.
- Media queries for adapting the layout to different screen sizes.
- Custom animations like the sticky navbar effect and scroll-triggered reveals.

3. JavaScript:

- Handles interactivity on the page, including the sticky navigation bar, hamburger menu, form validation, and scroll animations.
- Uses the **IntersectionObserver API** for implementing scroll reveal animations, which enhances performance by observing visibility without constant event listeners.

4. Responsive Design:

- Mobile-first approach with the use of **media queries** to ensure the website adapts to various screen sizes, from desktop to mobile (e.g., changing the navbar layout, resizing text, adjusting grid structure).
- The navigation menu is hidden on mobile devices and toggled via a hamburger menu.

Key Features and Functionalities:

1. Sticky Navigation Bar:

- The navbar becomes sticky at the top of the page when the user scrolls down, providing quick access to the site's main sections.
- A smooth transition effect is applied when the navbar changes position.

2. Hamburger Menu:

- The navigation bar transforms into a collapsible hamburger menu on smaller screens.
- Clicking the hamburger icon toggles the visibility of the menu.

3. Contact Form Validation:

- The contact form ensures that all fields (name, email, and message) are filled before submission.
- If the fields are valid, an alert with the submitted information is displayed, and the form is reset.
- Email validation ensures the email address is in the correct format.

4. Scroll Reveal Animations:

- Elements with the `.reveal` class are revealed with a fade-in effect when they come into view while scrolling.
- Uses the **IntersectionObserver** API for improved performance by watching visibility without constantly checking on scroll.

5. Responsive Layouts:

- The layout adjusts based on screen size, ensuring a smooth experience across desktops, tablets, and smartphones.
- Key sections (about, skills, portfolio) adapt their design and spacing for optimal readability on mobile devices.

Technologies and Tools:

1. Browser Compatibility:

- The website is compatible with major modern browsers (Chrome, Firefox, Safari, Edge).
- Fall-back mechanisms are implemented for unsupported features like **IntersectionObserver**.

2. Performance Optimization:

- The scroll event handling is optimized using throttling techniques to prevent excessive resource use when scrolling.
- Lightweight JavaScript for essential interactions, improving page load times.

3. Accessibility:

- The website includes basic accessibility features such as focus management on the hamburger menu for keyboard users.
- Proper use of HTML semantic tags aids in screen reader compatibility.

4. Development Tools:

- **Code Editor:** Visual Studio Code (VS Code)
- **Version Control:** Git and GitHub for source code management.
- **Testing:** Browser testing with responsive mode in developer tools to ensure cross-device compatibility.