# Front-End Developer Lab Exercises (100+)

## ▢ Basic Level (30+ Exercises)

*Objective: Grasp foundational HTML, CSS, and JavaScript skills.*

### HTML

- Create a personal profile page using basic tags.
- Design a table to display student marks.
- Build a form with input, checkbox, radio, and textarea.
- Create an HTML page with anchor tags and image embedding.
- Structure a blog post with headings and lists.
- Use semantic tags to create an article layout.
- Create a registration form with HTML5 validations.
- Embed a YouTube video and Google map.
- Add download links using the <a download> attribute.
- Create a feedback form using <datalist> and <fieldset>.

### CSS

- Style a profile card with borders and padding.
- Build a responsive two-column layout using Flexbox.
- Use hover and active effects on buttons.
- Implement transitions for image zoom effects.
- Style a navigation bar using pseudo-classes.
- Create a color theme switcher using CSS variables.
- Design a responsive grid gallery using CSS Grid.
- Create a modal popup design using pure CSS.
- Design a pricing table layout.
- Style form elements consistently across browsers.

## JavaScript (Intro)

- Create a number guessing game.
- Develop a calculator with basic operations.
- Validate form input before submission.
- Create an image slider.
- Show/hide content with a toggle button.
- Implement a real-time clock.
- Build a BMI calculator.
- Display an alert after form submission.
- Change text color on button click.
- Animate an element using setInterval.

## ✅ Intermediate Level (40+ Exercises)

> *Objective: Master interactive UIs, JavaScript DOM, ES6, APIs, and responsive design.*

### DOM Manipulation & Events

- Build a to-do list app with add/remove features.
- Create a dynamic table with row addition/removal.
- Implement tabbed content navigation.
- Build an FAQ accordion toggle interface.
- Create a countdown timer for an event.
- Display live character count in a form textarea.

### JavaScript ES6+ & Data Handling

- Use arrow functions, let/const, template literals.
- Map/filter/reduce exercises on JSON datasets.
- Build a weather app using fetch API and OpenWeatherMap.
- Store/retrieve data using localStorage.
- Develop a quiz app with score calculation.
- Implement form data handling using JS object destructuring.
- Build a currency converter using real-time API.

## Responsive Design

- Create a mobile-first responsive website.
- Design a responsive navbar with hamburger menu.
- Implement responsive image techniques.
- Use media queries to adapt a dashboard layout.

## Bootstrap & CSS Frameworks

- Build a dashboard layout using Bootstrap.
- Create a form with Bootstrap validation.
- Design a Bootstrap carousel.
- Create a card deck using Tailwind CSS.

## Version Control (Optional Add-on)

- Initialize a Git project.
- Push code to GitHub repository.
- Create branches and resolve merge conflicts.

## ⬛ Advanced Level (40+ Exercises)

*Objective: Build scalable SPAs, implement frameworks, APIs, routing, and state management.*

## JavaScript Projects

- Build a note-taking app with localStorage.
- Develop a stopwatch with lap time tracking.
- Create a drag-and-drop Kanban board.
- Build a password generator with copy-to-clipboard.
- Create a dynamic calendar with event add/remove.

## React / Vue / Angular (Choose stack)

- Create a React to-do app using useState.
- Build a weather app in Vue.js using composition API.
- Create an Angular form with reactive validation.
- Implement routing in React using React Router.
- Use Vuex/Redux for state management in a cart system.

- Build a CRUD app with Axios and a fake REST API.
- Create a multi-step form wizard in React.
- Implement dark mode toggle in React.

### Animations & UX

- Use GSAP or Framer Motion for animating UI.
- Implement page transitions with React Router.
- Animate scroll-based effects with IntersectionObserver.
- Add form validation with custom tooltips.
- Animate a loading spinner and page preloader.

### Testing & Deployment

- Write unit tests using Jest or Mocha.
- Create component tests in React with Testing Library.
- Deploy a static site using Netlify or Vercel.
- Optimize a React app for performance.
- Create a CI/CD workflow using GitHub Actions.

### Capstone Projects

- Build a portfolio website with project showcase.
- Create an e-commerce frontend with cart and checkout.
- Develop a blog app with Markdown rendering.
- Build a video player interface using JS or React.
- Implement a booking interface for a service.
- Clone a popular UI like YouTube, Amazon, or Instagram.