Week 2 — Frontend Fundamentals (HTML + CSS + JavaScript)

🎯 Objective:

Enable you to build responsive UI layouts and manipulate DOM with JavaScript using ES6 concepts.

Week-2 Topics

HTML

- Semantic HTML5 structure
- `<header> <footer> <nav> <main> <section> <article>`
- Forms, validation, accessibility basics
- `<canvas>` & media (`video`, `audio`)

CSS / Styling

- CSS Selectors (attribute, sibling, nth-child)
- Box model, specificity, units (`rem`, `vw`, `vh`)
- Flexbox, Grid (2D layouts)
- Responsive design (mobile-first, media queries)
- Animations, transitions

JavaScript (ES6+)

- Variables `let vs const`
- Arrays/objects (map, filter, reduce)
- Arrow functions / destructuring / spread operator
- DOM manipulation
- Event listeners
- Modular JS: splitting code into functions/modules

DAY 1 – HTML5 + Semantic Layout

🔹 Learning Outcomes:

- Understand page structure
- Master semantic tags and responsive layout scaffolding

Topic	Activity
HTML Fundamentals	tags / structure / metadata
Semantic HTML5	Build semantic layout (no `<div>` allowed)
Forms & media	Build form (input, select, validation) and embed media
Accessibility	ARIA labels, alt text, tab index
Documentation	Write README with learnings

🧪 **Exercise:** Build a *Blog Page* using only semantic HTML, no CSS. **Image for reference -** https://www.figma.com/proto/XVgDL7iGFQaWNCQjqW3hhN/Free-Blog-Website-Template--Community-?node-id=401-147&t=HhIAtSENyqirHvHH-0&scaling=min-zoom&content-scaling=fixed&page-id=0%3A1

✅ Deliverable: `blog.html`

DAY 2 – CSS Layout Mastery (Flexbox + Grid)

🔹 Learning Outcomes:

- Modern responsive layout using Flexbox & CSS Grid

Topic	Activity
CSS Selectors & Specificity	selector challenges
Flexbox	Build navbar + hero section
CSS Grid	Product grid layout (2/3/4 col based on width)
Responsive approach	Convert desktop → mobile-first

🧪 **Exercise:** Replicate a **UI screenshot given by mentor** using Flex/Grid. **Image for Reference -**

https://cdn.prod.website-files.com/672e5a09a305c0f18b07ed8a/6753168922cb7762afcf50a2_3.png

✅ Deliverable: `index.html + style.css` + screenshots of comparison

DAY 3 – JavaScript ES6 + DOM Manipulation

🔹 Learning Outcomes:

- Modern JS (ES6) + manipulating DOM without frameworks

Topic	Activity
Variables/functions	`let`/`const`, arrow functions
Arrays/objects	`map`, `filter`, `reduce` mini-challenges
DOM manipulation	build navbar toggle, dropdown, modal
Event listeners	build counter + key events

🧪 **Exercise:** Build an **interactive FAQ accordion** using JS (click to expand).

https://codingstella.com/wp-content/uploads/2024/02/img_6092b008464f3.jpg

✅ Deliverable: `/js-dom-practice/*`

DAY 4 – JS Utilities + LocalStorage Mini-Project

🔹 Learning Outcomes:

- Modular JS functions
- LocalStorage persistence

Topic	Activity
Debugging DevTools	breakpoints, watch

Custom JS utilities	`debounce`, `throttle`, `groupBy`
LocalStorage project	Build Todo app (persist on refresh)
Error handling	try/catch + error boundary folder (`logs/errors.md`)

🧪 **Exercise:**
Build **Todo App with LocalStorage persistence**
(Add → Edit → Delete → Persist after refresh)

✅ Deliverable: `todo-app/`

DAY 5 – Capstone UI + JS Project

🔹 Learning Outcomes:

Combine everything from HTML + CSS + JS into a working UI

Project: Build a mini "E-commerce product listing page"

Requirements:

- Use fetch API:
  `https://dummyjson.com/products`
- Display product cards (title, image, price)
- Search bar (filter products)
- Sort (high → low price)
- Mobile responsive layout

Image for Reference -
https://codehim.com/wp-content/uploads/2021/09/bootstrap-5-ecommerce-product-list-navbar-and-hover-effects.png

Activity	Output
Project setup	folder + planning
UI using HTML + CSS	skeleton ready
JS fetch + rendering + search	functional UI

Final touches/responsive/polish	proper layout

✅ Deliverables:

- Repo: `week2-frontend`
- Pages inside repo:
  - `/index.html`
  - `/products.html`
- README containing **screenshots + what you learned**