



Data Fetching & API Routes Assignment

Mastering Next.js Techniques for Efficient Data Handling

Assignment: Data Fetching & API Routes

Objective

This assignment is designed to strengthen your understanding of data fetching strategies and API routes within Next.js. By the end of this task, you will be able to:

- Implement different data fetching strategies: Static Site Generation (SSG), Server-Side Rendering (SSR), and Client-Side Rendering (CSR).
- Utilize Next.js functions: `getStaticProps`, `getServerSideProps`, and Incremental Static Regeneration (ISR).
- Create and use API routes in Next.js.
- Practice client-side data fetching using `useSWR`.

Prerequisites

Before beginning this assignment, ensure you have completed the following:

- Assignment 1: Getting Started & Routing
- Module 4: Data Fetching
- Module 9: Pages & File-Based Routing
- Module 10: Page Pre-Rendering and Data Fetching

Tasks

1. Products Page (SSG)

- **Objective:** Create a `/products` page using Static Site Generation.
- **Steps:**
 - Use `getStaticProps` to fetch product data from the Fake Store API.
 - **Display:**
 - Product title
 - Price

- Thumbnail image

2. Product Details Page (SSR)

- **Objective:** Implement a dynamic route `/products/[id]` for server-side rendering.
- **Steps:**
 - Use `getServerSideProps` to fetch single product details at runtime.
 - **Display:**
 - Product title
 - Description
 - Category
 - Price
 - Image

3. Dashboard Page (CSR with SWR)

- **Objective:** Create a `/dashboard` page using Client-Side Rendering with `useSWR`.
- **Steps:**
 - Fetch data from a public API, for example, `JSONPlaceholder`.
 - **Display:**
 - List of post titles
 - Implement auto-refresh every 10 seconds

4. Custom API Route

- **Objective:** Develop a custom API route.
- **Steps:**
 - Create `/pages/api/hello.js` that returns JSON:
 - `export default function handler(req, res) {
 res.status(200).json({ message: "Hello from Next.js API Route!" });
}`
 - Fetch this API from the homepage and display the message.

5. Styling

- **Objective:** Apply consistent and responsive styling using Tailwind CSS.
- **Requirements:**
 - Style product cards with a grid layout.
 - Style the dashboard list.
 - Implement a loading state with a spinner or “Loading...” text.

Deliverables

- **Pages & Features:**
 - `/products` page using SSG.
 - `/products/[id]` page using SSR.
 - `/dashboard` page using CSR with SWR.
 - Custom API route at `/api/hello`.

- **UI:** Ensure a fully responsive and clean user interface.



Submission Guidelines (For Next.js)

1. Project Name

- Name your project folder **my-nextjs-app** (or use a meaningful project name).

2. Push to GitHub

- Upload the full project folder to GitHub (except node_modules, which is ignored by default using .gitignore).
- Please make sure package.json, next.config.js, and all pages are included.

3. Deploy on Vercel or Netlify

- **Preferred:** Deploy on **Vercel** (the official Next.js hosting platform).
 - Go to <https://vercel.com>
 - Import your GitHub repo
 - Click **Deploy**
- **Alternative:** Deploy on **Netlify** (also supports Next.js).
 - Watch this guide: [Deploy Next.js on Netlify](#)
 - In Netlify, make sure the **build command** is next build and the **publish directory** is .next

4. Submit the Following:

- **GitHub Repository Link**
- **Live Deployed Link** (Vercel or Netlify)

By following these instructions, you will successfully complete the assignment and enhance your understanding of Next.js. Good luck!