API Integration and Data Migration

Hackathon 3: Day_3

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Muhammad Shoaib

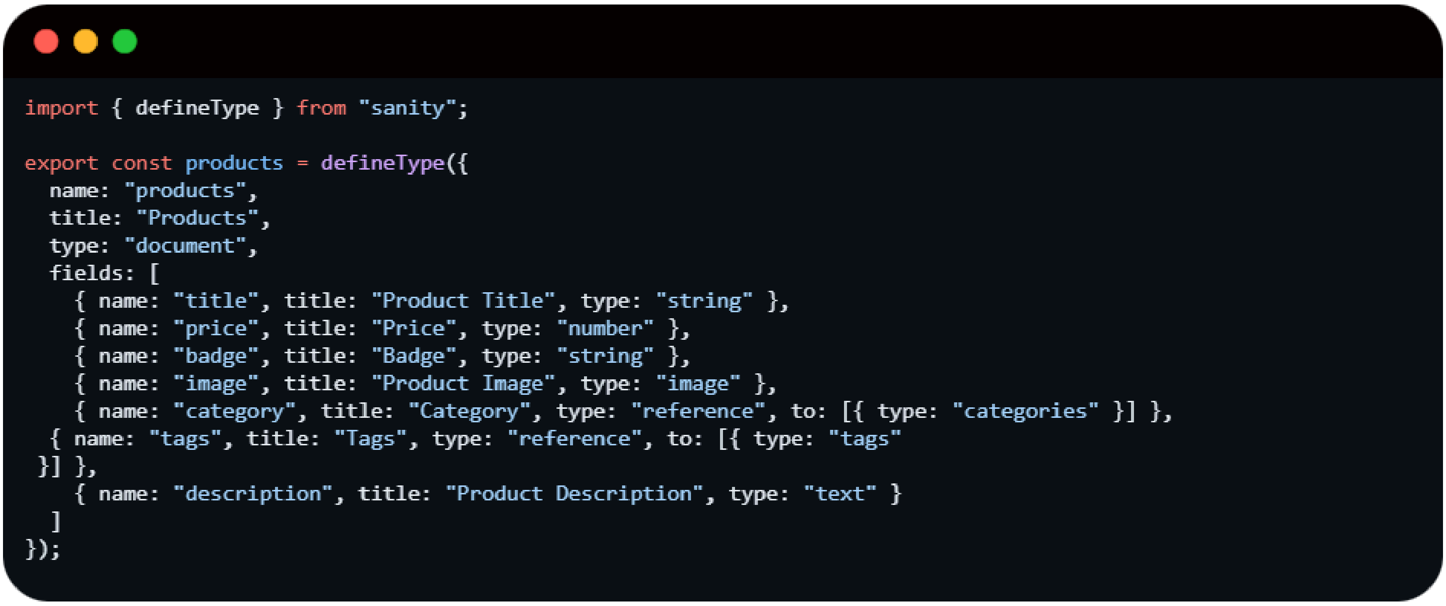
Sunday 9 - 12

1. Introduction

This document explains the API integration and data migration done on Day 3 of the Hackathon. The task included connecting an external API for product and category data, updating Sanity schemas, moving data into Sanity CMS, and making sure the front-end shows the data correctly.

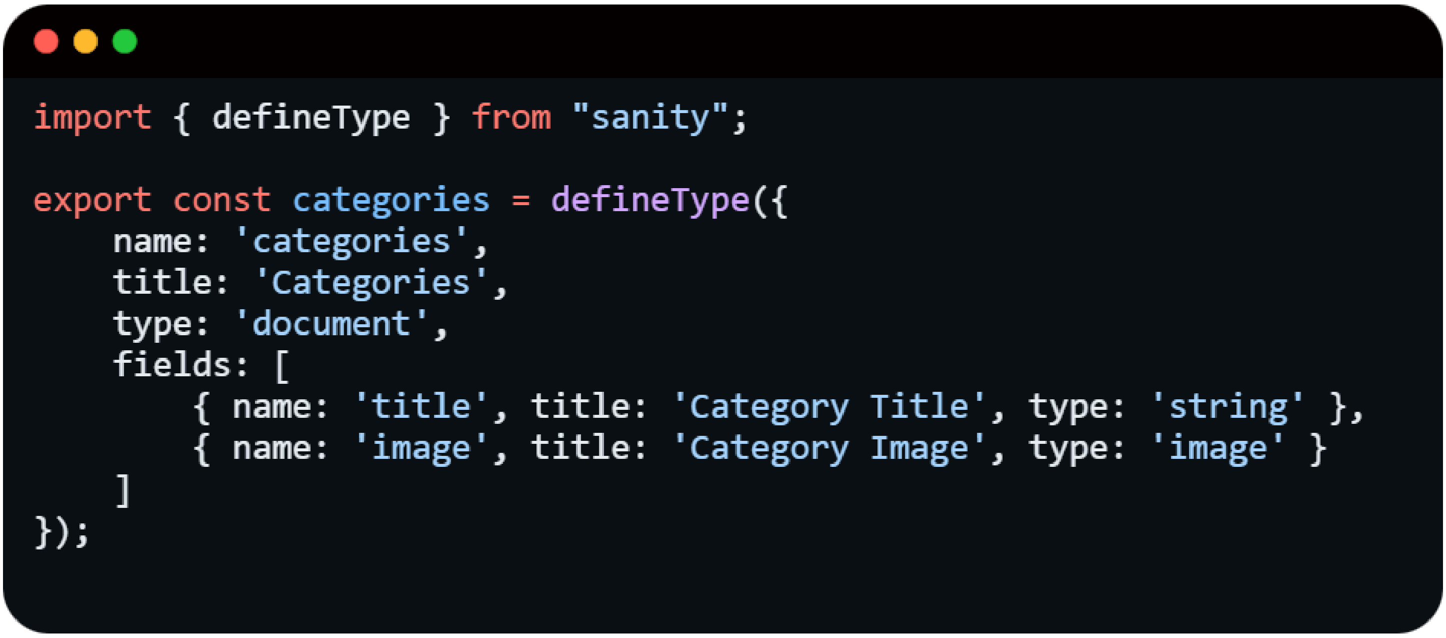
2. Schema Adjustments

Products Schema:



```
import { defineType } from "sanity";

export const products = defineType({
  name: "products",
  title: "Products",
  type: "document",
  fields: [
    { name: "title", title: "Product Title", type: "string" },
    { name: "price", title: "Price", type: "number" },
    { name: "badge", title: "Badge", type: "string" },
    { name: "image", title: "Product Image", type: "image" },
    { name: "category", title: "Category", type: "reference", to: [{ type: "categories" }] },
  { name: "tags", title: "Tags", type: "reference", to: [{ type: "tags"
 }] },
    { name: "description", title: "Product Description", type: "text" }
  ]
});
```

Categories Schema:

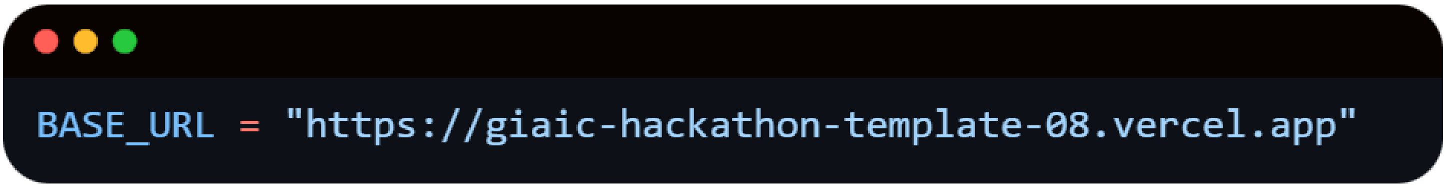


```
import { defineType } from "sanity";

export const categories = defineType({
    name: 'categories',
    title: 'Categories',
    type: 'document',
    fields: [
        { name: 'title', title: 'Category Title', type: 'string' },
        { name: 'image', title: 'Category Image', type: 'image' }
    ]
});
```

---

2. API Integration Process

API Base URL:

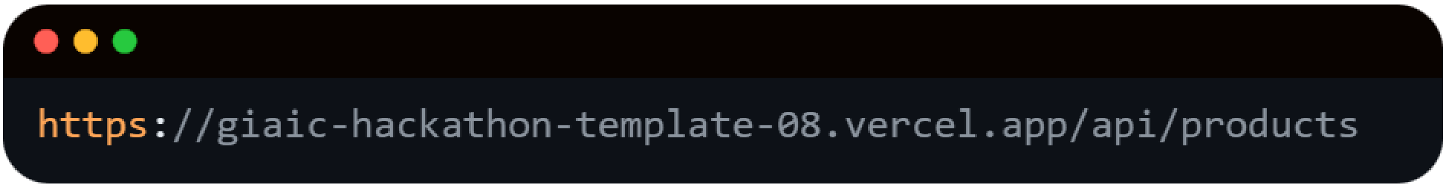


```
BASE_URL = "https://giaic-hackathon-template-08.vercel.app"
```

Endpoints:

- **Products: /api/products**

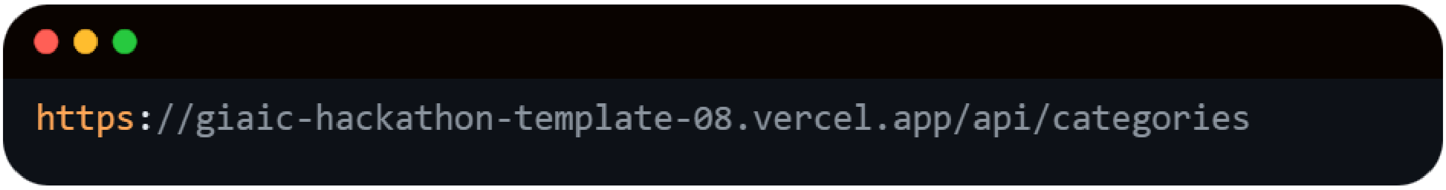
FULL URL:



```
https://giaic-hackathon-template-08.vercel.app/api/products
```

- **Categories: /api/categories**

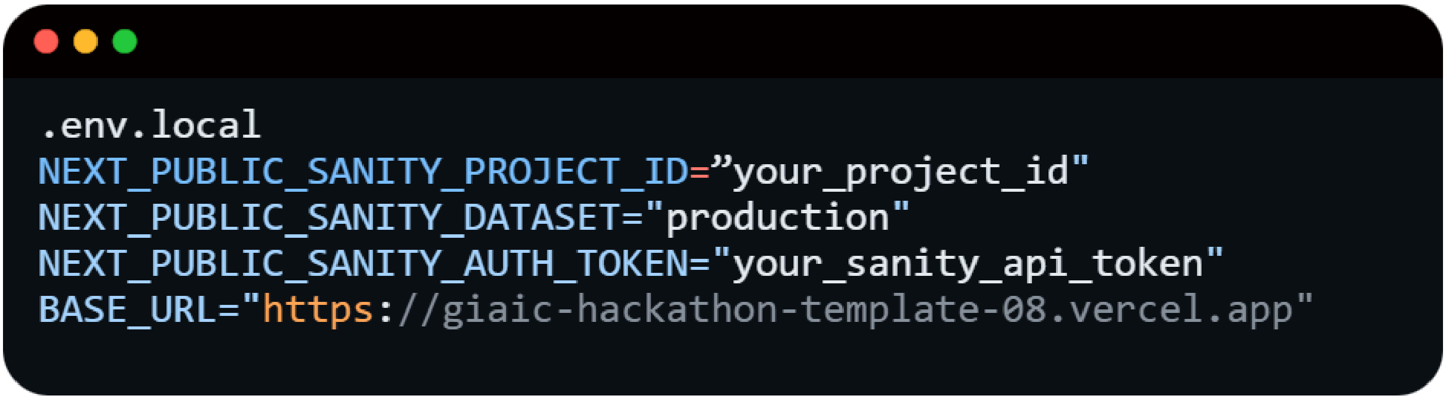
FULL URL:



```
https://giaic-hackathon-template-08.vercel.app/api/categories
```

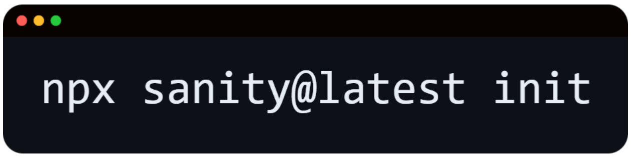
Steps Taken:

1. **Tested API Endpoints** using Postman to ensure data retrieval.
2. **Set up environment variables** in .env.local:



```
.env.local
NEXT_PUBLIC_SANITY_PROJECT_ID=”your_project_id"
NEXT_PUBLIC_SANITY_DATASET="production"
NEXT_PUBLIC_SANITY_AUTH_TOKEN="your_sanity_api_token"
BASE_URL="https://giaic-hackathon-template-08.vercel.app"
```

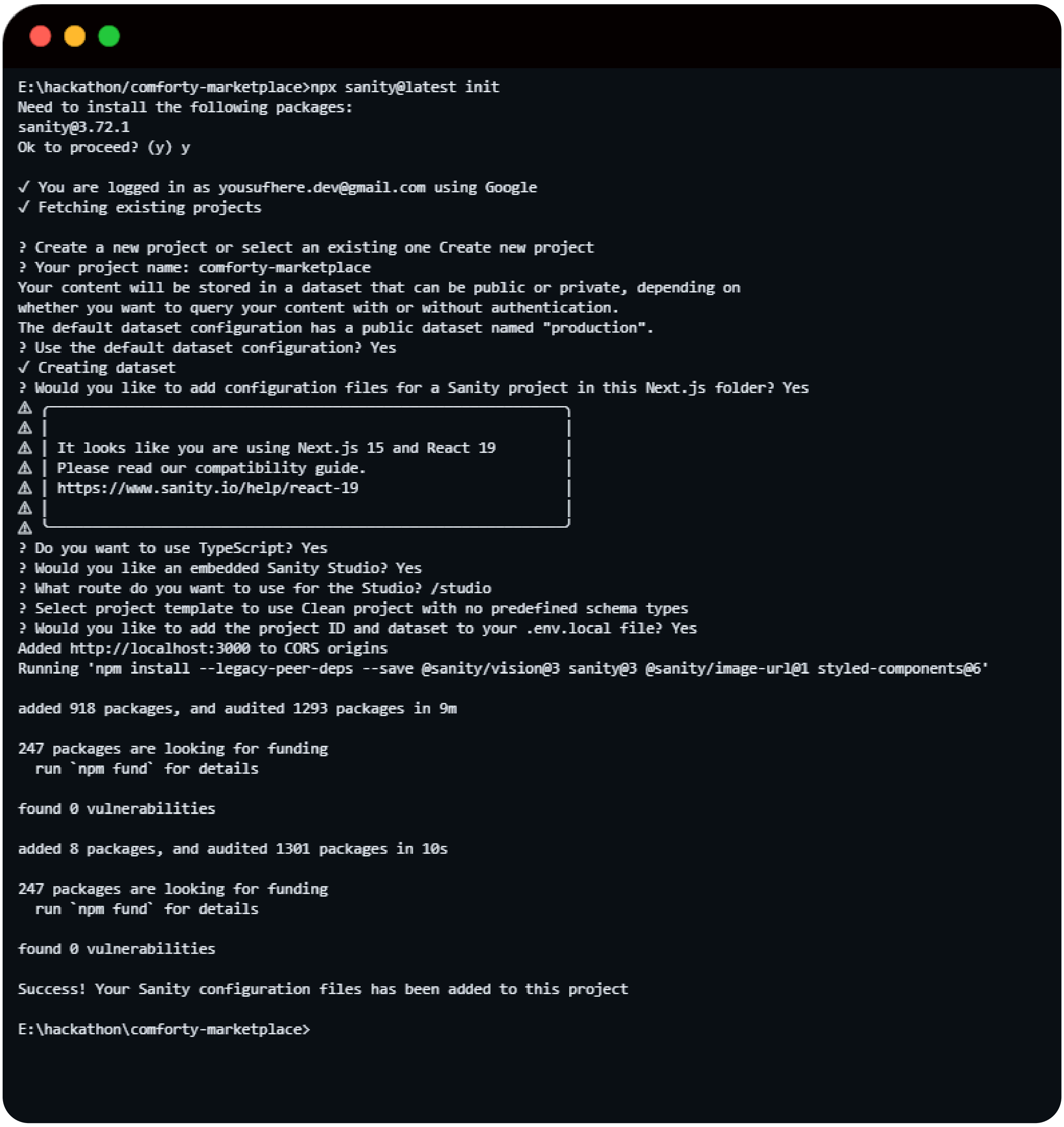
3. Install Sanity in the Next.js project:



```
npx sanity@latest init
```

- Selected project
- Defined dataset ("production")
- Chose embedded /studio route

Terminal:



```
E:\hackathon/comforty-marketplace>npx sanity@latest init
Need to install the following packages:
sanity@3.72.1
Ok to proceed? (y) y

✓ You are logged in as yousufhere.dev@gmail.com using Google
✓ Fetching existing projects

? Create a new project or select an existing one Create new project
? Your project name: comforty-marketplace
Your content will be stored in a dataset that can be public or private, depending on
whether you want to query your content with or without authentication.
The default dataset configuration has a public dataset named "production".
? Use the default dataset configuration? Yes
✓ Creating dataset
? Would you like to add configuration files for a Sanity project in this Next.js folder? Yes
⚠ ┌──────────────────────────────────────────────────────────┐
⚠ │                                                          │
⚠ │ It looks like you are using Next.js 15 and React 19      │
⚠ │ Please read our compatibility guide.                     │
⚠ │ https://www.sanity.io/help/react-19                      │
⚠ │                                                          │
⚠ └──────────────────────────────────────────────────────────┘
? Do you want to use TypeScript? Yes
? Would you like an embedded Sanity Studio? Yes
? What route do you want to use for the Studio? /studio
? Select project template to use Clean project with no predefined schema types
? Would you like to add the project ID and dataset to your .env.local file? Yes
Added http://localhost:3000 to CORS origins
Running 'npm install --legacy-peer-deps --save @sanity/vision@3 sanity@3 @sanity/image-url@1 styled-components@6'

added 918 packages, and audited 1293 packages in 9m

247 packages are looking for funding
  run `npm fund` for details

found 0 vulnerabilities

added 8 packages, and audited 1301 packages in 10s

247 packages are looking for funding
  run `npm fund` for details

found 0 vulnerabilities

Success! Your Sanity configuration files has been added to this project

E:\hackathon\comforty-marketplace>
```

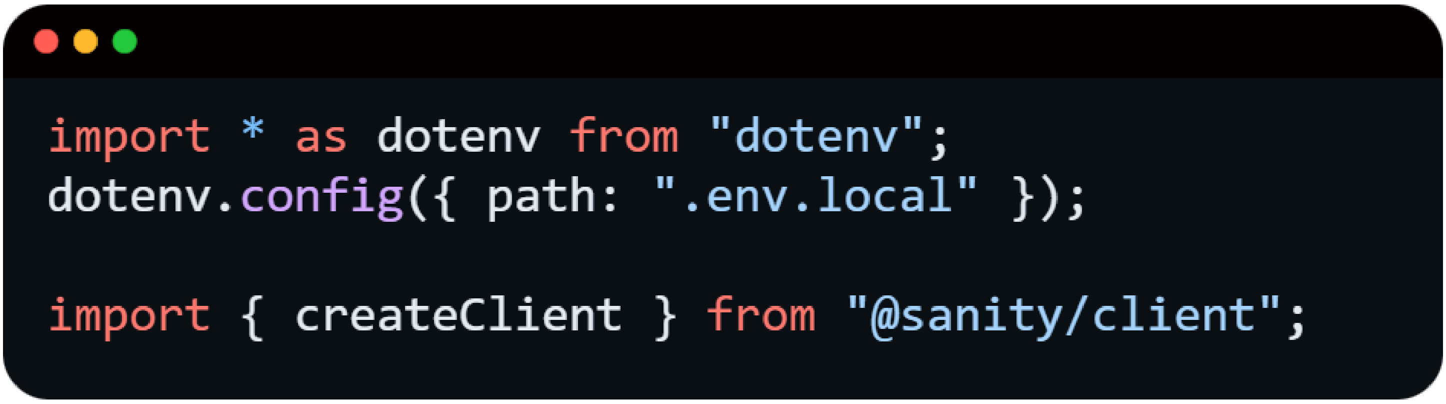
4. Migration Steps and Tools Used

Tools Used:

- **Sanity CMS** for schema management
- **Next.js15** for frontend display
- **Postman** for API testing
- **Node.js** for writing migration script

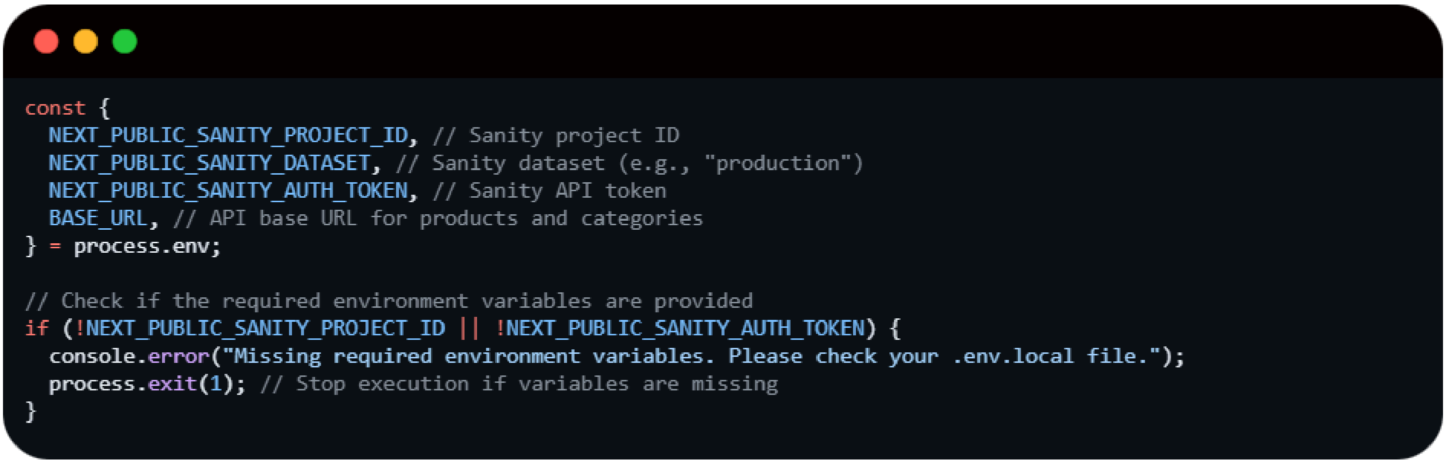
Migration Script (scripts/migration.mjs):

Imports:



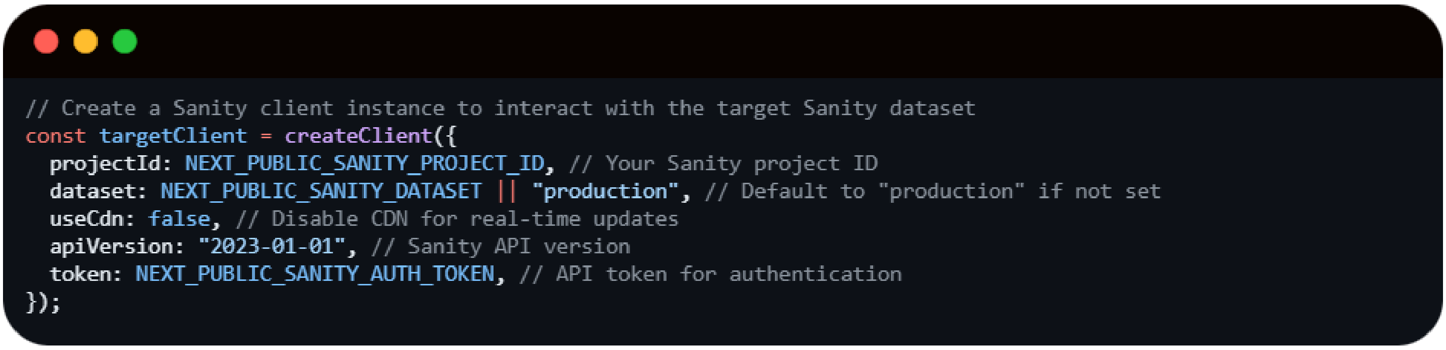
```
import * as dotenv from "dotenv";
dotenv.config({ path: ".env.local" });

import { createClient } from "@sanity/client";
```

Load required environment variables:



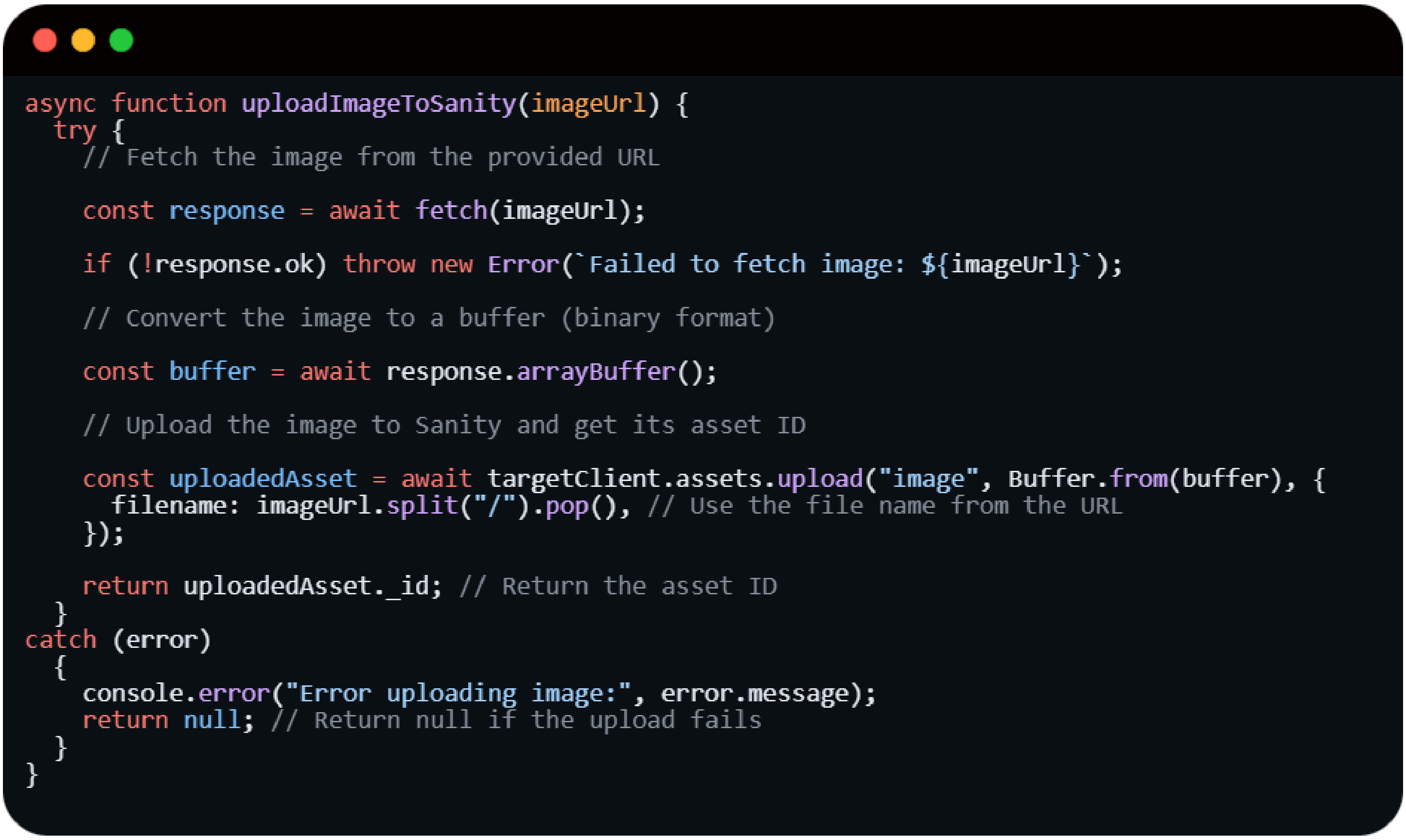
```
const {
  NEXT_PUBLIC_SANITY_PROJECT_ID, // Sanity project ID
  NEXT_PUBLIC_SANITY_DATASET, // Sanity dataset (e.g., "production")
  NEXT_PUBLIC_SANITY_AUTH_TOKEN, // Sanity API token
  BASE_URL, // API base URL for products and categories
} = process.env;

// Check if the required environment variables are provided
if (!NEXT_PUBLIC_SANITY_PROJECT_ID || !NEXT_PUBLIC_SANITY_AUTH_TOKEN) {
  console.error("Missing required environment variables. Please check your .env.local file.");
  process.exit(1); // Stop execution if variables are missing
}
```

Create a Sanity client:



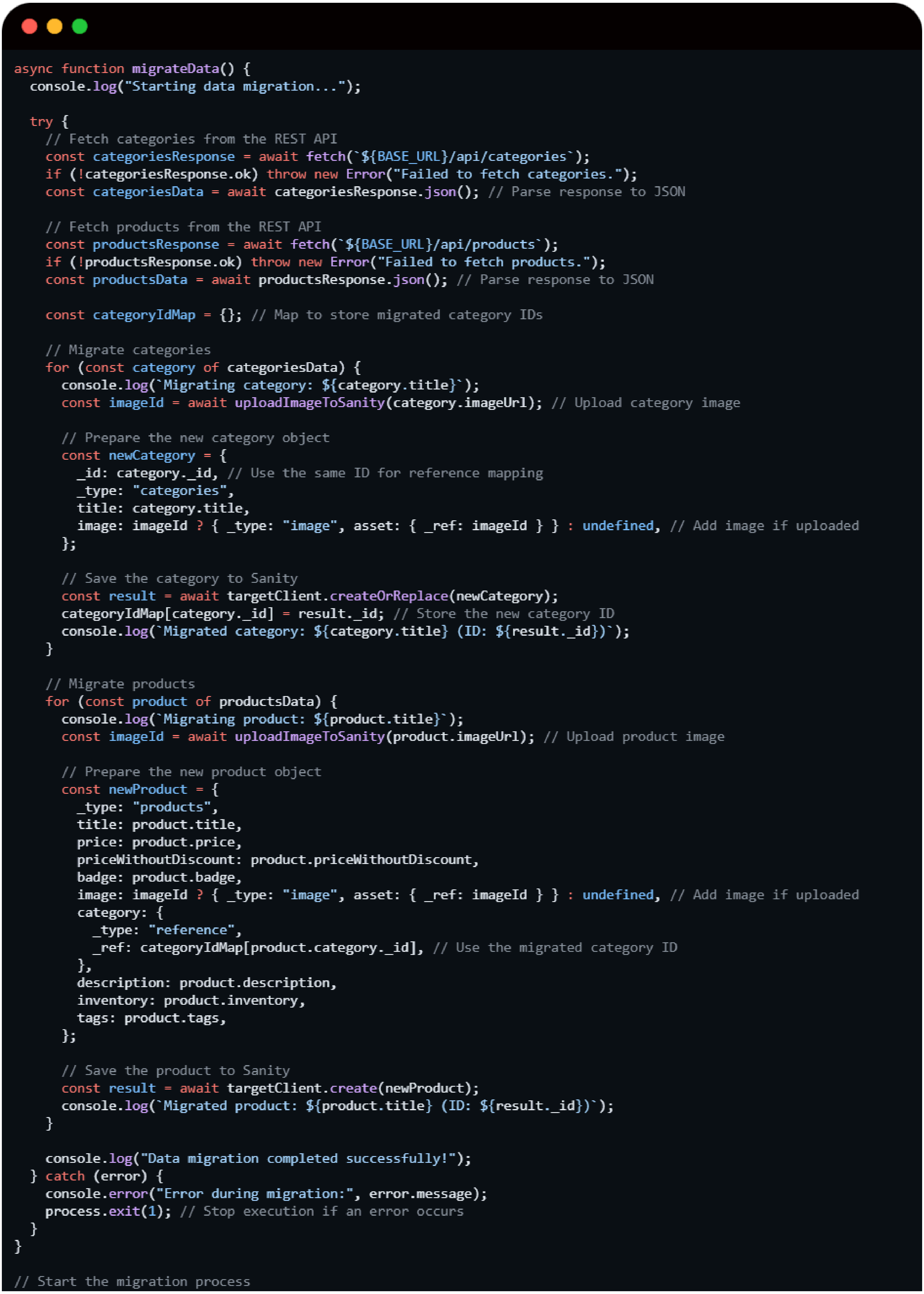
```
// Create a Sanity client instance to interact with the target Sanity dataset
const targetClient = createClient({
  projectId: NEXT_PUBLIC_SANITY_PROJECT_ID, // Your Sanity project ID
  dataset: NEXT_PUBLIC_SANITY_DATASET || "production", // Default to "production" if not set
  useCdn: false, // Disable CDN for real-time updates
  apiVersion: "2023-01-01", // Sanity API version
  token: NEXT_PUBLIC_SANITY_AUTH_TOKEN, // API token for authentication
});
```

Function to upload an image to Sanity:



```
async function uploadImageToSanity(imageUrl) {
  try {
    // Fetch the image from the provided URL

    const response = await fetch(imageUrl);

    if (!response.ok) throw new Error(`Failed to fetch image: ${imageUrl}`);

    // Convert the image to a buffer (binary format)

    const buffer = await response.arrayBuffer();

    // Upload the image to Sanity and get its asset ID

    const uploadedAsset = await targetClient.assets.upload("image", Buffer.from(buffer), {
      filename: imageUrl.split("/").pop(), // Use the file name from the URL
    });

    return uploadedAsset._id; // Return the asset ID
  }
catch (error)
  {
    console.error("Error uploading image:", error.message);
    return null; // Return null if the upload fails
  }
}
```

Main Function to fetch the Products and Categories from BASE_URL and insert migrate to the Sanity CMS:



```javascript
async function migrateData() {
  console.log("Starting data migration...");

  try {
    // Fetch categories from the REST API
    const categoriesResponse = await fetch(`${BASE_URL}/api/categories`);
    if (!categoriesResponse.ok) throw new Error("Failed to fetch categories.");
    const categoriesData = await categoriesResponse.json(); // Parse response to JSON

    // Fetch products from the REST API
    const productsResponse = await fetch(`${BASE_URL}/api/products`);
    if (!productsResponse.ok) throw new Error("Failed to fetch products.");
    const productsData = await productsResponse.json(); // Parse response to JSON

    const categoryIdMap = {}; // Map to store migrated category IDs

    // Migrate categories
    for (const category of categoriesData) {
      console.log(`Migrating category: ${category.title}`);
      const imageId = await uploadImageToSanity(category.imageUrl); // Upload category image

      // Prepare the new category object
      const newCategory = {
        _id: category._id, // Use the same ID for reference mapping
        _type: "categories",
        title: category.title,
        image: imageId ? { _type: "image", asset: { _ref: imageId } } : undefined, // Add image if uploaded
      };

      // Save the category to Sanity
      const result = await targetClient.createOrReplace(newCategory);
      categoryIdMap[category._id] = result._id; // Store the new category ID
      console.log(`Migrated category: ${category.title} (ID: ${result._id})`);
    }

    // Migrate products
    for (const product of productsData) {
      console.log(`Migrating product: ${product.title}`);
      const imageId = await uploadImageToSanity(product.imageUrl); // Upload product image

      // Prepare the new product object
      const newProduct = {
        _type: "products",
        title: product.title,
        price: product.price,
        priceWithoutDiscount: product.priceWithoutDiscount,
        badge: product.badge,
        image: imageId ? { _type: "image", asset: { _ref: imageId } } : undefined, // Add image if uploaded
        category: {
          _type: "reference",
          _ref: categoryIdMap[product.category._id], // Use the migrated category ID
        },
        description: product.description,
        inventory: product.inventory,
        tags: product.tags,
      };

      // Save the product to Sanity
      const result = await targetClient.create(newProduct);
      console.log(`Migrated product: ${product.title} (ID: ${result._id})`);
    }

    console.log("Data migration completed successfully!");
  } catch (error) {
    console.error("Error during migration:", error.message);
    process.exit(1); // Stop execution if an error occurs
  }
}

// Start the migration process
```

```
migrateData();
```

Steps to Run Migration:

Navigate to the project root:

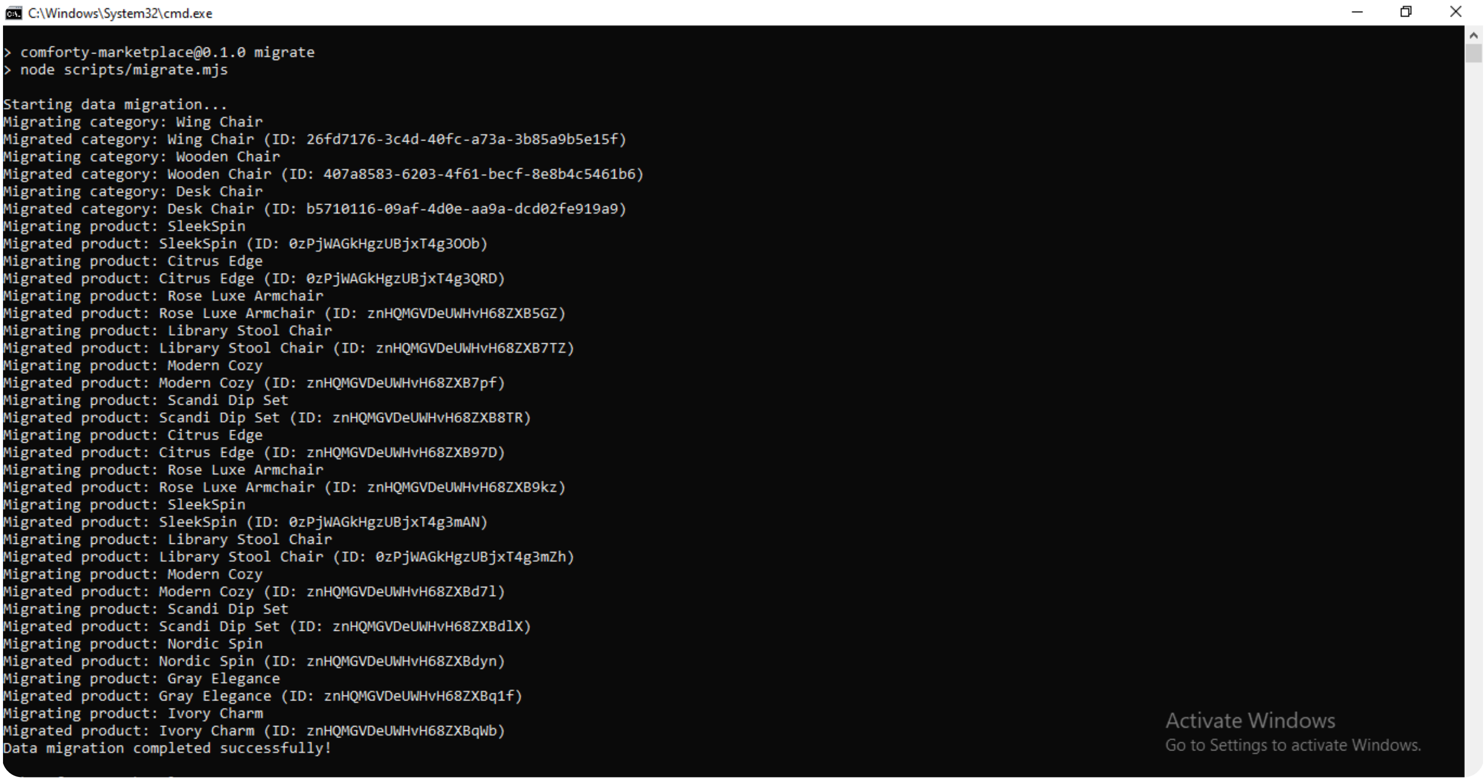
```
cd my-nextjs-project
```

Run the migration script:

```
node scripts/migration.mjs
```

Terminal:

Check if the script is successfully fetching the data from an REST API and then is migrating category and product data to Sanity CMS:

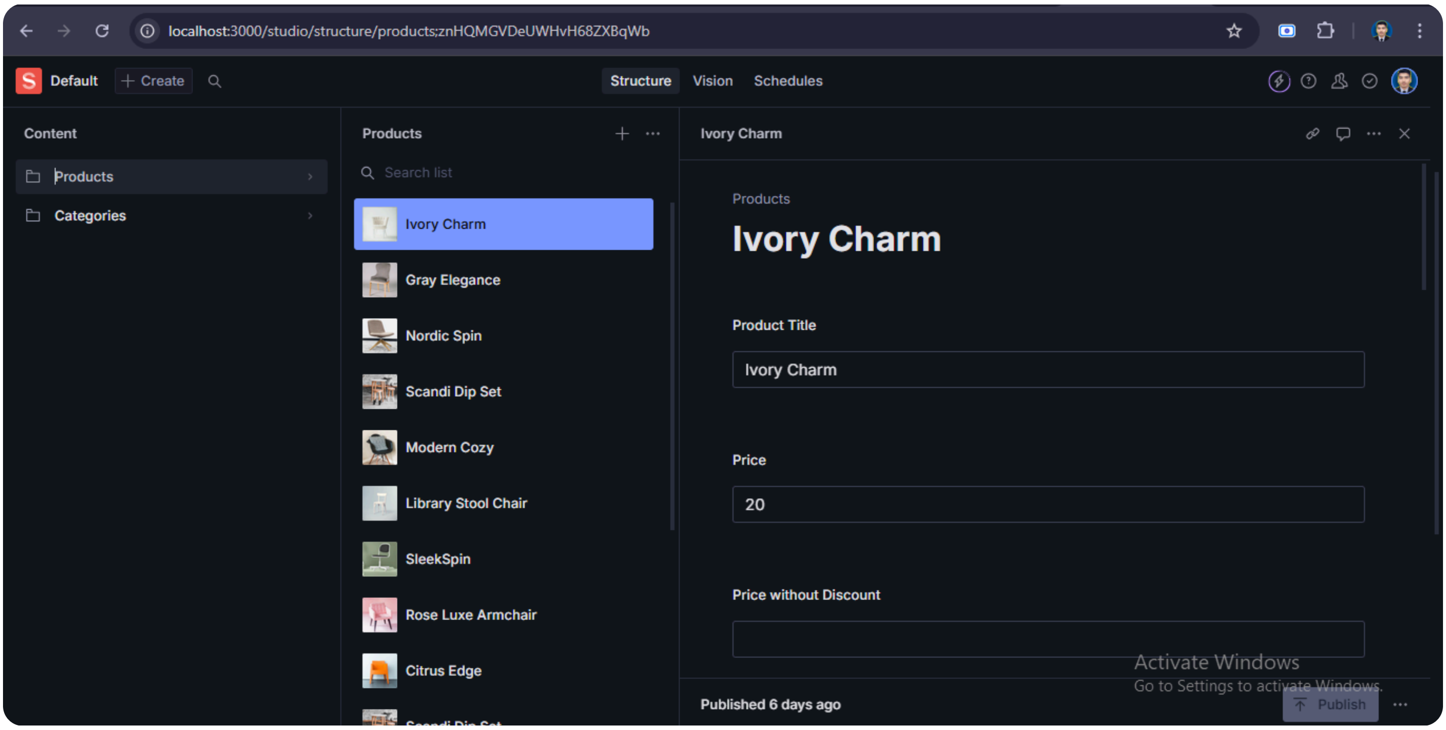


C:\Windows\System32\cmd.exe
Activate Windows
Go to Settings to activate Windows.

```
> comforty-marketplace@0.1.0 migrate
> node scripts/migrate.mjs

Starting data migration...
Migrating category: Wing Chair
Migrated category: Wing Chair (ID: 26fd7176-3c4d-40fc-a73a-3b85a9b5e15f)
Migrating category: Wooden Chair
Migrated category: Wooden Chair (ID: 407a8583-6203-4f61-becf-8e8b4c5461b6)
Migrating category: Desk Chair
Migrated category: Desk Chair (ID: b5710116-09af-4d0e-aa9a-dcd02fe919a9)
Migrating product: SleekSpin
Migrated product: SleekSpin (ID: 0zPjWAGkHgzUBjxT4g3OOb)
Migrating product: Citrus Edge
Migrated product: Citrus Edge (ID: 0zPjWAGkHgzUBjxT4g3QRD)
Migrating product: Rose Luxe Armchair
Migrated product: Rose Luxe Armchair (ID: znHQMGVDeUWHvH68ZXB5GZ)
Migrating product: Library Stool Chair
Migrated product: Library Stool Chair (ID: znHQMGVDeUWHvH68ZXB7TZ)
Migrating product: Modern Cozy
Migrated product: Modern Cozy (ID: znHQMGVDeUWHvH68ZXB7pf)
Migrating product: Scandi Dip Set
Migrated product: Scandi Dip Set (ID: znHQMGVDeUWHvH68ZXB8TR)
Migrating product: Citrus Edge
Migrated product: Citrus Edge (ID: znHQMGVDeUWHvH68ZXB97D)
Migrating product: Rose Luxe Armchair
Migrated product: Rose Luxe Armchair (ID: znHQMGVDeUWHvH68ZXB9kz)
Migrating product: SleekSpin
Migrated product: SleekSpin (ID: 0zPjWAGkHgzUBjxT4g3mAN)
Migrating product: Library Stool Chair
Migrated product: Library Stool Chair (ID: 0zPjWAGkHgzUBjxT4g3mZh)
Migrating product: Modern Cozy
Migrated product: Modern Cozy (ID: znHQMGVDeUWHvH68ZXBd7l)
Migrating product: Scandi Dip Set
Migrated product: Scandi Dip Set (ID: znHQMGVDeUWHvH68ZXBdlX)
Migrating product: Nordic Spin
Migrated product: Nordic Spin (ID: znHQMGVDeUWHvH68ZXBdyn)
Migrating product: Gray Elegance
Migrated product: Gray Elegance (ID: znHQMGVDeUWHvH68ZXBq1f)
Migrating product: Ivory Charm
Migrated product: Ivory Charm (ID: znHQMGVDeUWHvH68ZXBqWb)
Data migration completed successfully!
```

Categories and Products are successfully fetched and migrated to the Sanity CMS:

Populated Products in Sanity:



localhost:3000/studio/structure/products;znHQMGVDeUWHvH68ZXBqWb

Ivory Charm

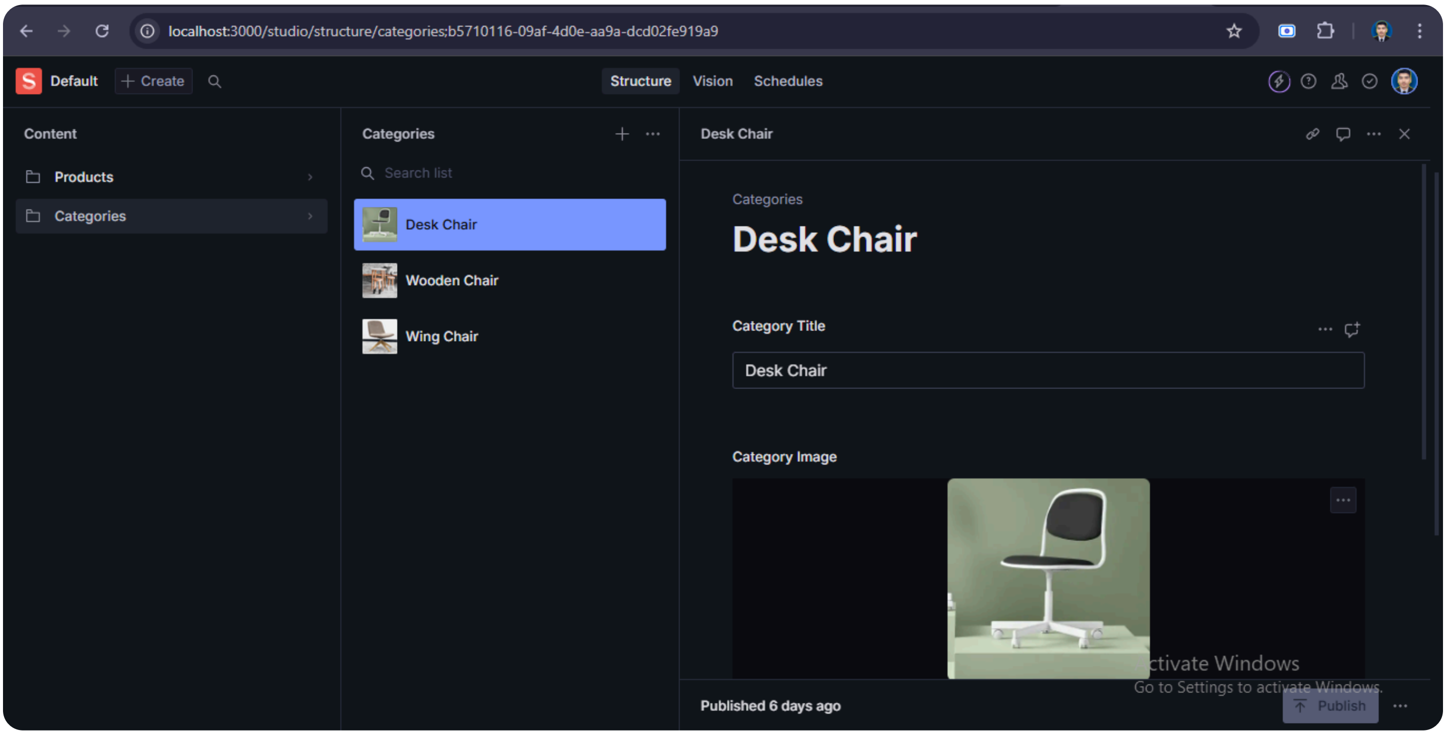
Product Title: Ivory Charm

Price: 20

Price without Discount:

Published 6 days ago

Populated Categories in Sanity:



localhost:3000/studio/structure/categories;b5710116-09af-4d0e-aa9a-dcd02fe919a9

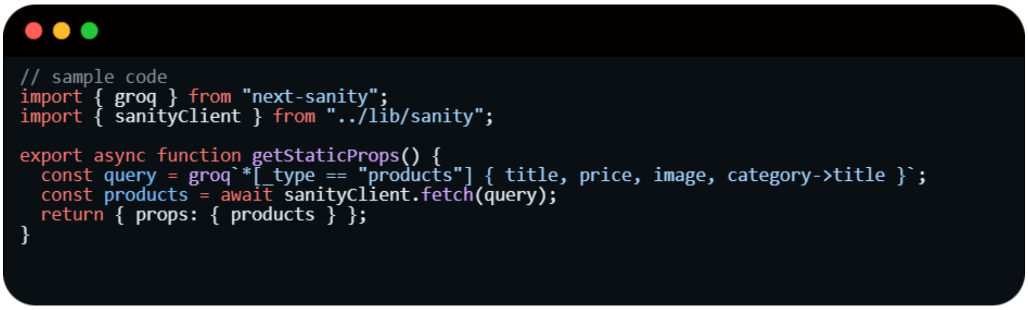
Desk Chair

Category Title: Desk Chair

Category Image

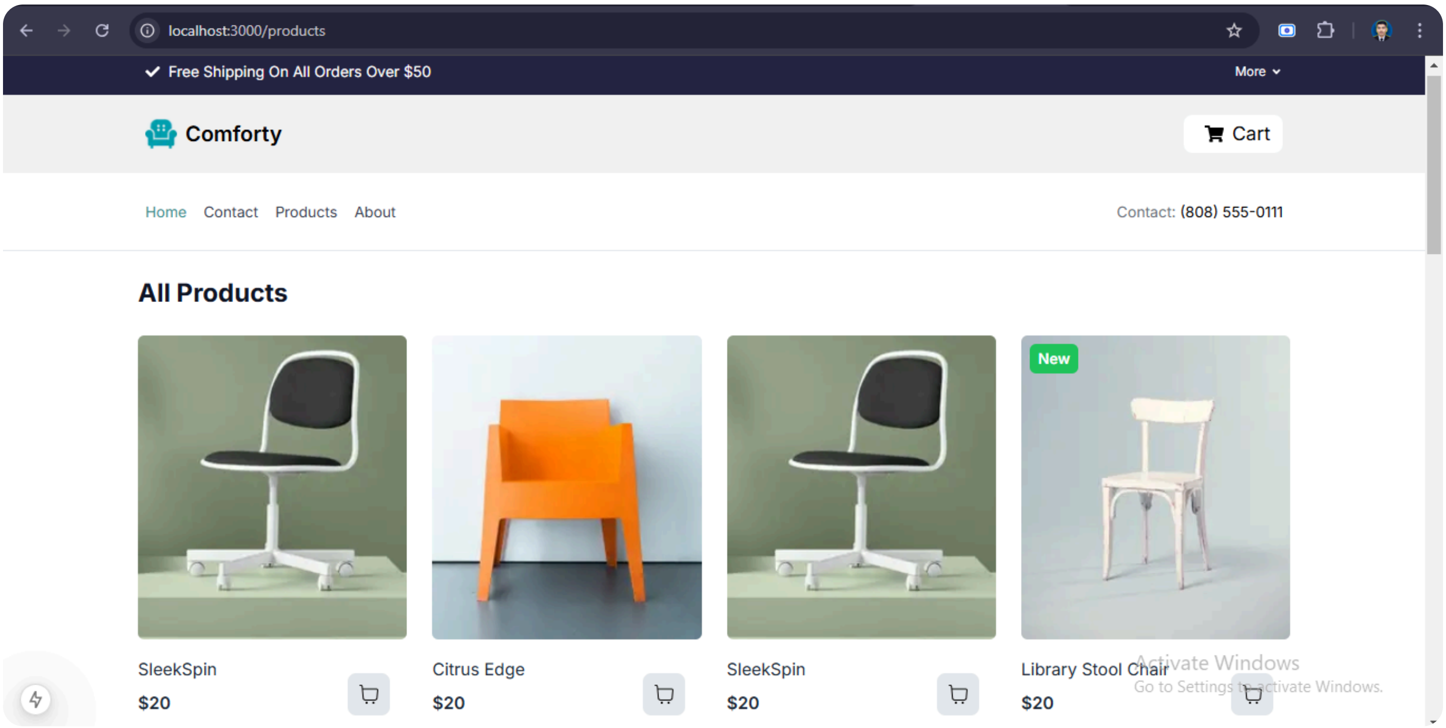
Published 6 days ago

Fetching and Displaying the Data in Front-End:



```
// sample code
import { groq } from "next-sanity";
import { sanityClient } from "../lib/sanity";

export async function getStaticProps() {
  const query = groq`*[_type == "products"] { title, price, image, category->title }`;
  const products = await sanityClient.fetch(query);
  return { props: { products } };
}
```

Products Listing Page:



localhost:3000/products

✓ Free Shipping On All Orders Over $50

Comforty

Contact: (808) 555-0111

All Products

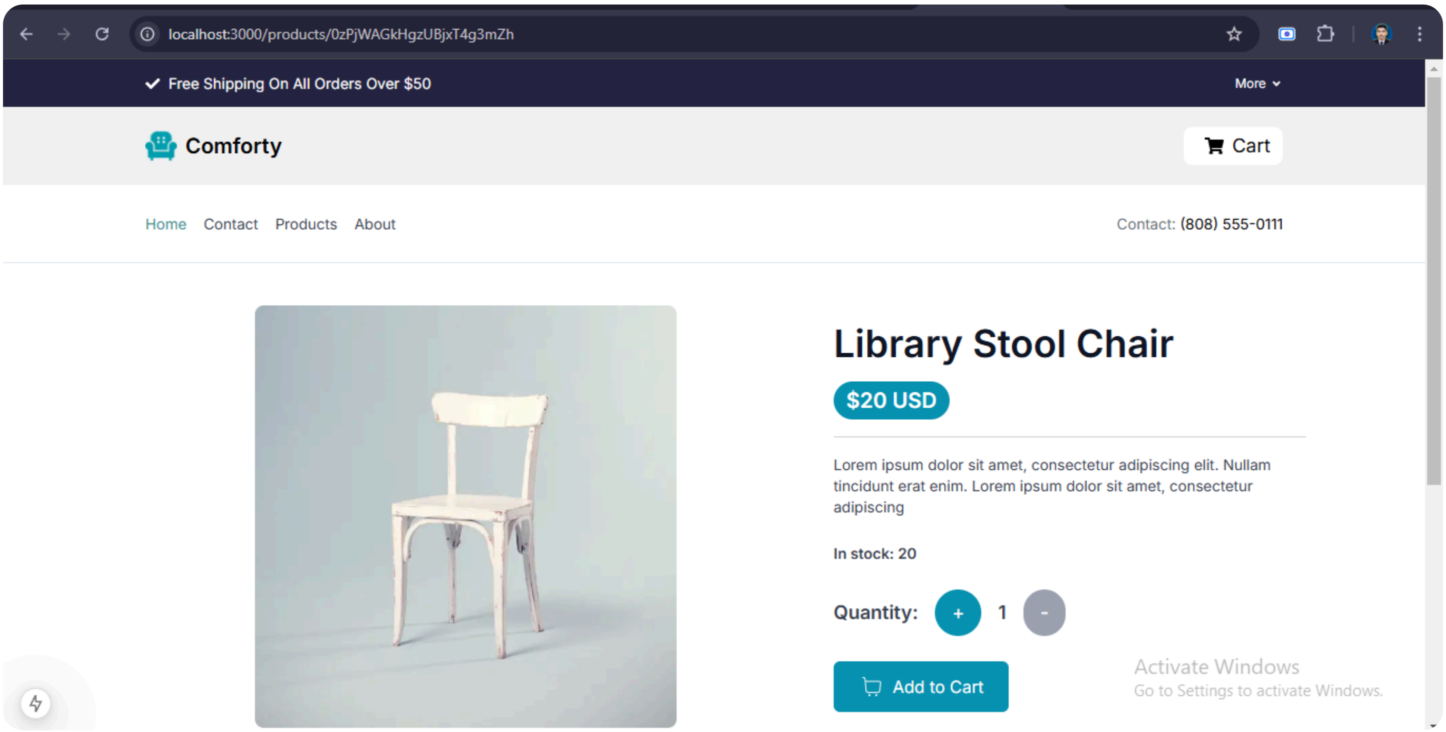
SleekSpin
$20

Citrus Edge
$20

SleekSpin
$20

Library Stool Chair
$20

Products Detail Page:



localhost:3000/products/0zPjWAGkHgzUBjxT4g3mZh
✓ Free Shipping On All Orders Over $50
More
Comforty
Cart
Home
Contact
Products
About
Contact: (808) 555-0111
Quantity:
+
1
-
Add to Cart
Activate Windows
Go to Settings to activate Windows.

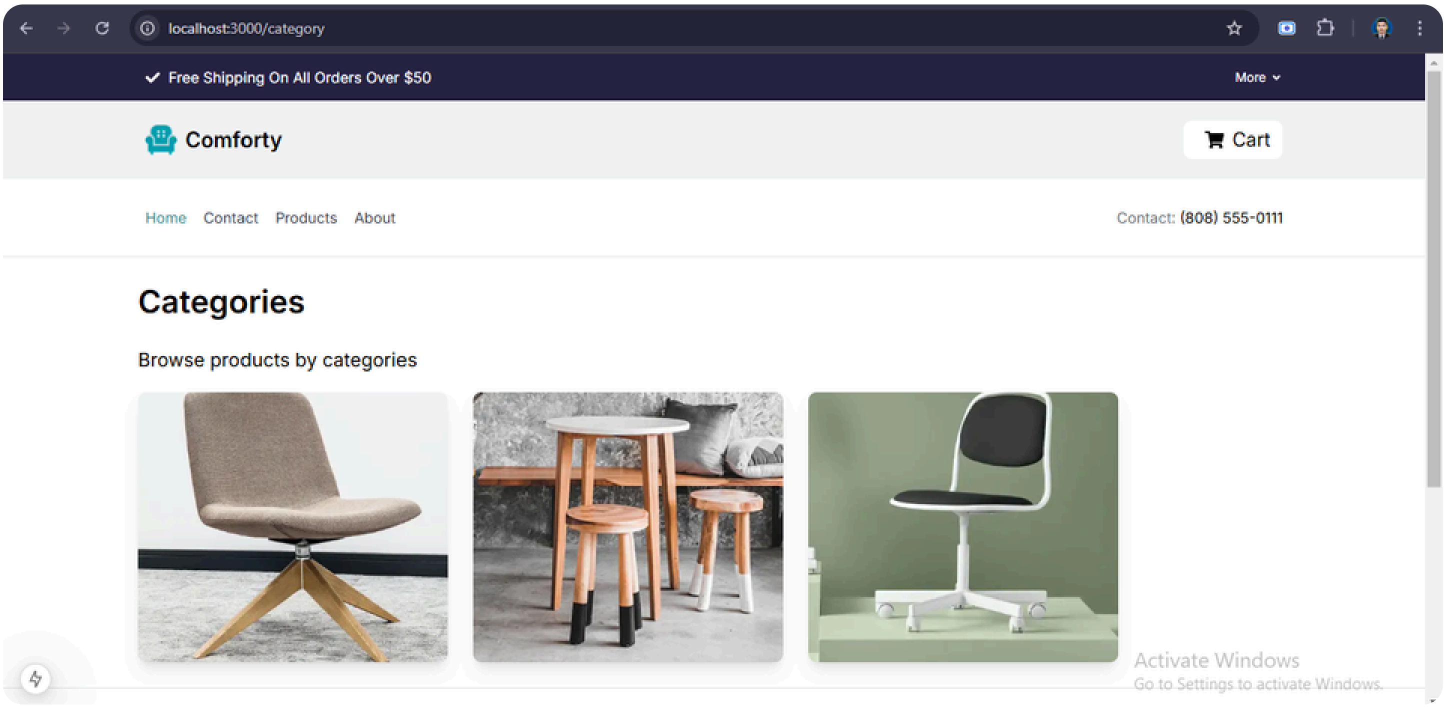
Library Stool Chair

$20 USD

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Nullam tincidunt erat enim. Lorem ipsum dolor sit amet, consectetur adipiscing

In stock: 20

Categories Page:



Categories

Browse products by categories

7. Conclusion

This document explains how an external API was successfully added to the Next.js Sanity-based marketplace project. The process included:

- Testing and connecting the API.
- Updating Sanity schemas to match the API structure.
- Creating a script to import data into Sanity CMS.
- Showing the imported data on the front end using GROQ queries.

The implementation ensures smooth data management and dynamic content updates within the marketplace.

Muhammad Shoaib

Sunday 9 - 12