MIRACLE
SOFTWARE SYSTEMS

Building a Custom Search Engine with Google Programmable Search API

Hands-on Lab | Digital Summit 2024

Goal

In this OpenLab, you will learn how to create a custom search engine. You will start by understanding how Google's Custom Search Engine works and how to use the Programmable Search API to connect with it. Then, you will build your own search engine and integrate it into a web application using JavaScript. By the end of the lab, you will have a fully functional custom search engine app that performs searches using Google's API.

Pre-Requisites

To complete this lab successfully, ensure the following are installed and set up,

- Google Account
- Google Cloud Console API Setup with Custom Search enabled
- Node JS and NPM
- React Framework
- Any Text Editor (VS Code Studio/Notepad++/Notepad)

Technologies Involved

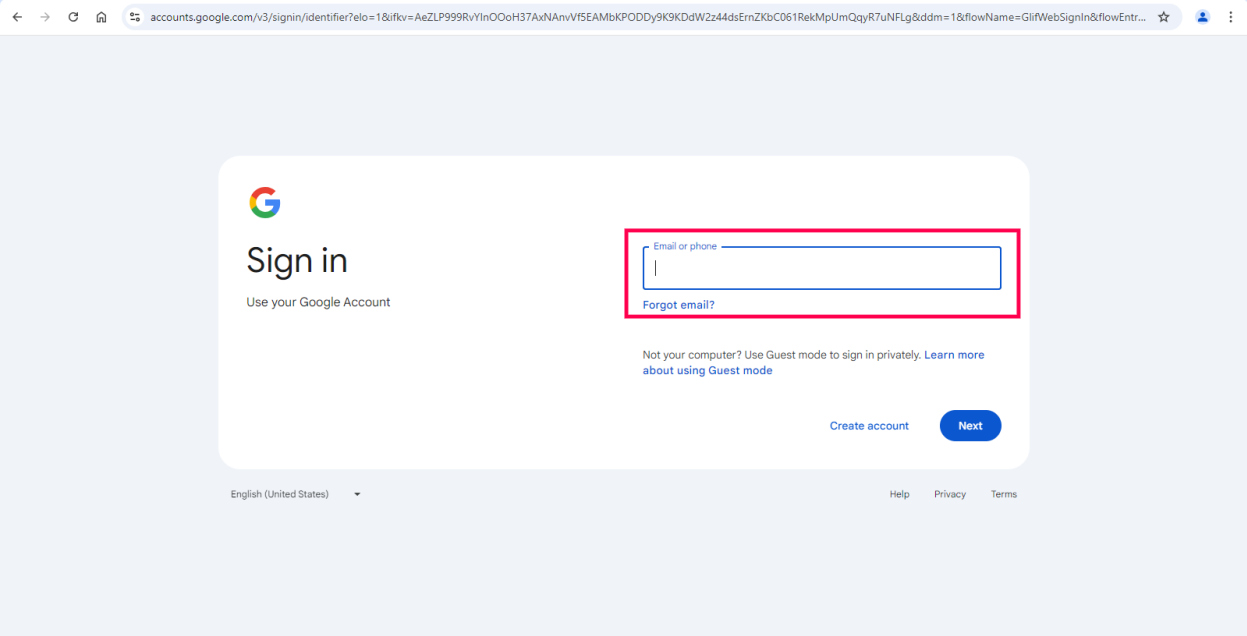
- React
- Node JS
- Google Custom Search JSON API

Lab Steps

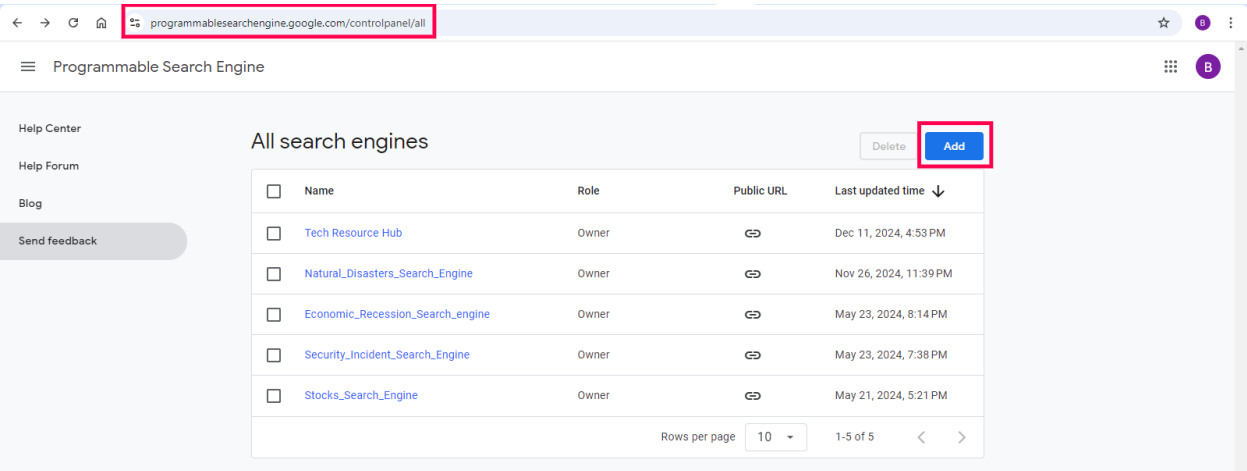
Let's get started with the lab!

Step #1 | Set Up Google Custom Search

Visit the Google Programmable Search Engine Console. Login with your Gmail and Password.



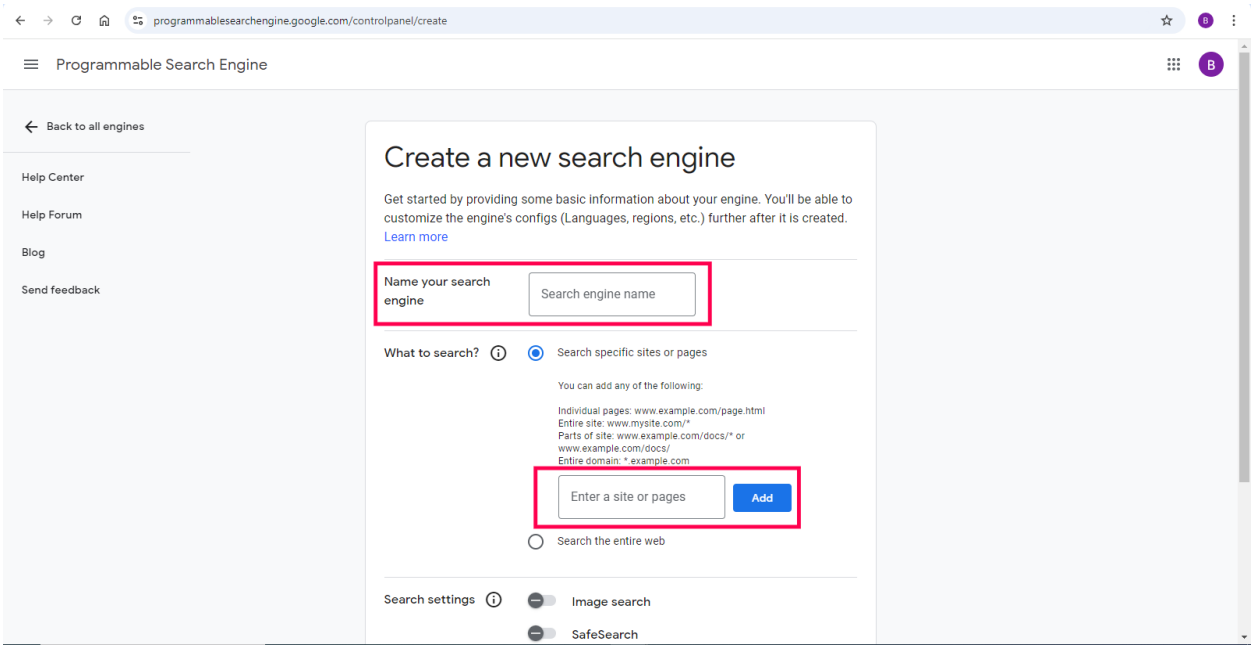
Here is the home page of the Programmable search engine.



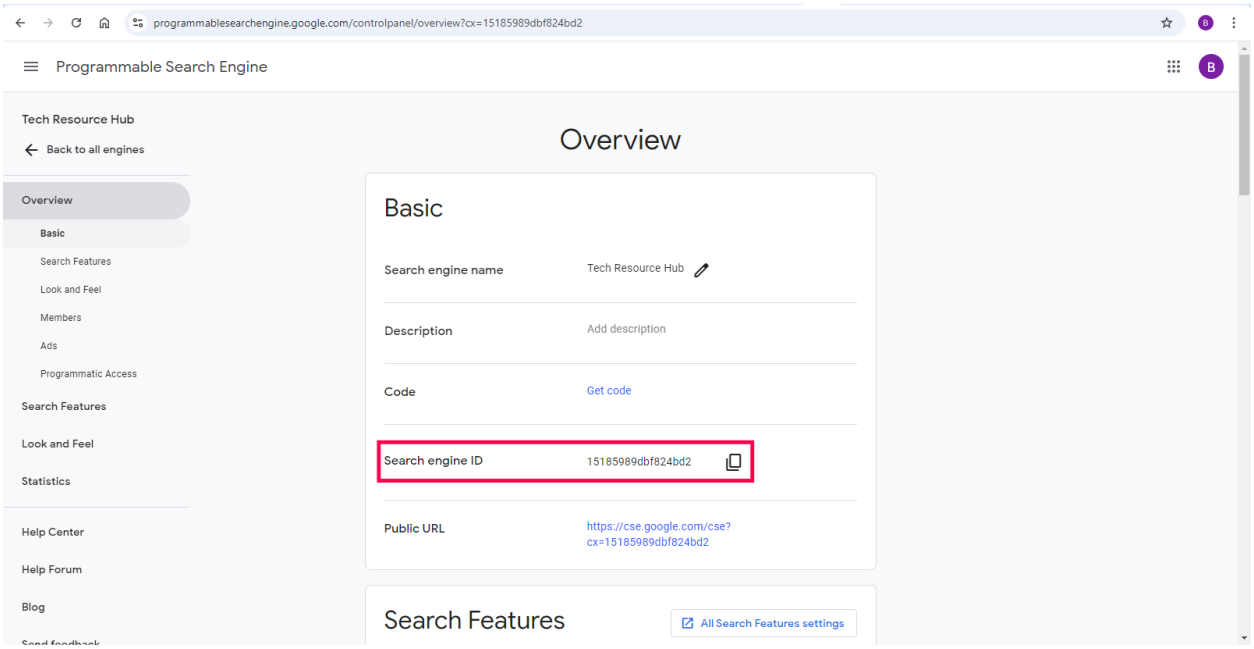
Create a new search engine,

- Here are the few example websites you can include,
  - www.careerlauncher.com
  - www.embibe.com
  - gate.iitk.ac.in
  - *.stackoverflow.com
  - docs.python.org
  - developer.mozilla.org
  - www.geeksforgeeks.org

Name your engine as per your requirement.

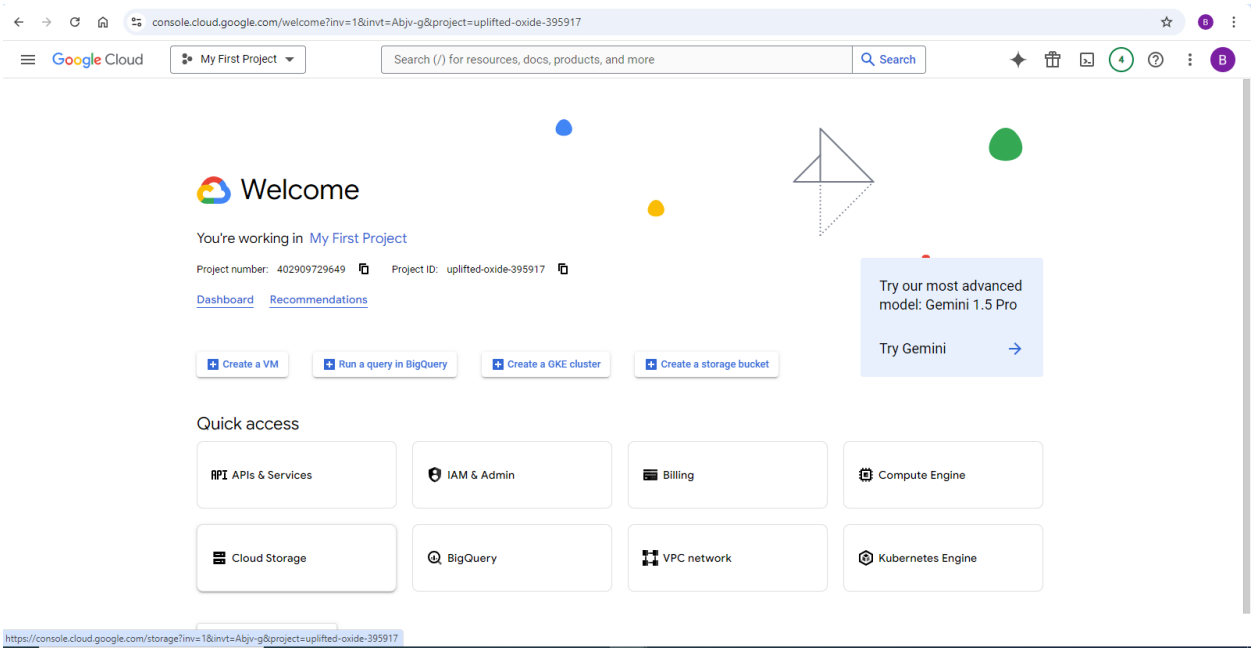


Make a note of your **Search Engine ID**.

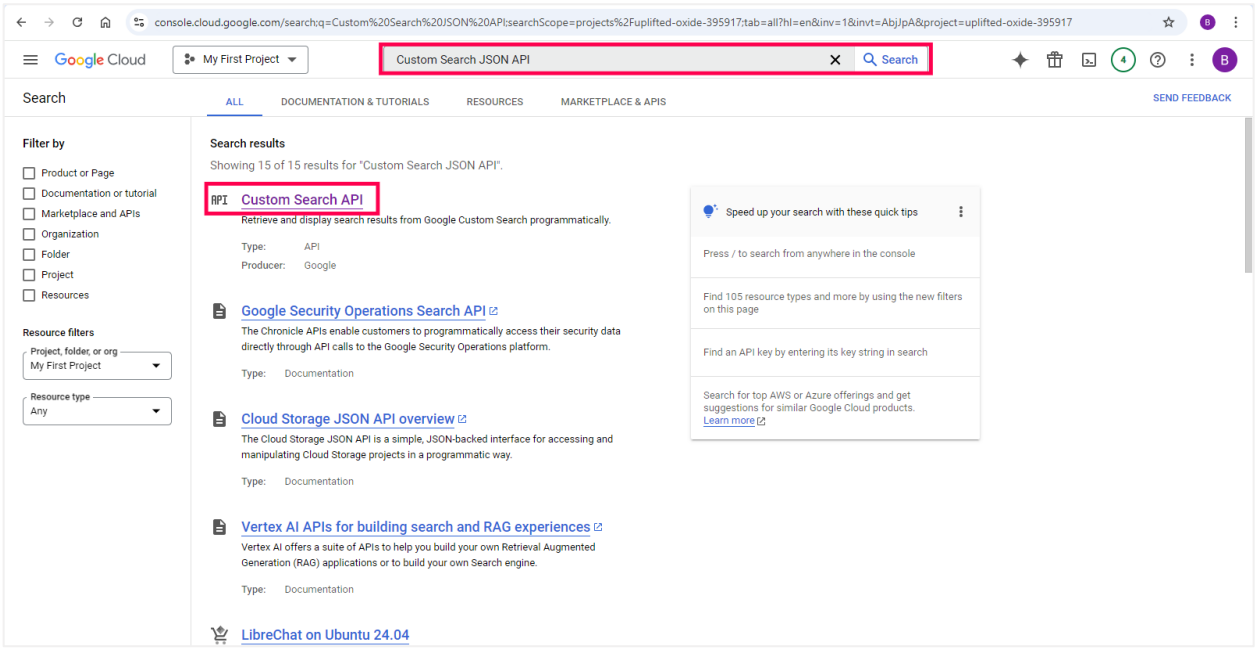


Enable the Custom Search JSON API in the Google Cloud Console,

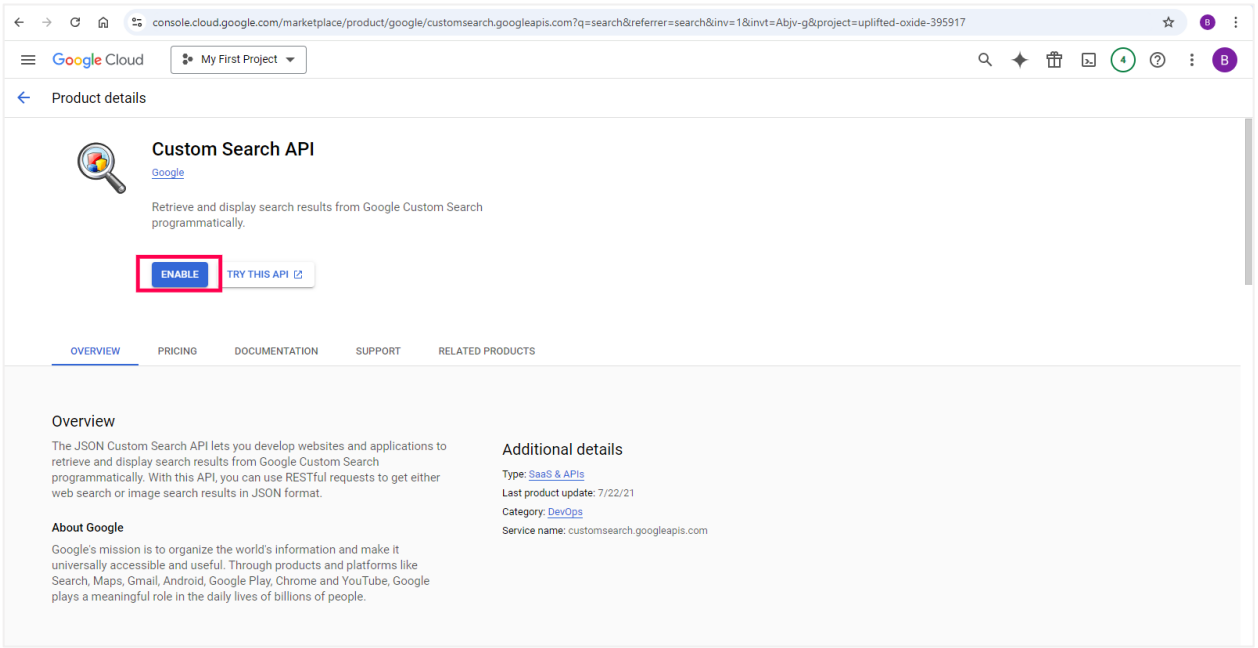
- Login to the Google Cloud Console



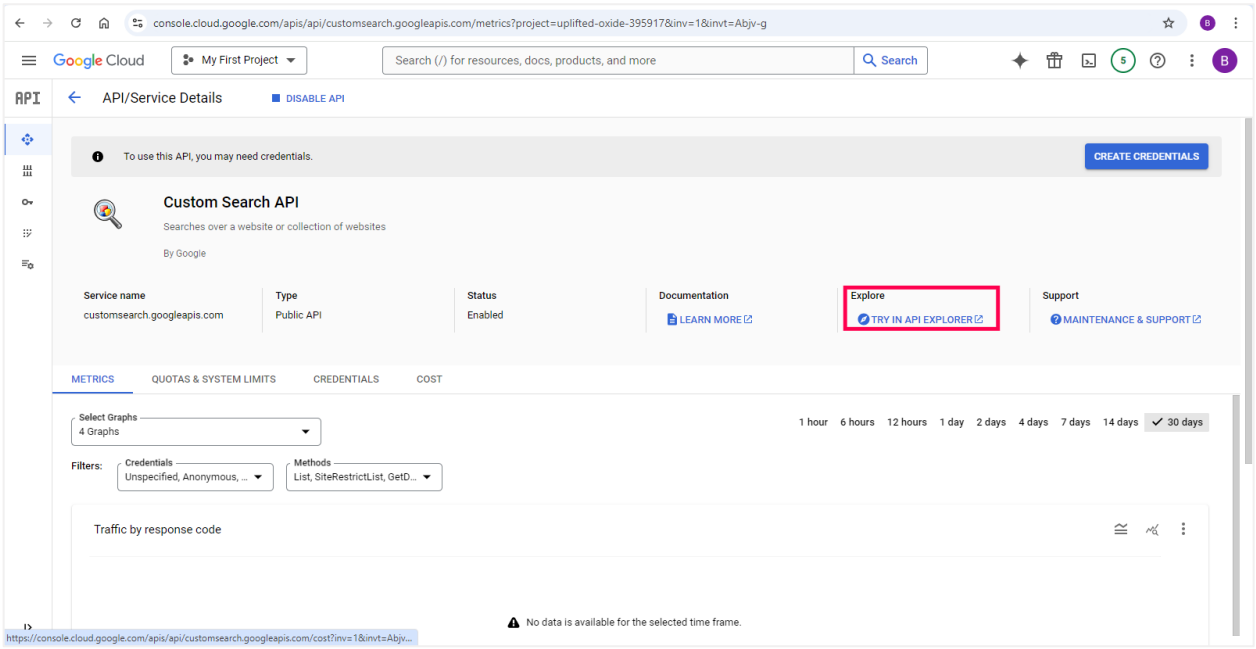
Search for **Custom Search JSON API**



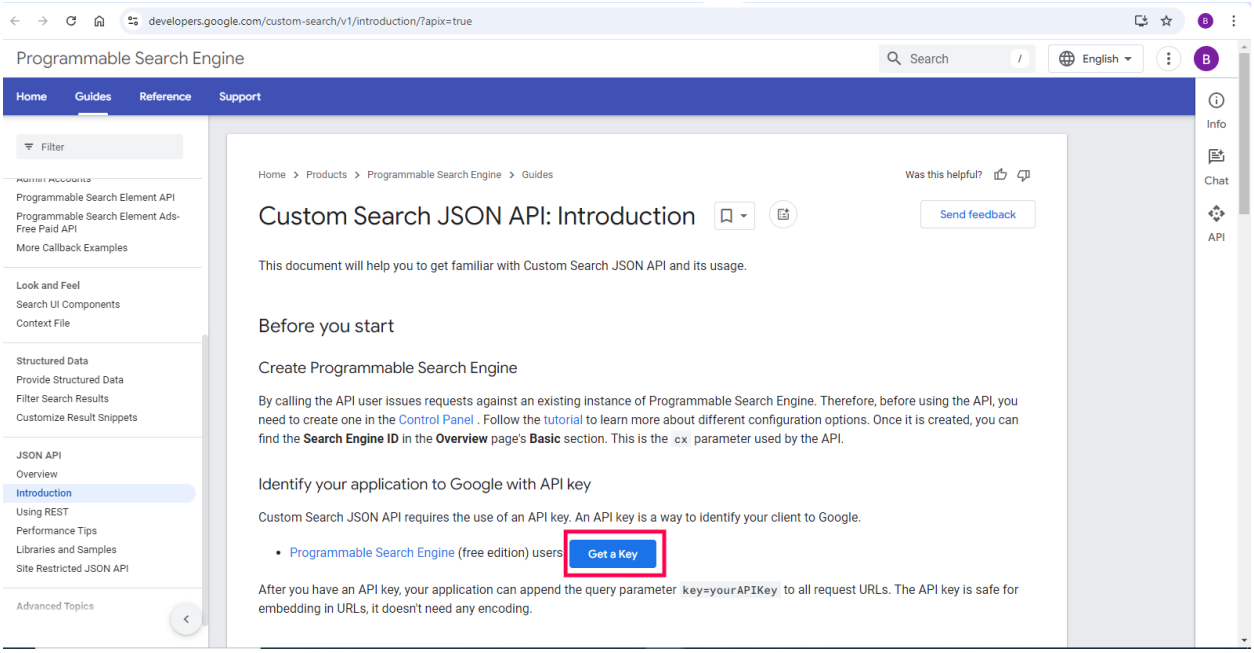
Enable the **Custom Search JSON API**.

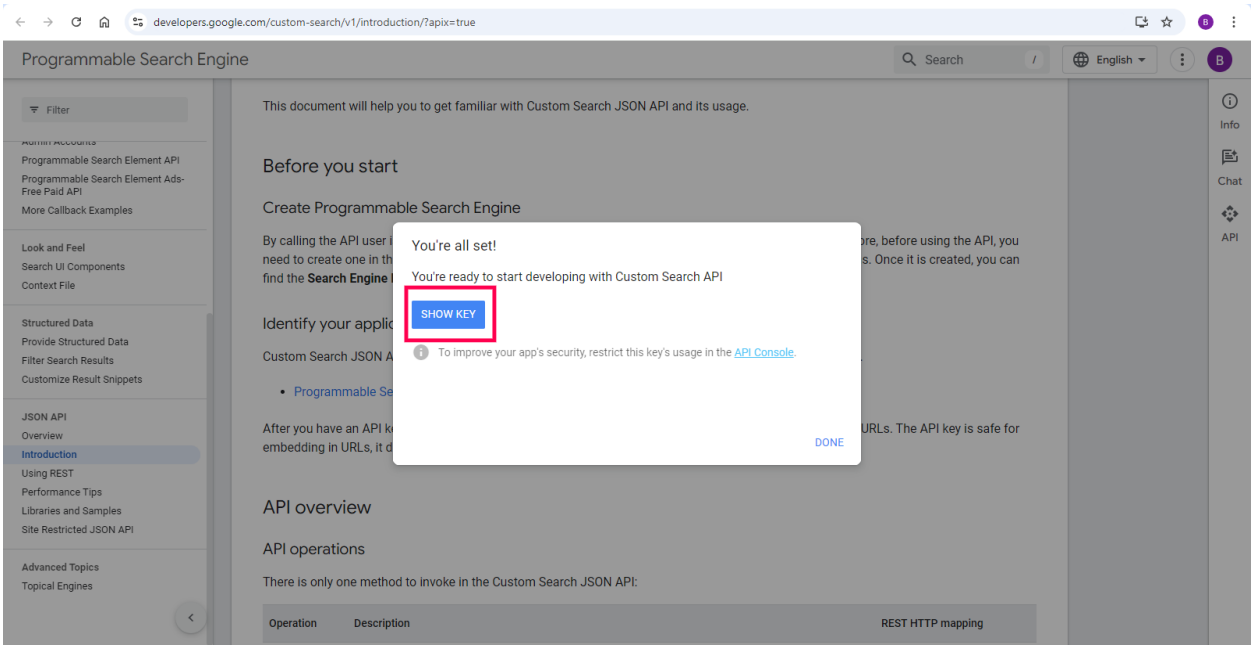


Identify the Google API Key by clicking on "**TRY IN API EXPLORER**."

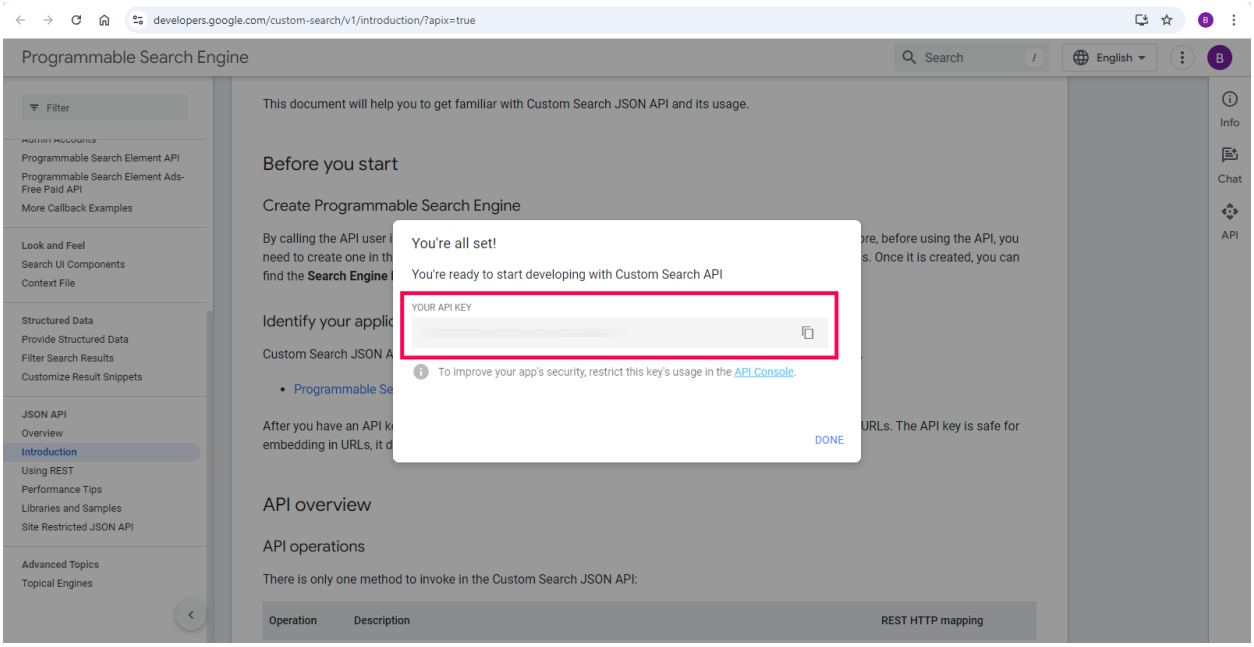


Click on the **Get a key** and select the **First Project** to get the **API KEY**.





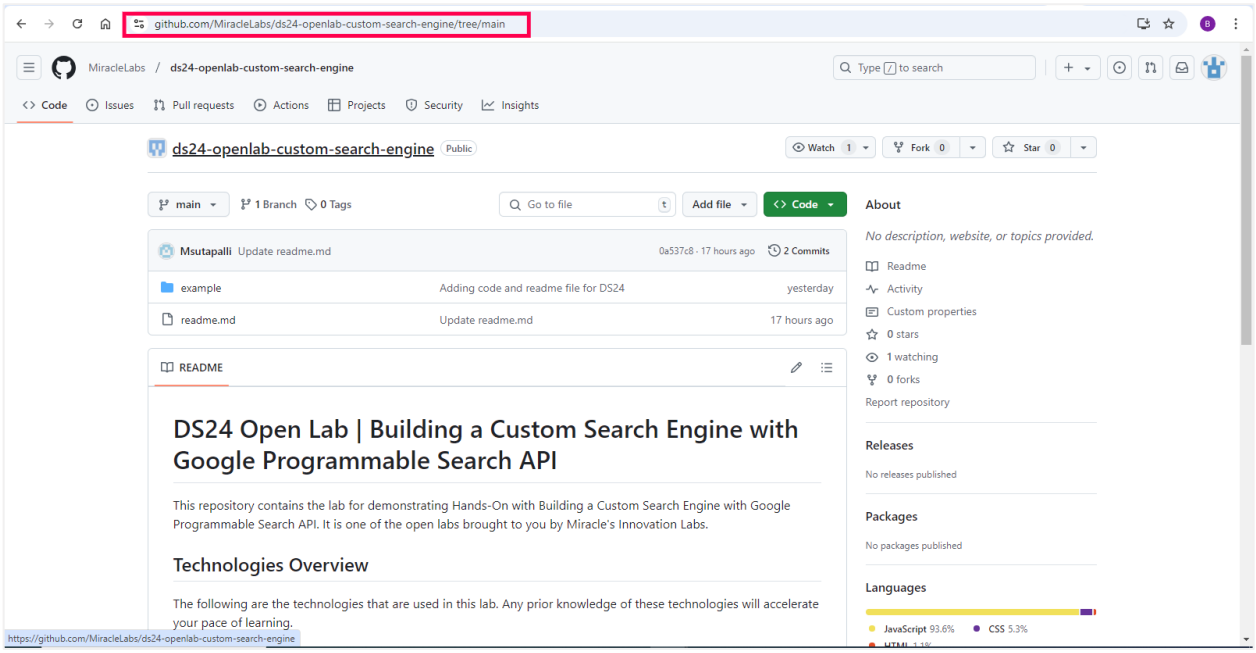
Save the **API KEY** for later use.



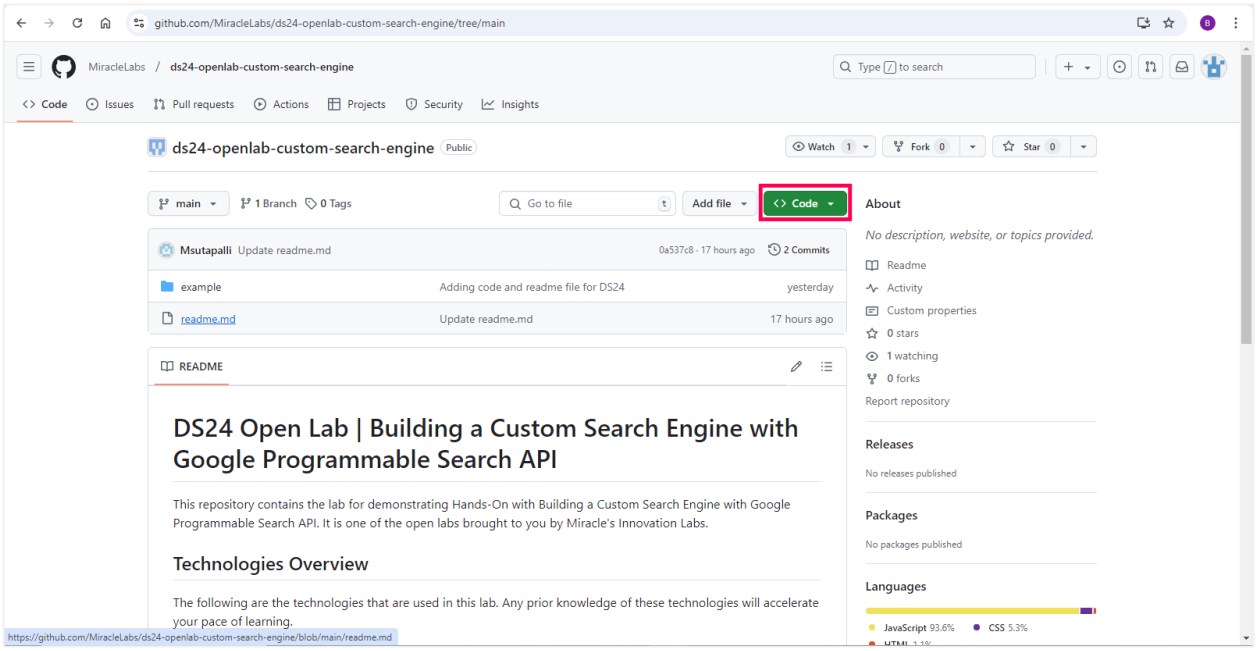
Step #2 | Code Setup in Local Machine

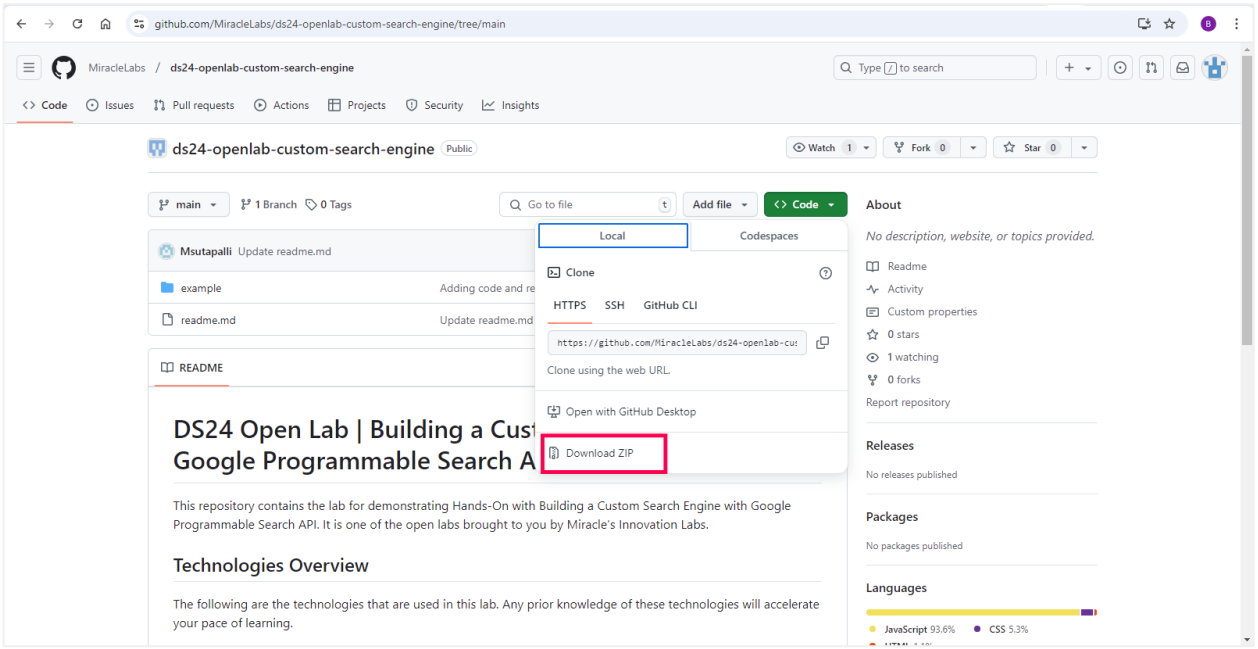
Download the code from Github from the following Git Repo link

https://github.com/MiracleLabs/ds24-openlab-custom-search-engine

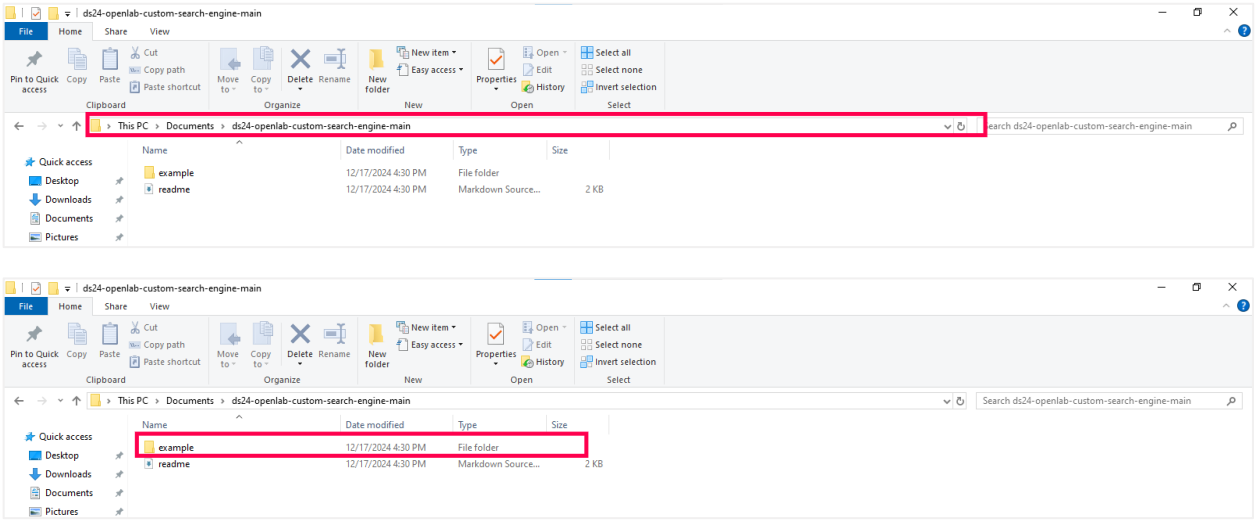


Download the code as Zip.

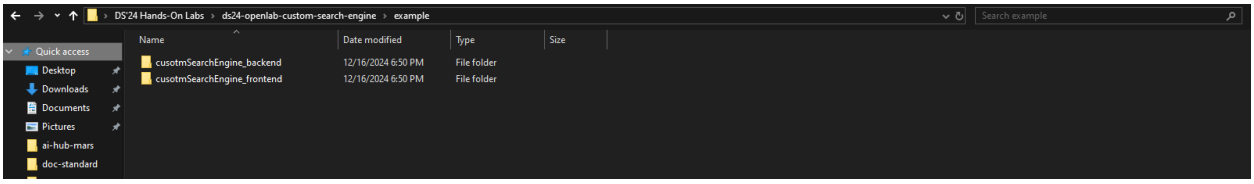




Extract the Zip folder.



Here you can see both the Backend and Frontend code folders



Set Up Project Structure

Create the following files in the existing code on root path:

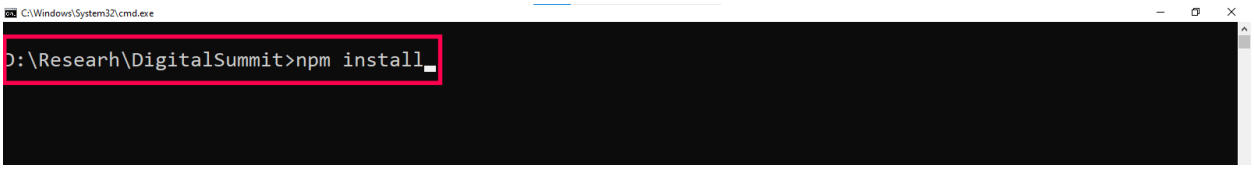
.env

Environment Variables (.env)

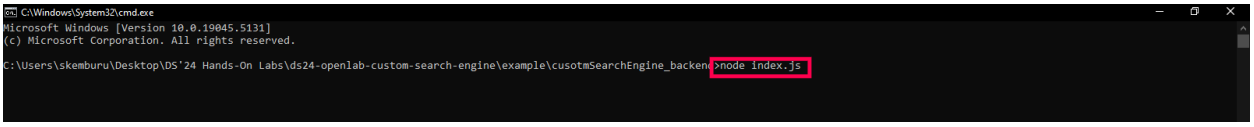
- Replace the keys that you have copied in previous steps
  GOOGLE_API_KEY=<Your-Google-API-Key>
  SEARCH_ENGINEID=<Your-Search-Engine-ID>

Install Modules and Run the Node App

- Install node modules by using the command npm install

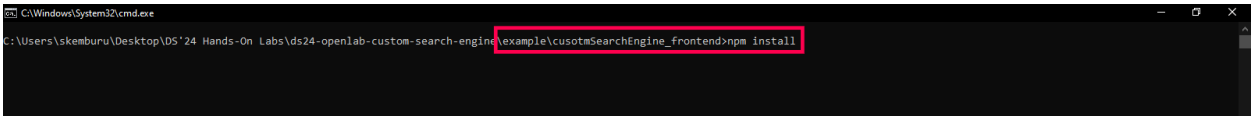


Run the node JS code by using the command node index.js.

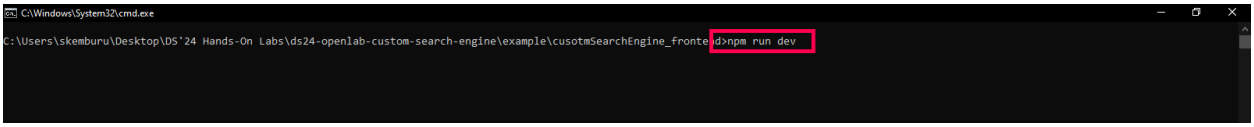


Install Modules and Run the Frontend code.

- Open the frontend folder, then open the command prompt and run the command npm install

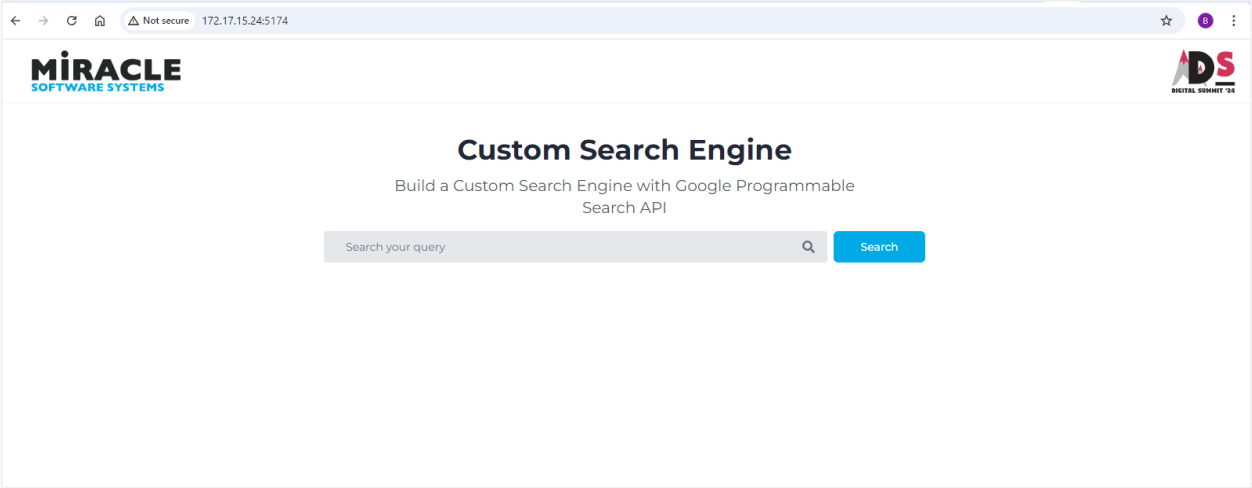


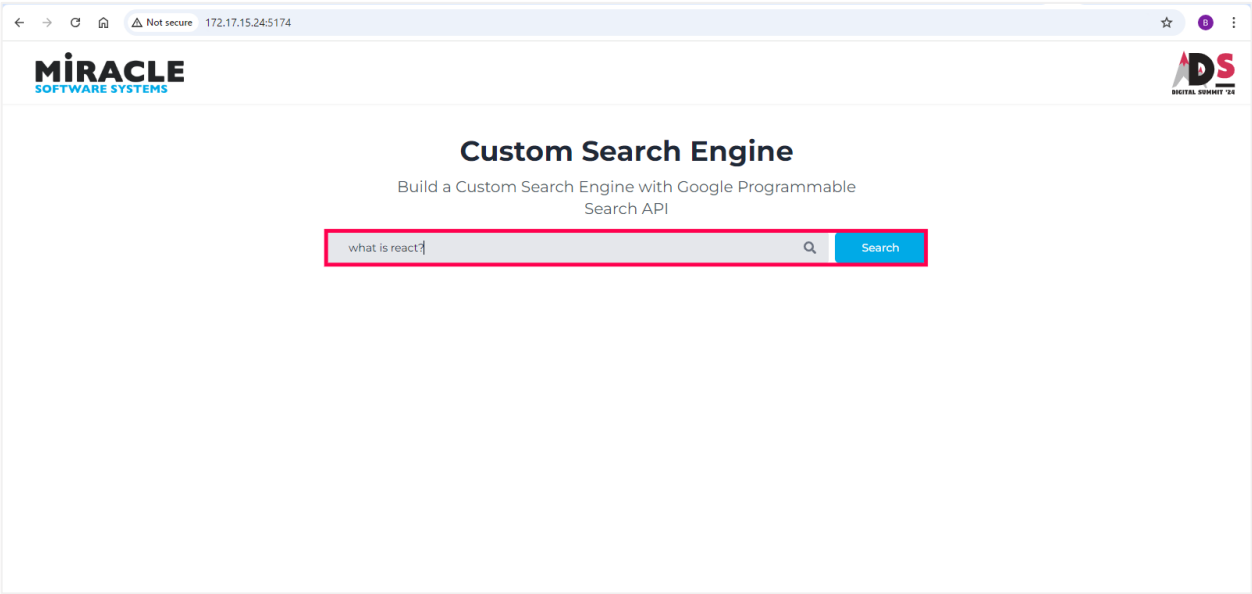
Run the React code by using the command **npm run dev**

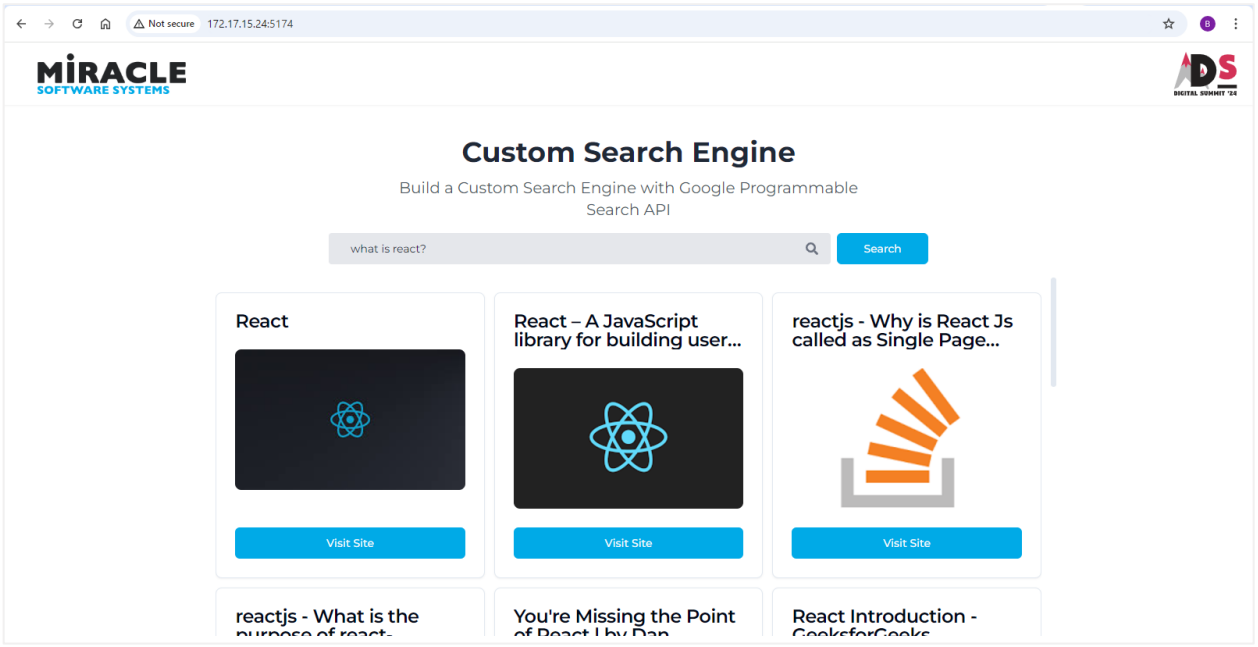


Step #3 |Test the Application

- Open the frontend in your browser at http://localhost:5173.
- Enter a search query in the input field and view results.
- Here are the sample queries,
  - Best tips for UPSC mains
  - React tutorial AND hooks
  - JavaScript ES6 features intitle:2024



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