A PROJECT REPORT

on

"GOOGLE SEARCH ENGINE "

Submitted to

KIIT Deemed to be University

In Partial Fulfillment of the Requirement for the Award of

BACHELOR'S DEGREE IN
COMPUTER SCIENCE AND ENGINEERING

BY

ADITYA SINGH	1905586
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KRISHIKA SINGH	1905889

UNDER THE GUIDANCE OF
PRABHU PRASAD DEV

SCHOOL OF COMPUTER ENGINEERING
KALINGA INSTITUTE OF INDUSTRIAL TECHNOLOGY
BHUBANESWAR, ODISHA - 751024

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CERTIFICATE

This is certify that the project entitled

"GOOGLE SEARCH ENGINE "

submitted by

ADITYA SINGH	1905586
SAKSHAM GAUR	1905703
RAJ ARYAN GHOSE	1905866
KRISHIKA SINGH	1905889

is a record of bonafide work carried out by them, in the partial fulfilment of the requirement for the award of Degree of Bachelor of Engineering (Computer Science & Engineering OR Information Technology) at KIIT Deemed to be university, Bhubaneswar. This work is done during year 2022-2023, under our guidance.

Date: 21/04/2022

PRABHU PRASAD DEV
Project Guide

Acknowledgements

We are profoundly grateful to **PRABHU PRASAD DEV** of **School of computer Engineering KIIT , BBSR** for his expert guidance and continuous encouragement throughout to see that this project rights its target since its commencement to its completion. .....

ADITYA SINGH
SAKSHAM GAUR
RAJ ARYAN GHOSE
KRISHIKA SINGH

ABSTRACT

We have developed a fully functional and responsive Google search engine clone from the scratch using . This application allows you to do searches like the actual google search engine through the use of Google search API. The main purpose of this project is to learn how we can develop a software that can search for text in publicly accessible documents offered by Web server , it can be images or data contained in the database .

A Search engine is a software accessed on the internet that searches a database for the information according the queries raised by user . There are many search engines which are currently in used like Bing , yahoo etc. The first search engine developed is Archie , currently Google is the most popular and well known search engine which is written in Python , C,C ++. Search Engines act as a filter for the wealth of information available on the internet. It helps each one of us to meet daily information needs , solve problems , increase existing knowledge or gain knowledge about specific topic, and it is also used for the purpose of entertainment . In the era of globalization and invention we are moving from “God is answer” to “Google is answer”.

Keywords : Search Engine , Information retrieval , Google search API, Web Server , Database.

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Chapter 1

Introduction

Search Engines act as a filters for the wealth of information available on the internet.It helps each and everyone of us to meet daily information needs , solve problems . increase existing knowledge or gain knowledge about specific topic and it is also used for the purpose of entertainment .In the era of globalization and invention we are moving from “God is answer” to “Google is answer”.

Advantages of Search engine includes:

1. **Accessing the World Wide Web :**It helps in accessing the world wide web which is a big network consisting of billions of website
2. **Filtering the content in World Wide Web:**Search engine algorithm is that good that it filters out illegal and hateful content ,it removes adult content for your child to surf safely .
3. **Fast results :**As soon as you enter the search button you will be flooded with the pool of information within a second which is extremely fast , considering the fact that search engines really need to search the database looking for the specific information in terabytes of data in database and billions of pages to scrawl and search .

Page rank is an algorithm which is used by Google Search Engine to rank web pages.Google Search engine usually follows the below stages (Fig 1.1)

1) **Crawling** : It downloads texts , images from pages it finds out on the Internet with automated programs called crawlers.
2) **Indexing** :It analyzes the text , images and video files on the page and store it in Google Index which is a huge database .
3) **Serving** Search :When a user searches something on google it returns information relevant to user’s query.

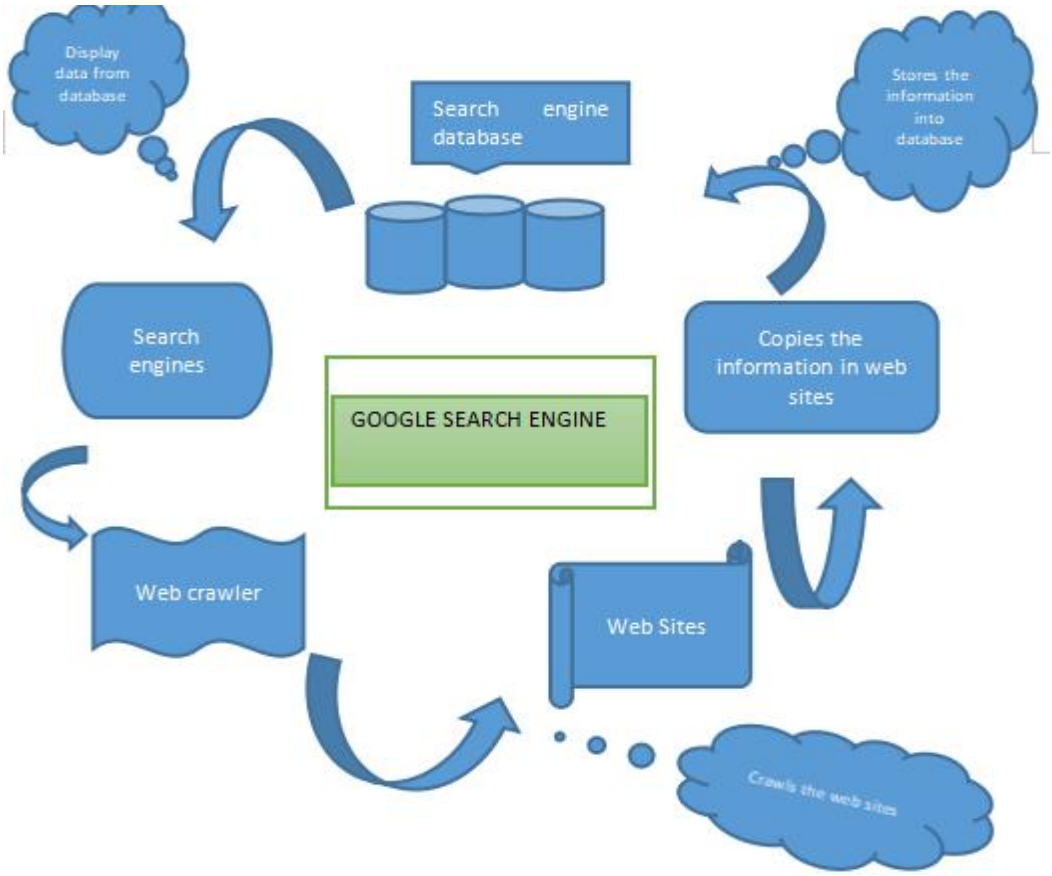

Fig 1.1 Process of Information searching through Google Search Engines

Chapter 2

Basic Concepts/ Literature Review

We have developed the clone of Google Search Engine using React and Firebase .

The various technologies and tool we used while creating the project:

1. **React :**It is a JavaScript library for building user interfaces . It is maintained by Meta and a community of individual developer and community .Basic knowledge of JavaScript,HTML,CSS.
2. **Context API:**It is an efficient way to pass data through the component tree.It is a react structure that enables us to exchange unique details and assists in solving prop-drilling(which is a situation when the same data is being sent almost every level due to requirements in the final level) from all levels of your application .
3. **Material UI:**It is a simple library that allows us to import and use different components to create UI in our react applications developed by Google .
4. **React Router:**It is a standard library for routing in React .It is rich with navigational components that compose declaratively with application which is useful for complex navigational requirements in React Application .
5. **Google Search API:**It is a custom JSON API that allows you to get web search results in form of JSON .
6. **Firebase:**It is a google platform that helps us create mobile and web application.It is a NoSQL database that lets us store and sync data users in real time.

Visual Studio code has been used for the implementation .

Chapter 3

Problem Statement / Requirement Specifications

Create a fully functional and responsive clone of Google Search Engine .

3.1 Project Planning

The knowledge of React.Js is needed along with its libraries which will be very useful during the implementation of the project such as Material UI and ReactRouter.

The project has been divided into 4 parts :

3.1.1 Setting up the React App
3.1.2 Building the search component
3.1.3 The Search Result Page
3.1.4 Deploying to Firebase

3.2 Project Analysis

3.2.1 Java should be installed in the system since without it node.js won't be installed and without installing Node.Js npm will not run in the system .

3.2.2 create-react-app: creates and sets up a new React application starter without having to deal with webpack and Babel configurations.

3.2.3While installing Material UI one should use the --legacy-peer-deps flag at the end of npm install command which ignores all peer dependencies otherwise an error can occur

3.2.4In react-router-dom v6(which is the latest as of now), "Switch" is replaced by "Routes" according to latest version.

3.2.5 rfce is again another way to speed up coding(as a lot of code is reused in React projects). It makes up a code snippet thus avoiding repetition of code.

3.3 System Design

3.3.1 Design Constraints

3.3.1.1 Hardware Requirement:

3.3.1.1.1 Processor:Intel Core i5

3.3.1.1.2 RAM:16 GB

3.3.1.1.3 Hard Disk Drive:512 GB

3.3.1.2 Software Requirement:

3.3.1.2.1 Tool:Visual Studio Code , JDK

3.3.1.2.2 Language: React.js , Javascript

3.3.2 System Architecture **OR** Block Diagram

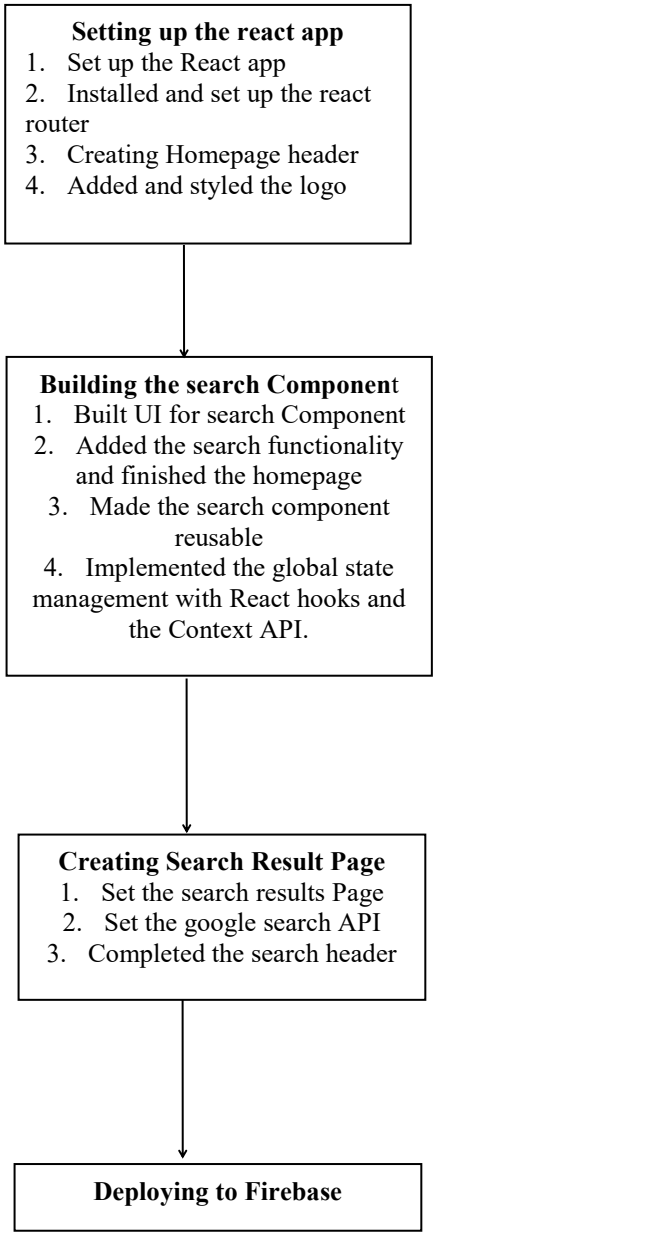

Fig 3.1 BLOCK DIAGRAM

Chapter 4

Implementation

In this section, present the implementation done by you during the project development.

4.1 Methodology OR Proposal

This sub-section contain the methods you have used to complete the project, or some algorithms used and developed for your project work. Details about the steps adopted for competing the project work.

4.2 Testing OR Verification Plan

After project work is compete, it must have some verification criterion so that we can decide whether the project satisfactorily completed or not. This is called Testing or verification. For example, in software development, some test case must be included and used to verify the outcome of the project.

Test ID	Test Case Title	Test Condition	System Behavior	Expected Result
T01	AAAA	BBBB	CCCC	DDDD
T02	AAAA	BBBB	CCCC	DDDD
T03	AAAA	BBBB	CCCC	DDDD

4.3 Result Analysis OR Screenshots

In this subsection, the output of the experiment or study in terms of some graphs, plots must be presented. Also, if some implementation is done then it's screenshots can be presented here, so as to showcase the proof of the output.

4.4 Quality Assurance

In the working organization, if some department is there to verify the quality of your work, they can produce a certificate or guidelines followed.

Chapter 5

Standards Adopted

5.1 Design Standards

In all the engineering streams, there are predefined design standards are present such as IEEE, ISO etc. List all the recommended practices for project design. In software the UML diagrams or database design standards also can be followed.

5.2 Coding Standards

Coding standards are collections of coding rules, guidelines, and best practices. Few of the coding standards are:

1. Write as few lines as possible.
2. Use appropriate naming conventions.
3. Segment blocks of code in the same section into paragraphs.
4. Use indentation to marks the beginning and end of control structures. Clearly specify the code between them.
5. Don't use lengthy functions. Ideally, a single function should carry out a single task.

…...

5.3 Testing Standards

There are some ISO and IEEE standards for quality assurance and testing of the product. Mention the standards followed for testing and verification of your project work.

Chapter 6

Conclusion and Future Scope

6.1 Conclusion

6.2 Future Scope

References

[1] Search engine - Wikipedia

[2] IEEE - The world's largest technical professional organization dedicated to advancing technology for the benefit of humanity.

[3] React – A JavaScript library for building user interfaces (reactjs.org)

[4] Firebase (google.com)

[5] Context – React (reactjs.org)

[6]MUI: The React component library you always wanted

SAMPLE INDIVIDUAL CONTRIBUTION REPORT:

GOOGLE SEARCH ENGINE

1905889
Krishika Singh

Abstract: We have developed a fully functional and responsive Google search engine clone from the scratch using . This application allows you to do searches like the actual google search engine through the use of Google search API. The main purpose of this project is to learn how we can develop a software that can search for text in publicly accessible documents offered by Web server , it can be images or data contained in the database .

Individual contribution and findings: I have helped out in finding and learning about how to make the search component , the search results page as well as deploying it to the Firebase .I have helped out in adding the search functionality and making the search component reusable.In this process , I have found out about the new syntax and various other functionality of the react_router which helped out in making the program functional .Along with this I have also helped out in setting the search result page and found out about how to use Google context API.Last but not the least I have helped in deploying the project to firebase .

Individual contribution to project report preparation: I have helped out by making Chapter 3 of the Project report by gathering all the information and problems faced by each and every one of us by while setting up the app and accordingly made the document according to the format of IEEE as well as preparing the plagiarism report .

Individual contribution for project presentation and demonstration: I have helped out by creating slides consisting information about the project as well as listing out clearly the technologies used while making the project as well as the problem faced as well as helped out by preparing slide on how the search component is made and its functionality .

KRISHIKA SINGH

Full Signature of Supervisor: ……

Full signature of the student: ……..

SAMPLE INDIVIDUAL CONTRIBUTION REPORT:

GOOGLE SEARCH ENGINE

1905586
Aditya Singh

Abstract: We have developed a fully functional and responsive Google search engine clone from the scratch using . This application allows you to do searches like the actual google search engine through the use of Google search API. The main purpose of this project is to learn how we can develop a software that can search for text in publicly accessible documents offered by Web server , it can be images or data contained in the database .

Individual contribution and findings: I have helped out in finding and learning about how to make the search component , the search results page as well as deploying it to the Firebase .I have helped out in building the search functionality and making the search component reusable and implemented global state management of our App with React hook and context API. In this process , I have found out about the new syntax and various other functionality of the react_router which helped out in making the program functional .Along with it I have set the Google Search API and completed the Search Results Header and also helped out in deploying the application to firebase .

Individual contribution to project report preparation: I have helped out by making Chapter 3 of the Project report by gathering all the information and problems faced by each and every one of us by while setting up the app and accordingly made the document according to the format of IEEE.

Individual contribution for project presentation and demonstration: I have helped out by creating slides consisting information about how search component is made along with search result page that is creating a custom Hook , setting up the Google Search API.

ADITYA SINGH

Full Signature of Supervisor: ……

Full signature of the student: ……..

SAMPLE INDIVIDUAL CONTRIBUTION REPORT:

GOOGLE SEARCH ENGINE

1905703
SAKSHAM GAUR

Abstract: We have developed a fully functional and responsive Google search engine clone from the scratch using . This application allows you to do searches like the actual google search engine through the use of Google search API. The main purpose of this project is to learn how we can develop a software that can search for text in publicly accessible documents offered by Web server , it can be images or data contained in the database .

Individual contribution and findings: I have helped out in setting up the React App and also helped in installing and setting up the home page by creating folders components and pages which will include reusable component as well as the homepage and search page .

Individual contribution to project report preparation: I have helped out by completing the chap 1 of the project report by clearly briefing about how search engine works and what is the use of search engine .

Individual contribution for project presentation and demonstration: I have helped out by creating slides consisting information about how to set up the react app as well as installing the home page with what files has been included while creating the home page .

SAKSHAM GAUR

Full Signature of Supervisor: ……

Full signature of the student: ……

SAMPLE INDIVIDUAL CONTRIBUTION REPORT:

GOOGLE SEARCH ENGINE

1905866
Raj Aryan Ghose

Abstract: We have developed a fully functional and responsive Google search engine clone from the scratch using . This application allows you to do searches like the actual google search engine through the use of Google search API. The main purpose of this project is to learn how we can develop a software that can search for text in publicly accessible documents offered by Web server , it can be images or data contained in the database .

Individual contribution and findings: I have helped out in setting up the react app that is the first phase of implementation by setting up the homepage header by adding componets of React_router and Material UI and adding the homepage logo by making the css as well as js file for Home page .

Individual contribution to project report preparation: I have helped out in making the chapter 2 of the project report by listing out the technologies used while creating the application as well as the brief introduction about each and every technology used

Individual contribution for project presentation and demonstration: I have helped out by creating slides consisting information about adding the components of react router and material UI by setting up the homepage as well as adding the homepage logo

RAJ ARYAN GHOSE

Full Signature of Supervisor: …….

Full signature of the student: ……

PLAGIARISM REPORT

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Report Link: (Use this link to send report to anyone)	https://www.check-plagiarism.com/plag-report/72104838f8f63a117dd0e4fdbd87ca98c6b591650492119
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Total Words:	1134
Total Characters:	5974
Keywords/Total Words Ratio:	0%
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Unique:	89%
Matched:	11%

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0: https://www.google.com/videohp
1: https://claritusconsulting01.medium.com/5-interesting-facts-to-know-about-react-development-2021-b5ce76fcb7c2
2: https://medium.com/swlh/visual-studio-code-vs-android-studio-functionality-search-and-source-control-6eadd16a9856
3: https://www.digitalocean.com/community/tutorials/react-react-select
4: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6998782/
5: https://netninja.dev/courses/1546635/lectures/35936847
6: https://quizlet.com/630437742/project-analysis-test-1-flash-cards/
7: https://reddit.fun/39057/react-router-dom-v6-protected-routes