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Web Development Based Tool School

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ABSTRACT: The primary objective of this project is to simplify the process of finding the best schools for students. This research is to create a website that provides the users with accurate and up-to-date information about the schools in their geographical location. This research was carried out with a development research design. This website will allow users to search for schools based on their location, grade level, and other relevant criteria. Additionally, the website is customized and will also provide the information about each school, including its address, contact information, fee structure, academic programs, and extracurricular activities. Modern web technologies like (React.js, Node.js, MongoDB) are employed to create an intuitive and user-friendly interface and data visualization techniques to present the information in an organized and easy-to-understand format. The ultimate goal of this project is to make it easier for parents and students to find and choose the best schools for their needs. Overall, developing a website to locate nearby schools is not only useful for parents but also helps to facilitate better communication and collaboration between schools and community.

KEYWORDS: Web Development, NodeJS, ReactJS, MongoDB

I. INTRODUCTION

Education is an important aspect of society, and choosing the right school for children is a crucial decision for parents. With the increasing number of schools available in a particular region, finding the right school can be a daunting task. The Tool School website can be a valuable tool for parents and students who need to find the right school that meets their needs. This project aims to develop a comprehensive school locator website that will facilitate the research for schools in a specific area.

The Tool School website is a platform that helps the users find nearby schools based on their location. It typically uses GPS and other location based technology to identify the user's current location and provide a list of schools within a specified radius.

The purpose of a school locator website is to provide a convenient and efficient way for users to find schools near them. Some of the potential benefits for using Tool School are convenience, Time saving, Accessibility, and customization. This can be especially helpful for parents who are looking for schools for their children, as they can quickly and easily identify schools in their area and narrow down their search based on their preferences. A Tool School website may include information about the schools, such as their address, phone number, website, and ratings. It may also include other useful information, such as the school’s curriculum, programs, and extracurricular activities.

In addition to helping users find nearby schools, a Tool School website can also benefit schools by providing them with a platform to showcase their facilities, programs, and achievements. Schools can use the website to promote themselves to potential students and parents, and to improve their visibility in the community.

Overall, a Tool School website is a valuable tool for Parents, Students, Teachers, and Schools, and can help to facilitate better communication and collaboration between schools and the community.

II. LITERATURE REVIEW

A literature review for a Tool School website would typically involve researching existing literature on school locators, online mapping tools, and educational resource databases.

In a Study titled”Online School Locators and their role in the School Choice,” researchers examined the use of online school locators by parents in the United states. The Study found that parents use online school locators primarily to search for schools in their area and to gather information about those schools, including their academic performance, extracurricular activities, and facilities. The study also found that parents who use online school locators tend to be more involved in their children’s education and are more likely to switch schools than parents who do not use such tools(Zimmer, Kho, &Eigerman, 2013).

Another study titled "Developing an Online School Locator System for New York City Public Schools" examined the development and implementation of an online school locator system for the New York City public school system. The study found that the online school locator system was effective in helping parents and students find nearby schools and obtain information about those schools. The study also found that the system helped to increase transparency and accountability in the school selection process (Bae & Yen, 2013).

A third study titled "Online School Locator Tools and Their Impact on School Choice Decisions" examined the impact of online school locators on school choice decisions. The study found that online school locators can be an effective tool for helping parents and students identify and evaluate nearby schools. However, the study also found that the accuracy and completeness of the information provided by online school locators can vary widely, and that parents and students need to be cautious when relying on such tools (Hodges, et al., 2012)

PROBLEM IDENTIFICATION & APPLICATIONS

The problem this Tool School website is trying to solve is to provide an easy-to-use platform for parents, students, and educators to find schools within a certain geographic area. This is especially important for families who are moving to a new area or looking for specific types of schools, such as those with specialized programs or extracurricular activities.

The objectives of this Tool School website using React JS, Node JS, and MongoDB technologies could include:

User-Friendly Interface: The website should have a user-friendly interface that is easy to navigate and search for schools based on various criteria such as location, type of school, programs offered, etc.

Accurate and comprehensive Database: The website should have an accurate and comprehensive database of all schools in the target area, including public, private, and charter schools.

Advanced Search Features: The website should have advanced search features to enable users to search for schools based on specific criteria such as academic performance, extracurricular activities, and facilities.

User Reviews and Ratings: The website should have a section for user reviews and ratings of schools to provide valuable insights for parents and students.

Integration with Google Maps: The website should integrate with Google Maps to provide users with accurate location information and directions to schools.

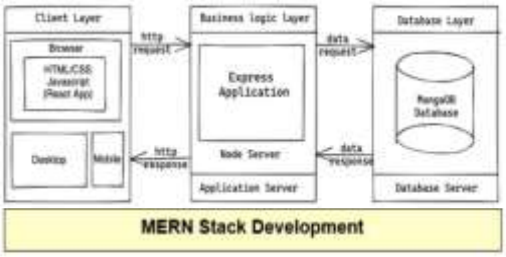
Secure User Authentication: The website should have secure user authentication to ensure the safety and privacy of user data.

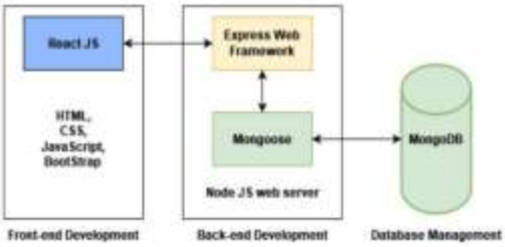
Easy-to-Use Administration Panel: The website should have an easy-to-use administration panel for school administrators to update and manage school information on the website.

Analytics and Reporting: The website should have analytics and reporting features to enable administrators to track user behavior and improve the website's functionality and user experience.

By achieving these objectives, the Tool School website can provide valuable resources for parents, students, and educators to find schools and make informed decisions about education.

III. SYSTEM METHODOLOGY

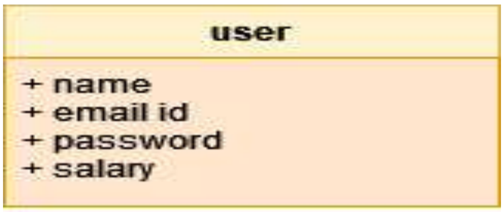




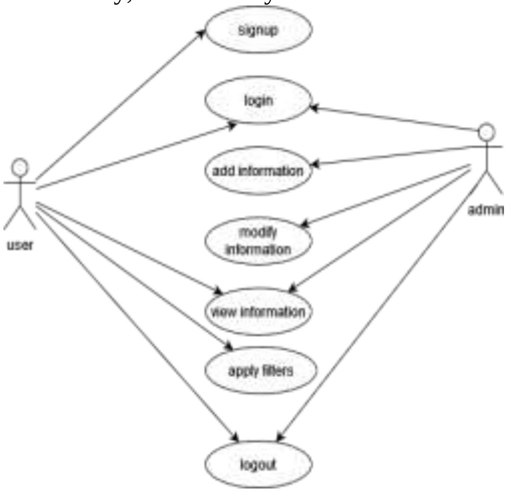
PROCESS FLOW:

1. Suppose that Venky is one of the users who want to search for the best schools in his locality using a website.
2. So, in order to access the system features, Venky must first register on the Tool School website.

3. Inorder to register, Venky must provide the following information:



4. After registering, Venky can login using his credentials.
5.After log in, Venky now will be presented with a webpage getting the filters like location of the school, fee range, Board of the school, standard, Hostel facility, Food facility



6. If Venky selects whatever the filters he wants and then click on the go to schools button.
7. Now, he will be presented with a web page which suits his requirements.

8. He can choose the best school without any hassle situation .
9. Also, Venky will be getting the recommendation of other schools in the selected location.

10.Besides, he can also update his profile

OVERVIEW OF TECHNOLOGIES

The technologies involved in creating “Tool School” :
1.React.js
2. Node.js
3.MongoDB
4.MongoDB Compass

React JS: ReactJS is a popular JavaScript library that is used for building user interfaces. It allows developers to create reusable UI components that can be easily managed and updated. ReactJS is commonly used in web development, and can be used in a wide range of applications, including Tool School website. A Tool School website is a web application that allows users to search for schools in a particular area. It may also provide information about the schools, such as their location, contact information, and ratings. ReactJS can be used to create the user interface for such a website, allowing developers to create a fast and responsive application that can be easily updated.

Node JS: Node.js is an open-source, cross-platform, and JavaScript runtime environment that allows developers to build server-side applications with JavaScript. Node.js is built on the V8 JavaScript engine from Google Chrome, which provides fast and efficient execution of JavaScript code. It also has a non-blocking I/O model, which allows it to handle multiple requests simultaneously without blocking other operations. This makes Node.js ideal for building scalable, real-time web applications.Node.js can be used for a variety of web development tasks, including building web servers, APIs, microservices, real-time applications, and more. It has become a popular choice for companies such as Netflix, LinkedIn, and Walmart, who use it to power their web applications and services.Overall, Node.js is a powerful and versatile technology that has revolutionized web development with its speed, scalability, and efficiency.

MongoDB: MongoDB is an important database technology that is widely used in web applications and other software. MongoDB's flexible data model allows developers to store data in a way that makes sense for their application. This flexibility makes it easier to work with data and can speed up development time. It is designed to scale horizontally across multiple servers, making it ideal for applications that need to handle large amounts of data or a high volume of users. It is designed to handle large amounts of data quickly and efficiently, which can improve the performance of web applications and other software systems. Overall, MongoDB is an important technology for web applications and other software systems due to its flexibility, scalability, performance, and real-time data processing capabilities. Its open-source nature and compatibility with cloud computing platforms also make it a popular choice among developers.

MondoDB Compass:

MongoDB Compass is a graphical user interface (GUI) tool for MongoDB, a popular NoSQL database. It allows users to visually explore and interact with their MongoDB data, without the need for extensive knowledge of MongoDB's query language. With MongoDB Compass, users can perform CRUD (create, read, update, delete) operations on their data, create and manage indexes, visualize their schema and data relationships, and run ad-hoc queries. It also provides a number of useful features such as schema validation, real-time data monitoring, and data export/import. Overall, MongoDB Compass can be a valuable tool for developers and administrators who want to simplify their interaction with MongoDB and better understand their data.

MongoDB Compass is a GUI tool for MongoDB that provides a user-friendly interface to interact with MongoDB databases. It allows users to visually explore and interact with their data, without requiring in-depth knowledge of MongoDB's query language.

Some of the key features of MongoDB Compass include:

Data Exploration: Users can explore their data in a visual manner and get a quick overview of their data schema, collection distribution, indexes and so on.

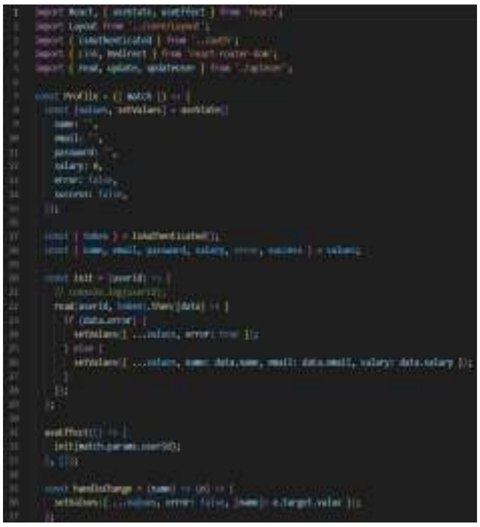
Querying: MongoDB Compass provides an easy-to-use interface for querying MongoDB data. Users can create complex queries using a point-and-click interface, without having to write complex code.

Real-time Data Monitoring: The tool provides real-time monitoring of MongoDB data, with a visual representation of database performance.

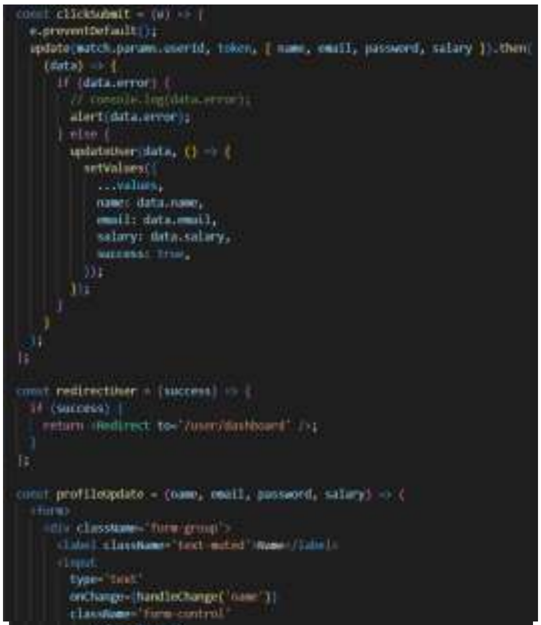
Data Import/Export: MongoDB Compass allows users to import and export data from MongoDB databases in a variety of formats, including CSV, JSON and BSON.

IMPLEMENTATION

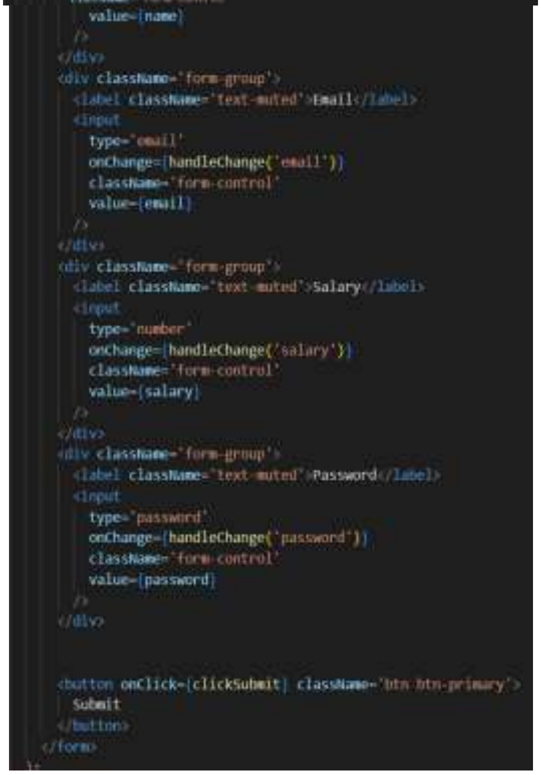
CODE IMPLEMENTATION: We used two coding languages and one database management tool for this project. NodeJs and ReactJS are used for the coding part and MongoDB for managing the data of the users. As soon as you signup, the data and credentials will be stored in MongoDB and can be accessed with the help of MongoDB Compass. The passwords will be saved in an encrypted form in MongoDB. ReactJS is used as if it offers the functionality to reuse the components. It also functions faster than its competitors and renders the information faster. It is also easy to adapt and is supported by a large community. NodeJS helps in building cross-platform applications and helps javascript to run on any platform. Additionally, yarn packages are also used in this application for better performance than npm packages.



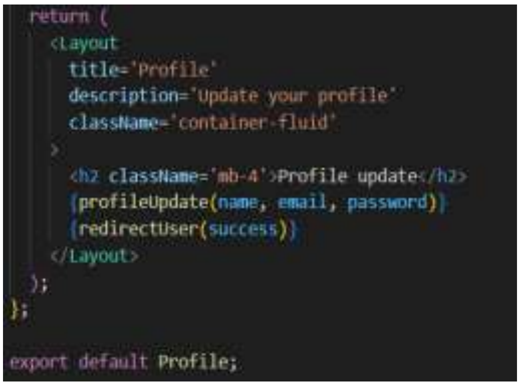
```
import React, { useState, useEffect } from 'react';
import Layout from '../core/Layout';
import { isAuthenticated } from '../auth';
import { Link, Redirect } from 'react-router-dom';
import { read, update, updateUser } from './apiUser';

const Profile = ({ match }) => {
  const [values, setValues] = useState({
    name: '',
    email: '',
    password: '',
    salary: 0,
    error: false,
    success: false,
  });

  const { token } = isAuthenticated();
  const { name, email, password, salary, error, success } = values;

  const init = (userId) => {
    // console.log(userId);
    read(userId, token).then((data) => {
      if (data.error) {
        setValues({ ...values, error: true });
      } else {
        setValues({ ...values, name: data.name, email: data.email, salary: data.salary });
      }
    });
  };

  useEffect(() => {
    init(match.params.userId);
  }, []);

  const handleChange = (name) => (e) => {
    setValues({ ...values, error: false, [name]: e.target.value });
  };
```



```
const clickSubmit = (e) => {
  e.preventDefault();
  update(match.params.userId, token, { name, email, password, salary }).then(
    (data) => {
      if (data.error) {
        // console.log(data.error);
        alert(data.error);
      } else {
        updateUser(data, () => {
          setValues({
            ...values,
            name: data.name,
            email: data.email,
            salary: data.salary,
            success: true,
          });
        });
      }
    }
  );
};

const redirectUser = (success) => {
  if (success) {
    return <Redirect to='/user/dashboard' />;
  }
};

const profileUpdate = (name, email, password, salary) => (
  <form>
    <div className='form-group'>
      <label className='text-muted'>Name</label>
      <input
        type='text'
        onChange={handleChange('name')}
        className='form-control'
```



```
          value={name}
        />
      </div>
      <div className='form-group'>
        <label className='text-muted'>Email</label>
        <input
          type='email'
          onChange={handleChange('email')}
          className='form-control'
          value={email}
        />
      </div>
      <div className='form-group'>
        <label className='text-muted'>Salary</label>
        <input
          type='number'
          onChange={handleChange('salary')}
          className='form-control'
          value={salary}
        />
      </div>
      <div className='form-group'>
        <label className='text-muted'>Password</label>
        <input
          type='password'
          onChange={handleChange('password')}
          className='form-control'
          value={password}
        />
      </div>


      <button onClick={clickSubmit} className='btn btn-primary'>
        Submit
      </button>
    </form>
  );
```

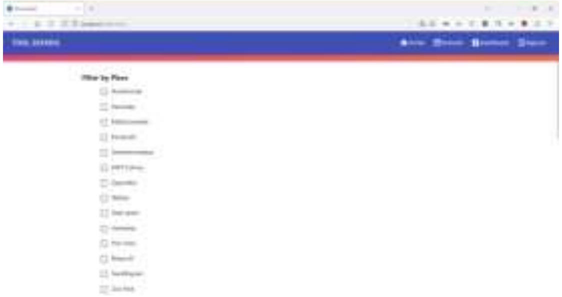


```
  return (
    <Layout
      title='Profile'
      description='Update your profile'
      className='container-fluid'
    >
      <h2 className='mb-4'>Profile update</h2>
      {profileUpdate(name, email, password)}
      {redirectUser(success)}
    </Layout>
  );
};

export default Profile;
```

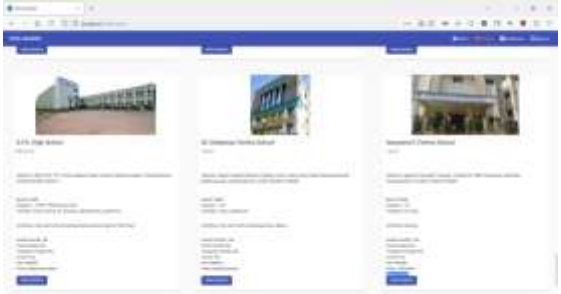
IV. RESULTS AND DISCUSSIONS.

The development of a comprehensive Tool School website has yielded promising results. The website provides users with accurate and up-to-date information about schools in a given area, which makes the process of finding the right school much easier for parents. The website is user-friendly and employs modern web technologies and data visualization techniques to present information in an organized and easy-to-understand format.

The website's search functionality allows users to find schools based on various criteria such as location, grade level, and school type. The website uses geolocation to suggest schools in the user's area, and users can refine their search based on their preferences. Each school's profile contains detailed information, including its address, contact information, fee structure, academic programs, and extracurricular activities.



The website also features a rating and review system that helps users make informed decisions. One of the major benefits of the website is that it simplifies the process of finding the right school for children. Parents can quickly and easily access information about multiple schools, which allows them to compare and contrast different options. The website's features, such as the rating and review system, also help parents make informed decisions.



The development of the Tool School website has also highlighted some challenges. One of the main challenges is keeping the information up-to-date. Schools may change their programs or contact information, and it is crucial to ensure that the website reflects these changes. Another challenge is ensuring that the website is accessible to everyone. In conclusion, the development of the Tool School website has yielded promising results.

The website provides users with a user-friendly interface that simplifies the process of finding the right school for children. Nevertheless, the school locator website has the potential to be a valuable tool for parents and students, and further improvements could enhance its usefulness even more.

V. CONCLUSION AND FUTURE SCOPE:

In conclusion, the development of a Tool School website has the potential to simplify the process of finding the right school for students. The website provides a user-friendly interface that allows users to search for schools based on various criteria, including location, grade level, and school type. The website's features, such as the rating and review system, help users make informed decisions. The development of the website has also highlighted some challenges, such as keeping the information up-to-date and ensuring accessibility for everyone. Nevertheless, the Tool School website has the potential to be a valuable tool for parents and students, and further improvements could enhance its usefulness even more. There is a lot of potential for further development and improvement of the Tool School website. One potential future scope is to incorporate more advanced data analytics and machine learning techniques to provide personalized recommendations to users. This could involve using data such as a user's search history or preferences to suggest schools that may be a good fit for their needs. Another future scope is to incorporate more comprehensive data about schools, such as information about school safety or extracurricular activities. Additionally, the website could expand its coverage to include schools in other regions or even other countries. Furthermore, there is a need to ensure that the website remains up-to-date and accurate. One potential solution could be to involve schools themselves in updating the information on the website, ensuring that the data is always current and relevant. Further development and improvement of the website, including advanced data analytics, comprehensive data about schools, and accessibility, could enhance its usefulness even more.

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