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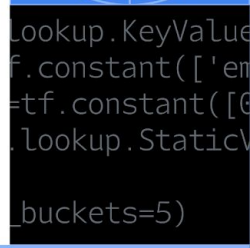
Session starting soon



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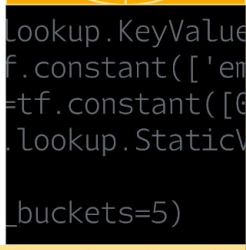
Welcome To Day <5/>

<TECH WINTER BREAK/>

Level up your skills during winter chillllsss



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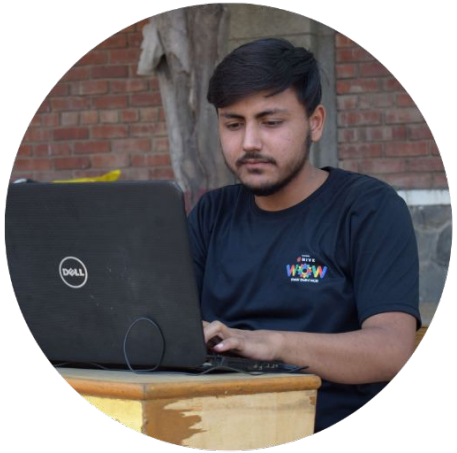
About the Mentor



Sagar Kumar Jha is an accomplished professional with diverse experience across **high-impact organizations.**

- Interned at **DRDO**, focusing on **APK & API Security**.
- Interned at the **Special Protection Groups(SPG)**, specializing in **Radar Communication Systems**.
- Interned at **NITI Aayog**, contributing to **Software Engineering projects**.

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About the Instructor

Divyansh Raj is a skilled professional currently serving as the Technical Lead of GDGC and an intern at Delhi Government University, showcasing his expertise in technical leadership and project execution.

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Connect With Us !

Sagar Kumar Jha
(Mentor)

Divyansh Raj
(Instructor)

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```

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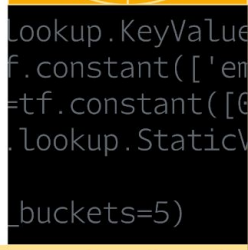
Day 5: React JS

Build Fast, Scale Smart, Code Seamlessly!



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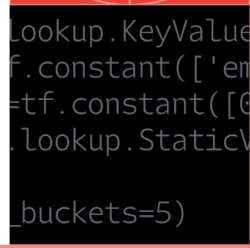
Let's Start!

React JS: An open-source JavaScript library for building user interfaces.

Applications are built using reusable and self-contained components, allowing for modular and maintainable code.



1. Introduction to React Js

What is ReactJS?

React.js is a popular open-source JavaScript library for building user interfaces, particularly for single-page applications.

Key Features

- Component based architecture
- Declarative Syntax
- Virtual DOM for efficient updates
- Unidirectional data flow

2. React JS Basics

Setting Up the Environment
- Install Node.js and npm
- Create a new React project using Create React App:

```
npx create-react-app my-app
cd my-app
npm start
```

Virtual DOM

- Definition: A lightweight copy of the actual DOM used by React to optimize updates.

- Benefits: minimizes DOM manipulations, speeds up rendering process.

ES6+ Features in React

- Arrow Functions: `const add = (a, b) => a + b;`

- Template Literals: `const greeting = \`Hello, ${name}\`;`

- Destructuring: `const { name, age } = person;`

JSX(Javascript XML)

- Syntax Extension for JavaScript.
- Advantages: clean syntax for combining HTML and JavaScript.
- Prevents XSS attacks by escaping values.

Example:

```
const element = <h1>Hello, world!</h1>;
ReactDOM.render(element, document.getElementById('root'));
```

3. Props and States

Props:
Read-only data passed from parent to child components.
Example:

```
function Greeting({ name }) {
  return <h1>Hello, {name}!</h1>;
}
```

State:
Local data storage managed within a component.
Example:

```
const [count, setCount] = useState(0);
```

4. Event Handling

Event Handling

- Example:

```
function handleClick() {
  console.log('Button clicked!');
}

<button onClick={handleClick}>Click Me</button>
```

Conditional Rendering

- Example:

```
function Greeting({ isLoggedIn }) {
  return isLoggedIn ? <h1>Welcome back!</h1> : <h1>Please sign in.</h1>;
}
```

5 . Advanced Concepts

React Hooks:
- Introduced in React 16.8
- useState: State management in function components
- useEffect: Handling side effects like data fetching
- Additional Hooks: useContext, useReducer, useRef.

6 . Events and Forms

Events and Forms

Handling Events
- Example:

```
function handleClick() {
  console.log('Button clicked!');
}
```

Controlled vs Uncontrolled Components
- Controlled: Form data is handled by React.
- Uncontrolled: Form data is handled by DOM.
- Example:

```
const [value, setValue] = useState('');
function handleChange(event) {
  setValue(event.target.value);
}
```

7. Routing with react

React Router
- Installing: npm install react-router-dom
- Example:

```
import { BrowserRouter, Routes, Route } from 'react-router-dom';

function App() {
  return (
    <BrowserRouter>
      <Routes>
        <Route path="/" element={<Home />} />
        <Route path="/about" element={<About />} />
      </Routes>
    </BrowserRouter>
  );
}
```

8. API Integration

Fetching Data
- Using fetch:

```
useEffect(() => {
  fetch('https://api.example.com/data')
    .then(response => response.json())
    .then(data => setData(data));
}, []);
```

Handling Errors:
- Example:

```
try {
  const response = await fetch(url);
} catch (error) {
  console.error('Error:', error);
}
```

9. Deploying React Application

Building for Production
- npm run build

Deploying
- Platforms: Netlify, Vercel, GitHub Pages.

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Thank You!

That’s all for today!

Happy New Year everyone,

The fun is in the journey, success is just a place to be at.