

# Industrial Training Daily Diary

## MERN Stack Training

**Company:** Sensation Software Solutions

**Student Name:** Gurvinder Singh

**Training Duration:** 6 Months

**Day:** 11

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## Day 11 – React Components, JSX in Depth & Rendering

### Objective of the Day

The objective of Day 11 was to gain a deeper understanding of **React components**, learn **JSX in detail**, and understand how components are rendered in a React application. This session focused on the core building blocks of React and how user interfaces are created using reusable components.

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## Understanding React Components

The trainer explained that **components** are the heart of any React application. A component is a reusable piece of UI that returns JSX and can accept data using props.

Key characteristics of React components:

- Reusable and modular
- Independent and maintainable
- Easy to test and debug

We learned that large applications are divided into smaller components to improve code organization.

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## Types of React Components

### Functional Components

The trainer explained **functional components**, which are simple JavaScript functions that return JSX.

Advantages of functional components:

- Simple and readable syntax
- Better performance
- Widely used with React Hooks

## Class Based Components (Overview)

We were briefly introduced to class-based components and learned that although they are still supported, functional components are preferred in modern React development.

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## JSX in Depth

We studied **JSX** in more detail and learned the following concepts:

- JSX expressions using `{ }`
- Writing JavaScript logic inside JSX
- Conditional rendering using ternary operators
- Rendering lists using `map()`
- Importance of keys in lists

The trainer explained how JSX is transpiled into `React.createElement()` calls behind the scenes.

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## Rendering Components in React

The trainer explained how React renders components to the browser using:

- `ReactDOM.createRoot()`
- `root.render(<App />)`

We learned the role of the **App component** as the root component of a React application.

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## Components vs Elements

The difference between **components** and **elements** was explained:

- Components are functions or classes
- Elements are objects returned by components
- Elements are immutable

This helped clarify how React builds the UI internally.

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# Project Structure Understanding

We explored the React project folder structure:

- `src` folder
- `index.js`
- `App.js`
- `public` folder

Understanding the project structure helped in navigating and organizing React applications efficiently.

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## Practical Work Done

During the practical session, we:

- Created multiple functional components
- Rendered components inside App component
- Used JSX expressions and conditions
- Displayed lists dynamically using `map()`

This hands-on practice strengthened React basics.

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## Importance of Components in MERN Stack

The trainer explained that React components are responsible for displaying data fetched from backend APIs. Well-structured components make applications scalable and easier to maintain.

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## Conclusion of Day 11

Day 11 provided a strong foundation in React component-based development. I learned how JSX works internally and how React renders UI efficiently using components.

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### Outcome of the Day:

- Clear understanding of React components
- In-depth knowledge of JSX
- Ability to render components
- Confidence in

