

# React Basics & JSX Components

Last updated by | Subramanya Dixit | May 5, 2025 at 7:59 PM GMT+5:30

## Why Learn React Basics & JSX?

React is a **JavaScript library** used to build dynamic user interfaces efficiently. JSX (JavaScript XML) is a syntax extension for JavaScript that allows us to write HTML-like code directly within JavaScript — making code more readable and declarative.

## Key Concepts

### What is React?

- React builds **reusable UI components**.
- It updates the DOM efficiently using a **virtual DOM**.
- Promotes **one-way data binding** (data flows down).

### What is JSX?

JSX allows HTML-like syntax in JavaScript. It's syntactic sugar for `React.createElement()` and improves readability.

```
const element = <h1>Hello, world!</h1>;
```



**This gets compiled to:**

```
const element = React.createElement("h1", null, "Hello, world!");
```



### Functional Components

A function that returns JSX. This is the most common way to write components in modern React.

```
function Welcome(props) {  
  return <p>Hello, {props.name}!</p>;  
}
```



Or using arrow functions:

```
const Welcome = ({ name }) => <p>Hello, {name}!</p>;
```



### Rendering Components

React components are rendered using `ReactDOM.createRoot` (React 18+):

```
import React from "react";
import ReactDOM from "react-dom/client";
import App from "./App";

const root = ReactDOM.createRoot(document.getElementById("root"));
root.render(<App />);
```



## Visual Flow

```
graph TD
  App[App Component]
  App --> Header
  App --> Main
  App --> Footer
```



## Best Practices

- Use **functional components** and hooks — not class components.
- Always wrap JSX in a single parent element or `<>` fragment.
- Use `className` instead of `class` in JSX.
- JSX expressions must return one single element.

## Practice Exercises

1. Create a component named `Greeting` that takes a `name` prop and displays a welcome message.
2. Create an `App` component that renders `Greeting` for different names.
3. Try rendering multiple `Greeting` components using an array of names and `.map()`.

## Quiz

### 1. What does JSX compile to?

- a) HTML
- ☒ b) `React.createElement` calls
- c) Plain text
- d) DOM APIs

### 2. Which is a valid functional component?

- a) `class Greet extends React.Component {}`
- ☒ b) `function Greet() { return Hello; }`
- c) `const Greet = <p>Hello</p>;`
- d) `return <p>Hello</p>;`

### 3. What is the correct way to apply a CSS class in JSX?

- a) `<div class='container'>`



c) `<div class="container" />`

d) `div.class('container')`

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