# React
# Practice Assignment

Techademy

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# 1 SKILL DESCRIPTION

This assignment is designed to enhance your proficiency in React, focusing on key concepts and features. Participants will explore the Virtual DOM, JSX, project generation and build tools, React application structure, class and functional components, event handling, state management, controlled and uncontrolled components, component life cycle methods, and other important aspects of React development.

# 2 OBJECTIVES

The objective of this 2-hour assignment is to provide participants with a solid understanding of fundamental React concepts and features. From the basics of JSX and Virtual DOM to more advanced topics like state management and component life cycle methods, participants will gain practical knowledge through hands-on exercises.

# 3 DURATION

2 hours

# 4 PROBLEM STATEMENT

**Task 1: Virtual DOM and JSX Concepts (20 minutes)**

- Explain the concepts of Virtual DOM in React and its significance.
- Discuss JSX syntax and its role in React development.

**Task 2: React Project Generation and Build Tool (20 minutes)**

- Demonstrate the generation of a React project using create-react-app or an alternative build tool.
- Discuss the advantages and usage of different build tools in React.

**Task 3: Structure of the React Application (20 minutes)**

- Outline the recommended structure of a React application.
- Discuss the organization of components, styles, and other assets.

**Task 4: Class and Functional Components (20 minutes)**

- Differentiate between class and functional components.
- Provide examples of when to use each type of component.

**Task 5: Event Handling and React State (25 minutes)**

- Explore various event handling mechanisms in React.
- Introduce the concept of React state for managing component data.

**Task 6: Controlled Components (15 minutes)**

- Explain the concept of controlled components in React.
- Demonstrate the implementation of controlled components for form elements.

**Task 7: Passing Arguments Between Components (20 minutes)**

- Demonstrate different methods for passing arguments between React components.

**Task 8: Default Property Initialization and PropTypes (15 minutes)**

- Explain how to initialize default properties in React components.
- Introduce PropTypes for prop type validation.

**Task 9: Uncontrolled Components (15 minutes)**

- Discuss the concept of uncontrolled components in React.
- Provide examples of when and how to use uncontrolled components**.**

**Task 10: Component Life Cycle Methods (25 minutes)**

- Explain the various life cycle methods of React components.
- Demonstrate the practical use of component life cycle methods.

# 5 LEARNING OUTCOME

- Understand the concepts of Virtual DOM in React.
- Comprehend JSX syntax and its usage in React.
- Generate a React project using create-react-app or an alternative build tool.
- Structure a React application effectively.
- Implement both class and functional components in React.
- Demonstrate proficiency in event handling in React applications.
- Understand and utilize React state for component data management.
- Implement controlled components for managing form elements.
- Pass arguments between React components efficiently.
- Initialize default properties and validate prop types using PropTypes.
- Explore uncontrolled components and their use cases.
- Understand and apply React component life cycle methods for lifecycle management.