Cognizant Digital Nurture 4.0 – Week 6:

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# Topic: React

## 1. Introduction to React

React is a popular JavaScript library for building dynamic and interactive user interfaces. Developed by Facebook, React uses a component-based architecture and enables the creation of single-page applications with efficient rendering through its virtual DOM.

## 2. Key Features of React

• Component-Based – Applications are built using reusable components.

• Virtual DOM – Efficiently updates and renders UI changes.

• JSX – JavaScript XML, which allows writing HTML-like syntax within JavaScript.

• One-Way Data Binding – Ensures a unidirectional data flow for better control.

• Declarative – Makes it easier to design interactive UIs.

## 3. Example – React Component

App.js

import React from "react";  
  
function App() {  
 return (  
 <div>  
 <h1>Hello, React!</h1>  
 <p>This is a simple React component.</p>  
 </div>  
 );  
}  
  
export default App;

Output: Displays a heading 'Hello, React!' and a paragraph text.

## 4. React Props and State

• Props – Short for 'properties', used to pass data from parent to child components.

• State – A built-in object used to store data that changes over time within a component.

Example – Counter Component using State

import React, { useState } from "react";  
  
function Counter() {  
 const [count, setCount] = useState(0);  
  
 return (  
 <div>  
 <p>Count: {count}</p>  
 <button onClick={() => setCount(count + 1)}>Increment</button>  
 </div>  
 );  
}  
  
export default Counter;

Output: Displays a count value and increments it on button click.

## 5. React Hooks

Hooks are special functions that let you use state and lifecycle features in functional components.

• useState – Manages state in a functional component.

• useEffect – Manages side-effects like API calls or subscriptions.