Week 3 Internship Report

Name: Akalya Ravichandran
Role: Frontend Developer Intern
Week: Week 3
Duration: Monday – Friday

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1. Objective of the Week

The objective of Week 3 was to gain practical experience with React fundamentals, component-based architecture, state management, side effects, conditional rendering, and testing components using Vitest and React Testing Library.

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2. React Fundamentals

Topics Covered

- JSX syntax and embedding expressions
- Functional components and props
- Component reusability and composition

Practical Exercises

- Built multiple reusable React components
- Passed props to components and rendered dynamic content

Outcome: Understood component-based architecture and JSX syntax.

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3. State Management

Topics Covered

- `useState` hook for managing component state
- Updating and accessing state variables

Practical Exercises

- Implemented stateful components

- Built interactive components with dynamic updates based on user input

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4. Event Handling

Topics Covered

- Handling events like click, input, and form submissions

Practical Exercises

- Added event listeners to components
- Implemented form submissions and button interactions

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5. Conditional Rendering and Lists

Topics Covered

- Conditional rendering using ternary operators and logical &&
- Rendering lists using `map`
- Keys for list elements

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6. useEffect Hook and Side Effects

Topics Covered

- `useEffect` for performing side effects
- Dependency arrays
- Cleanup functions

Practical Exercises

- Fetched data from APIs using `useEffect`
- Implemented cleanup for subscriptions and timers

Outcome: Understood component lifecycle and side effect management in functional components.

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7. Styling React Components with Tailwind

Topics Covered

- Applying Tailwind utility classes to JSX elements
- Responsive design in React components

Practical Exercises

- Styled 5+ React components using Tailwind
- Ensured responsive and consistent UI

Outcome: Components have consistent styling and responsiveness using Tailwind.

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8. Testing Components

Topics Covered

- Unit testing with Vitest
- Component testing with React Testing Library

Practical Exercises

- Wrote unit tests for React components
- Tested event handling

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9. Deliverables Summary

- Built 5+ React components styled with Tailwind
- Developed a simple Todo app with CRUD functionality
- Completed `useEffect` exercises for data fetching and cleanup
- Wrote unit tests for components using Vitest and React Testing Library

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10. Challenges Faced

- Understanding the timing and dependencies of `useEffect`
- Writing effective test cases for dynamic components

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11. Learnings & Takeaways

- React component architecture enhances code reusability
- `useState` and `useEffect` are fundamental for dynamic behavior
- Tailwind integration in React provides rapid styling capabilities
- Component testing improves code reliability and maintainability