

Week 4 Internship Report

Name: Akalya Ravichandran

Role: Frontend Developer Intern

Week: Week 4

Duration: Monday – Friday

1. Objective of the Week

The objective of Week 4 was to apply React knowledge in real-world scenarios, implement advanced routing and state management using TanStack Router and Query, perform schema validation with Zod, and integrate GraphQL APIs using Apollo Client.

2. Custom Hooks

Topics Covered

- Creation of reusable logic using custom hooks
- Sharing stateful logic between components

Practical Exercises

- Built 2 custom hooks to manage common stateful logic
 - Integrated hooks into multiple components for reuse
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3. TanStack Router

Topics Covered

- Routing and navigation setup
- Route parameters and loaders
- Dynamic page rendering

Practical Exercises

- Implemented multiple routes for a multi-page React application
- Configured route parameters and data loaders
- Ensured smooth navigation and page transitions.

4. TanStack Query

Topics Covered

- useQuery for fetching data
- useMutation for updating/deleting data
- Caching, refetching, and background updates

Practical Exercises

- Fetched REST API data and displayed it using TanStack Query
 - Performed mutations to update data
 - Implemented caching for improved performance
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5. TanStack Form + Zod Validation

Topics Covered

- Introduction to TanStack Form
- Form validation using Zod schemas

Practical Exercises

- Created a form with validation using Zod
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6. GraphQL Fundamentals & Apollo Client

Topics Covered

- GraphQL queries, mutations, and fragments
- Apollo Client setup and integration with React

Practical Exercises

- Implemented GraphQL queries and mutations in the app
- Managed data fetching, caching, and error handling using Apollo Client

Outcome: Learned to integrate and manage GraphQL APIs in React applications effectively.

7. Project Codebase Exploration

Activities

- Navigated through the project repository
 - Understood folder structure, components, and routing logic
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8. Deliverables Summary

- Multi-page React app with TanStack Router implemented
 - Two custom hooks created for reusable logic
 - Form built with Zod validation
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9. Challenges Faced

- Understanding complex state and routing patterns in TanStack
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10. Learnings & Takeaways

- Custom hooks significantly improve code reusability
- TanStack Router and Query simplify advanced routing and data management
- Zod enables strict and maintainable form validation
- Familiarity with a real project codebase enhances practical understanding