

## Challenges & Solutions:

### 1. Design Complexity:

- **Challenge:** Creating an intuitive and user-friendly interface for the todo list that is visually appealing and functional.
- **Solution:** User research to understand user preferences and expectations to develop a clean and intuitive interface. Implement responsive design to ensure compatibility across various devices.

### 2. Real-Time Synchronization:

- **Challenge:** Enabling real-time synchronization of tasks on same device without reloading the page.
- **Solution:** Implement react-query for API integration to avoiding reloading page and providing the seamless experience.

### 3. Data Management and Storage:

- **Challenge:** Managing and storing user data efficiently, ensuring data security, and addressing potential scalability issues.
- **Solution:** Used a robust database system such as MongoDB to handle data management effectively. And optimize queries to improve application performance and scalability.

## Security & Optimization:

- **Authentication and Authorization:** I didn't use Authentication and Authorization in this project but we should implement robust user authentication using technologies like OAuth, JWT (JSON Web Tokens), or OpenID Connect to ensure secure access to the application.
- **Input Sanitization:** I didn't use any validation but we should validate and sanitize user input to prevent cross-site scripting attacks and SQL injection vulnerabilities.
- **Secure APIs:** I used security mechanisms such as CORS (Cross-Origin Resource Sharing) policies tokens to protect against unauthorized API access but we should also use CSRF (Cross-Site Request Forgery) in complex scenario.