Training Day 20

Day 20 - 16th July 2025

Topics Covered: Backend – CRUD Operations and Authentication

1. CRUD Operations (Using Mongoose)

- **What is CRUD?**

- Basic operations to manage data in a database:

  - **Create** → Adding new data (e.g. user registration).
  - **Read** → Retrieving data (e.g. get user profile).
  - **Update** → Modifying existing data (e.g. edit profile).
  - **Delete** → Removing data (e.g. delete account).
- **Why is CRUD important?**
  - Forms the backbone of any backend application dealing with databases.
  - Ensures complete lifecycle management of data.

2. Token (JWT – JSON Web Token)

- **What is a Token?**
  - A string of data used for authentication.
  - After login, the server sends a token to the client, which is used for further requests.
- **What is JWT?**
  - JSON Web Token – a secure way to transmit information between parties as a JSON object.
- **Why use JWT?**
  - Stateless authentication (no need to store session on server).
  - Stores user info securely with signature verification.

3. Header-Based Authentication

- **What is it?**
  - Sending tokens in the HTTP headers (usually in the Authorization header) for authenticating protected routes.
- **How it works?**
  - Client sends request with token in headers:

Authorization: Bearer <token>

  - Server verifies the token to grant or deny access.
- **Why use it?**
  - Keeps tokens secure.
  - Prevents exposure in URLs or request body.
  - Widely used in APIs for authentication.

Tools Used

- **Visual Studio Code (VS Code)**
- **Node.js, Express.js**
- **MongoDB + Mongoose**
- **JWT (jsonwebtoken package)**