# Project Design Phase-II

## Technology Stack (Architecture & Stack)

Date  
  
15 April 2025

Team ID

Project Name  
  
Expense Tracker

Maximum Marks  
  
4 Marks

## Technical Architecture:

The architecture includes the MERN stack structure with client-side rendering, RESTful APIs, secure authentication, and cloud-based deployment. The frontend communicates with backend APIs over HTTP, which in turn interacts with a MongoDB database. File uploads and Excel exports are handled via Express routes. JWT is used for secure authentication.

### Table-1 : Components & Technologies

|  |  |  |  |
| --- | --- | --- | --- |
| S.No | Component | Description | Technology |
| 1 | User Interface | How user interacts with the application | React.js, HTML, CSS, Tailwind CSS |
| 2 | Application Logic-1 | Authentication and session management | Node.js, Express.js, JWT |
| 3 | Application Logic-2 | Transaction and user profile handling | Node.js, Express.js |
| 4 | Database | Stores user data and transaction records | MongoDB |
| 5 | Cloud Database | Cloud-hosted NoSQL DB | MongoDB Atlas |
| 6 | File Storage | Stores uploaded profile images | Local File System (public/uploads) |
| 7 | External API-1 | Authentication token handling | jsonwebtoken library |
| 8 | External API-2 | Excel file generation | exceljs |
| 9 | Infrastructure | Deployment environment | Localhost / Render / Vercel |

### Table-2: Application Characteristics

|  |  |  |
| --- | --- | --- |
| S.No | Characteristics | Description / Technology |
| 1 | Open-Source Frameworks | React.js, Node.js, Express.js, MongoDB |
| 2 | Security Implementations | JWT Authentication, bcrypt password hashing |
| 3 | Scalable Architecture | MERN stack supports modular, scalable design with separation of concerns |
| 4 | Availability | Deployed on cloud platforms like Render or Vercel with high availability |
| 5 | Performance | Efficient API design, client-side rendering, reusable React components |