

# Design Specifications

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## Packages and Dependencies

### Front-End (React.js)

- Node.js (version 18 or higher): JavaScript runtime environment.
- npm (version 9 or higher): Package manager.
- React.js (react, react-dom, react-scripts): Core frontend framework.
- React Router (react-router-dom): For navigation and routing.
- Bootstrap / Material UI: For UI components and responsive design.
- Axios: For HTTP requests to backend services.

### Back-End (Node.js/Express)

- Express.js: Web application framework for Node.js.
- body-parser: Middleware for handling JSON requests.
- cors: Middleware for cross-origin resource sharing.
- dotenv: For environment variable management.
- jsonwebtoken (JWT): For authentication and authorization.
- bcrypt: For password hashing.
- multer: For file uploads.
- nodemon: For automatic server restarts during development.

### Database Management (MongoDB)

- MongoDB: NoSQL database for storing project data.
- Mongoose: ODM library for interacting with MongoDB.
- MongoDB Compass: GUI for database management.

## Libraries

- React Router
- Axios
- Bootstrap / Material UI
- bcrypt
- jsonwebtoken

- multer
- nodemon
- Mongoose

## Deployment and Hosting

- NGINX: Reverse proxy and static file server.
- Docker: Containerization of frontend, backend, and database services.
- AWS EC2 / Heroku: Cloud hosting options.