Project Report: BarCodeScanApp

Overview

BarCodeScanApp is a mobile application developed using React Native (Expo) for the frontend and Node.js with MongoDB for the backend. The main objective of this application is to enable scanning of product or location barcodes using a mobile device's camera, store the scanned data in a MongoDB database, and allow users to view this data in a structured report format.

Technologies Used

Frontend:

- React Native (Expo)
- React Navigation
- expo-camera (for barcode scanning)

Backend:

- Node.js with Express
- MongoDB using Mongoose
- dotenv for environment configuration
- CORS for cross-origin support

App Features

1. Scan Barcode – Uses the mobile device’s camera via expo-camera to scan barcodes.
2. Store Data – Sends scanned barcode data to the backend API, which stores it in MongoDB.
3. View Reports – Users can view a history of all scanned barcodes along with timestamps.
4. Navigation – Smooth screen transitions using React Navigation.

Workflow

- HomeScreen: The main entry point of the app. It contains buttons to either scan a barcode or view previously scanned data.
- LocationScreen: Handles the barcode scanning process and makes an API call to save the scanned data.
- BatchScreen: Fetches all scanned records from the backend and displays them in a list view.

Backend Highlights

- The Scan.js model schema is used to structure and validate the data (barcode and timestamp).
- RESTful API routes include /scan (POST) to store a scan and /scans (GET) to retrieve all scans.
- The database connection is securely handled using environment variables defined in a .env file.

Learning Outcome

- Understood and implemented a complete full-stack mobile application workflow.
- Gained experience in working with RESTful APIs and asynchronous data fetching in React Native.
- Learned modular file structuring and implemented a clean, responsive UI.

Conclusion

BarCodeScanApp is a practical solution for small businesses, warehouses, or academic environments requiring barcode scanning and data tracking. This app can be enhanced further with features such as user authentication, data export to Excel, and filters based on scan dates.