

CARD TRACKER

An Innovative Solution for Real-Time Card Status Tracking





ABOUT CARD TRACKER

Develop a robust API to track the status of user cards efficiently, ensuring timely updates and accurate information.

Key Functionality:

- Enable quick access to card status using phone numbers or card IDs, facilitating seamless support for internal teams.
- Provide comprehensive status updates including delivery success, pickup confirmations, and re-delivery attempts, allowing support agents to respond swiftly to user inquiries.
- Implement a user-friendly interface for easy querying, enhancing the efficiency of support processes and reducing response times.

Data Flow :

Track the journey of a card from generation to potential returns, ensuring accurate status updates at each stage. This includes:

- **Card Generation:** Initial creation and allocation of unique identifiers.
- **Courier Pickup:** Confirming the card is collected by a designated courier service.
- **Delivery Attempts:** Monitoring success and documenting any delivery exceptions.
- **Returns:** Managing cards that cannot be delivered after multiple attempts, ensuring they are processed back into the system for further action.

FEATURES AND HIGHLIGHTS

■ CSV Data Processing:

- Automates data import from partner-provided CSV files, ensuring the API has the most current data available for user inquiries.

■ Priority-Based Status Retrieval:

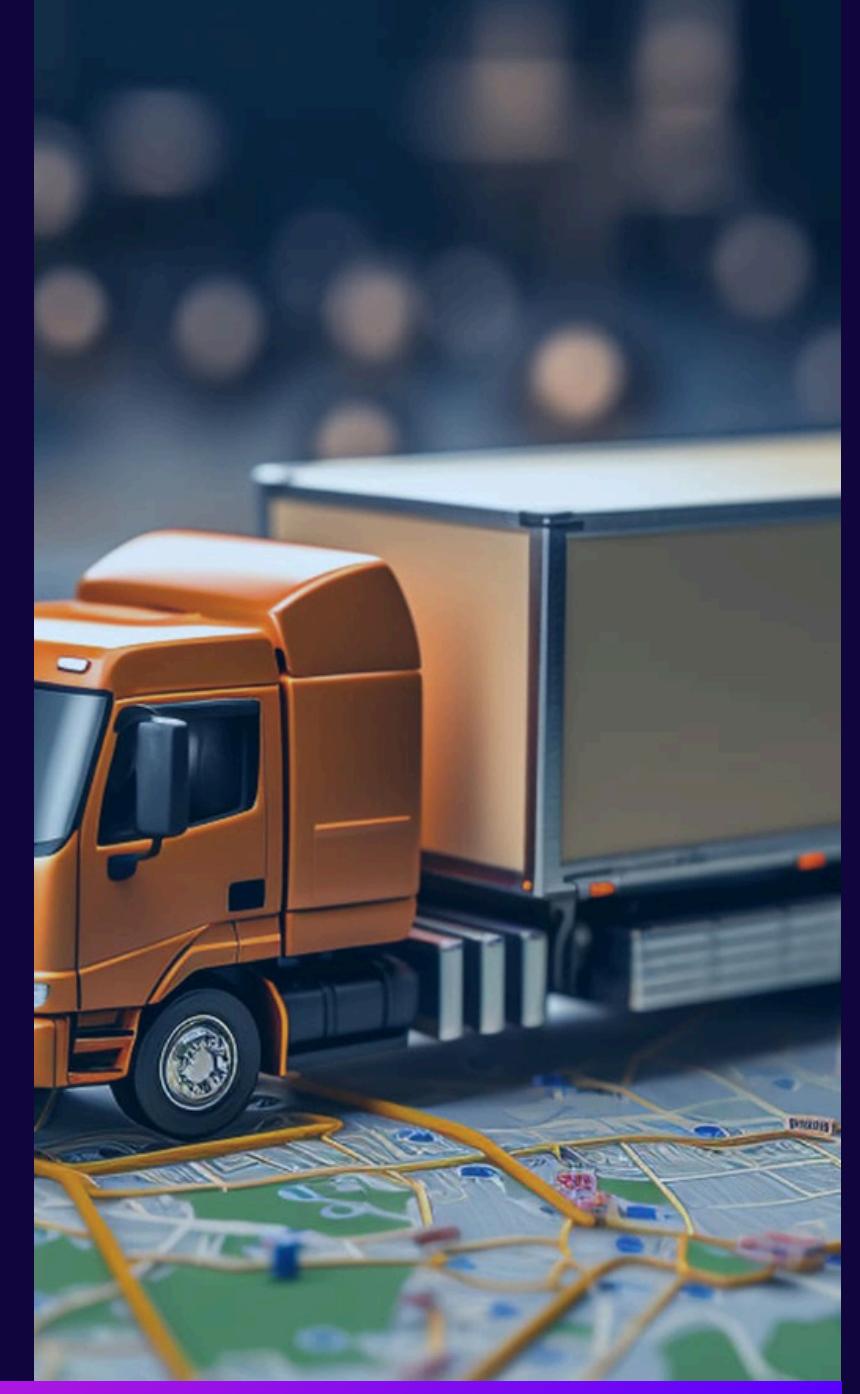
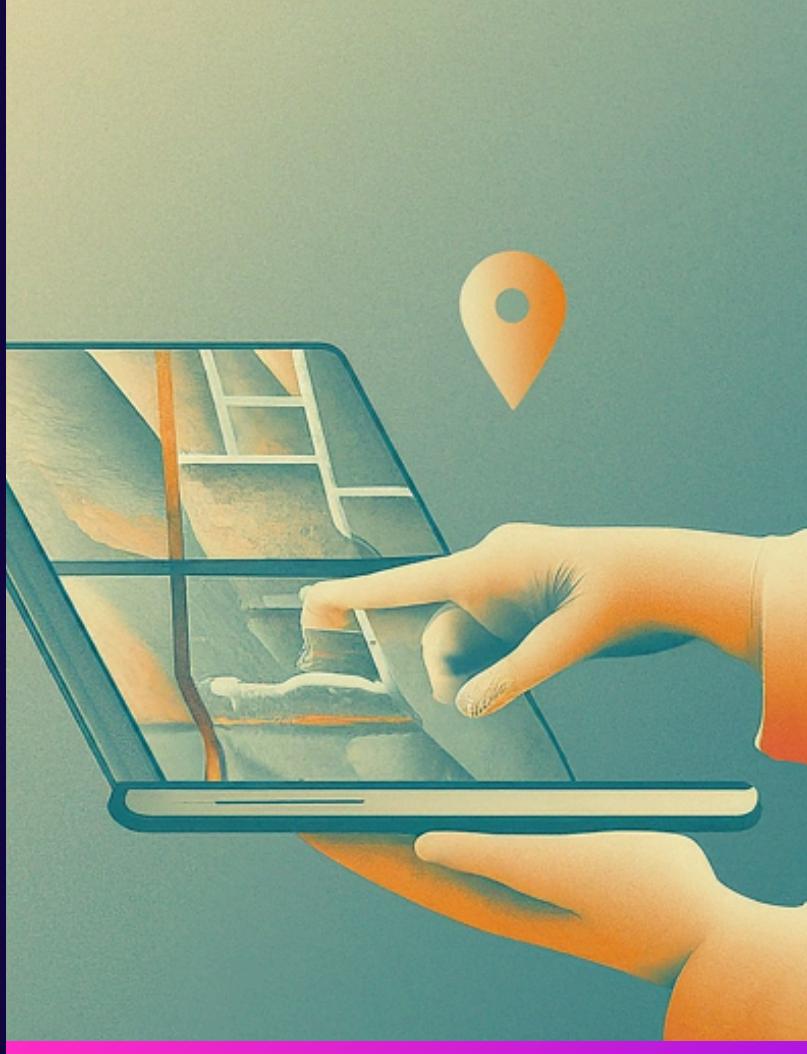
Ensures users receive the most relevant and up-to-date card status.

The API returns specific statuses such as:

- **Delivered:** Confirmation that the card has reached the user.
- **Delivery Exceptions:** Details on issues encountered during delivery attempts (e.g., incorrect address, user not available).
- **Pickup Confirmation:** Status updates indicating the card has been collected by the courier.
- **Re-Delivery Attempts:** Information on any subsequent delivery attempts made after initial failure.

■ Error Handling:

- Robust responses for invalid queries, enhancing user experience by providing clear feedback on input errors and guiding users toward valid requests.



ARCHITECTURAL OVERVIEW



Monolithic Architecture :

- The entire system is built as a single service, where all functionalities (API, database interaction, CSV processing) are integrated into one application.

Technology stack :

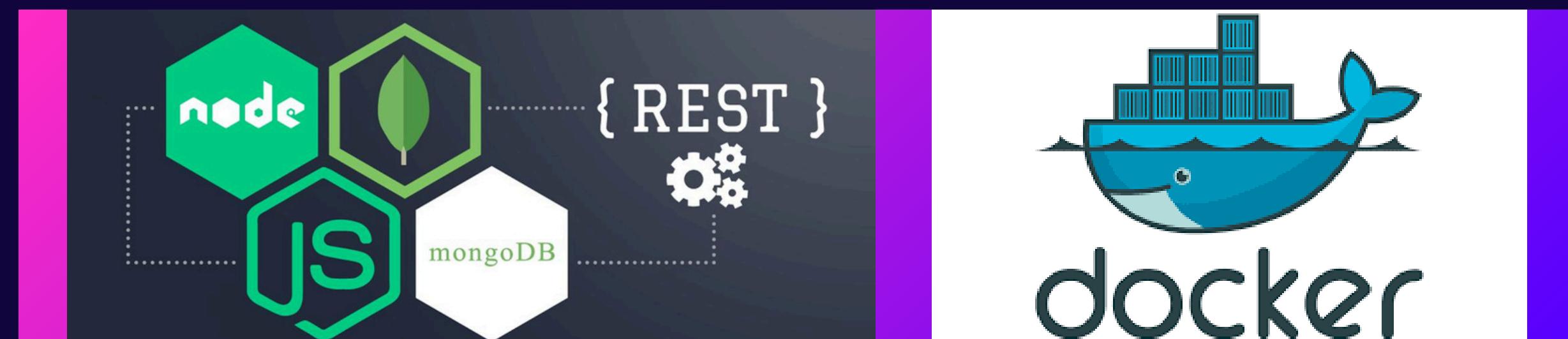
- Node.js: Non-blocking, event-driven architecture ideal for multiple requests.
- Express.js: Minimal web framework for quick API development.
- MongoDB: Flexible NoSQL database used for storing card status data.
- Docker: Containerization for easy deployment and scalability.

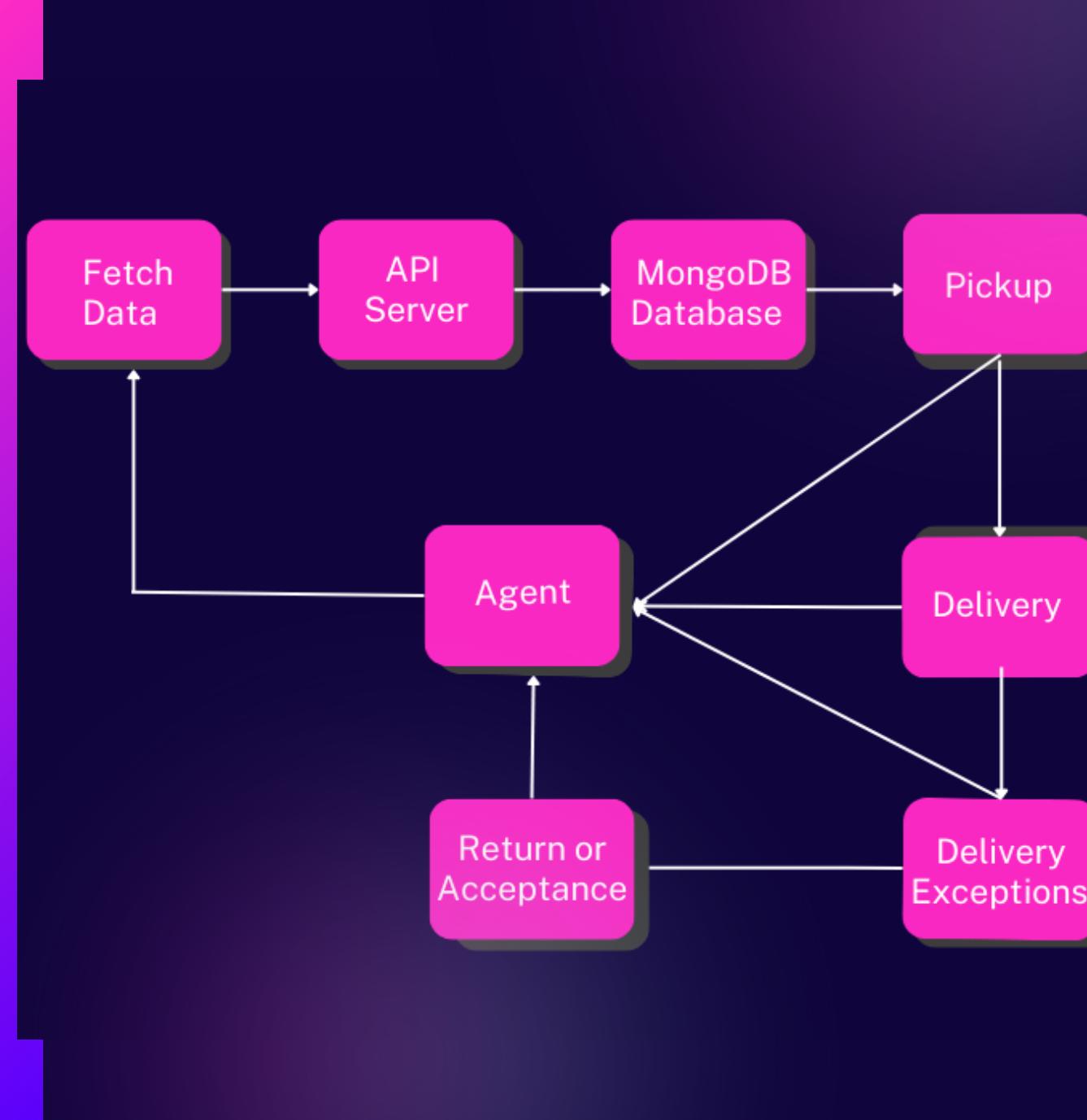
Data Flow :

- CSV Data Processing: CSV files from partners are parsed and processed, then inserted into MongoDB to keep card status information current.
- Endpoint: /get_card_status retrieves the card status based on user input, integrating data from the CSV files and database

Dockerized Deployment :

- The service is packaged in a Docker container, ensuring consistent deployment across environments.





USER STORIES & DATA FLOW DIAGRAM

User Stories

1. As a Support Agent:
 - I want to quickly check the status of a user's card using their phone number or card ID.
 - So that I can provide real-time updates on card deliveries, pickups, and returns to users.
2. As a System Administrator:
 - I want to integrate card status data from multiple CSV files into a unified system.
 - So that all card information is accessible and up-to-date for seamless internal operations.
3. As a Delivery Manager:
 - I want to track failed delivery attempts and ensure proper re-delivery.
 - So that cards are delivered in a timely manner, and I can address exceptions promptly.

FUTURE ROADMAP

■ Real-Time Notifications

- **SMS & Email Alerts:** Automatically notify users and support agents about card status changes, such as delivery attempts, pickup confirmations, or delivery exceptions.

■ Advanced Analytics Dashboard

- **Performance Metrics:** Introduce dashboards for delivery metrics, including successful deliveries, failed attempts, and re-delivery success rates.
- **Predictive Analysis:** Leverage machine learning to predict delivery success based on historical data, optimizing resource allocation.

■ Integration with External Systems

- **Third-Party Courier APIs:** Seamlessly integrate with third-party courier services to automate status updates and reduce manual CSV uploads.
- **CRM Integration:** Connect with customer relationship management (CRM) tools for a unified view of customer interactions and card status.

■ Enhanced Security Features

- Role-Based Access Control (RBAC): Implement multi-tiered access permissions to enhance data security, ensuring only authorized users can modify card statuses.
- Audit Logs: Record all API interactions and updates for accountability and compliance.



FUTURE ROADMAP

■ Mobile App for Field Agents

- Develop a mobile application for delivery agents, allowing them to update delivery status in real time, capture proof of delivery (POD), and log delivery exceptions directly from the field.

■ Bulk Status Updates via API

- Enable bulk update functionality, allowing administrators to make mass updates to card statuses via API calls, increasing operational efficiency.

■ Geolocation Tracking

Incorporate geolocation features to track the real-time location of delivery cards, providing users with live tracking information.

■ Multi-Language Support

- Expand the API's user interface and notifications to support multiple languages for broader accessibility.



These enhancements will future-proof the system, ensuring scalability, security, and optimal performance for evolving business needs.

With the Card Tracker, we have streamlined the card tracking process, providing real-time updates, efficient data management, and seamless support for internal teams. Future enhancements will further elevate efficiency, security, and user experience, ensuring timely and accurate delivery outcomes for all stakeholders.

Key Takeaways :

Robust API

Scalability

Data Integration

Future-Ready

Easy Access

CONCLUSION

THANK YOU

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