**Abstract**

**Airline Management System**

The **Airline Management System** is designed to streamline the management of airline operations, including flights, passengers, bookings, and crew assignments. This system leverages **MongoDB** for efficient storage and retrieval of structured and semi-structured data, providing a flexible NoSQL database solution suitable for real-time analytics.

The system maintains **four primary collections**:

1. **Flights** – Stores flight details, including source, destination, timings, aircraft information, seat availability, and pricing.
2. **Passengers** – Maintains passenger profiles, loyalty points, and booking history.
3. **Bookings** – Records ticket reservations, payment status, seat allocation, and check-in information.
4. **Crew** – Tracks flight crew members, roles, flight assignments, and availability.

Using **MongoDB Aggregation Pipelines**, the project supports generating insightful **dashboards and reports**, such as:

* Flight occupancy percentages and available seats.
* Revenue and booking statistics per flight or passenger.
* Identification of top passengers, busiest routes, and high-performing crew.
* Monitoring of payment statuses and check-in activities.

The system is highly scalable and can serve as a **backend for a web-based or mobile airline reservation platform**, enabling both **operational management and decision-making analytics**. By integrating **Compass dashboards or Node.js/Python APIs**, this project demonstrates how a **NoSQL database can power a real-world airline management system** efficiently.