

Project Proposal – BabiVoyage API Service

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1. Introduction

The growth of digital travel solutions has created a demand for seamless platforms that simplify flight booking, payments, and trip management. **BabiVoyage** is envisioned as a smart flight booking platform that connects users with airlines, offering transparent pricing, customizable options, and an intuitive experience.

At the core of BabiVoyage will be a robust **API service**, built with **Laravel 11**, designed to manage all backend processes including authentication, flight search, bookings, payments, and reviews. This API will serve as the backbone for both the web application and future mobile extensions.

2. Objectives

The key objectives of this project are:

- Build a **centralized backend API** to support the BabiVoyage platform.
- Provide **secure authentication and authorization** using token-based mechanisms.
- Manage all essential entities — flights, airlines, destinations, bookings, payments, and reviews — through well-structured APIs.
- Offer both **public access** (search flights, view destinations) and **protected access** (manage bookings, confirm payments, leave reviews).
- Ensure **data consistency, input validation, and error handling** to deliver a reliable system.
- Prepare the service for **future scalability** such as mobile app integration or third-party APIs

3. Functionalities

3.1 Authentication & User Management

- User registration and login via secure API endpoints.
- Token-based authentication with **Laravel Sanctum**.
- Logged-in users can retrieve their own profile information.
- **User management is restricted to administrators only** (create, update, deactivate, delete).

3.2 Flights & Destinations

- Public endpoints to view available destinations and airlines.
- Search flights by origin, destination, date, and cabin class.
- Admin functionality to create and update flight schedules, fares, and seat availability.

3.3 Bookings

- Authenticated users can create bookings, specify passenger details, and view their booking history.
- Users can cancel or modify pending bookings.
- Administrators can access and manage all bookings across the system.

3.4 Payments

- Secure payment endpoints supporting methods such as credit card, PayPal, bank transfer, and cash.
- Successful payments are automatically linked to booking confirmation.
- Retrieve payment details and monitor statuses (pending, completed, failed).

3.5 Reviews

- Users can submit reviews for completed flights.
- Public can view reviews for each flight.
- Users can edit or delete only their own reviews.

4. Technical Overview

- **Framework:** Laravel 11 (PHP 8.3)
- **Database:** MySQL with migrations and seeders

- **Authentication:** Laravel Sanctum (API tokens)
 - **API Design:** RESTful, JSON responses
 - **Validation:** Enforced at controller/request level
 - **Documentation & Testing:** Postman Collections
 - **Error Handling:** Standardized error messages and HTTP status codes
 - **Security:** Role-based access, middleware protection, throttling for sensitive endpoints
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5. Development Roadmap

The development will be carried out in **phases** to ensure proper structure and progress:

1. **Repository & Setup** – Initialize the Laravel project in GitHub and configure environment.
 2. **Database Design** – Create migration files for users, airlines, destinations, flights, bookings, payments, and reviews.
 3. **Model Layer** – Define Eloquent models with relationships.
 4. **Authentication** – Implement user registration, login, logout, and profile endpoints with Sanctum.
 5. **Core APIs** – Build CRUD endpoints for flights, bookings, payments, and reviews with validation.
 6. **Documentation** – Use Postman to document and test all endpoints.
 7. **Enhancements** – Add advanced validation, error handling, and security refinements.
 8. **Admin UI** – Implement an administrative panel using Filament or Laravel Nova.
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6. Expected Outcomes

By the end of this phase, the project will deliver a **fully functional API service** for BabiVoyage. The system will provide:

- Secure and reliable user authentication.
- A complete booking flow, from searching flights to confirming payments.
- Well-documented endpoints for easy testing and future integration.

- Scalable backend architecture suitable for mobile or third-party services.

7. Conclusion

This proposal outlines the foundation for the BabiVoyage API service. By focusing on authentication, flight management, bookings, payments, and reviews, the project will establish a robust backend capable of powering a modern travel booking platform.

Following a structured roadmap, the development ensures both professional quality and scalability for future needs.