Documentation for Building Shipping Package

Overview

The goal is to implement a shipping package for your multi-tenancy web application. This package will allow vendors to manage their shipping operations through two key features:

1. **Self Shipping**:
    - Vendors can define shipping rates (flat or custom).
    - Vendors can provide manual tracking information.
2. **Automatic Shipping**:
    - Automates shipping operations using third-party integrations:
        - **Interstate/Intercity Deliveries** via **Shiprocket**.
        - **Hyperlocal Deliveries** via **Borzo**.

Feature Requirements

Self Shipping

- **Flat Rate Option**:
    - Vendors can set a universal flat rate for all their shipments.
- **Custom Rate Rules**:
    - Vendors can define rates based on parameters such as location, weight, or product type.
- **Manual Tracking**:
    - Vendors manually input tracking IDs for each shipment.

Automatic Shipping

- **Shiprocket Integration**:
    - **Rate Calculation**: Fetch rates based on delivery location, weight, and dimensions.
    - **AWB (Air Waybill) Generation**: Generate AWB numbers for tracking.
    - **Tracking**: Provide real-time shipment tracking information.
    - Use Shiprocket API Documentation.
- **Borzo Integration**:
    - **Delivery Cost Calculation**: Fetch costs for hyperlocal deliveries.
    - **Shipment Request**: Create and schedule same-day or next-day deliveries.
    - **Tracking**: Provide real-time updates for hyperlocal shipments.
    - Use Borzo API Documentation.

Functional Modules

1. Admin Panel

- Manage vendors' access to shipping features.
- Define subscription tiers (e.g., include self-shipping, automatic shipping, or both).

2. Vendor Dashboard

- Configure shipping options:
  - Self Shipping: Set rates and tracking IDs.
  - Automatic Shipping: Integrate with Shiprocket/Borzo.
- View and manage shipments.

3. Customer Portal

- Display shipping options (self-shipping and automatic shipping) during checkout.
- Show estimated delivery costs and times.
- Provide tracking information for orders.

System Architecture

Database Design

Tables

1. **ShippingConfig**:
   - `id`: Primary key.
   - `vendor_id`: Foreign key linking to vendors.
   - `flat_rate`: Fixed rate for shipments.
   - `custom_rate_rules`: JSON field defining custom rules (e.g., location, weight).
   - `use_shiprocket`: Boolean (enable/disable Shiprocket integration).
   - `use_borzo`: Boolean (enable/disable Borzo integration).
2. **Orders**:
   - `id`: Primary key.
   - `order_id`: Unique order identifier.
   - `shipping_method`: Enum (self, shiprocket, borzo).
   - `tracking_id`: Tracking ID for shipment.
   - `status`: Enum (pending, shipped, delivered, canceled).
3. **Shipments**:
   - `id`: Primary key.
   - `order_id`: Foreign key linking to orders.
   - `provider`: Enum (self, shiprocket, borzo).
   - `awb`: Air Waybill for automatic shipping.
   - `tracking_url`: URL for tracking the shipment.

- `status`: Enum (in transit, delivered, failed).

Implementation Plan

1. Backend Development

1.1 API for Self Shipping

- **Endpoints**:
  - POST `/api/self-shipping/rates`: Add/update flat or custom rates.
  - POST `/api/self-shipping/tracking`: Add tracking ID for an order.
  - GET `/api/self-shipping/orders`: Fetch all self-shipping orders.

1.2 Integration with Shiprocket

- **Endpoints**:
  - POST `/api/shiprocket/rates`: Fetch rates from Shiprocket API.
  - POST `/api/shiprocket/awb`: Generate AWB for an order.
  - GET `/api/shiprocket/track`: Fetch tracking status.
- **Steps**:
  1. Authenticate using Shiprocket API credentials.
  2. Fetch rates based on delivery parameters.
  3. Generate AWB and save it to the database.
  4. Provide tracking URLs to customers.

1.3 Integration with Borzo

- **Endpoints**:
  - POST `/api/borzo/cost`: Fetch delivery cost from Borzo API.
  - POST `/api/borzo/schedule`: Schedule a delivery.
  - GET `/api/borzo/track`: Fetch tracking status.
- **Steps**:
  1. Authenticate using Borzo API credentials.
  2. Fetch delivery cost for hyperlocal shipments.
  3. Schedule deliveries and store tracking information.
  4. Provide real-time updates to customers.

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2. Frontend Development

Vendor Dashboard

1. **Shipping Configuration**:
   - Page to configure self-shipping and automatic shipping settings.
   - Form inputs for flat/custom rates and API credentials for third-party integrations.

2. **Manage Shipments**:
    - Table view to list all orders with shipment details (method, tracking ID, status).

Customer Portal

1. **Checkout Page**:
    - Display available shipping methods (self-shipping, Shiprocket, Borzo).
    - Show estimated costs and delivery times.
2. **Order Tracking**:
    - Provide tracking information with URLs for automatic shipping.

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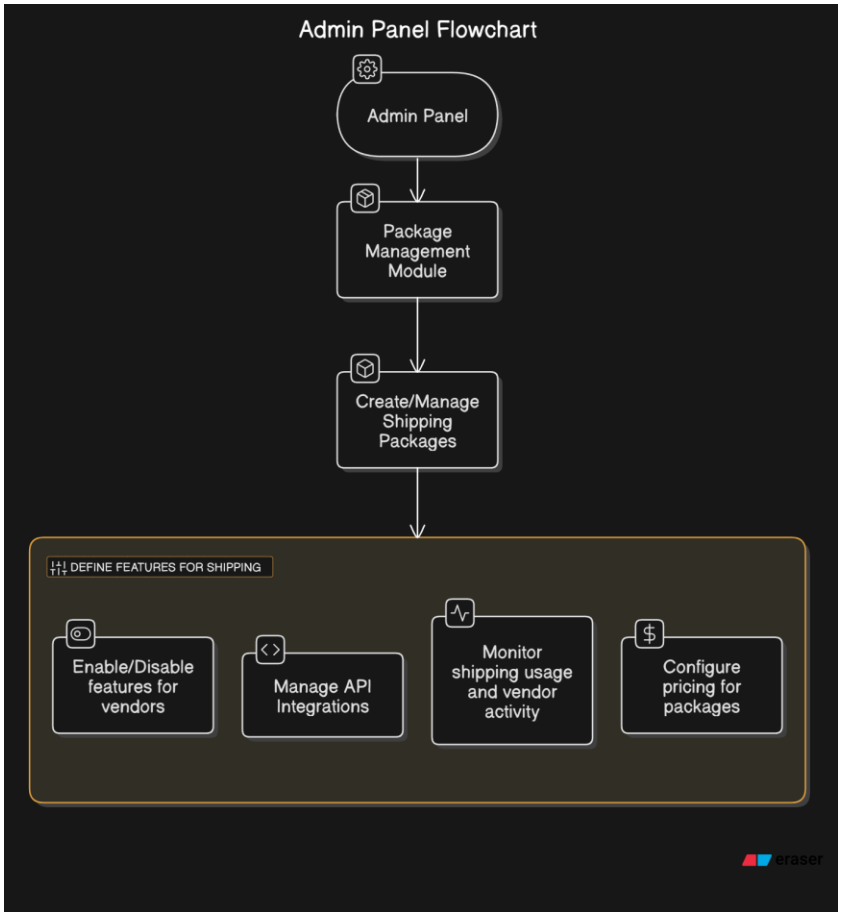
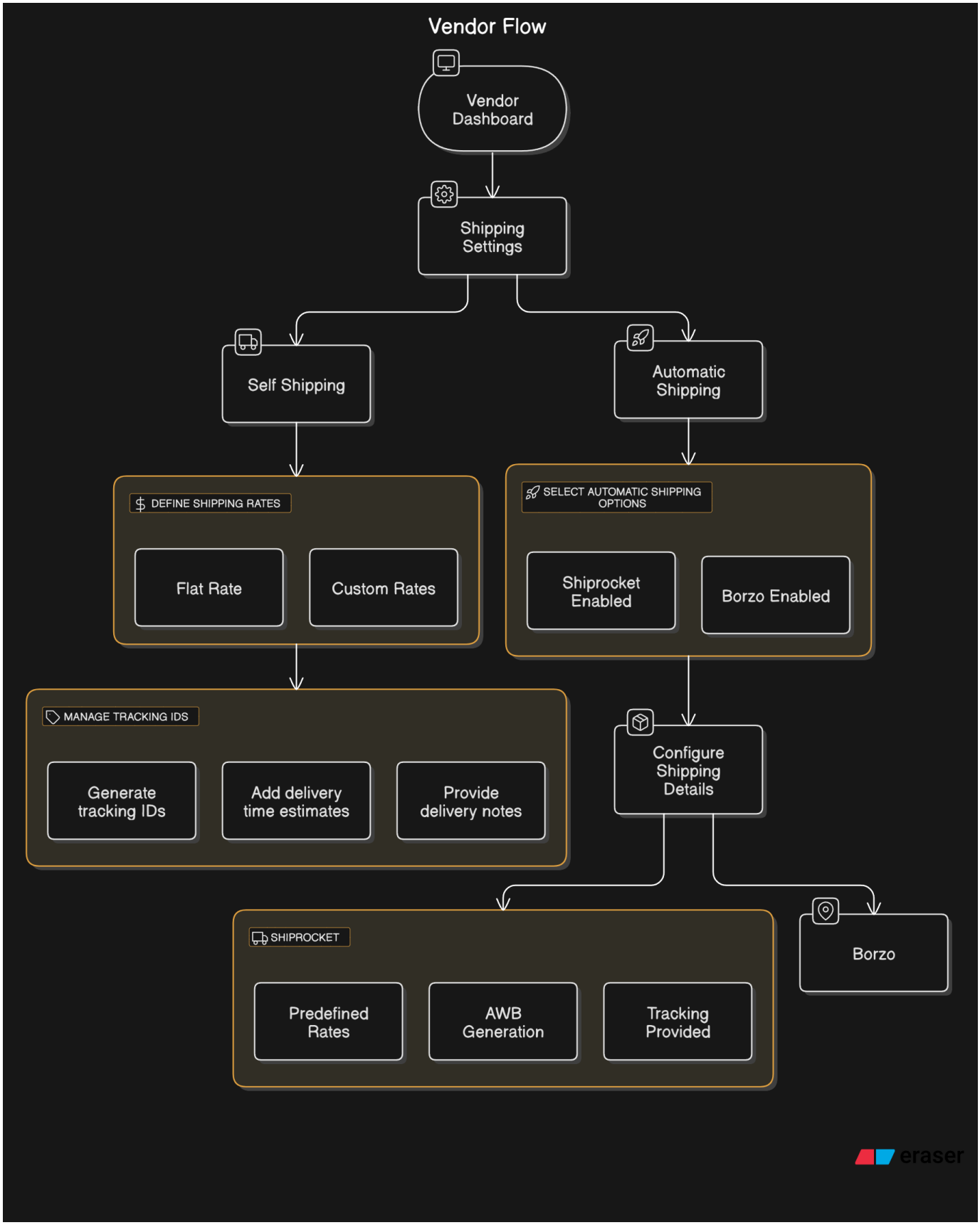
3. Admin Panel

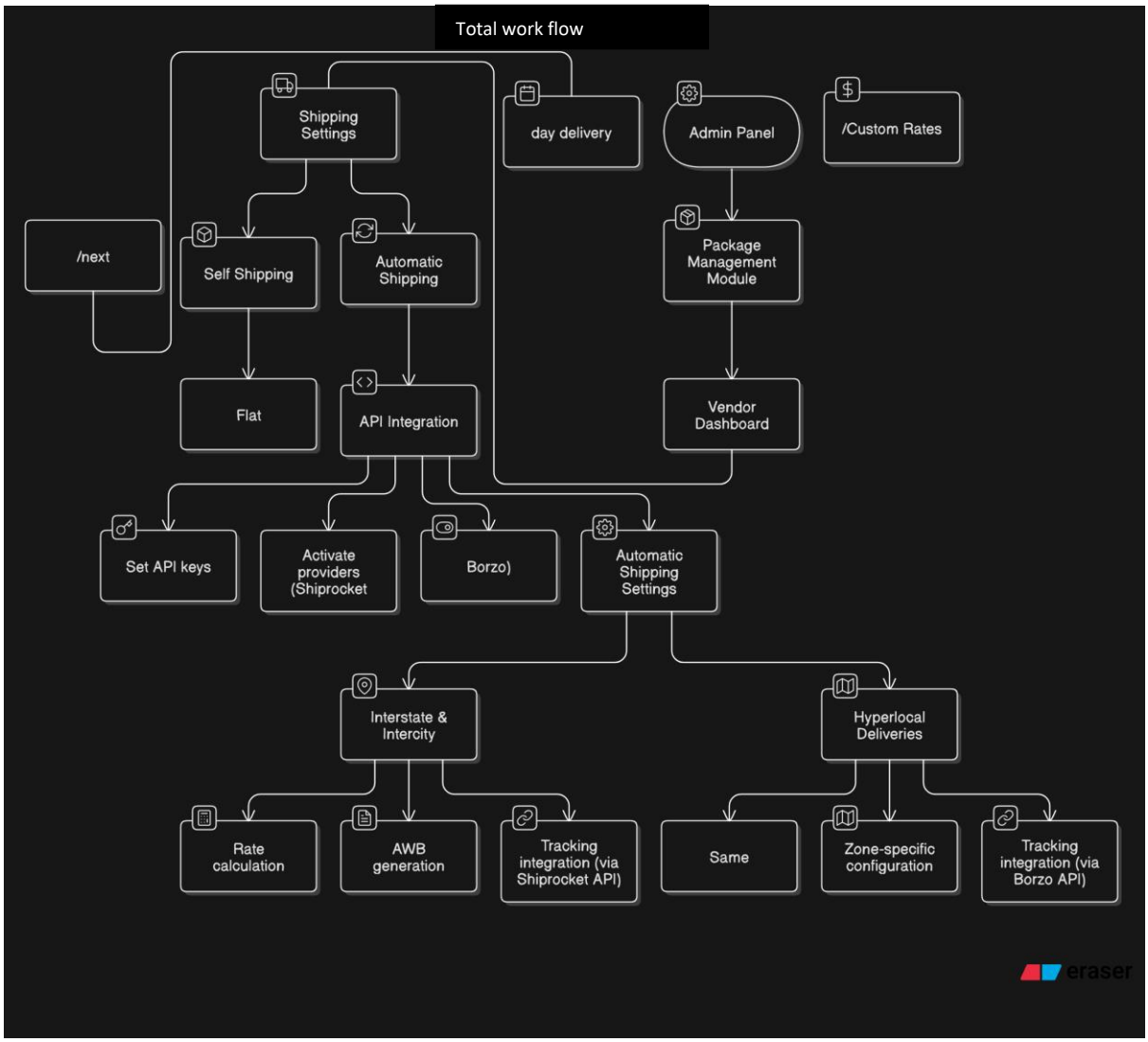
Features

- Manage vendor-specific shipping configurations.
- View total shipping activity and generate reports.

Flowchart




Vendor Flow
Vendor Dashboard
Shipping Settings
Self Shipping
Automatic Shipping
DEFINE SHIPPING RATES
Flat Rate
Custom Rates
SELECT AUTOMATIC SHIPPING OPTIONS
Shiprocket Enabled
Borzo Enabled
MANAGE TRACKING IDS
Generate tracking IDs
Add delivery time estimates
Provide delivery notes
Configure Shipping Details
SHIPROCKET
Predefined Rates
AWB Generation
Tracking Provided
Borzo
eraser



Tasks and Timeline

Task	**Duration**
Requirement Analysis	2 days
Project Setup	1 day
Database Design	6 days
API Integration	6 days
Backend Logic Implementation	6 days
Frontend Development	6 days
Testing	2 days
Deployment	1 day
Total Time	**30 days**

Tools and Technologies

- **Backend:** Laravel 9 (PHP), integrated with Shiprocket and Borzo APIs for shipping automation.
- **Frontend:** Blade Templating Engine,Bootstrap for responsive and clean UI design.
- **Database:** MySQL for managing vendor, customer, order, and shipping data.
- **HTTP Client**: Guzzle (for API requests)
- **Third-Party APIs:** Shiprocket (Intercity/Interstate deliveries) and Borzo (Hyperlocal deliveries).
- **Testing Tools:**
    - **Postman:** For API endpoint validation.
    - **PHPUnit:** For backend unit and integration testing.

Deployment Plan

1. Deploy the backend API to a cloud server (e.g., AWS, DigitalOcean).
2. Host the frontend application on a scalable service (e.g., Netlify, Vercel).
3. Secure API endpoints using HTTPS and API keys.
4. Monitor system performance and error logs post-deployment.
