INSTITUTE OF TECHNOLOGY OF CAMBODIA

Department of Information and Communication Engineering

Motion Cycles E-Commerce

Company   : Mango Finance PLC.

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Internship Duration   : 25th July to 06th October 2025

Academic Year 2024-2025

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Introduction

1.1. Presentation of the Organization

Mango Finance PLC is a fast-growing digital microfinance company in Cambodia, founded in 2021 with support from Vipar Auto FZCO, Dubai. We provide easy loans for Bajaj 3-Wheelers, personal needs, mobiles, and electronics. Using technology and smart credit scoring, we make borrowing simple for people without access to traditional banking.

📍 Address: Boeung Kok 2, Toul Kork, Phnom Penh.

🌐 Website: https://mangofinance.net/en/

✉️ Email: info@mangofinance.net

Ⓕ Facebook: https://www.facebook.com/mangofinanceplc/

1.2. Project Overview

The purpose of the Motion Cycles E-Commerce platform is to provide a user-friendly online shopping experience where customers can easily browse and purchase bicycles from anywhere. The platform supports quick and secure payments through KHQR scanning, making transactions fast and convenient. For admins, it provides easy tools to manage product, discounts, and orders.
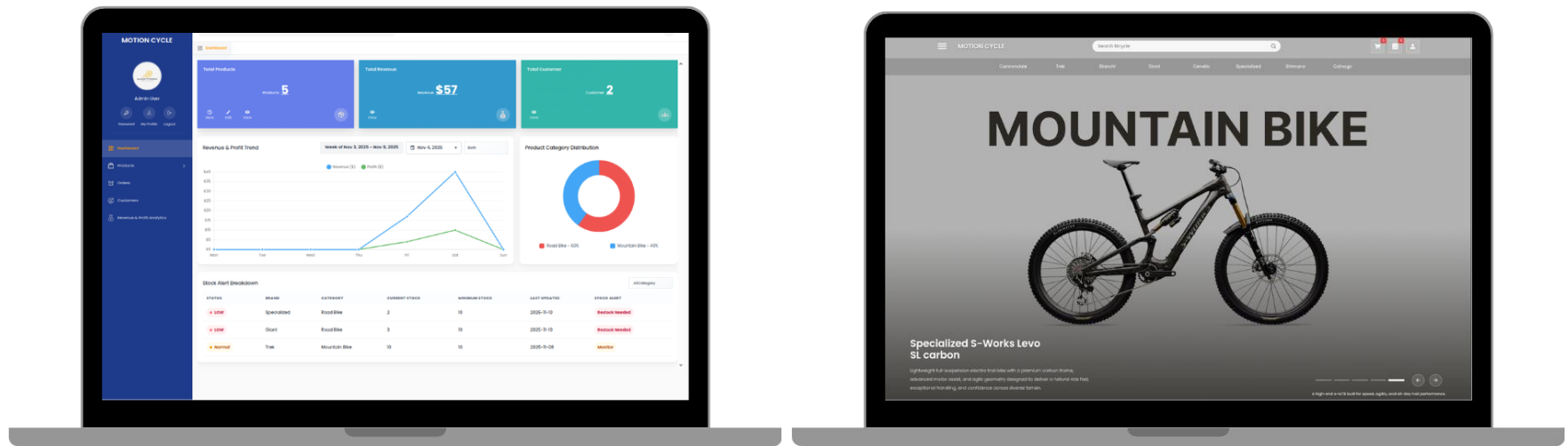
1.4. Problems

- Difficulty in finding bikes nearby
- Complicated or slow purchasing process
- Not supporting multiple payment methods (e.g. KHQR)
- The product listing in the exiting online store does not have a review option
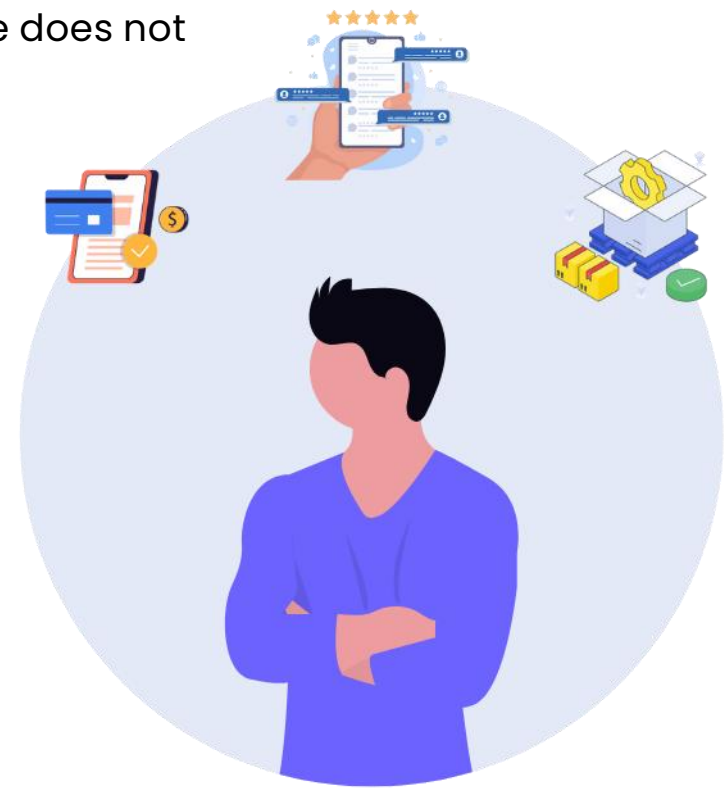
1.5. Objectives

- Make the customers shopping faster

- Make online shopping easy and convenient

- Enhance the efficiency of payment process

- Manage Inventory efficiently

- Make order management easier for admins
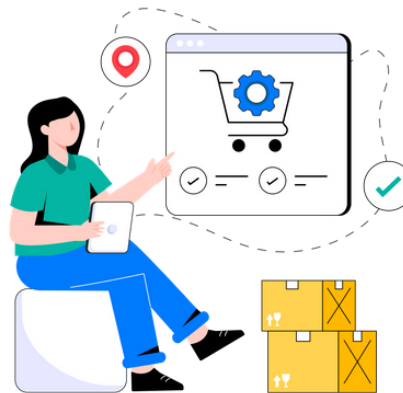
1.6. Planning

Tasks	Weeks									
	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10
Learning New Technology	▓	▓	▓							
Front-end Development		▓	▓	▓	▓	▓	▓	▓	▓	
Back-end Development			▓	▓	▓	▓	▓	▓	▓	
API Integration				▓	▓	▓	▓	▓	▓	
Review & Testing		▓	▓	▓	▓	▓	▓	▓	▓	▓
Thesis									▓	▓

Analysis and Design

2.1. Project Features

| Modules	Customer Features	Guest Features
Authentication	Register	Register
	Login	Continue as Guest
	Logout	Logout
Product Catalog	List all Product & Category	List all Product & Category
	Search, Filter	Search, Filter
	Brand Showcase	Brand Showcase
Shopping Cart	Add/Remove Product to Cart	Require login
	Manage Quantity	
	View Subtotal Calculation	
Favories/Wishlist	List Product in Wishlist	Require login
	Add Products to Wishlist	
	Toggle Favorites status	
Order Management	Apply Discount code	Require login
	Place orders with Shipping Address	
	Order history tracking	
	Invoice generate	
Payment Integration	QR code generation for payments	Require login
	Real-time payment status checking	
	Payment verification	
Review & Rating	Submit product reviews	Submit product reviews
	View overall reviews	View overall reviews

2.1. Project Features

| Modules	Admin Features
Authentication	Login
	Logout
Dashboard	Overview statistics
	Stock alert for low inventory
	Category distribution analysis
	Revenue & sales chart
Product Management	List all products
	Manage products
	List all discount codes
	Manage all discount codes
	List all reviews
	Manage reviews
	List all stocks
	Manage stocks
Order Management	View all customer orders
	Update order status
	view customer order details
View Users & Details	View all registered users
	View customer information

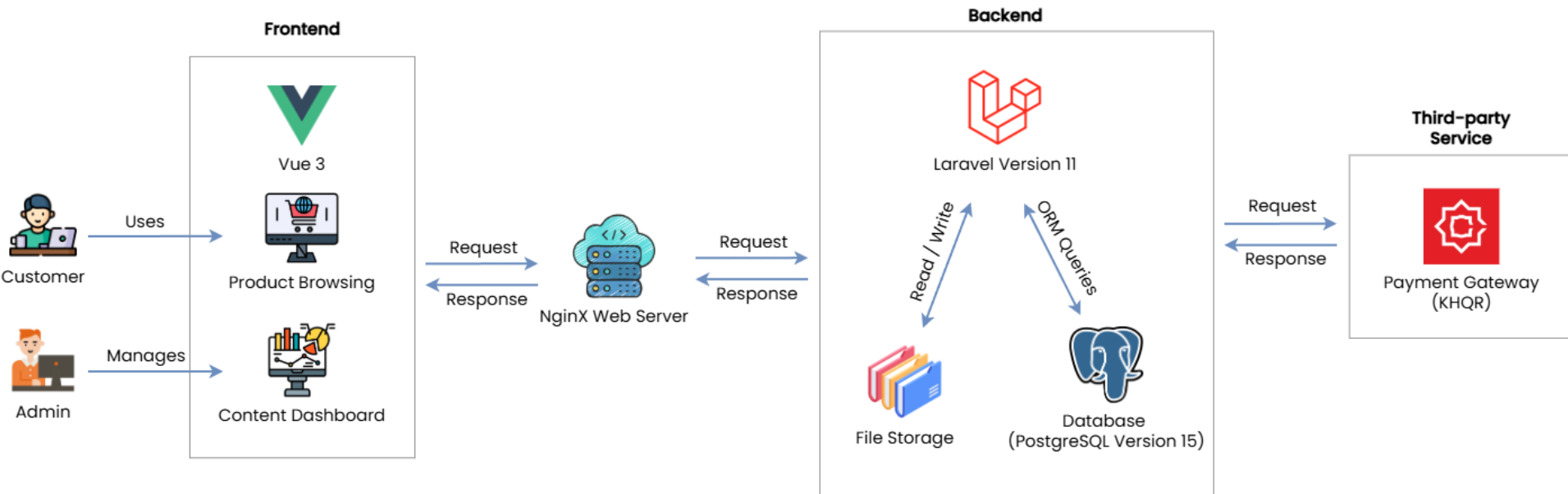## 2.2. Use case diagram (Customer & Guest)
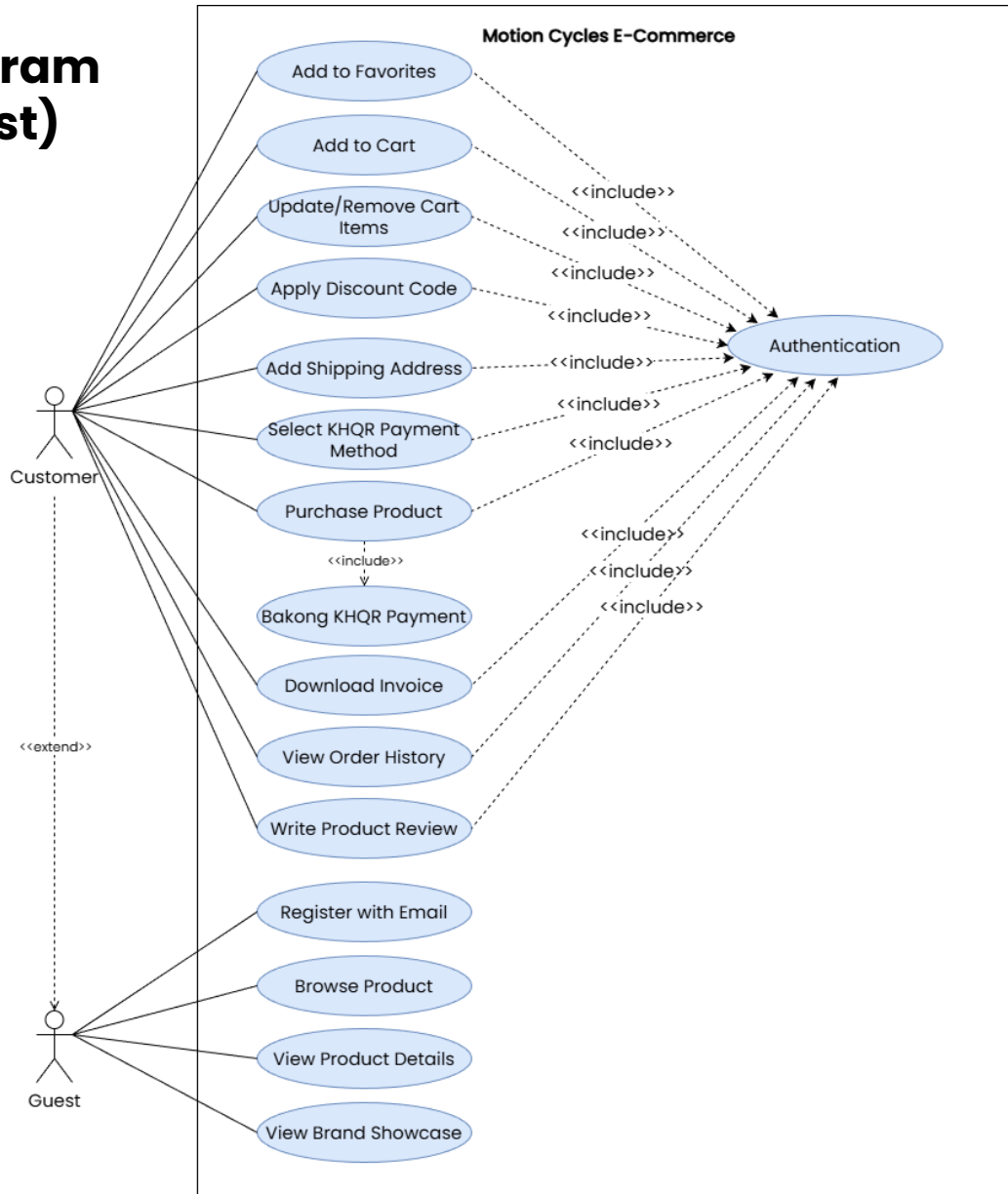
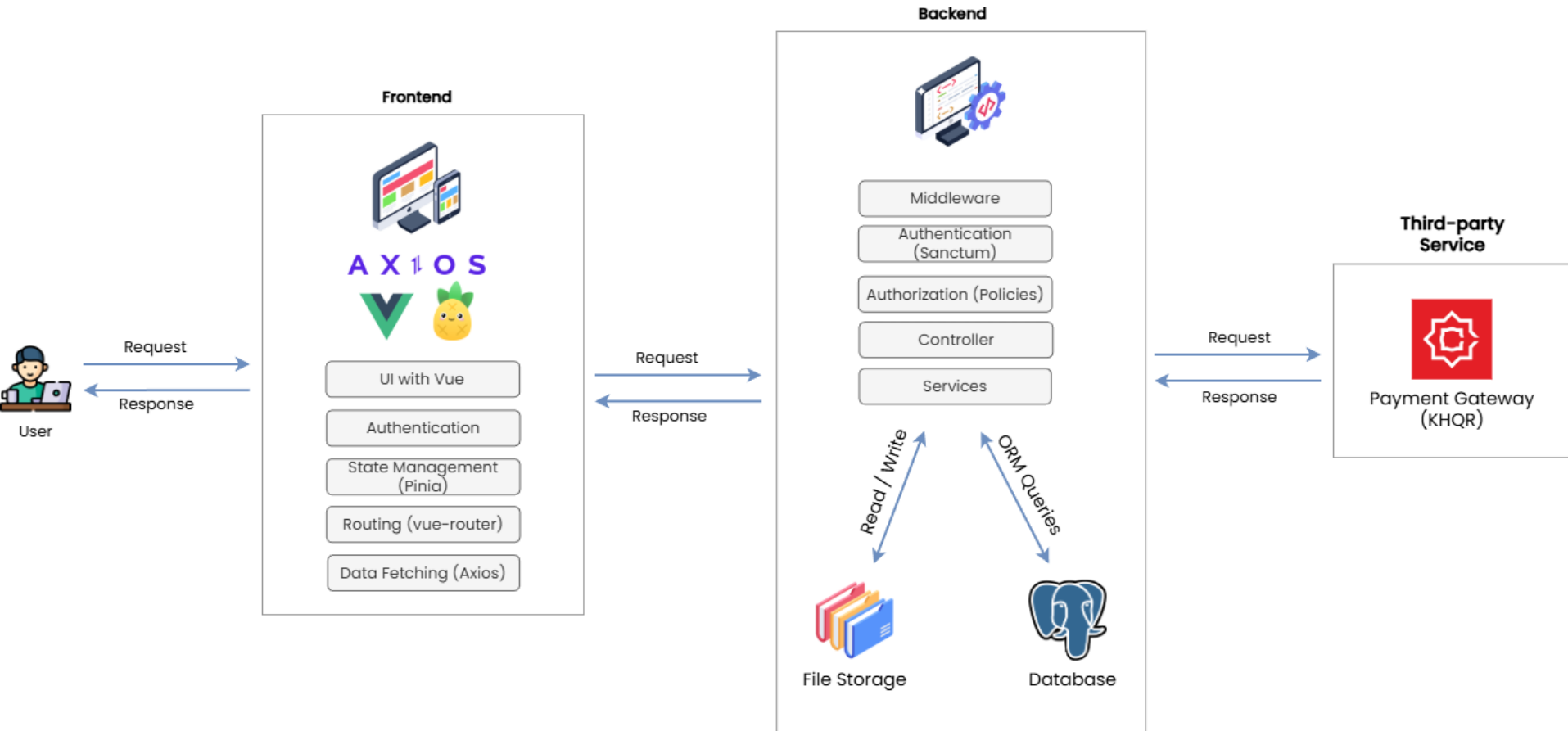## 2.3. Use case diagram (Admin)
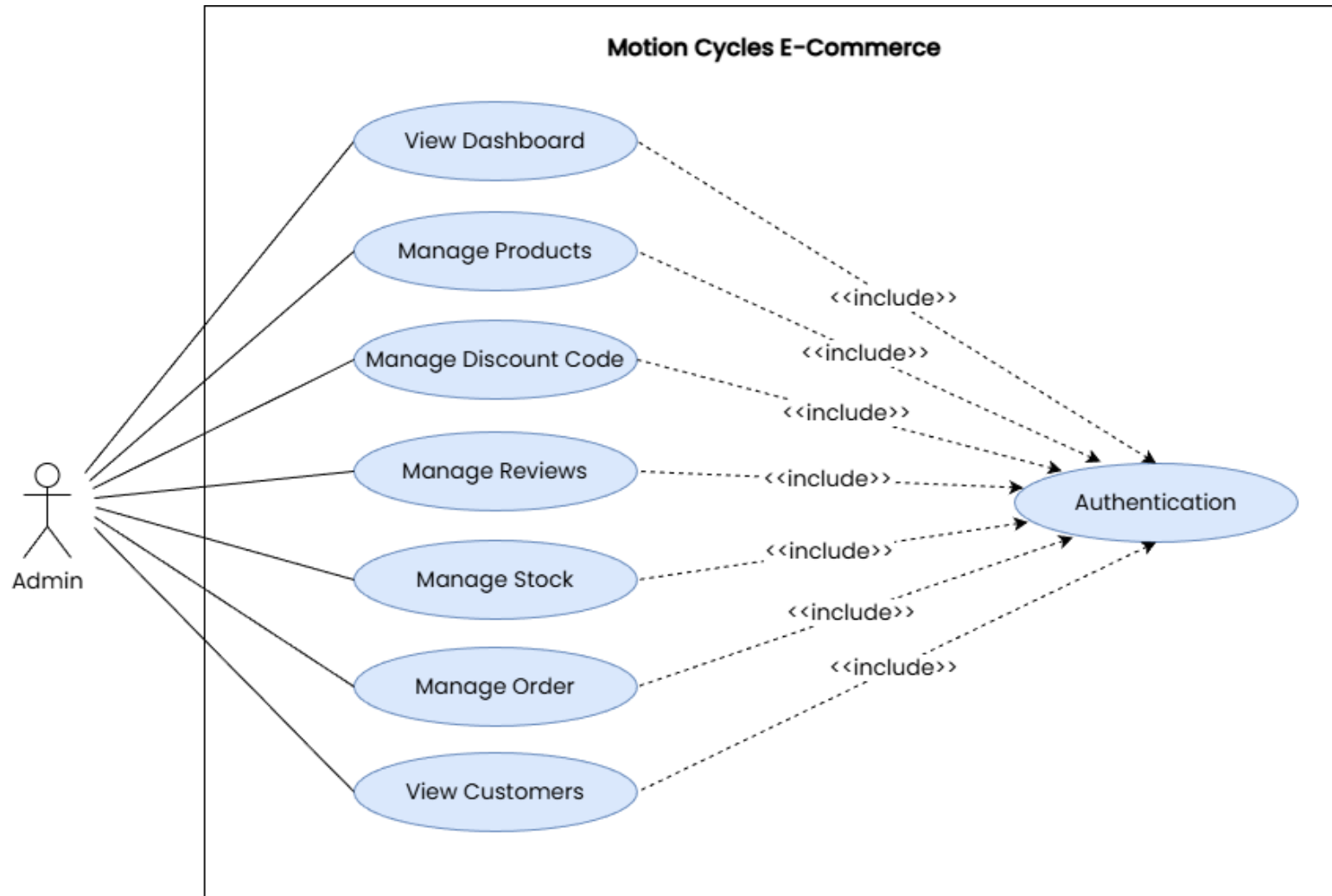
2.4. Database Schema
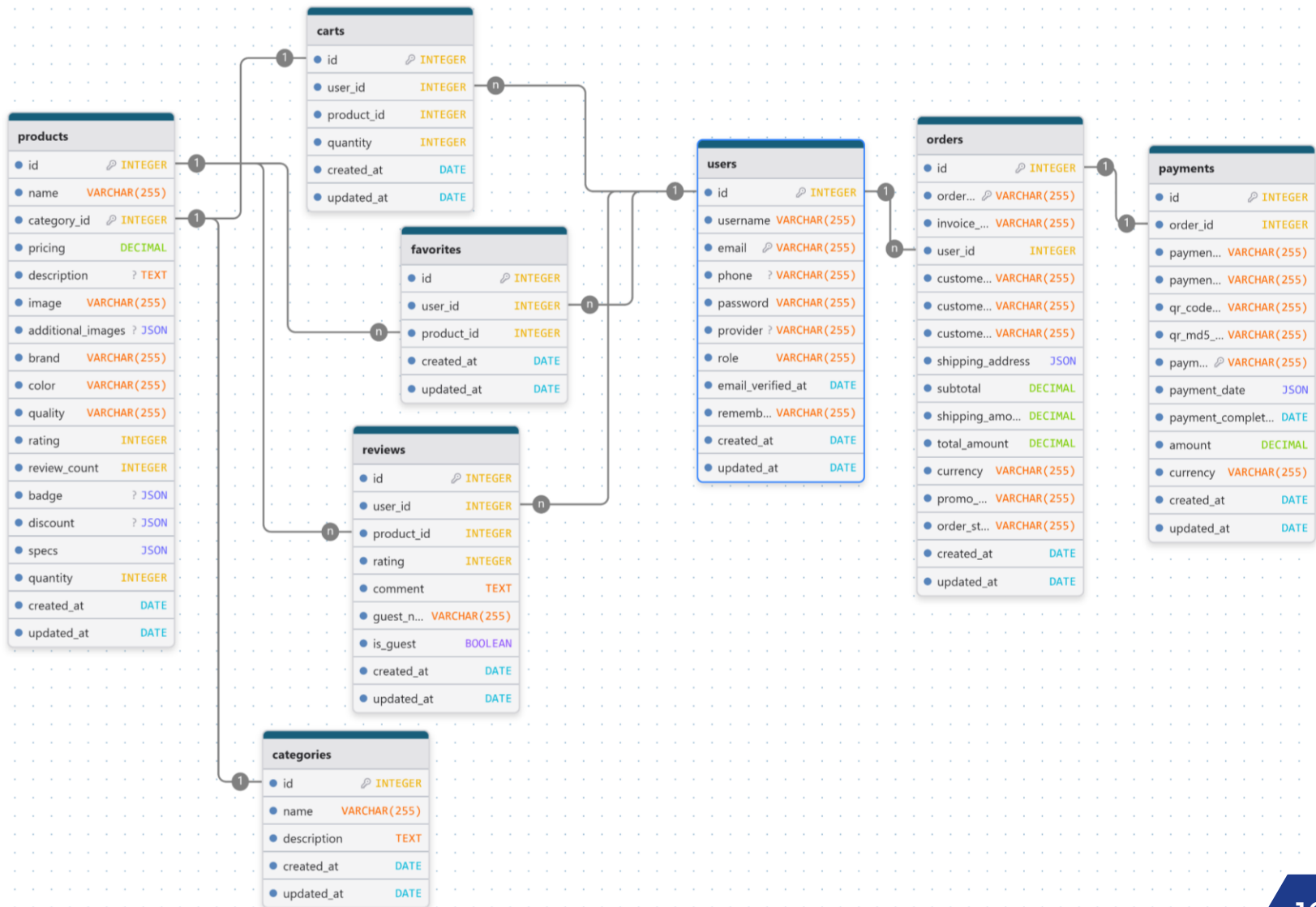
2.5. Physical Architecture

2.6. Logical Architecture

2.7. Choice of Technologies

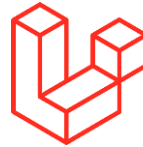**Programming Languages**

PHP

JavaScript

Frameworks

Laravel

Vue.js

Pinia

Technologies

PostgreSQL

Docker

Bakong

GSAP

Chart.js

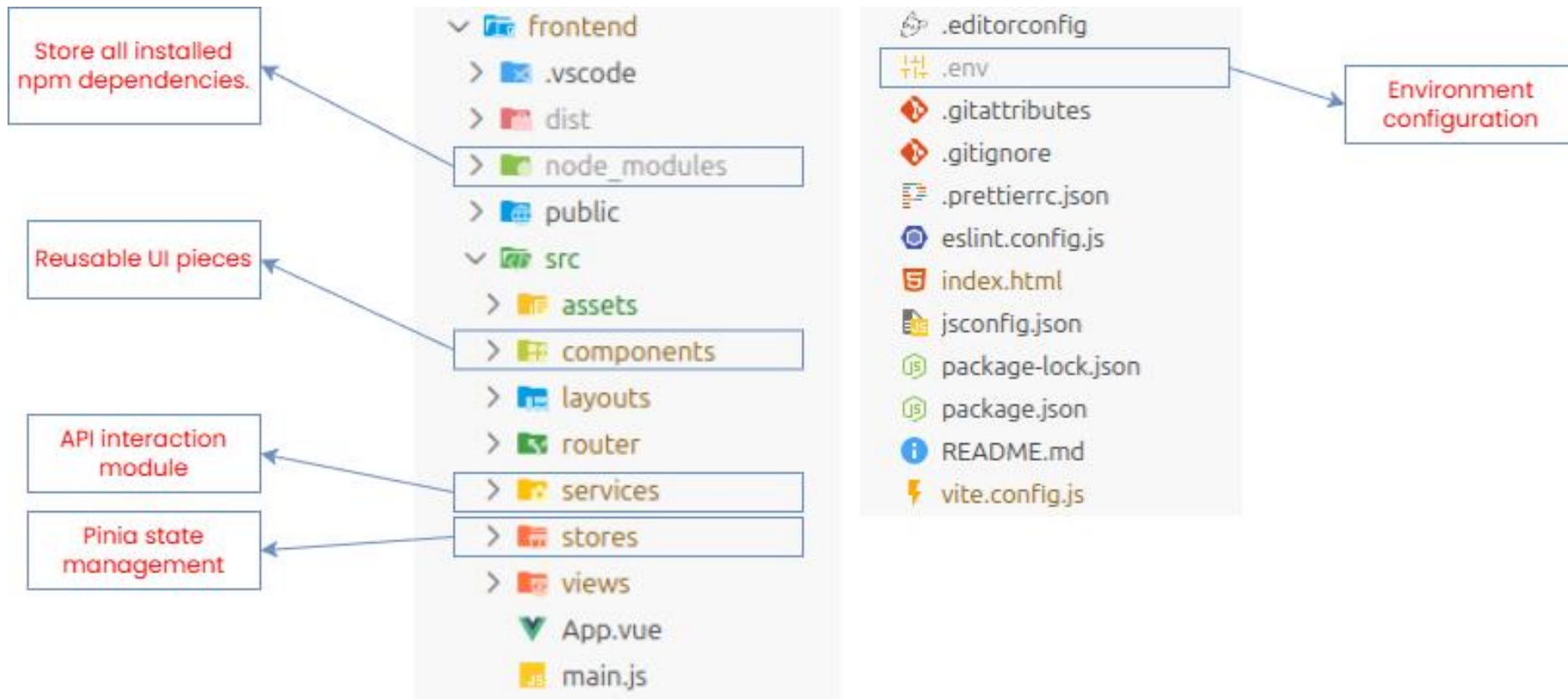jsPDF

Tools

VSCode

Bruno

Git

Figma

Draw.io

DBeaver

Implementation

1. Project Setup

3.1. Project Structure Web Application (Vue.js)

Store all installed npm dependencies. → node_modules

Reusable UI pieces → components

API interaction module → services

Pinia state management → stores

```
∨ 📁 frontend
  > 📘 .vscode
  > 📕 dist
  > 📗 node_modules
  > 📘 public
  ∨ 📂 src
    > 📙 assets
    > 📗 components
    > 📘 layouts
    > 📗 router
    > 📙 services
    > 📕 stores
    > 📕 views
      V App.vue
      📜 main.js
```

```
🖉 .editorconfig
📑 .env
🔶 .gitattributes
🔶 .gitignore
📋 .prettierrc.json
⦿ eslint.config.js
🔲 index.html
📑 jsconfig.json
📜 package-lock.json
📜 package.json
ⓘ README.md
⚡ vite.config.js
```

.env → Environment configuration

3.2. Project Structure API (Laravel)

API endpoint classes (handle request, return respone)

Request filters (auth, loggings)

Service container bindings

Business logic & external integrations

stores environment-specific configuration values

```
backend
  app
    Http
      Controllers
      Middleware
      Models
      Providers
      Services
    config
    database
      factories
      migrations
      seeders
      .gitignore
      database.sqlite
    node_modules
    public
    resources
    routes
    storage
    tests
    vendor
```

```
.editorconfig
.env
.gitattributes
.gitignore
artisan
composer.json
composer.lock
package-lock.json
package.json
postcss.config.js
README.md
tailwind.config.js
vite.config.js
```
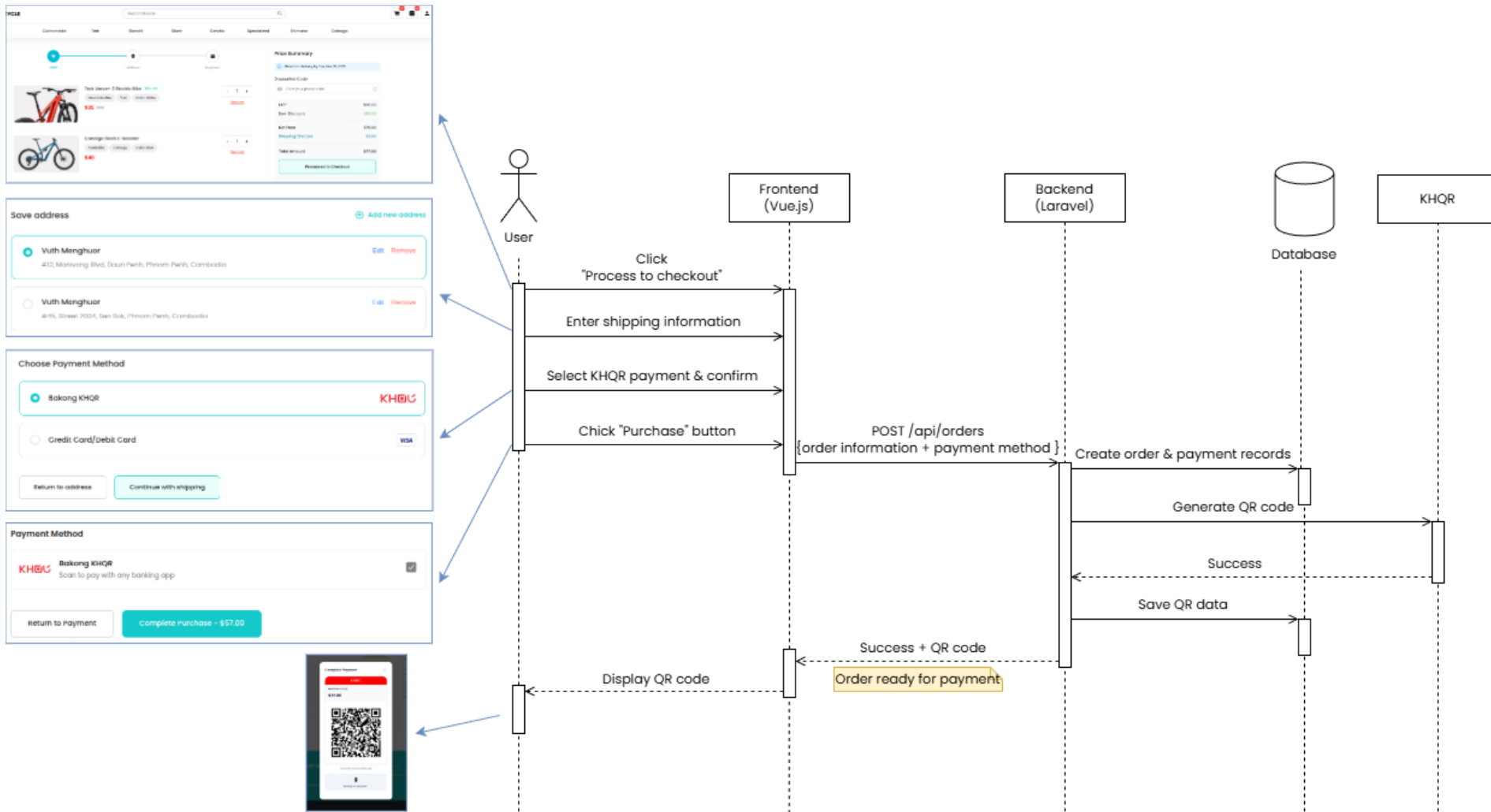
2. Implementation of Product Creation
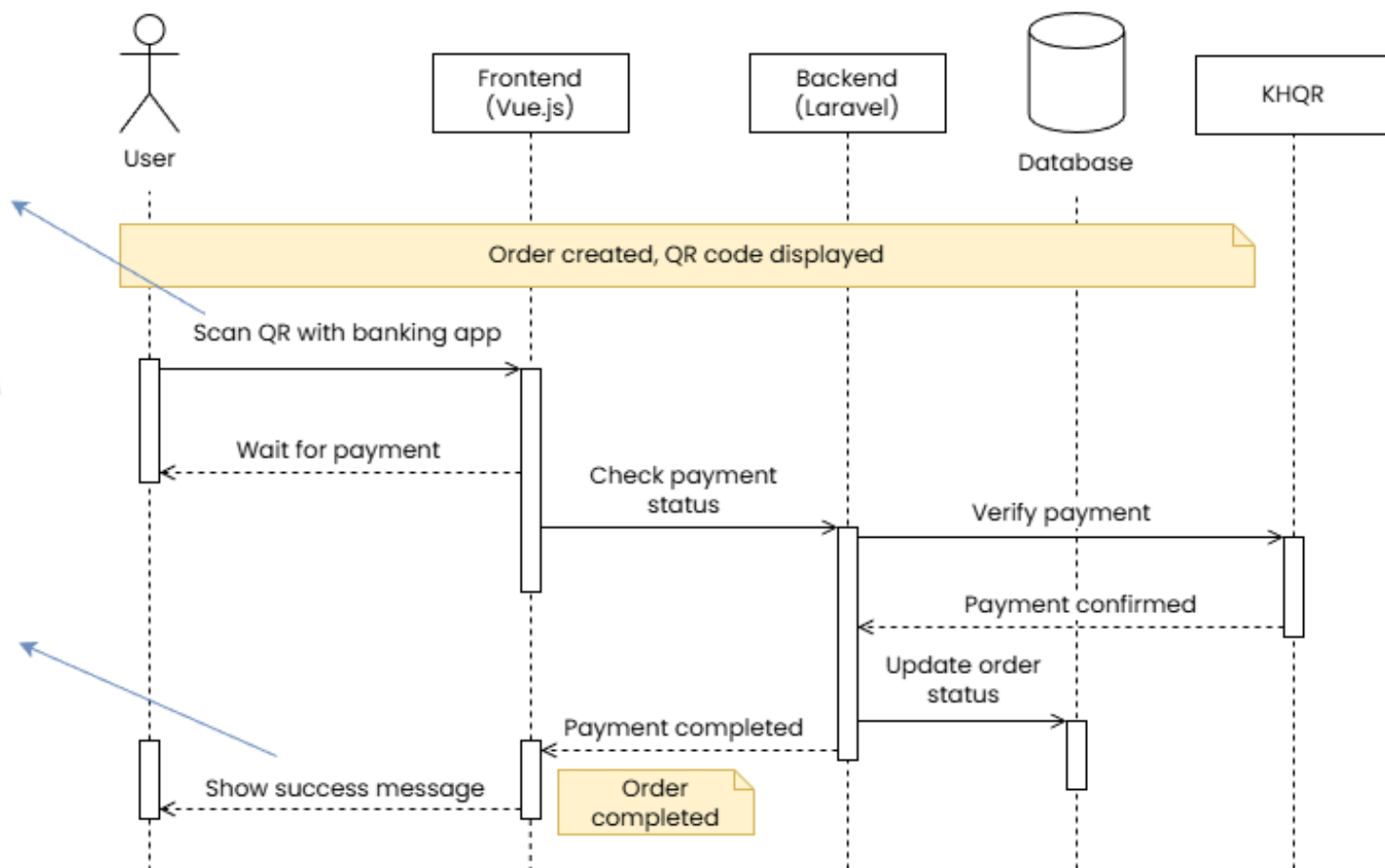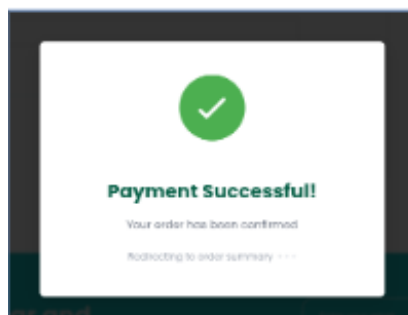
3.3. Product Creation Processing
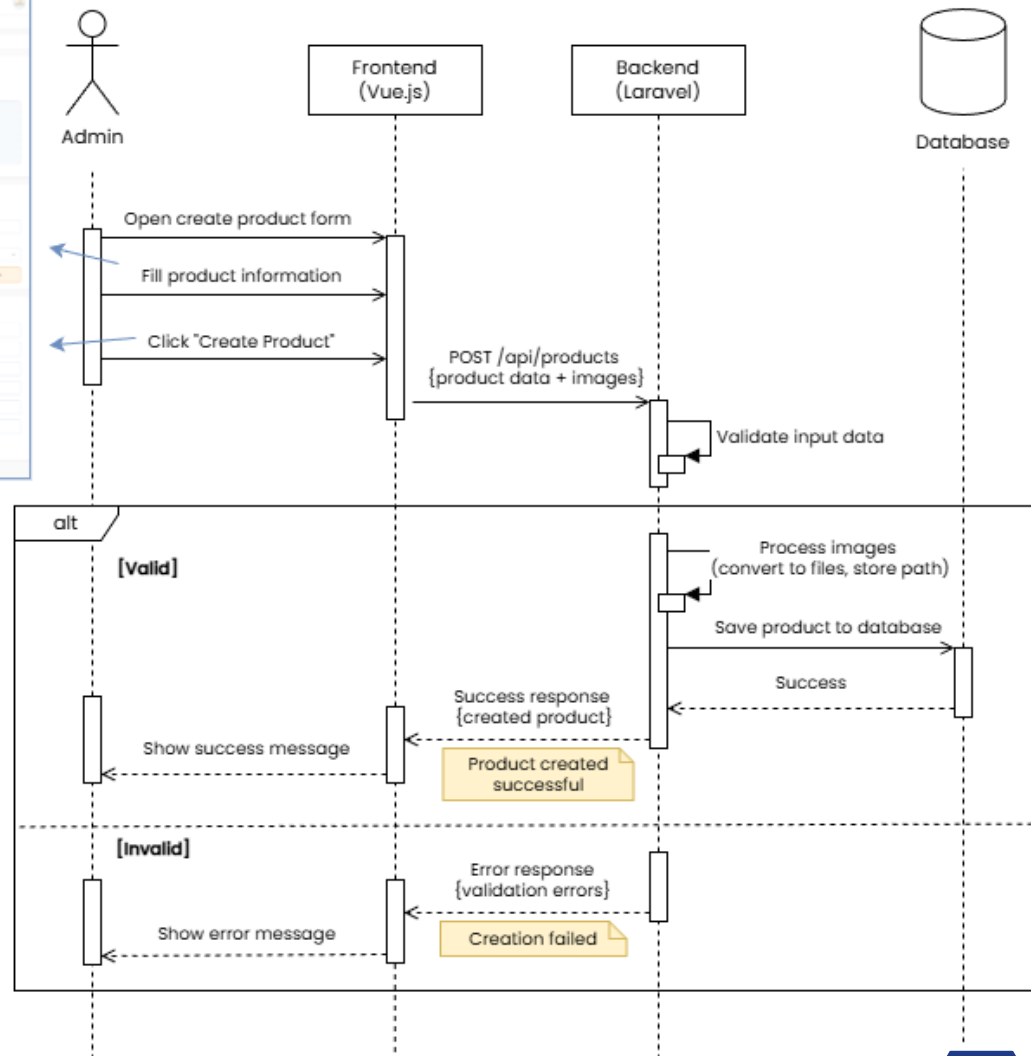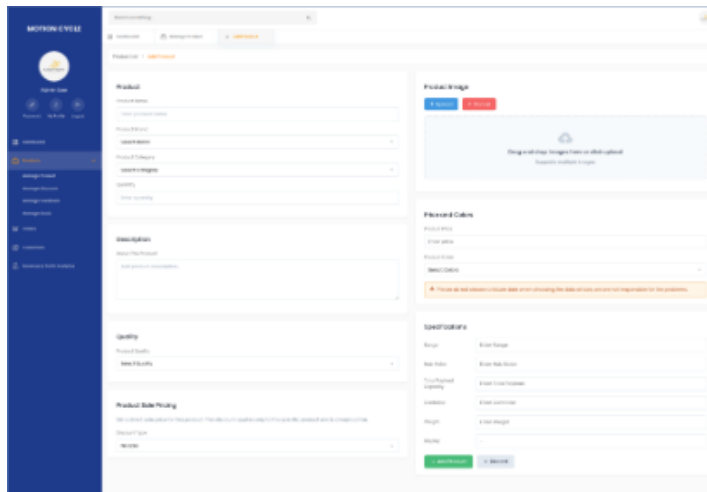
3. Implementation of Order & Payment

3.4. Order Creation Processing

3.5. Payment Processing

Conclusion

4.1. Result

Modules	Customer Features	Guest Features	Status	
			Frontend	Backend
Authentication	Register	Register	✓	✓
	Login	Continue as Guest	✓	✓
	Logout	Logout	✓	✓
Product Catalog	List all Product & Category	List all Product & Category	✓	✓
	Search, Filter	Search, Filter	✓	✓
	Brand Showcase	Brand Showcase	✓	✓
Shopping Cart	Add/Remove Product to Cart	Require login	✓	✓
	Manage Quantity		✓	✓
	View Subtotal Calculation		✓	✓
Favories/Wishlist	List Product in Wishlist	Require login	✓	✓
	Add Products to Wishlist		✓	✓
	Toggle Favorites status		✓	✓
Order Management	Apply Discount code	Require login	Testing	
	Place orders with Shipping Address		Enhancement	
	Order history tracking		In Progress	
	Invoice generate		✓	Pending
Payment Integration	QR code generation for payments	Require login	✓	✓
	Real-time payment status checking		✓	✓
	Payment verification		✓	✓
Review & Rating	Submit product reviews	Submit product reviews	Enhancement	
	View overall reviews	View overall reviews	Enhancement	

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4.1. Result

Modules	Admin Features	Status	
		Frontend	Backend
Authentication	Login	✓	✓
	Logout	✓	✓
Dashboard	Overview statistics	✓	✓
	Stock alert for low inventory	✓	✓
	Category distribution analysis	✓	✓
	Revenue & sales chart	✓	✓
Product Management	List all products	✓	✓
	Manage products	✓	✓
	List all discount codes	✓	✓
	Manage all discount codes	✓	Pending
	List all reviews	✓	✓
	Manage reviews	✓	Pending
	List all stocks	✓	✓
	Manage stocks	✓	Pending
Order Management	View all customer orders	✓	Pending
	Update order status	✓	Pending
	view customer order details	✓	Pending
View Users & Details	View all registered users	✓	Pending
	View customer information	✓	Pending

4.2. Difficulties

- Time Management
- Payment Integration
- Frontend & Backend Integration
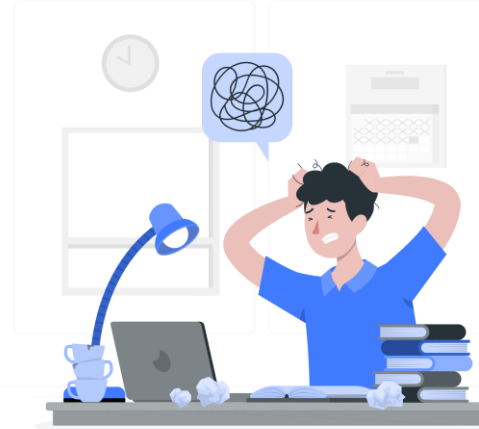
4.3. Experience

- Full-Stack Development
- API Design & Integration
- Payment System Integration
- Database Management

4.4. Perspective

- Native Mobile Application Development

- AI-Powered Product Recommendation

- GPS Order Tracking

4.5. References

Laravel Documentation.
Retrieved from: https://laravel.com/docs/11.x

Sanctum Documentation.
Retrieved from: https://laravel.com/docs/11.x/sanctum

Vue.js Documentation.
Retrieved from: https://vuejs.org/guide/introduction

Bakong KHQR API Documentation.
Retrieved from: https://api-bakong.nbc.gov.kh/document

KHQR Gateway.
Retrieved from: https://packagist.org/packages/khqr-gateway/bakong-khqr-php

Demonstration

THANK YOU