

Billing Application Documentation

1. Title(BILLING APP)

A comprehensive platform for managing invoices, payments, and subscriptions, designed to streamline financial operations and ensure accuracy, security, and compliance.

2. Description

2.1 Overview

The **Billing Application** is an end-to-end financial management system tailored for businesses of all sizes. It automates the full billing lifecycle — from customer onboarding and invoice creation to payment collection and reporting.

The application is modular, scalable, and cloud-ready, supporting deployment in SaaS, on-premises, or hybrid environments. It integrates seamlessly with **payment gateways, ERP/CRM systems, and notification services**, making it adaptable to diverse industries such as e-commerce, SaaS, healthcare, and utilities.

Objectives

- Reduce manual billing efforts by automating repetitive tasks.
- Provide transparency and accuracy in financial reporting.
- Ensure compliance with tax laws, PCI DSS, and data privacy regulations.
- Enhance customer satisfaction with clear, timely invoices and multiple payment options.

Target Users

- **Administrators** → Manage system setup, roles, and compliance.
- **Accountants/Finance Teams** → Generate invoices, reconcile payments, and run reports.
- **Support Staff** → Assist customers with billing queries.
- **Customers** → Receive, view, and pay invoices.

2.2 Key Features

1. Customer Management

- Maintain **customer profiles** with contact info, billing address, and payment methods.
- Handle **B2C** (individuals) and **B2B** (organizations) customers.
- Support multiple billing contacts per customer.
- Store preferred currency and language for localization.

2. Invoice Management

- Create invoices manually or auto-generate from subscriptions or orders.
- Invoice lifecycle: **Draft → Sent → Paid → Overdue → Canceled/Refunded**.
- Add line items with descriptions, quantities, unit prices, and tax rules.
- Apply discounts (percentage or fixed value).
- Generate **PDF invoices** with company branding and send via email/SMS.
- Support **partial payments** and installment billing.

3. Payment Processing

- Accept payments via **credit/debit cards, bank transfers, UPI, wallets, PayPal, Stripe**.
- **Real-time transaction tracking** with payment gateway callbacks.
- Automatic reconciliation of payment against invoice.
- Support for **refunds** (full/partial) and chargebacks.
- Multi-currency support with real-time exchange rates.

4. Subscription Management

- Create recurring billing plans (monthly, quarterly, yearly).
- Automated invoicing and payment collection.
- Handle **plan upgrades/downgrades**, prorated billing adjustments.

- Subscription lifecycle: **Trial → Active → Suspended → Canceled → Expired.**
- Retry policies for failed automatic payments.

5. Notifications & Alerts

- Automated **email/SMS reminders** for due invoices.
- **Payment confirmation** and digital receipts.
- **Failed payment notifications** with retry instructions.
- Admin alerts for overdue invoices or failed reconciliations.

6. Reporting & Analytics

- **Revenue Reports** → Income by day, month, or quarter.
- **Outstanding Payments** → Unpaid/overdue invoices.
- **Customer History** → Lifetime value, average payment cycle.
- **Tax Reports** → Breakdown of collected taxes by region.
- Exportable in **CSV, Excel, or PDF** formats.
- Interactive dashboard with filters and charts.

7. Security & Compliance

- **Data encryption:** AES-256 at rest, TLS 1.2+ in transit.
- **Authentication:** OAuth2 / JWT tokens.
- **Role-Based Access Control (RBAC):** Admin, Accountant, Support, Customer.
- **Compliance:** PCI DSS (payment handling), GDPR/CCPA (data privacy).
- **Audit Logs:** Track invoice edits, payment updates, and user activity.

8. Integrations & Extensibility

- **Payment Gateways:** Stripe, PayPal, Razorpay, Authorize.Net.
- **ERP/CRM Systems:** Salesforce, SAP, Dynamics.
- **Notification Services:** SMTP, Twilio, Firebase.

- **APIs & Webhooks:** REST/GraphQL APIs for integration with external apps.

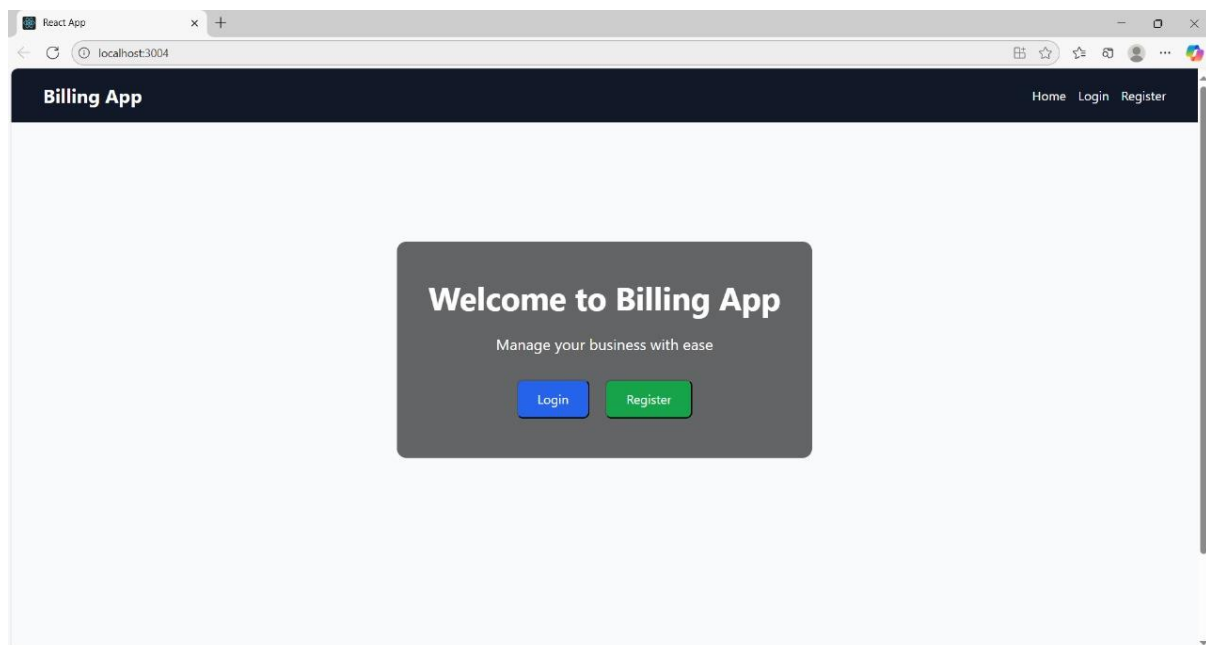
3. Participants and their contribution in project:

Frontend Developers (sana, sadhana): Designed and developed the user interface (dashboards, invoice forms, customer portal) and integrated it with backend APIs.

Backend Developers (tharunika,pooja): Implemented business logic and REST APIs for invoices, payments, and subscriptions with secure authentication and payment gateway integration.

MySQL Developer (vibhav): Designed and maintained the MySQL database schema, ensuring data integrity, optimized queries, and secure transaction handling.

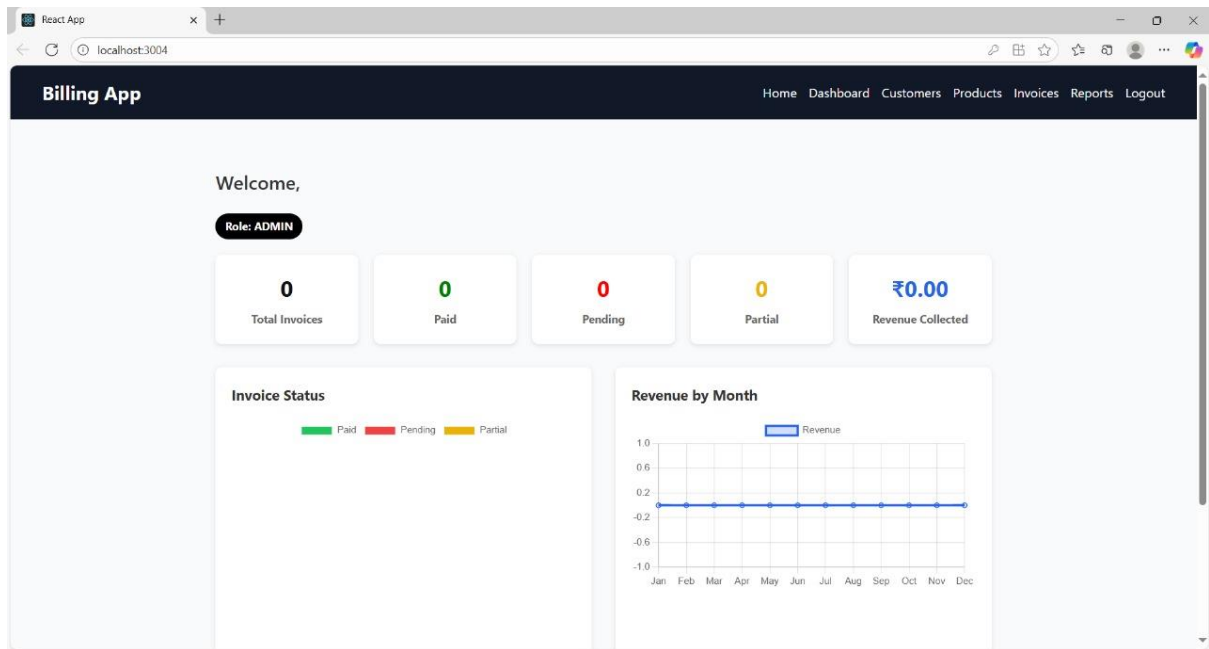
4. Login Page – User authentication screen (Admin/Customer login).



The screenshot shows a web browser window with the address bar displaying 'localhost:3004'. The page title is 'Billing App'. In the top right corner, there are links for 'Home', 'Login', and 'Register'. The main content area features a central white card titled 'Create Account'. This card contains four input fields: 'Username' (placeholder: 'Enter username'), 'Email' (placeholder: 'Enter email'), 'Password' (placeholder: 'Enter password'), and 'Role' (a dropdown menu currently showing 'Customer'). Below these fields is a blue 'Register' button. At the bottom of the card, there is a link that says 'Already have an account? [Login](#)'.

The screenshot shows the same web browser window as above. The page title is 'Billing App'. In the top right corner, there are links for 'Home', 'Login', and 'Register'. The main content area features a central white card titled 'Login'. This card contains two input fields: 'Username / Email' (placeholder: 'Enter username or email') and 'Password' (placeholder: 'Enter password'). Below these fields is a blue 'Login' button. At the bottom of the card, there are two links: 'Forgot Password?' in red text and 'New user? [Register here](#)' in blue text.

Dashboard – Overview of invoices, payments, and revenue.



Customer Management – Add, edit, and view customer details.

Billing App

Home Dashboard Customers Products Invoices Reports Logout

Product Management

Enter product name

Enter product category

Enter product price

Product description

Add Product

Search by product name...

Product Name	Category	Price (₹)	Description	Actions
laptop	electronics	₹500000	an electronic device	Delete

Invoice Creation – Form for creating new invoices.

Billing App Home Dashboard Customers Products Invoices Reports Logout

Invoice Management

Create / Edit Invoice

Tharunika Tella

tharunikatella@gmail.com

9618143356

1-100 BUS STAND CENTRE, NEAR CHURCH, SIVAPURAM, Penuganchiprolu, ntr District

09/01/2025

Products / Services

-- Select Product --

1

[Add](#)

Invoice Preview / Details

Customer: Tharunika Tella
Email: tharunikatella@gmail.com

Item	Qty	Price (₹)	Line Total (₹)
laptop	400000	500000.00	200000000000.00

Invoice List – Table showing pending, paid, and overdue invoices.

9618143356

1-100 BUS STAND CENTRE, NEAR CHURCH, SIVAPURAM, Penuganchiprolu, ntr District

09/01/2025

Products / Services

-- Select Product --

1

[Add](#)

Invoice Preview / Details

Customer: Tharunika Tella
Email: tharunikatella@gmail.com
Status: Pending
Due Date: 2025-09-01

Item	Qty	Price (₹)	Line Total (₹)
laptop	400000	500000.00	200000000000.00

Total: ₹200000000000.00

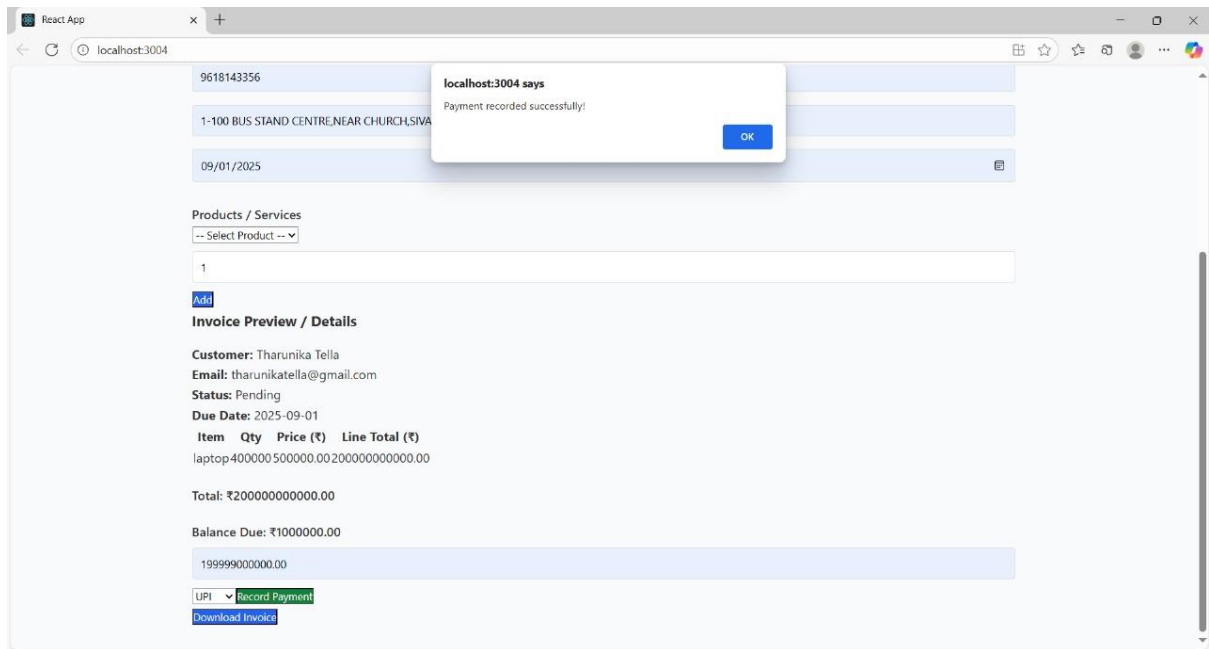
Balance Due: ₹1000000.00

199999000000.00

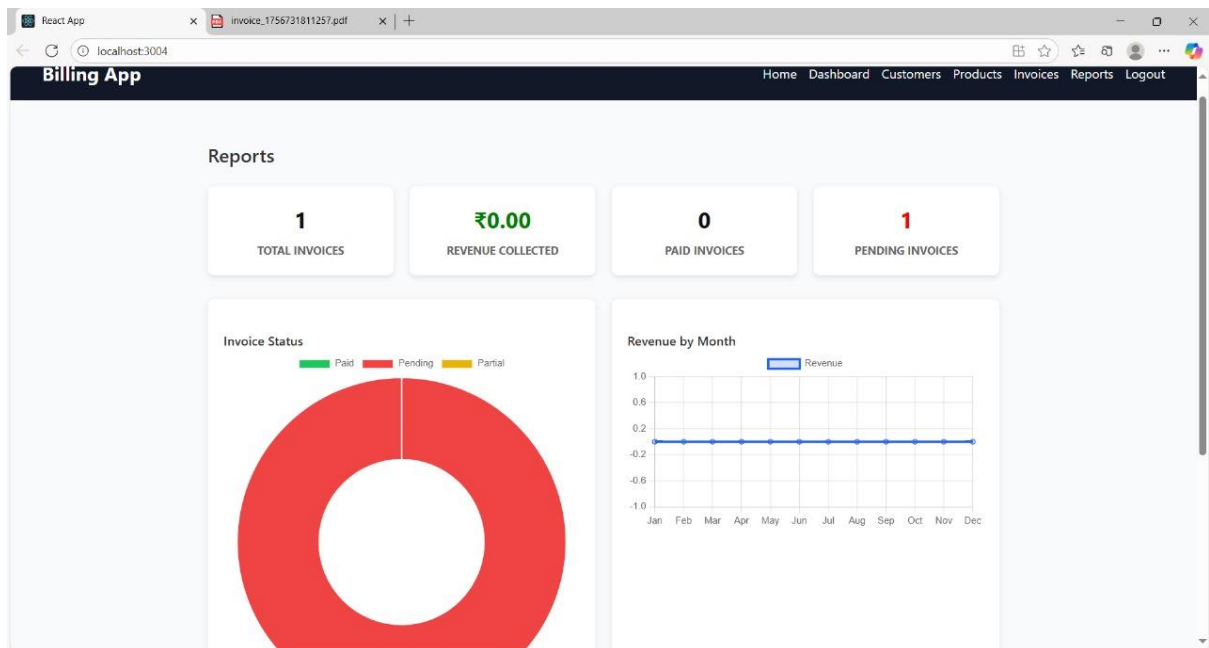
Cash [Record Payment](#)

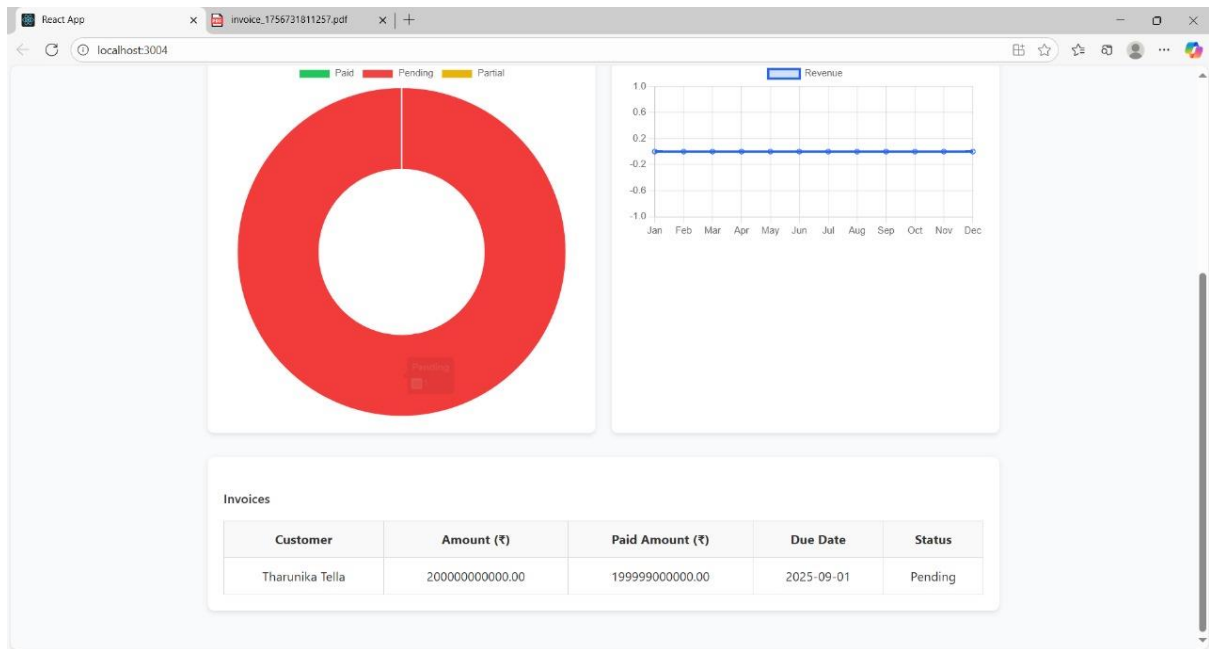
[Download Invoice](#)

Payment Gateway Screen – Demonstration of payment checkout.

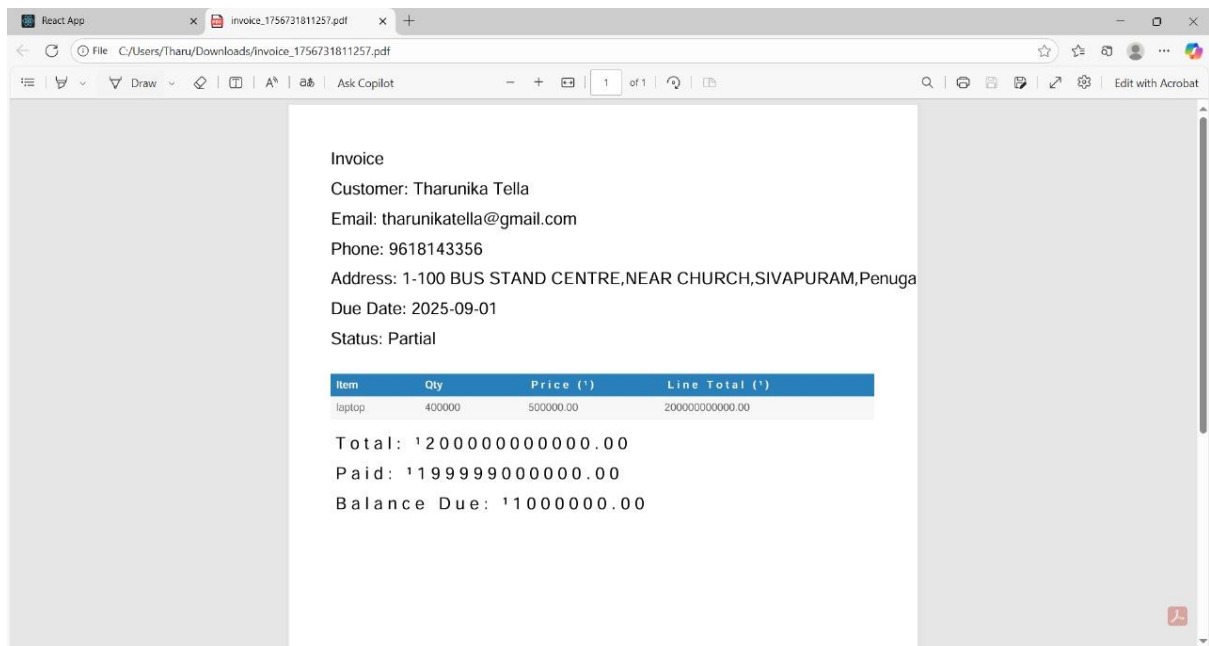


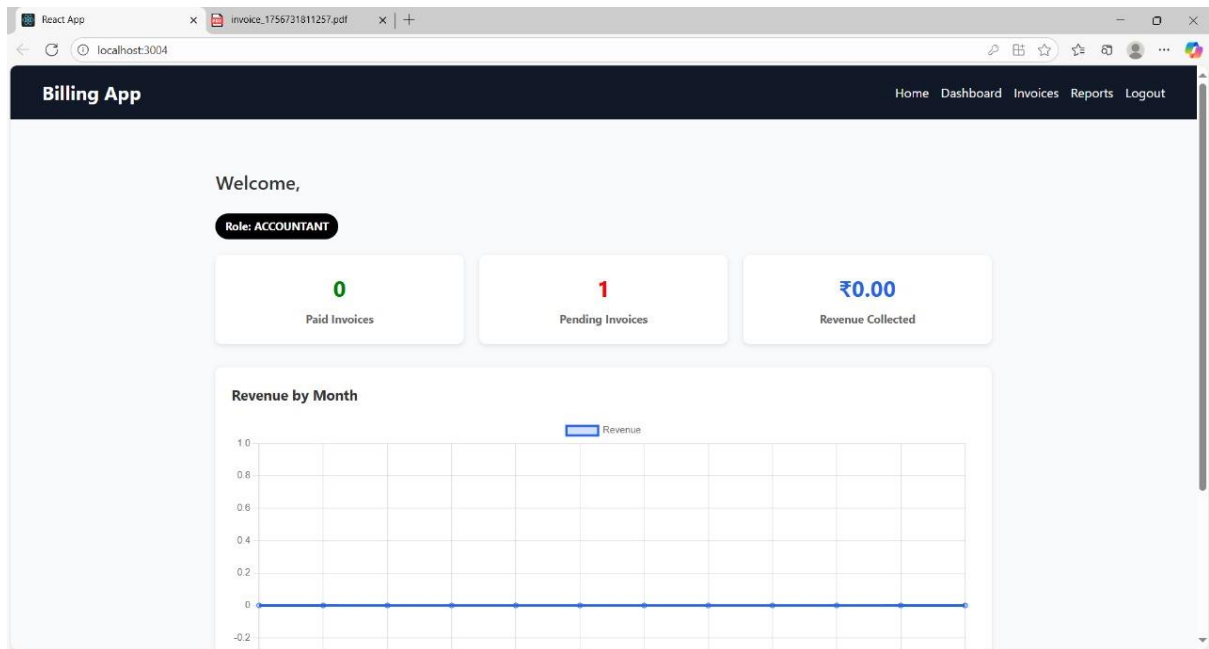
Reports & Analytics – Graphs and charts for revenue and outstanding payments.



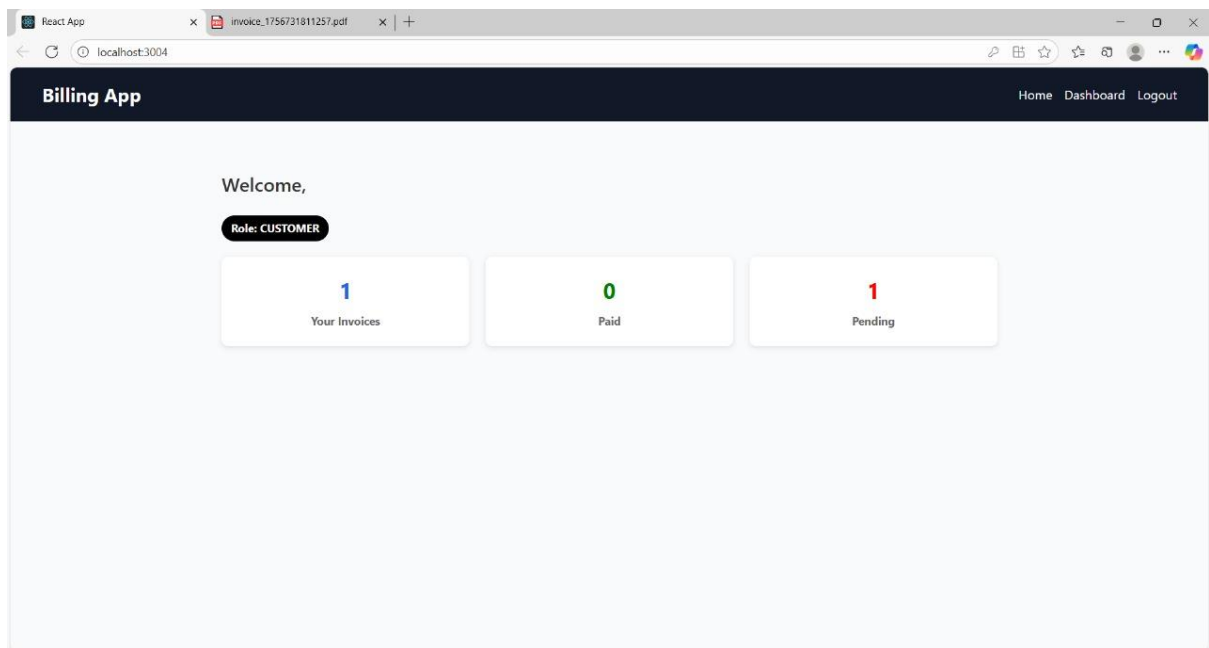


Subscription Management – Active plans and automated billing execution.





Accountant – Dashboard



Customer – Dashboard

GitHub Link :

<https://github.com/SadhanaBula/Billing-App.git>

