

# PAWNPRIME

GOLD & SILVER LOAN MANAGEMENT SYSTEM

Minor Project Report | Bachelor of Engineering (CSE)

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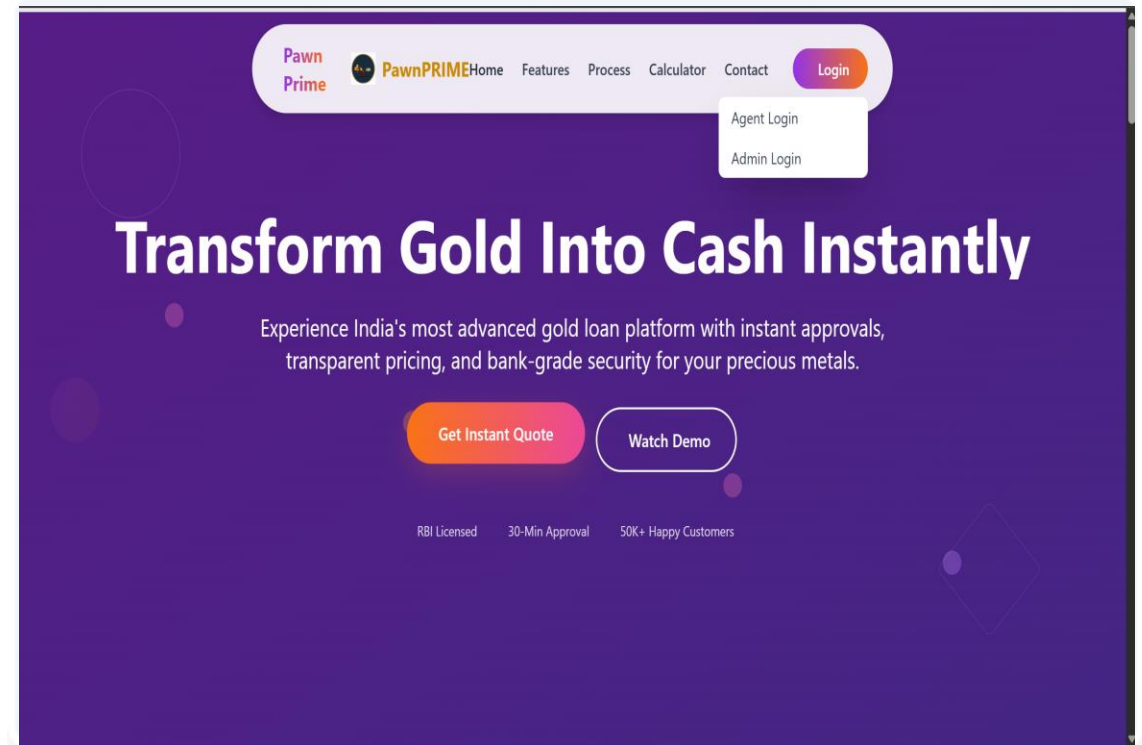
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# INTRODUCTION

**PawnPrime** is a full-stack web application designed to digitalize and streamline the entire lifecycle of precious-metal-backed lending.

- ✓ Automates customer onboarding & valuation.
- ✓ Generates EMI schedules & tracks repayments.
- ✓ Secure, fast, and centralized system.
- ✓ Built with Spring Boot, React, & PostgreSQL.



# PROJECT OVERVIEW



## FULL-STACK SYSTEM

End-to-end automation from onboarding to loan closure.



## ROBUST BACKEND

Spring Boot & PostgreSQL ensuring data integrity and security.



## KEY INTEGRATIONS

Razorpay, Twilio, Cloudinary, and MetalPriceAPI.

# OBJECTIVES

## PRIMARY GOALS

- ✓ Automate entire loan workflow.
- ✓ Real-time valuation using live market prices.
- ✓ Role-based secure authentication.

## OPERATIONAL GOALS

- ✓ Online & offline repayment tracking.
- ✓ Generate Receipts, NOC, and Closure PDFs.
- ✓ Centralized dashboard for analytics.

## EXISTING SYSTEM ISSUES



### MANUAL PROCESS

Reliance on physical registers leads to errors and data loss.



### INCONSISTENT VALUATION

Lack of standardized pricing sources causes valuation disputes.

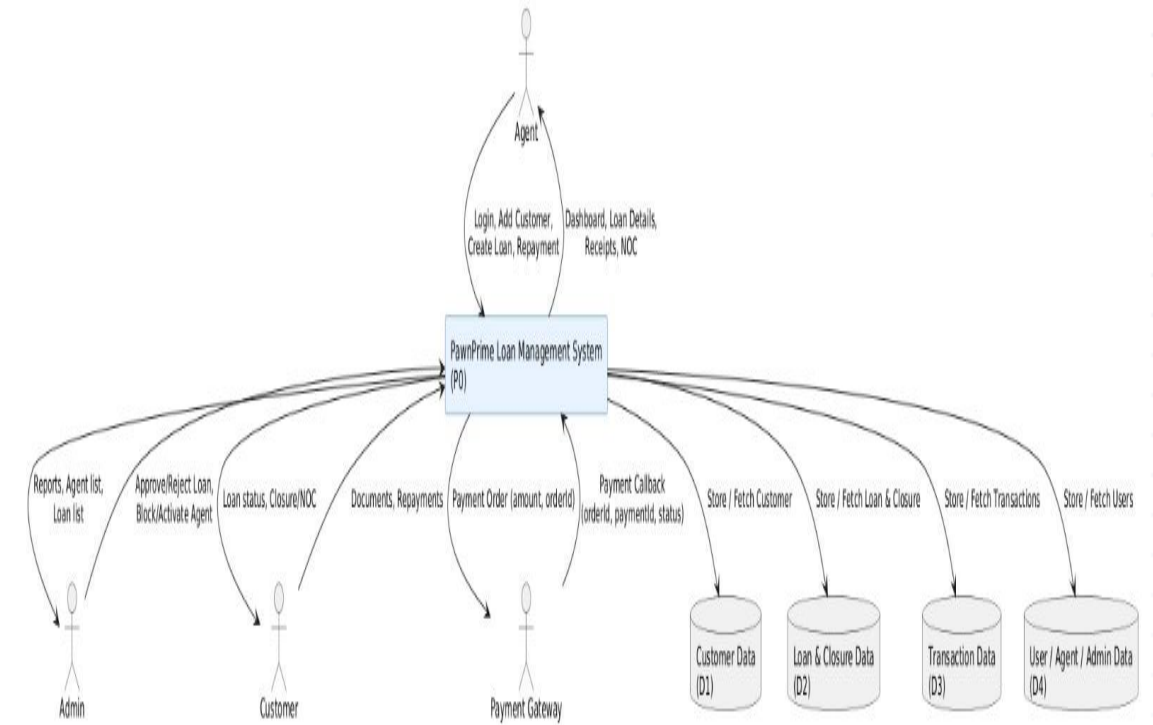


### SECURITY RISKS

Absence of role-based access and OTP verification.

# SYSTEM ARCHITECTURE

- ✓ **Presentation Layer:** React, REST APIs.
- ✓ **Business Layer:** Services, Rules, Workflows.
- ✓ **Data Layer:** JPA, PostgreSQL.
- ✓ **Integration Layer:** Razorpay, Twilio, Cloudinary.



# TECHNOLOGY STACK



**JAVA 17**

Core Backend Logic



**REACT JS**

Frontend Interface



**POSTGRESQL**

Relational Database



**JWT**

Secure Auth

## KEY FEATURES



### REAL-TIME VALUATION

Live Gold/Silver rates via API integration.



### ONLINE REPAYMENT

Seamless Razorpay integration for digital payments.



### PDF GENERATION

Auto-generate Receipts, NOCs, and Statements.



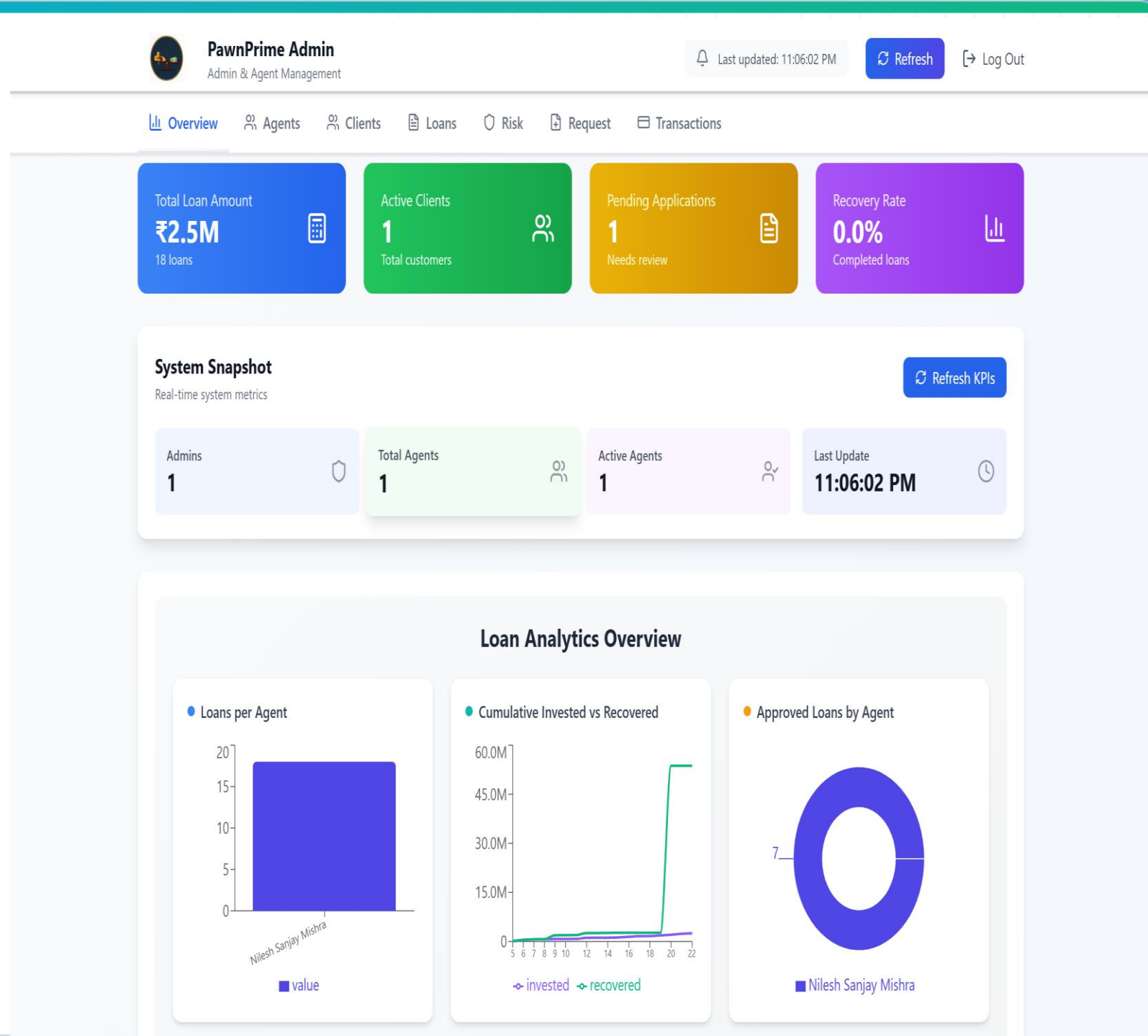
# SYSTEM MODULES

Module	Functionality
Admin Module	Manage agents, approve loans, view analytics, generate closure docs.
Agent Module	Onboard customers, valuation, loan creation, process repayments.
Repayment Module	Handle offline cash and online digital payments with receipt generation.

## ADMIN MODULE

The central command center for managing the lending ecosystem.

- ✓ Manage Agents (Block/Unblock).
- ✓ Approve/Reject Loan Requests.
- ✓ View Portfolio Analytics.
- ✓ Monitor Transactions.




# AGENT MODULE: CUSTOMER ONBOARDING

## EFFICIENT ONBOARDING

Agents can quickly register new customers with integrated KYC features.

- ✓ OCR extraction from Aadhaar cards.
- ✓ Upload KYC documents to Cloudinary.
- ✓ OTP verification for secure registration.

**Pawn Prime**  
Precious Metals Lending Platform

Last updated: 10:44:12 PM

Refresh

Agent  
Agent

Overview

Loans

Clients

Calculator

Risk Management

EMI Calculator

Transactions

Repayment

Quick Stats

Last updated: 10:44:13 PM

Total Portfolio Amount  
₹2.4M  
Current rate

Active Clients  
1  
Total customers

Pending Applications  
0  
Needs review

Recovery Rate  
94.2%  
Current rate

Live Metal Prices

Gold

Per Gram

₹9.8K

+₹0 (1.07%)

Bid: ₹0

Ask: ₹0

Conversion: Price per gram = (Price per troy ounce) / 31.1035  
(1 troy ounce ≈ 31.1035 grams)

Silver

Per Gram

₹106.97

+₹0 (1.24%)

Bid: ₹0

Ask: ₹0

Conversion: Price per gram = (Price per troy ounce) / 31.1035  
(1 troy ounce ≈ 31.1035 grams)

# VALUATION & LOAN CREATION

## AUTOMATED VALUATION

The system calculates loan eligibility instantly based on purity and weight.

- ✓ Fetches live metal prices.
- ✓ Calculates Net Grams & Purity.
- ✓ Determines Max Loan Amount.
- ✓ Configurable Interest Rates.

46.80

### Loan Details

#### Loan Calculator

Ornament Value: ₹ 2,80,800

Loan Value (max 80% of Ornament Value)

1,50,000

Loan Percentage: 53.42 %

Loan at 80%: ₹ 2,24,640.00

Final Loan Value: ₹ 1,50,000.00

Duration (months) Min: 1 month, Max: 120 months (10 years)

12

Interest Rate (%) Range: 0-4%

2

Loan Value  
₹150,000

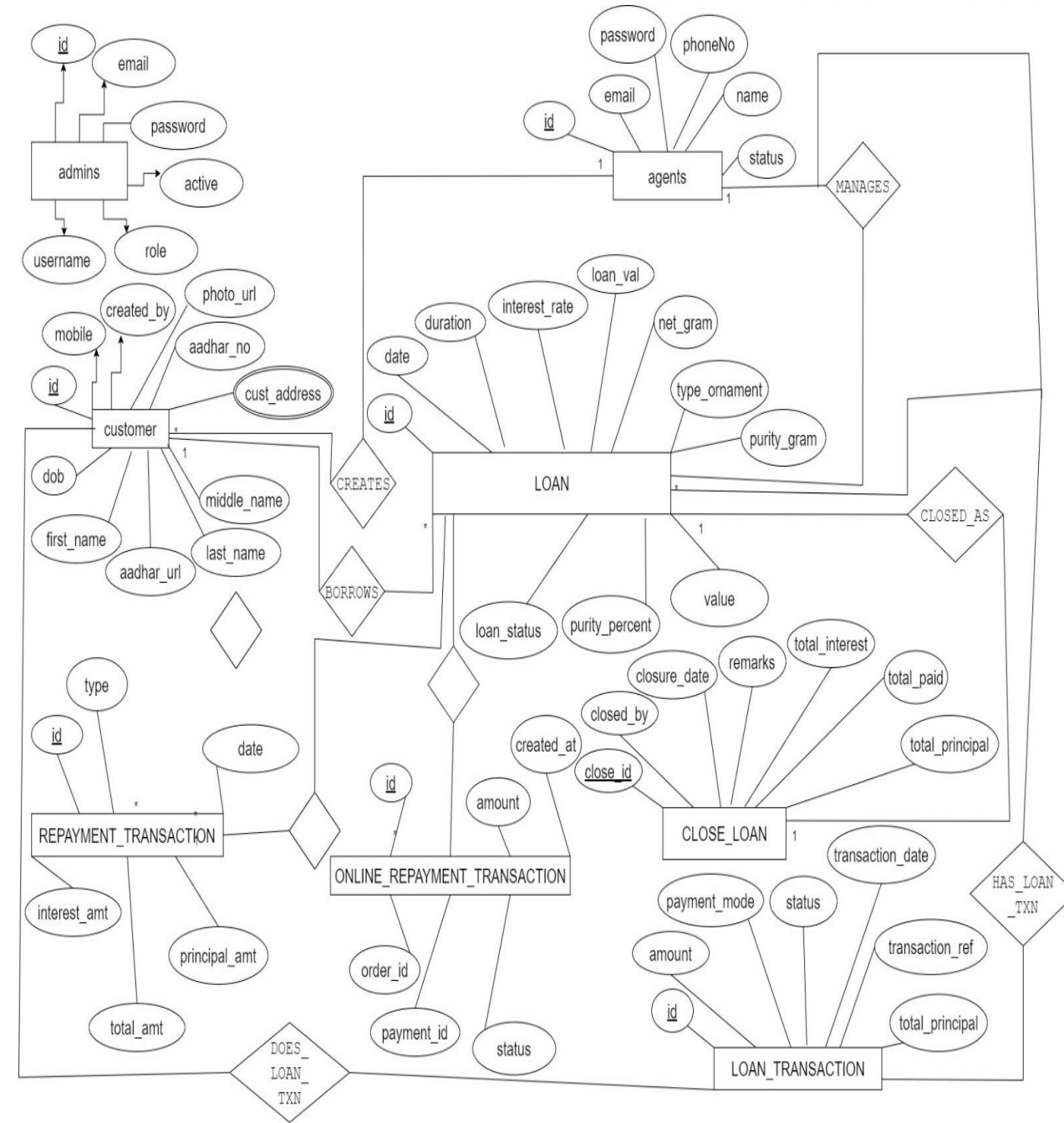
Total Payable  
₹153,000

Apply for Loan

# DATABASE DESIGN

## NORMALIZED SCHEMA (3NF)

- ✓ **Entities:** Customer, Agent, Loan, Transaction.
- ✓ **Integrity:** Foreign keys maintain relationships.
- ✓ **Optimization:** Indexed for fast retrieval.
- ✓ **Audit:** Timestamps for all records.



## INTEGRATION LAYER



**GEMINI API**

OCR Data Extraction



**RAZORPAY**

Payment Gateway



**CLOUDINARY**

Document Storage



**METALPRICEAPI**

Live Market Rates

# REPAYMENT WORKFLOW

## FLEXIBLE PAYMENTS

Support for both offline cash collections and online digital payments.

- ✓ **Offline:** Agent enters cash payment details.
- ✓ **Online:** Customer pays via Razorpay link.
- ✓ Auto-balance update upon confirmation.

Prime

Metals Lending Platform

Last updated: 10:56:52 PM

Refresh

Loans

Clients

Calculator

Risk Management

EMI Calculator

Transactions

Repayment

Loan ID: 20

Name: Nilesch Sanjay Mishra

Type: Gold

Date: 2025-10-11

ID: 1

Net Weight: 60g

Status: T\_DONE

Agent ID: 1

Purity: 89%

P

Pawn Prime

Price Summary

₹34,000

Using as +91 84608 05733

Recommended

UPI

Cards

Netbanking

Wallet

Pay Later

Payment Options

UPI QR

Scan the QR using any UPI App

Secured by Razorpay

By proceeding, I agree to Razorpay's Privacy Notice • Edit Preferences

12

2026-10-11

16666.67

333.33

17000

0

Pending

₹ Pay Selected (2)

Close Loan

# UI/UX HIGHLIGHTS: RECEIPTS

## AUTOMATED DOCUMENTATION

Every transaction triggers the generation of a professional, verifiable receipt.

- ✓ Instant PDF generation.
- ✓ Includes Transaction ID & Date.
- ✓ Breakdown of Principal & Interest.
- ✓ Downloadable and printable.

PawnPrime

Loan Receipt

Receipt Date

25/11/2025

Receipt No.

22

## Loan Information

Loan ID:	22	Status:	T_DONE
Loan Date:	25/11/2025	Loan Value:	150,000.00
Interest Rate:	2.0%	Duration:	12 months

## Ornament Details

Type:	Gold	Net Weight:	60.0g
Purity:	78.0%	Value:	280,800.00

## Repayment Schedule

#	Date	Principal	Interest	Installment	Remaining
1	25/12/2025	12,500.00	250.00	12,750.00	140,250.00
2	25/01/2026	12,500.00	250.00	12,750.00	127,500.00
3	25/02/2026	12,500.00	250.00	12,750.00	114,750.00
4	25/03/2026	12,500.00	250.00	12,750.00	102,000.00
5	25/04/2026	12,500.00	250.00	12,750.00	89,250.00
6	25/05/2026	12,500.00	250.00	12,750.00	76,500.00
7	25/06/2026	12,500.00	250.00	12,750.00	63,750.00
8	25/07/2026	12,500.00	250.00	12,750.00	51,000.00



# IMPLEMENTATION & TESTING

## METHODOLOGY

- ✓ Agile Development with 2-week sprints.
- ✓ CI/CD pipelines with automated builds.
- ✓ Feature-branch Git workflow.

## TESTING STRATEGY

- ✓ **Unit:** JUnit 5 & Mockito.
- ✓ **Integration:** Postman for API testing.
- ✓ **Security:** SQL Injection & Token checks.
- ✓ **UAT:** Verified by Admin/Agent users.

## FUTURE SCOPE



### AI SCORING

Predict credit risk and default probability.



### MOBILE APP

Native iOS/Android app for field agents.



### BIOMETRICS

Fingerprint login for enhanced security.



### BLOCKCHAIN

Immutable ledger for transaction history.

# CONCLUSION

## DIGITAL TRANSFORMATION ACHIEVED

**PawnPrime** successfully transforms manual lending into a secure, digital ecosystem.

By integrating automation, real-time data, and robust security, the system significantly enhances operational efficiency, transparency, and compliance for gold loan institutions.

# Thank You

Questions & Answers