Floucna *Mina Fina*

A secure Micro-lending Platform

Université de Tunis
TUNIS BUSINESS SCHOOL
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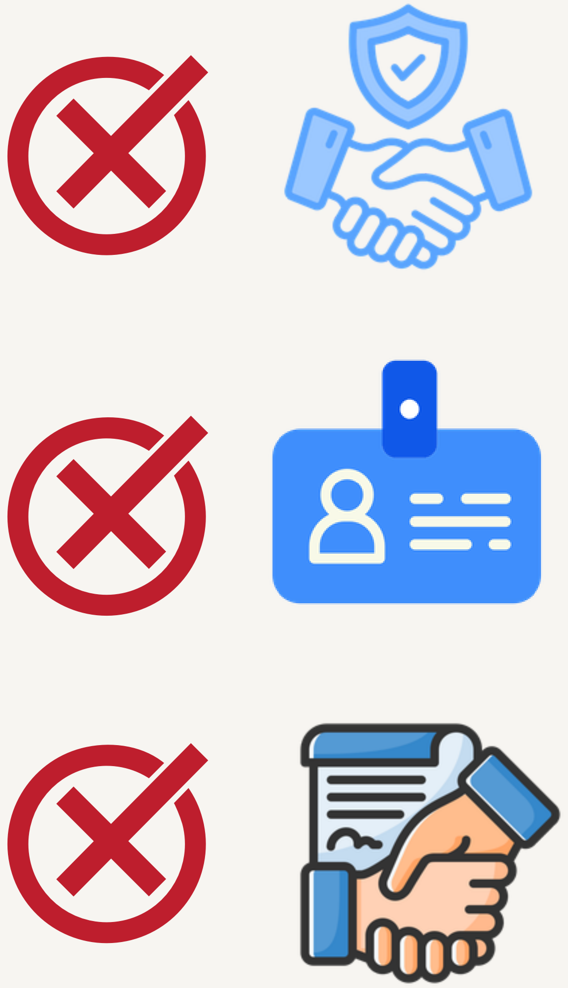
Introduction

- Rapid evolution of fintech and digital payments
- **Increasing** demand for fast and **accessible micro-loans**
- Limitations of traditional banking systems
- Emergence of **peer-to-peer** (P2P) **lending**
- Need for **trust**, **security**, and **compliance** in digital lending

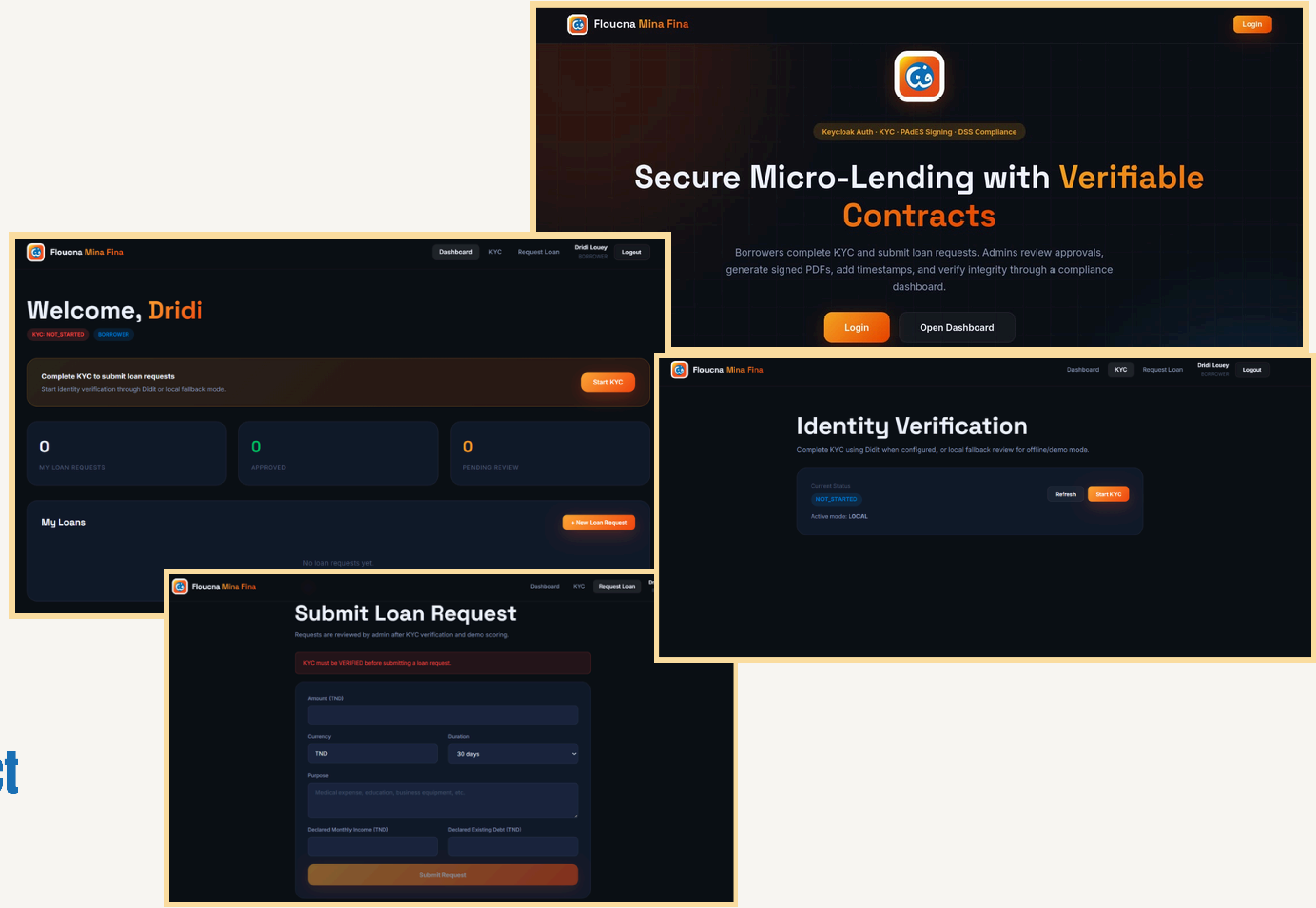
Problem Statement

- Lack of trust between users
- Weak identity verification
- No secure legal proof



Proposed Solution

- Secure micro-lending platform
- Verified users (KYC)
- Digitally signed contracts
- Tamper-proof system



Borrower ↔ Platform ↔ Admin ↔ Contract

Core Features

1. Keycloak Authentication
OAuth2 / OIDC login and role-based access

2. KYC Verification
Didit provider or local fallback identity check

6. Compliance Verification
DSS validates signature, integrity, certificate and timestamp

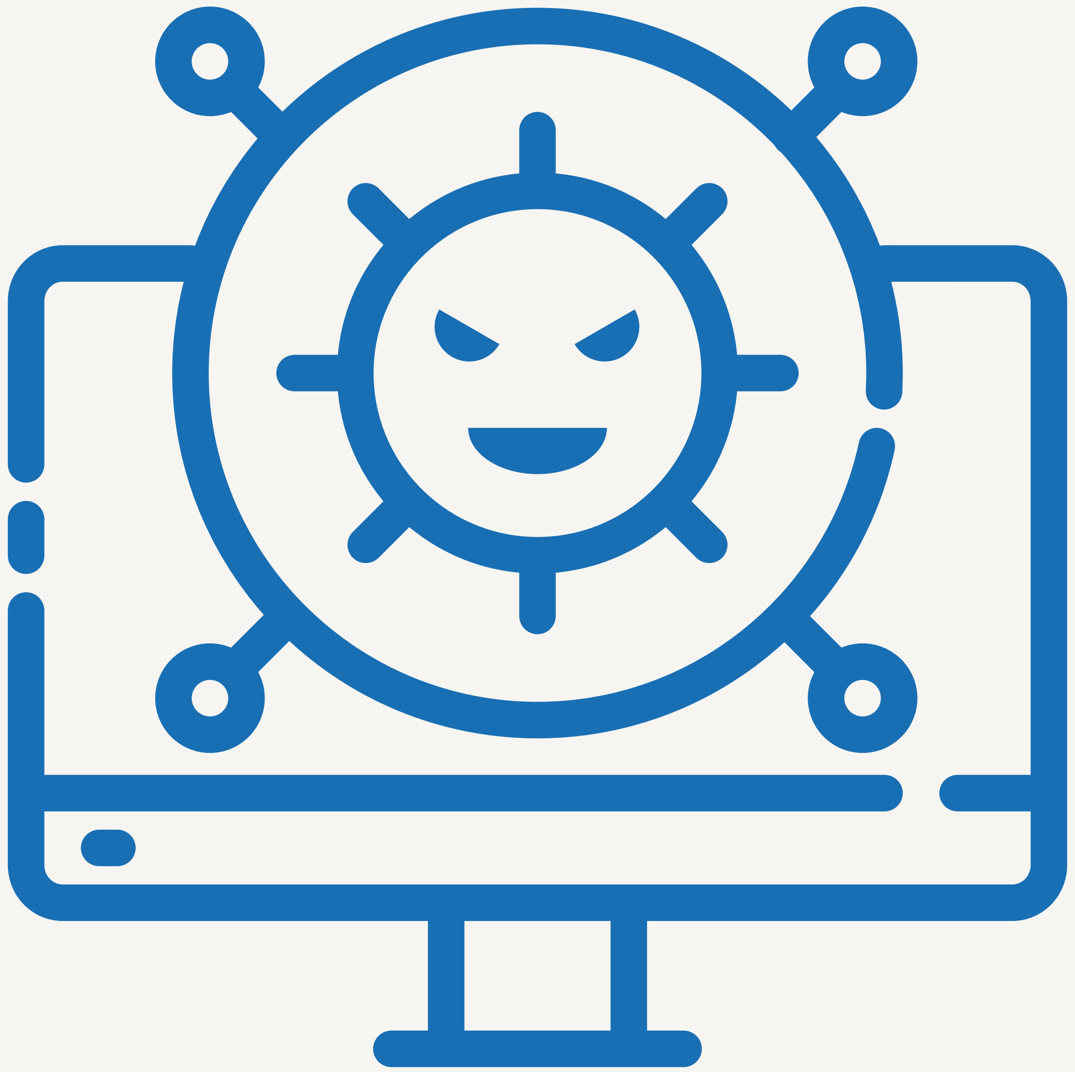
3. Loan Request & Scoring
Borrower submits request, system calculates demo score

5. PDF Signing & Timestamping
Generate agreement, apply PAdES signature and timestamp

4. Admin Review & Approval
Admin reviews requests and approves or rejects

EXISTING Solutions

Solution		Limitation
Banks		slow and complex
Paypal/Wise		not designed for micro -lending
Fintech apps		weak document securtiy



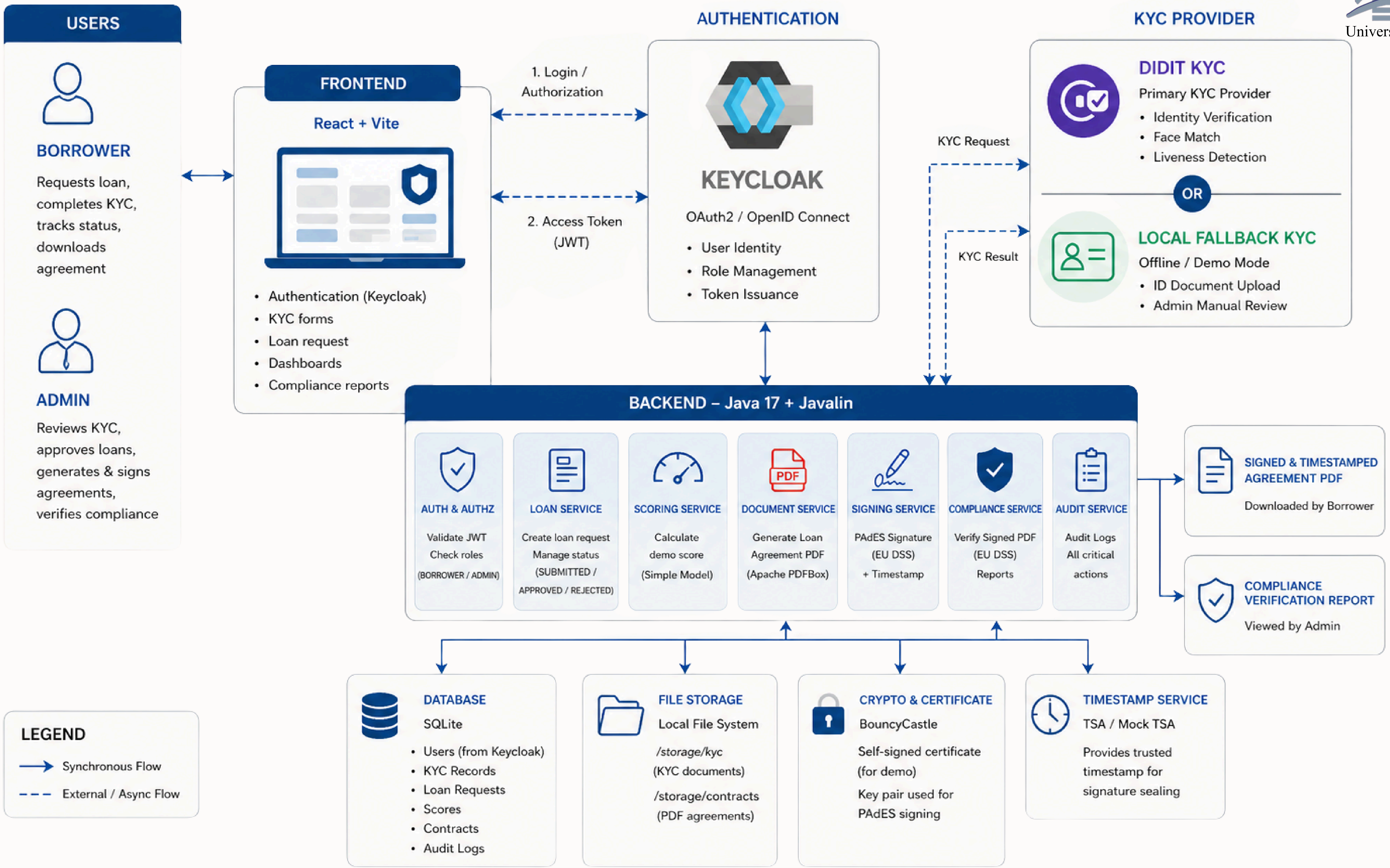
system workflow

- Frontend: React + Vite
- Backend: Java + Javalin
- Authentication: Keycloak
- KYC: Didit
- Database: SQLite

Cybersecurity Mechanisms

1. Identity & Authentication
2. Data Encryption
3. Secure Transactions Layer
4. Fraud Detection & Risk Engine
5. Compliance & Trust

System Architecture



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Advantages & Impact

ADVANTAGES

- Fast & secure lending
- Low cost transactions
- Easy-to-use digital wallet
- Accessible to everyone

IMPACT

- Financial inclusion
- Supports small businesses
- Builds user trust
- Encourages cashless economy

Limitations & Challenges

BUSINESS & LEGAL

- **No P2P lending law in Tunisia**
  BCT license required to grant credit — platform operates in a legal gray zone
- **No loan enforcement**
  No legal mechanism to recover defaulted loans — no collateral, no recourse
- **INPDP biometric compliance**
  Collecting face & ID data requires formal authorization from INPDP
- **Thin revenue margins**
  Micro-loan fees are small — viability depends on very high transaction volume
- **User trust & cultural adoption**
  Convincing users to lend money to strangers is a major behavioral barrier

TECHNICAL

- **PAdES PKI complexity**
  Needs a trusted CA (ANCE) — without it, signatures have no legal standing
- **Floucna Score cold start**
  New users have no history — impossible to assess risk at onboarding
- **KYC liveness spoofing**
  Face matching can be bypassed with deepfakes or stolen IDs
- **No external credit bureau**
  Score is self-contained — no official data to validate borrower risk
- **Audit log integrity**
  Financial logs must be tamper-evident — requires cryptographic chaining

Conclusion

Trust in digital finance should not be assumed...
it should be proven.

Floucna Mina Fina is a step toward secure, transparent, and trustworthy fintech systems.

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Thank You

For Your Attention