TVS CREDIT MITRA

Team Brainstormers
Malay Saxena
Ajinkya Taranekar

Overview

Mitra is a SaaS, for getting your khata and stock inventory on your hand, moreover, you can apply for loans with instant approvals to making EMI payments on your existing loans, Mitra app is the one-stop solution for all your credit needs.

• You can now easily apply for any of loans, in a minute or so.
• Get all the details about your loans, make EMI payments, request your loan statements and know the details of your receipt.
• Manage your stocks and orders in our online khata.
• Calculate the EMI for your loans through a simple, easy-to-use interface.

Mitra has now come to your smartphone for help. Download the **Mitra** app today!
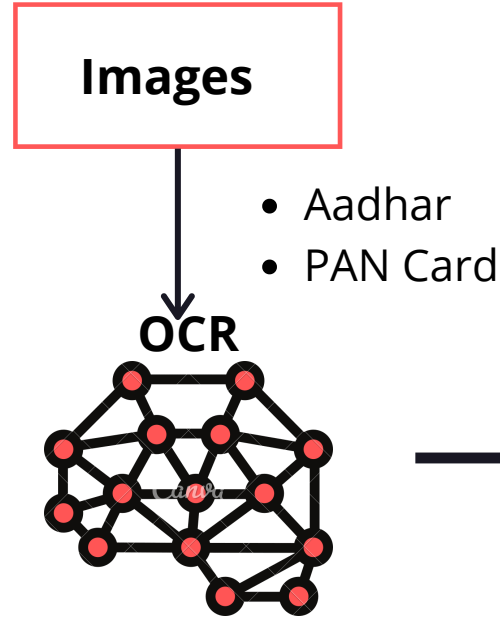
Know Your Customer

O3

1

2

Start → **Images**
- Aadhar
- PAN Card

OCR

Aadhar Number
12XX XXXX XX16

PAN Number
12XXX XXX16

UIDAI Database

ITD Database

Applying Verhoeff algorithm — Yes → **Aadhar API** ⇢ Fetch details ⇢ UIDAI Database

PAN API ⇢ Fetch details ⇢ ITD Database

No

Sent OTP

Get Aadhar Number

Enter OTP

Check OTP — No →

OTP

Aadhar No → Validate aadhar ← Aadhar from PAN

Get Aadhar Number

Yes

Yes

No

AADHAAR ✅

Aadhar Verification Complete

Get Aadhar Number

INCOME TAX DEPARTMENT — GOVT. OF INDIA
Your Name
21/03/2009
Permanent Account Number
ABCD1234A
✅

PAN Details Verification Complete

Surrogates

- **Past week store purchase bills**
  We will ask them a week ago purchases for their inventory. Preference: PDF, Image
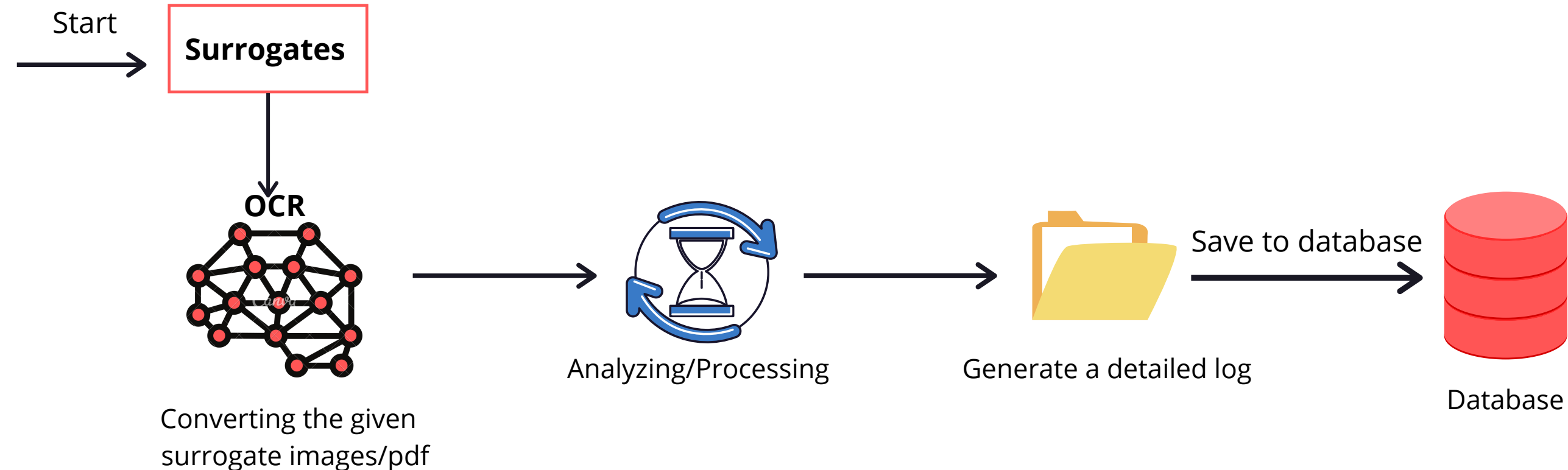- **Property ownership**
  How is the property owned or have rights over it?
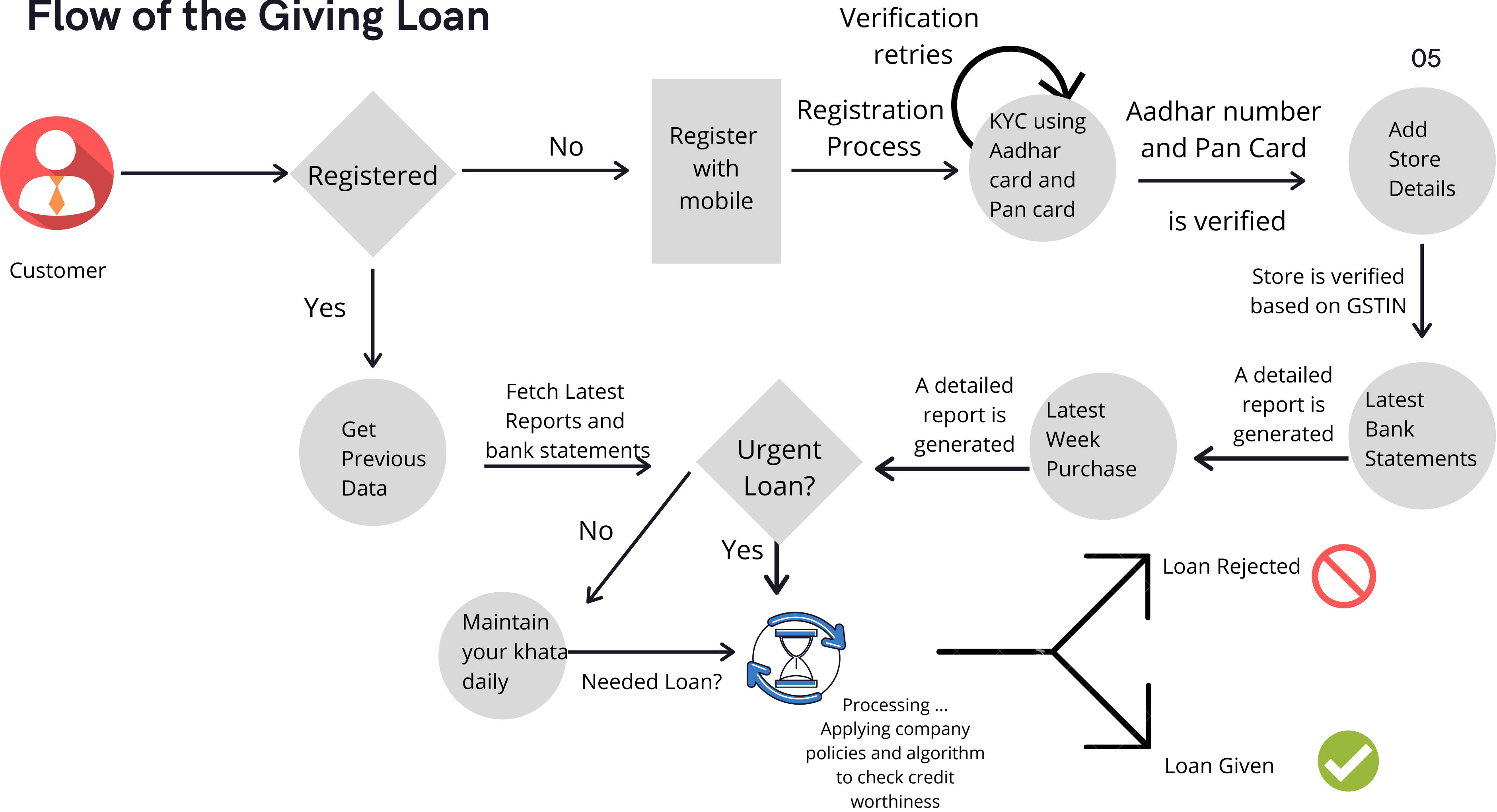- **Physical assets**
  Any assets which can be guaranteed by the applicant.
- **Guarantor**
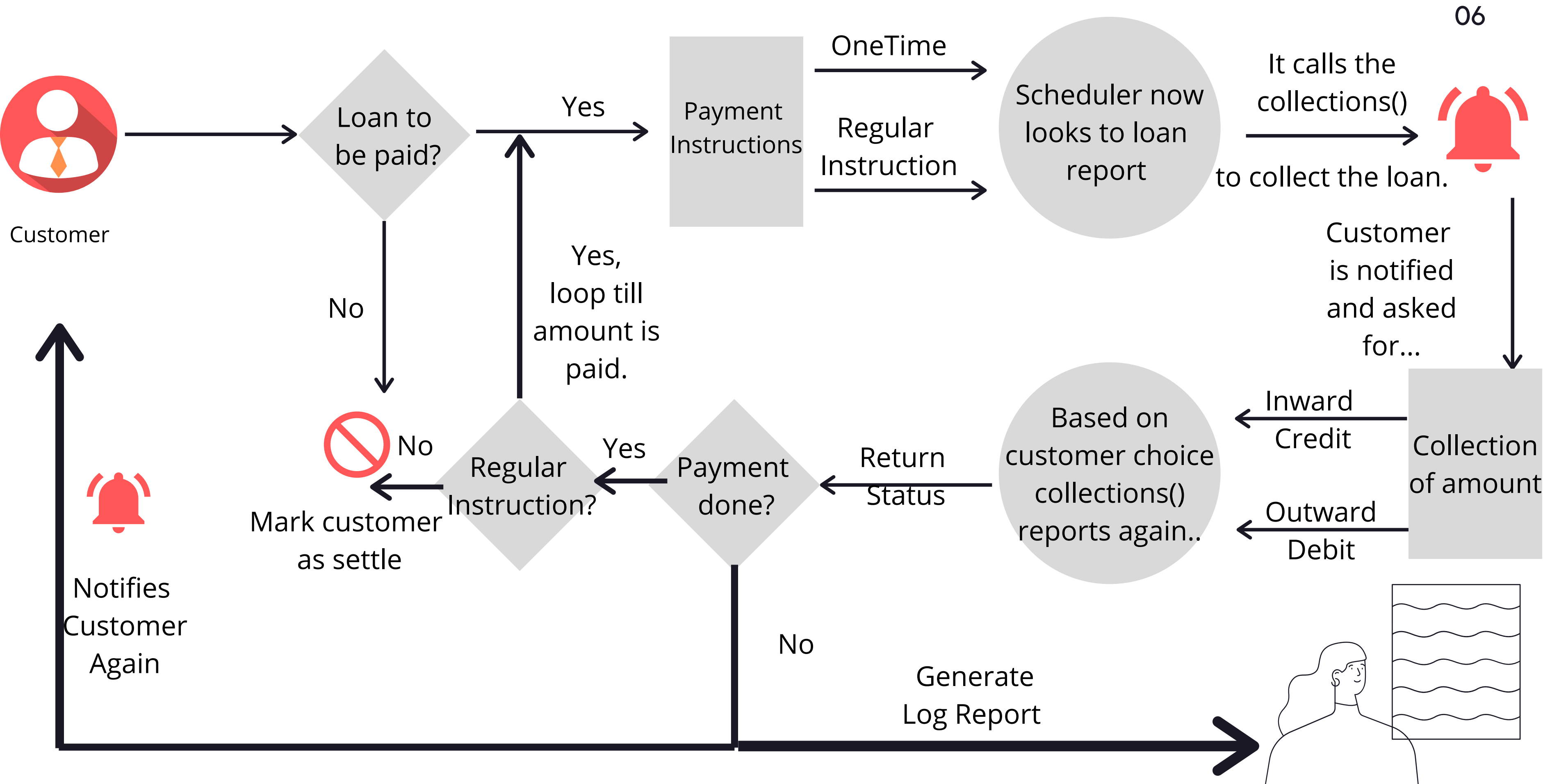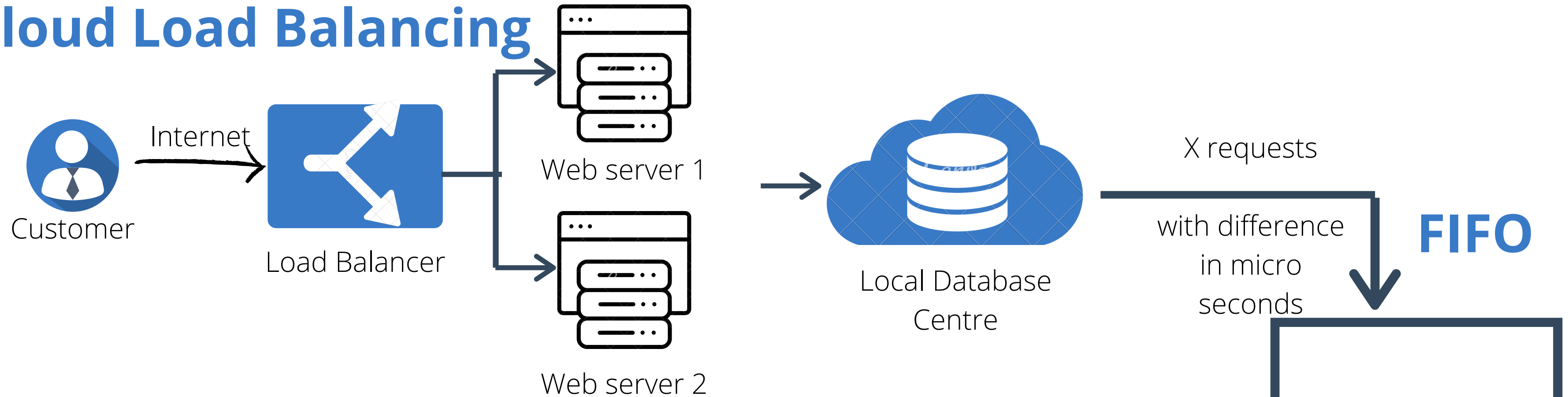 Can ask a person to guarantee the applicant for the amount of loan on basis of guarantors income.

Start → **Surrogates** → **OCR**

Converting the given surrogate images/pdf → Analyzing/Processing → Generate a detailed log → Save to database → Database

Flow of the Giving Loan

Customer

Registered

No → Register with mobile

Registration Process → KYC using Aadhar card and Pan card

Verification retries

Aadhar number and Pan Card is verified → Add Store Details

Store is verified based on GSTIN

Latest Bank Statements

A detailed report is generated → Latest Week Purchase

A detailed report is generated → Urgent Loan?

Yes (Registered) → Get Previous Data

Fetch Latest Reports and bank statements → Urgent Loan?

No → Maintain your khata daily

Yes → Processing ... Applying company policies and algorithm to check credit worthiness

Needed Loan?

Loan Rejected

Loan Given

Flow of the Clearing and Settlements

SCHEDULING

Cloud Load Balancing

Customer — Internet → Load Balancer → Web server 1 / Web server 2 → Local Database Centre

X requests

with difference in micro seconds

FIFO

Customer 1
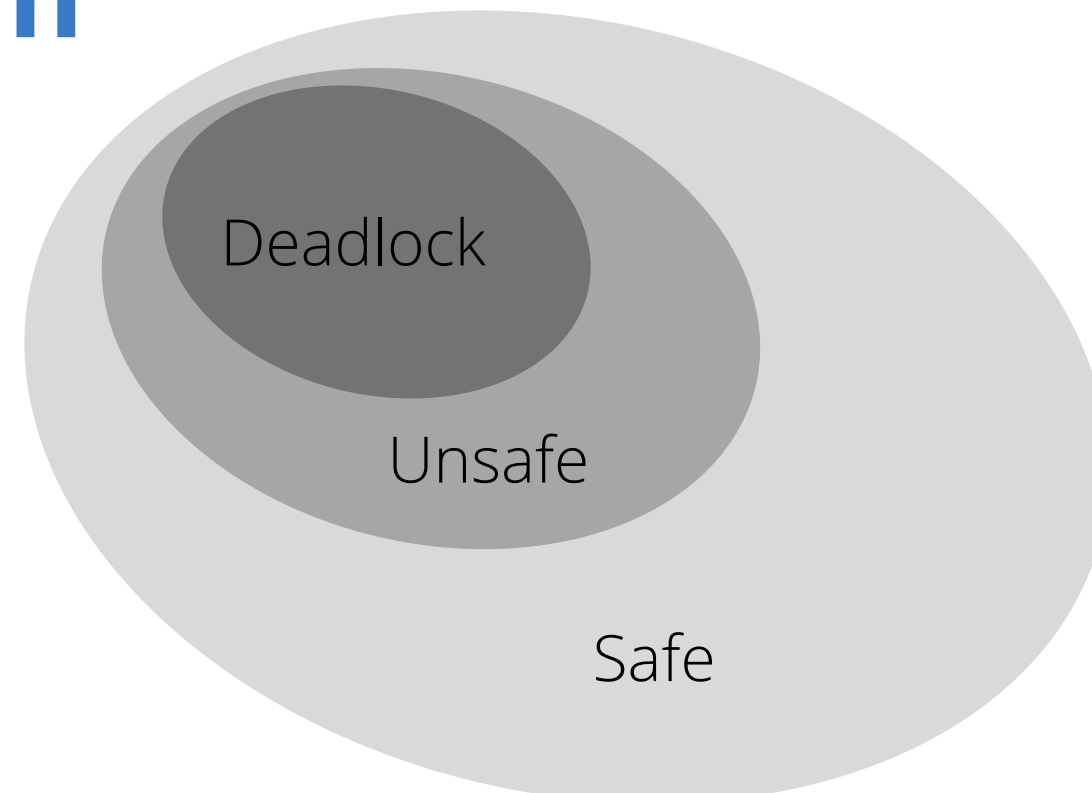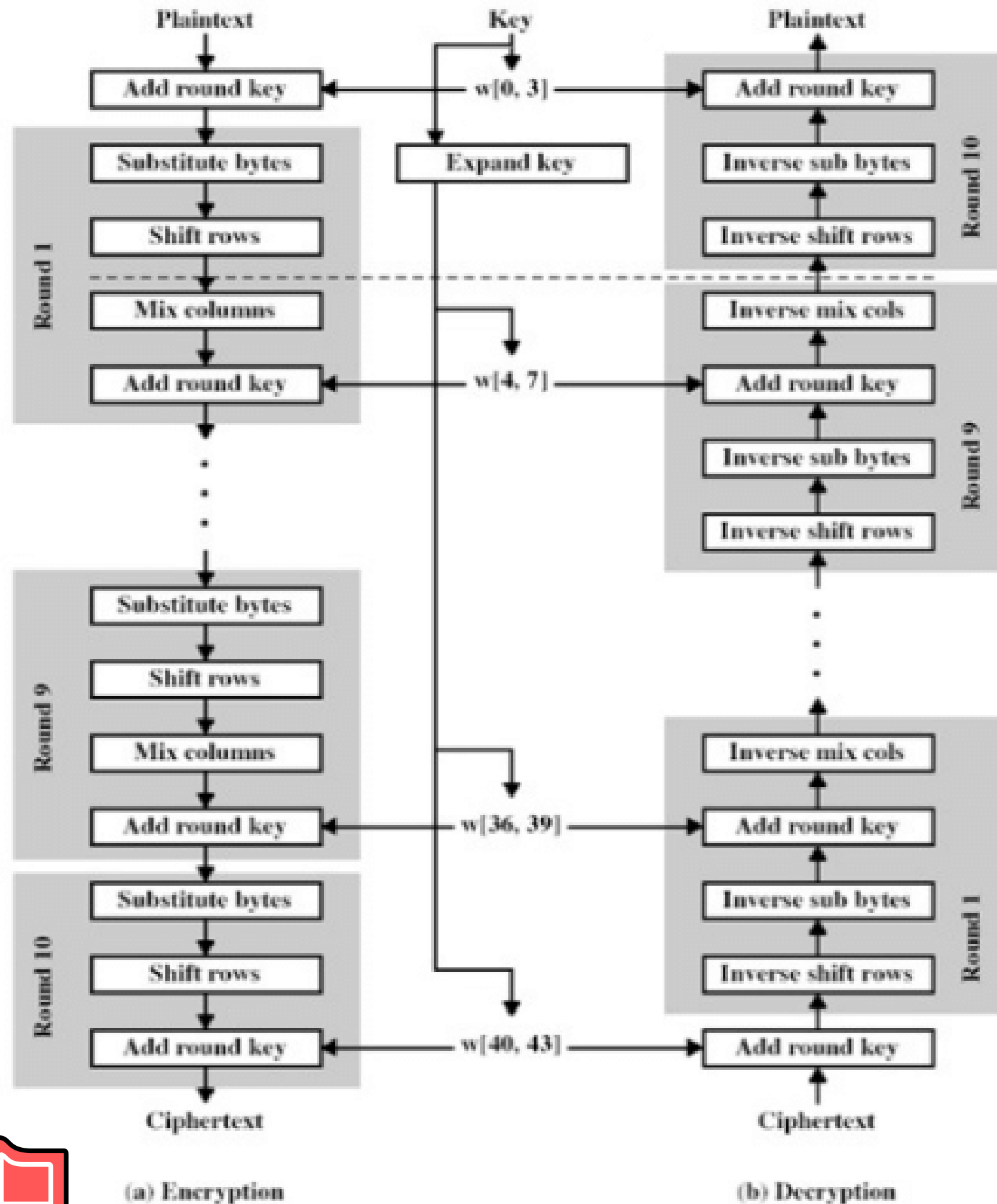
Banker's Algorithm

- To divide the traffic, we will use load balancer, such that it divides crowd into parts
- then based on time interval of request, we will use FIFO to handle request.
- And, finally by using Banker's Algorithm we will allocate the resources.

Deadlock

Unsafe

Safe

(a) Encryption

(b) Decryption

DATA SECURITY

Advanced Encryption Standard

Since Security is a major concern, while clearing and settlement, we decided to use **AES**.

Pseudo code

```
Cipher(byte[] input, byte[] output) {
    byte[4,4] State;
    copy input[] into State[]
    AddRoundKey
    for (round = 1; round < Nr-1; ++round) {
        SubBytes
        ShiftRows
        MixColumns
        AddRoundKey
    }
    SubBytes
    ShiftRows
    AddRoundKey
    copy State[] to output[]
}
```

Thank You