

Digital Loan Origination Platform

Project Report submitted in partial fulfillment of the requirement for the degree of Bachelor
of Technology

in

Computer Science & Engineering

By

Yash Mittal (141307)

Under the supervision of

Ms. Ankita Sharma

to



Department of Computer Science & Engineering and Information Technology

**Jaypee University of Information Technology Wanknaghat, Solan-173234,
Himachal Pradesh**

Certificate

Candidate's Declaration

I hereby declare that the work presented in this report entitled “**Digital Loan Origination Platform**” in partial fulfillment of the requirements for the award of the degree of **Bachelor of Technology in Computer Science and Engineering Technology** submitted in the department of Computer Science & Engineering and Information Technology, Jaypee University of Information Technology, Waknaghat is an authentic record of my own work carried out over a period from February 2018 to May 2018 under the supervision of **Ms. Ankita Sharma**, Project Manager in Kuliza Technologies Pvt. Lmt., Bangalore.

The matter embodied in the report has not been submitted for the award of any other degree or diploma.

Student Name:

Yash Mittal (141307)

This is to certify that the above statement made by the candidate is true to the best of my knowledge.

(Supervisor Signature)

Supervisor Name: Ms. Ankita Sharma

Designation : Project Manager

Department name : Kuliza Technologies Pvt. Lmt, Bangalore

Dated :

Acknowledgement

I would like to use this opportunity to express my gratitude to everyone who supported me throughout the course of this project. I am thankful for their aspiring guidance, invaluable constructive criticism and friendly advice during the project work. I am truly thankful to them for sharing their honest and rousing sees on a number of issues related to the extend.

I am especially grateful to **Ms. Ankita Sharma**, for her valuable suggestions, support and constant encouragement during the course of the project. Her perpetual energy, motivation, enthusiasm and immense knowledge inspired me to discipline myself in efficiently executing my multiple responsibilities simultaneously.

Table of Contents

Certificate	2
Acknowledgment	3
<u>List of figures</u>	<u>5</u>
<u>List of Tables</u>	<u>6</u>
<u>List of Abbreviations</u>	<u>7</u>
<u>Abstract</u>	<u>8</u>
Chapter No. Title	Page No.
<u>Chapter 1 Introduction</u>	<u>9</u>
◦ <u>Introduction</u>	<u>9</u>
◦ <u>Terminology</u>	<u>11</u>
◦ <u>Problem Statement</u>	<u>19</u>
◦ <u>Objective</u>	<u>20</u>
◦ <u>Organization</u>	<u>21</u>
<u>Chapter 2 Literature Review</u>	<u>24</u>
<u>Chapter 3 System Development</u>	<u>46</u>
<u>Chapter 4 Performance Analysis</u>	<u>55</u>
- <u>References</u>	<u>56</u>

List of Figures

Figure No.	FigureName	Page No.
1	A Journey in Loan Agreement	12
2	Framework for New-age Digital Lending Business	25
3	Main Loan Handling System	26
4	Intent Engine Contents	28
5	A customer Dashboard to interact with them	34
6	A flow diagram for Server summary when a loan comes in	39
7	UI App for OTP confirmation when new user comes	47
8	A secret pin setup for security in UI	48
9	Document Upload UI	49
10	User Information UI	50
11	Loan Related Information UI	51
12	Loan Details	52
13	Online Download and Sign of Documents	53
14	Reusable UI	54

List of Tables

Table No.	Table Name	Page No.
1	Some Companies with prebuild IB	14
2	Some Companies with prebuild IB in Finance Sector	15
3	Some Companies with prebuild IB in Client Sector	15
4	Some Companies with prebuild IB in Banking Sector	16
5	Some Companies with prebuild IB in Service Sector	16

List of Abbreviations

LOS	Loan origination system
IB	Integration Broker
BPMN	Business Processing Modeling Notation
XML	Extensible Markup Language
HTML	Hyper Text Markup Language
CSS	Cascading Style Sheets
ASYNC	Asynchronous
API	Application Program Interface
UI	User Interface
DSS	Decision Support System
GUI	Graphical User Interface
OTP	One Time Password

Abstract

Today's clients are getting to be more requesting for way better client experience and better free forms that can coordinate unused age fintech company's offerings. The advanced attitude of clients and government activities are compelling the enterprises to control their advanced businesses. Conventional banks and lending enterprises have a brief period to alter to this worldview move, or they might become out of date. Advanced advances will not as it were empower banks and lending enterprises to supply an natural client involvement but moreover offer assistance in serving their clients in a cost-effective way.

Consequently more banks and loaning endeavors are forcefully looking to market, sell and benefit credits of all sizes through advanced mediums coordinate to customer providing quick, secure and paperless exchanges. Through Advanced Lending, enterprises not as it were point at empowering computerized ventures to clients but also manage conclusion to conclusion credit lifecycle on a computerized interface; from sourcing to evaluation to payment, adjusting and back.

CHAPTER- 1 INTRODUCTION

1.1 Introduction

Everyone needs cash at each orchestrate of their life. Presently and at that point it so happens that they have sharp pine for to purchase their favorite stuff but they are unfit to purchase due to insufficiency of cash.

This require isn't specific to a nation or a community but unavoidably anyone can feel the require at any point in life. Here lies a address that a person who does not have a extraordinary whole of cash at particular time has no right to see dreams? Is he not authorized to fulfill his needs on time? Need to he end imagining? No, since there's course of action for these request. Credits are available for these purposes because it were.

But what goes the issues with ordinary progress systems are:-

1. Time consuming
2. Long frame filling
3. Long queues
4. Speed and assets are limited
5. Human Mistakes

Here this extend comes into play by which anybody can apply for advances online and rest of the work is done by the computer frameworks which takes care from appropriate endorsing of the credit to total reimbursement of the amount.

This is what our Advanced Loaning Computer program provides. A stage where anybody can apply for advances sitting domestic not going through the depleting paper work and advance suppliers can sit calmly on picks up without any issue.

The framework is such concocted that a minor changes within the travel can address most of wants of nearly each bank on the planet and can be a major break through within the keeping money division where the picks up depends on the credits given by the bank and as the number of candidates increments so the income of the clients.

On the other hand the clients or the ordinary individuals who are in a require of advance but cannot get through the managing an account handle due to any reason such as gigantic paper work or incapable to reach out bank, etc. can record for advances online and get simple disbursements.

Kuliza's Advanced Loaning Suite is designed utilizing pre-built components and IP to solve basic trade challenges and offer assistance ventures serve their customers better. Advanced Loaning Suite comprises of savvy motors which streamline and automates conclusion to conclusion credit handle dealing with various complexities delivering Straight Through Preparing of advance items with negligible or no offline touch points. It is built on a exceedingly secure stage that empowers consistent integration with third-party applications and has the capability to dispatch unused advance products with dexterous advancement sprints. The thought to scale, advance and continuously improve the coordinate to client stage is brought live utilizing the Advanced Lending Suite.

Kuliza's Loaning Suite comprises of the underneath said major components.

1. Computerized Advance Start System
2. Integration Broker
3. Savvy Credit Engine
4. Loaning Analytics

1.2 Terminology:-

a. Workflow Engine

Workflow Motor could be a light-weight trade prepare motor composed in Java. The workflow motor permits you to send BPMN 2.0 handle definitions (an industry XML standard for characterizing forms), making handle occurrences of those process definitions, running questions, getting to dynamic or chronicled process instances and related information. Workflow Motor is the center module of loan origination motor that's utilized to arrange and oversee forms cross business line; from client travel to back office benefit ask handling. The workflow motor allows us to oversee and screens the state of activities. For case it permits to screen handling and endorsement of a credit application form, and at the same time decides which modern movement to transition according to characterized forms (workflows). The activities may be anything from saving an application frame in a journey or sending data of clients in a customer dashboard to heightening late things to administration. A workflow motor encourages the stream of data, errands, and occasions.

The trade handle as portrayed over can be characterized graphically utilizing the Workflow Motor. The graphical documentation of our prepare looks like this:

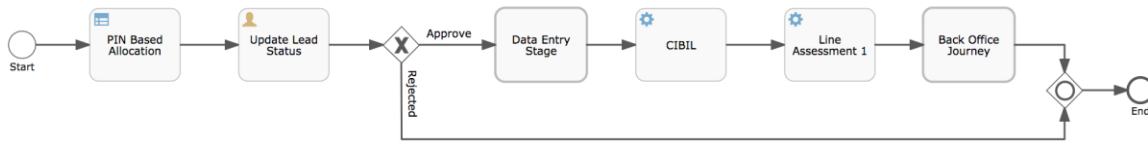


Fig 1. A Journey in Loan Agreement

This prepare starts with a Begin Occasion (circle on the cleared out), taken after by a arrangement of errands finishing in an End Event (circle with thick border on the correct)

b. Rules Engine

The Trade run the show motor makes a difference in permits trade clients to make and trade rules with slightest association and steps to be changed from the code-base. It can execute one or more trade run the show run-time at generation .

In Kuliza's loaning stage, the run the show Motor, firmly coupled with Workflow Motor powers credit travel by rearranging the method and start credit travel. It empowers banks and loaning endeavors dealing with of arranging commerce rules & changing them based on experiences.

Here are a few of the rules that can be characterized in rules motor:

- Validation rules : Information confirmation, and consistency checks
- Calculation rules : Compute values based on input data

- Decision rules : Determination of trade handle path
- Generation rules : Creation of unused information objects

3. Rendering Engine

Rendering Motor gives the adaptability to customize the visual layer based on the necessities, decreasing the time for frontend changes and ease the making of field level changes specifically from Workflow motor. Rendering motor empowers client to create/edit/delete any field from the existing shape within the travel. It draws organized content from a archive (often HTML), and groups it legitimately based on the given fashion statements (regularly given in CSS) from the default records of traits such as diverse styles of dropdowns, field sorts, buttons sorts, CSS topics etc. Once a topic is chosen, client can fair drag and drop the field to make a unused shape with validations.

4. Integration Broker

Integration Broker acts as an interface for inside, outside frameworks, different third-party administrations and backend apparatuses to make consistent intelligent and robotizes the advance forms. It connects various frameworks to guarantee there's no point to point integration, killing single point of disappointment. It applies a center

and talked design with line based ASYNC usage where all third-party integration dwells. It moreover makes a difference to diminish stack, minimize latencies and empower benefit coordination to oversee inside and third-party integration and guarantees smooth loaning. Most critically, a way to oversee and monitor your integrative centrally.

Pre-built connector library comprising of all the API integrative with fundamental third-party administrations which can be utilized by the ventures to mechanize the forms. These pre-built connectors are prepared to utilize and can be stopped straightforwardly into the Workflow Motor with negligible setup. A few of the pre-built administrations incorporate:

Social	Payment	India Stack
LinkedIn	PayU	DigiLocker
Facebook	Billdesk	eSign
Twitter	Techprocess	Aadhar
Google	Paytm	eMudra
Glassdoor	Citrus	NSDL
Payscale	Razorpay	Jocata
	Netbanking	
	Mobikwik	

Table 1. Some Companies with prebuild IB

Fraud	Financials	OCRs
Hunter	PROBE 42	ANTWORKS
FRS	MCA	PyTEsseract

Table 2. Some Companies with prebuild IB in Finance Sector

DMS	Dedupe	Chatbot
Alfresco	Posidex	iDeliver
Kuliza DMS	Kuliza Dedupe	

Table 3. Some Companies with prebuild IB in Client Sector

Credit Bureau	Banking	Analytics
CIBIL	Perfios	Credit Vidya
Softcell	Yodlee	Segment
Equifax	Tech Process	Mix Panel
Experian		GA
Highmark		Klout

Table 4. Some Companies with prebuild IB in Banking Sector

Communication	CMS	CRM
Mandrill	Drupal	Sugar
Netcore	Liferay	Zoho
MoEngage	Kuliza CMS	SF
SNS	Wordpress	
Mailchimp		
Phonon		

Table 5. Some Companies with prebuild IB in Service Sector

5. Credit Engine

Credit Motor makes a difference in designing and propelling credit models rapidly. The effective rules motor built over dribbles makes it simple for the trade groups to arrange and alter complex credit models and qualification calculators on disentangled web UI. Each credit demonstrate is uncovered as a benefit, which can be expended by the Workflow Motor permitting real-time application preparing whereas the client is completing the online travel.

6. Collections Management

Collections Administration could be a bound together obligation administration Module fueled by the workflow motor and rules motor. This module permits the commerce to arrange and redo their collection forms and create seamless information network between different frameworks within the trade eco-system.

Key benefits of the collections administration modules are:

- Rearrange obligation recuperation process
- Reduce operational cost
- Maintain administrative compliance
- Enhance the client experience
- Seamlessly coordinated with Collections organizations to guarantee consistency over operators and channels

- Complete control for the commerce to design, customize and progress the collection forms

Key highlights within the Collections Module are:

- Rules based allotment of the cases to the collection operator and all the partners across all communication channels at the side appropriate heightening network and prioritization automation
- Role-based get to to the collections specialists to get to the advance application history
- Comprehensive checking, detailing, and review path creation
- Integration with the center frameworks to empower credit rebuilding, closure and top-up alternatives for the customer
- Integration with different installment alternatives counting cash, cheque and wallet integrations
- Integration with the communication module to trigger all vital client and partner communication

7. Decision Support System

The Choice Back Framework (DSS) is an open source arrangement for visualization of information which makes a difference endeavors to keep track of their key execution lists and streamline the utilization of official reports over different partners. The basic innovation for DSS is based on the Versatile stack, comprising of Logstash/Beats, Elasticsearch and Kibana.

1.3 Problem Statement

1. Making a Online Organize for Credit Authorizing Framework:-

The system as portrayed prior must meet up the necessities of a ordinary advance endorse framework with all its variants.

2. System must be secure from both ambushes and blackmail users:-

Where the money is included pulls in unfriendly clients to break the system for their possess benefits. In this manner the System ought to be free from outside assaults and bug free so it let not pass any invalid user with off-base data.

3. System must be Universal:-

It ought to incorporate highlights and necessities and most imperatively should not alter from client to client. As it were minor changes might lead the venture to completely unused set of enlightening.

4. Ought to be Optimized:-

As the workload is tall and the number of clients can increment drastically, the application ought to not break and handle a great amount of stack keeping a adjust on the server.

1.4 Objective

The targets are to begin with of all to meet the primary 3 issues within the issue articulation. Once we have a working extend for a few clients at that point the next understanding of the extend can be seen in one picture and at that point comes the stage 3 of the venture which basically centers on bug free code and optimized execution.

We need to include all security highlights to test the genuineness of the client some time recently giving him the advance and a credit evaluation framework for calculating the sum able to safely loan the client without any human interruption.

Therefore ready to say the objective not a advance allowing framework but its a Total Online Credit Start Framework which takes care from authorizing clients to total reimbursements.

1.5 Organization

1. Credit Engine:-

Bank for Worldwide Settlements characterizes Credit Hazard as the potential that a borrower or counter party will come up short to meet its commitments in agreement with concurred terms. The objective of credit hazard administration is to optimize a bank's risk-adjusted rate of return by keeping up anticipated credit costs inside satisfactory limits. Banks got to oversee credit chance characteristic within the whole portfolio as well as the hazard in person credits or exchanges based on its generally portfolio composition. In administration of credit chance, teach ought to moreover consider the connections between credit chance and other factors such as liquidity, security, collaterals, structure etc. Successful administration of credit chance could be a basic component of a comprehensive approach to chance administration and basic to the long-term victory of any organization particularly a managing an account substance.

Coordinate accounts are considered to be the foremost clear and self-evident source of credit chance; be that as it may, other sources of credit hazard like off adjust sheet exposures, counter party chance from exchanges in budgetary disobedient and commitments over managing an account and exchanging books. Since credit chance proceeds to be the driving source of issues and capital utilization across financial teach world-wide, there's a basic commerce and compliance got to recognize, degree, screen, oversee and control credit hazard and decide whether satisfactory capital is accessible against these risks.

Credit Hazard Motor may be a comprehensive, versatile browser based arrangement for credit rating / scoring for all financing exchanges at obligor and office level. The item gives a strong and adaptable modeling stage, to proficiently construct retail credit rating scorecards and discount rating models for assessment and estimation of credit hazard and progressed Basel II hazard parameters such as likelihood of default, misfortune given default and office organized evaluations for supervisory opening for all resource classes, counter parties and item sorts.

KEY Item Highlights:-

1. Money related Spreading
2. Customized Approval Checks
3. Allows Natural Construction. Extremely Flexible
4. Option for Different Review Scales
5. Facility Chance Evaluation
6. Menu Driven Interface with client inviting GUI
7. Portfolio Announcing and Scheduler
8. Advanced Basel II concepts and Show Approval.

2. WorkFlow Engine:-

A workflow motor may be a computer program outlined to assist you oversee your processes. Let us envision a handle that, to be completed, needs to go through a certain sum of individuals or divisions. It can take time and assets since the data has got to stream through everyone.

To post news on an online site for case:

1. showcasing has the idea
2. a publicist composes the story
3. editor audits it
4. the lawful division audits it
5. the story goes online in a test web server
6. the director endorses, and at that point it goes up on the website
7. It is the method, and it is done incompletely by each of the members.

Integration Broker:-

An integration broker could be a item acting as a "bridge" between two or more diverse third-party frameworks. Case being MQI (IBM MQSeries Integrator), or the items advertised by WebMethods, SpiritSoft, and other EAI sellers.

An integration broker **can** contain a message broker, because it is the case with MQI. But that's not a need-to-be. An integrator broker focusses on giving connectors able to change over information to and from different third-party designs. A message broker, on the other side, focusses on transporting messages from one conclusion to another.

Moreover called an interface motor or a message broker, an IB may be a third-party mediator that encourages intuitive between applications. IBs negligibly give message change and directing administrations. They generally communicate program to program; they coordinated already free applications at the application-logic level of the computer program design. An gathering of electronic circuits contained on a single piece of semiconductor fabric.

CHAPTER-2 LITERATURE REVIEW

2.1 Digital Loan Origination Platform

What does Digital Lending business need?

1. Change over more clients through Omni-channel client Experience
2. Dexterity to construct micro-products for unused client segments
3. Insights driven prepare workflow enhancements
4. Genuine Time Evaluation and Choice Making on Advance Applications
5. Use a computerized fintech accomplice biological system with consistent integrations
6. Adaptability to control the item within the heading commerce wants
7. Strong and Adaptable Engineering to control advanced business
8. Quicker arrangement and fast time to advertise

Why do Lending Businesses need to go Digital?

1. 5% of the 600000 town homes in India have a commercial bank branch
2. 51% of about 89.3 million cultivate family units don't have get to to any credit
3. 64% increment in Tele-density in country India 2007 to 2017 which gives road of versatile managing an account

Framework for New-age Digital First Lending Business



Fig 2. Framework for New-age Digital Lending Business

- **Client Securing:-** Having Omnichannel Presence
- **Product Revelation:-** Prescribing right item to the customer
- **Customer Onboarding:-** Disentangling client journey
- **Loan Disbursal:-** Speedier turn around time
- **Loan Underwriting:-** Faster Credit Appraisal & Choice Making
- **Application Preparing:-** Mechanized credit processing
- **Case Administration:-** Proficient and computerized trade processes
- **Customer Overhauling:-** 360° Bound together Adjusting & Support
- **Customer Engagement:-** Customized item proposals

Kuliza's Digital Lending Suite

1. CUSTOMER ACQUISITION

Empower client securing from different online and Offline channels, accomplices and aggregators with consistent gadget based integrative and Omnichannel LOS

a. OMNICHANNEL LOS

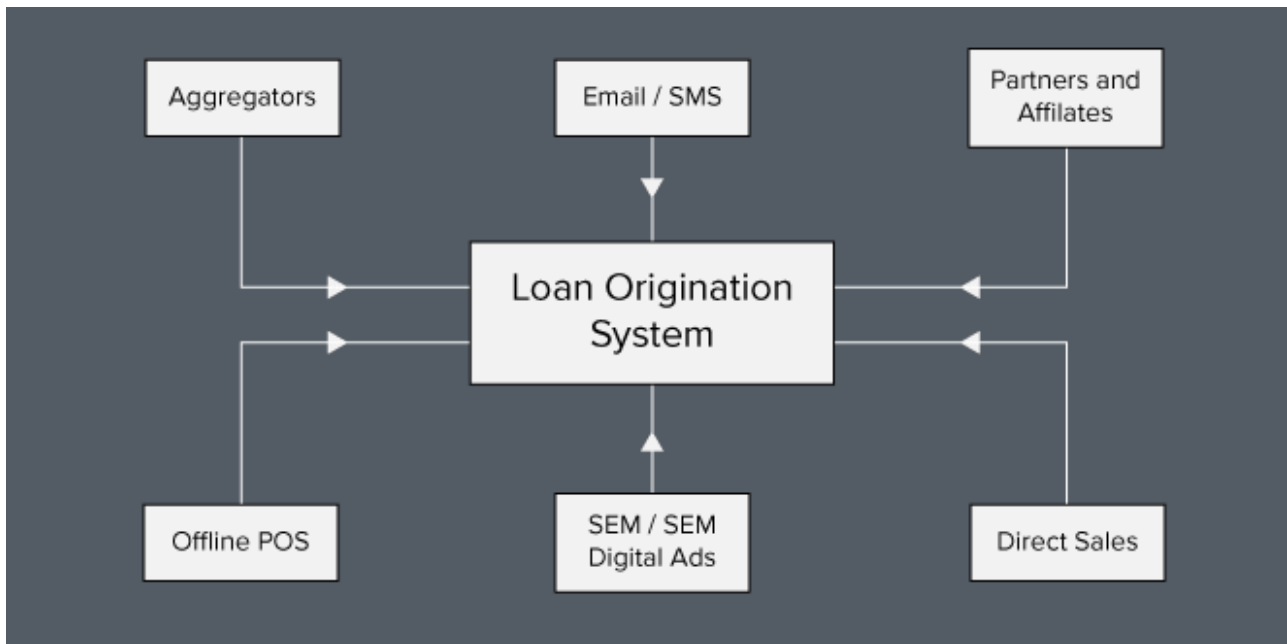


Fig 3. Main Loan Handling System

Features

- Digital Channels
- Offline Touchpoints
- POS
- Branches

b. WIDGET BASED INTEGRATION

Features

- Integration with Partner's Sites

- Loan Aggregators
- Affiliates

c. LEAD MANAGEMENT :-

Features

- Lead Sourcing
- CRM Integration

2. Product Discovery

Catalyse clients choice with personalized proposal of micro-products and substance

a. INTENT ENGINE

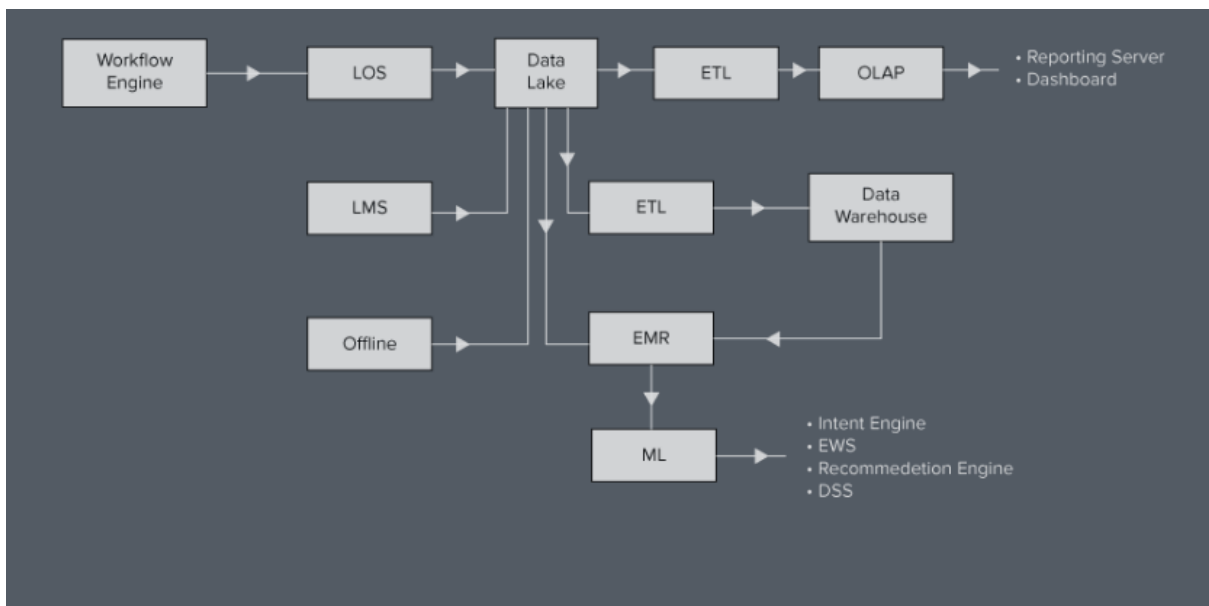


Fig 4. Intent Engine Contents

Features

- Processing Offline Customer Data
- Customer Segmentation

b. PRODUCT CONFIGURATOR

Features

- Configuring Micro products
- Master Management

- Limit Management
- Customer Communication Management

c. CONTENT MANAGEMENT SYSTEM

Features

- Multi-lingual Content Support
- Dynamic Content personalisation

d. RECOMMENDATION ENGINE

Features

- Product Recommendation
- Content Recommendation

3. Customer Onboarding

Make a consistent onboarding encounter for the clients fueled by configurable motors for fast sending

a. WORKFLOW ENGINE

Features

- Customer Journey Configuration
- Customer Information Management
- Seamless UX

b. RENDERING ENGINE

Features

- Customised UI
- Dynamic Changes in UI from backend
- On the run Deployment

c. RULE ENGINE

Features

- Business rule configuration
- Handling complex Business processes
- Real Time Change Management

4. Application Processing

Diminish preparing time with robotized credit and chance evaluation

a. INTEGRATION BROKER

Features

- Service Orchestration
- Internal Systems
- External 3rd party services
- Real Time information processing

b. API LIBRARY

Features

- 58 pre-built adapters
- eKYC
- Credit Bureau
- Fraud

c. CREDIT ENGINE

Features

- Credit Model Configuration
- Run Time changes and deployment
- Version Control and Audit Trail
- Report Generation

d. FI & PD PORTAL

Features

- Automated FI processes

- Single Point Vendor Management
- Reduced TAT

e. INSIGHTS TO INTELLIGENCE

Features

- Machine Learning driven recommendations to evolve Credit Models

5. Loan Underwriting

Arrange consistent backoffice forms fueled by AI driven choice bolster framework

a. BACK-OFFICE PORTAL

Features

- Credit Analysts & Risk Dashboard
- Monitoring Mechanism
- Faster Loan Processing
- Loan Apporval workflow
- Credit Approval Memo

b. CREDIT ENGINE

Features

- Deviation Management
- Eligibility and Assessment

c. WORKFLOW ENGINE

Features

- Credit and Risk Process flows
- Process Automation

d. RULE ENGINE

Features

- Exception Management
- Workflow Routing
- Assignment Logic and User Roles
- Approval Matrix

e. CUSTOMER DASHBOARD

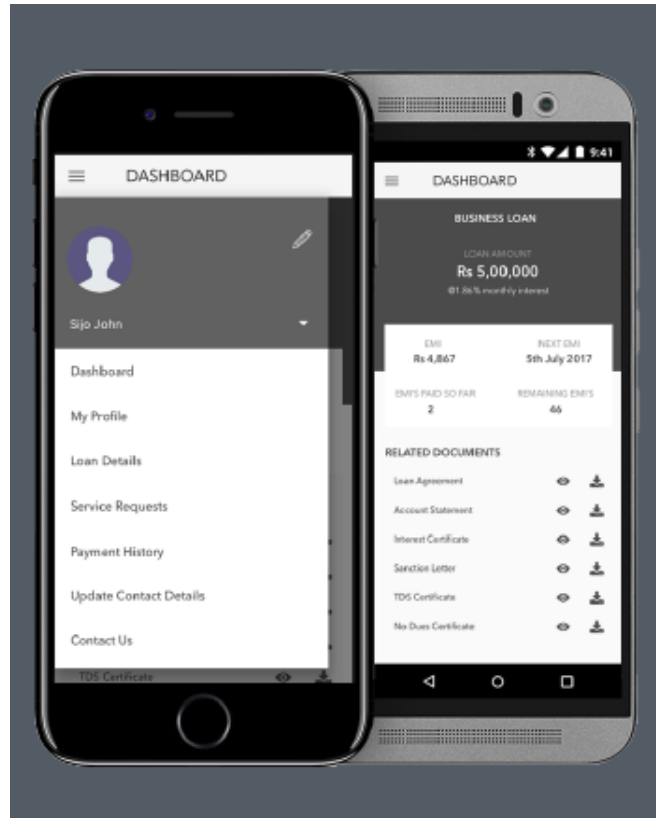


Fig 5. A customer Dashboard to interact with them

Features

- Complete Loan Application Status
- Notifications and Alerts

6. Loan Disbursal

Coordinated with bequest frameworks and center managing an account / bookkeeping frameworks to guarantee credit disbursal in genuine time STP

a. BACK-OFFICE PORTAL

Features

- Ops Dashboard
- Monitoring Mechanism
- Loan Apporval workflow
- Mandate Set-up
- Disbursal Memo generation

b. INTEGRATION BROKER

Features

- Bank Account verification
- Bank Integration
- Accounting Integration

c. DMS

Features

- Document Management
- Tracking Process
- Vault Set-up

d. WORKFLOW ENGINE

Features

- Operations' process flows
- Process Automation

e. RULE ENGINE

Features

- Assignment Logic and User Roles
- Workflow Routing
- Assignment Logic and User Roles
- Approval Matrix

7. Case Management

Total end-to-end credit portfolio administration with trade forms redone around your organisation

a. WORKFLOW ENGINE

Features

- Post Disbursal Workflows
- Loan Repayment
- Loan Restructuring
- Loan Closure
- Service request Handling
- Real time alerts for Defaults and Deviations
- Report Generation

b. RULE ENGINE

Features

- Business rule configuration
- Handling complex Business processes
- Real Time Change Management

c. INTEGRATION BROKER

Features

- Service Orchestration
- CRM Integration
- Credit rating Agency
- Bank Integration
- GL / Accounting Integration
- Social Feeds for EWS

d. NOTIFICATION ENGINE

Features

- Repayment Notification
- Offers and other communication

e. EARLY WARNING SYSTEM

Features

- Loan Monitoring and Follow-up
- Triggers and Alerts

f. INSIGHTS TO INTELLIGENCE

Features

- Product Recommendation
- Process Automation

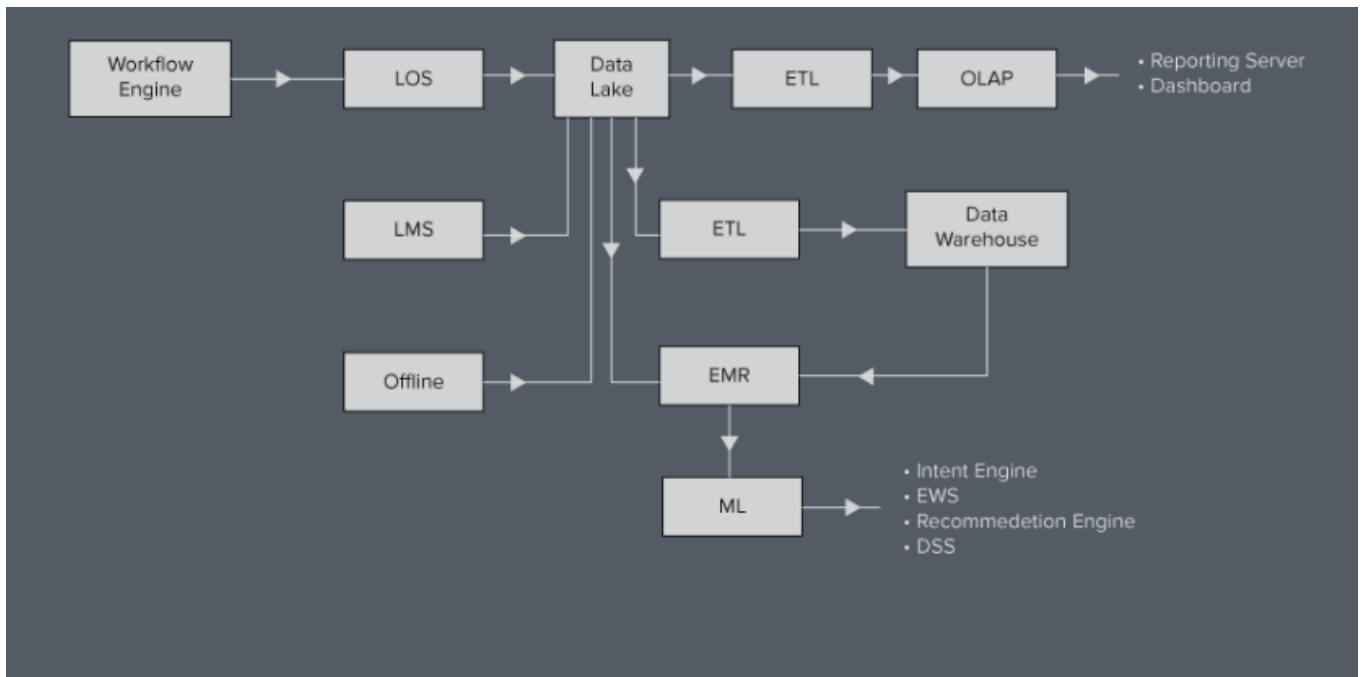


Fig 6. A flow diagram for Server summary when a loan comes in Journey

8. Customer Servicing

Give 360-degree overhauling and bolster involvement for your clients

a. BACK-OFFICE PORTAL

Features

- Servicing Dashboard
- CRM Integration
- Ticketing Mechanism
- Service request Handling
- Greivance handling
- Escalation Matrix

b. INSIGHTS TO INTELLIGENCE

Features

- Predictive Service Analytics Models

9. CUSTOMER ACQUISITION

Hold your clients by making locks in encounter with imaginative campaigns around item offerings

a. PERSONALISATION ENGINE

Features

- Personalised product offerings
- Content Recommendation

b. LOYALTY FRAMEWORK

Features

- Rewards and Loyalty
- Engagement Campaigns
- Social Collaboration

c. CUSTOMER DASHBOARD

Features

- Complete Loan View
- Service Request Triggers

Some Case Studies

a. Aditya Birla Finance Limited

Digital Lending Platform

Aditya Birla Back Restricted (ABFL), is one of India's most rumored non-banking budgetary companies (NBFC) which offers a wide run of customized budgetary arrangements.

ABFL joined forces with Kuliza to convert their end-to-end credit prepare from an offline handle to carefully streamlined forms that incorporate paperless operations, workflow-based computerized decision-making and credit scoring fueled with quick analytics.

b. Intellectap

Digital Lending Platform

Intellect could be a pioneer in giving inventive commerce arrangements that offer assistance construct and scale productive and maintainable ventures.

Kuliza made a difference Intellect to plan and construct a new-age advanced loaning stage to bring together financial specialists, start-up and benefit suppliers.

c. Capital First

Mobile Enablement

Capital To begin with could be a driving supplier of monetary benefit over shopper and discount businesses.

Kuliza made a difference Capital To begin with to construct their official portable app to convert Item Disclosure, Lead Era and Loan Application Following to supply a wealthy encounter to their clients.

d. Murabaha

Digital Lending Platform

Murabaha Club is an imaginative elective back trade, at first giving advances to UK SMEs with a vision to gotten to be the UK's No.1 Islamic Fund Stage serving SME and buyer borrowing needs.

Kuliza is making a difference Murabaha Club construct a peer-to-peer loaning stage for speculators, borrowers and moneylenders to come together on a worldwide advanced loaning commercial center.

CHAPTER-3 SYSTEM DEVELOPMENT

3.1 Native App for Loan Origination System

The major spine of the total extend is the client encounter which exclusively depends upon the frontend or the Application construct by us counting awesome Client Interface and UX with total backend integration and total testing.

For best involvement and reusable code base we attempted to utilize both Android blended with capable Respond Local same for IOS and got the leading comes about precisely what we needed.

App straightforwardly alludes to the backend server running on SpringBoot Java and employments a auxiliary server of Python Django as a Integration Broker where all third party apis are dealt with.

Separated from this we have a Credit Motor which is the brain of LOS because it centers on advance sum calculation agreeing to the individual credit restrain and the sits the Machine Learning and Manufactured Insights Algorithms which are utilized to extend the client involvement and distinguish fakes from collected information.

Important App Integration Starts with the first screen of the app and includes major fields like:-

1. Mobile number Verification:-

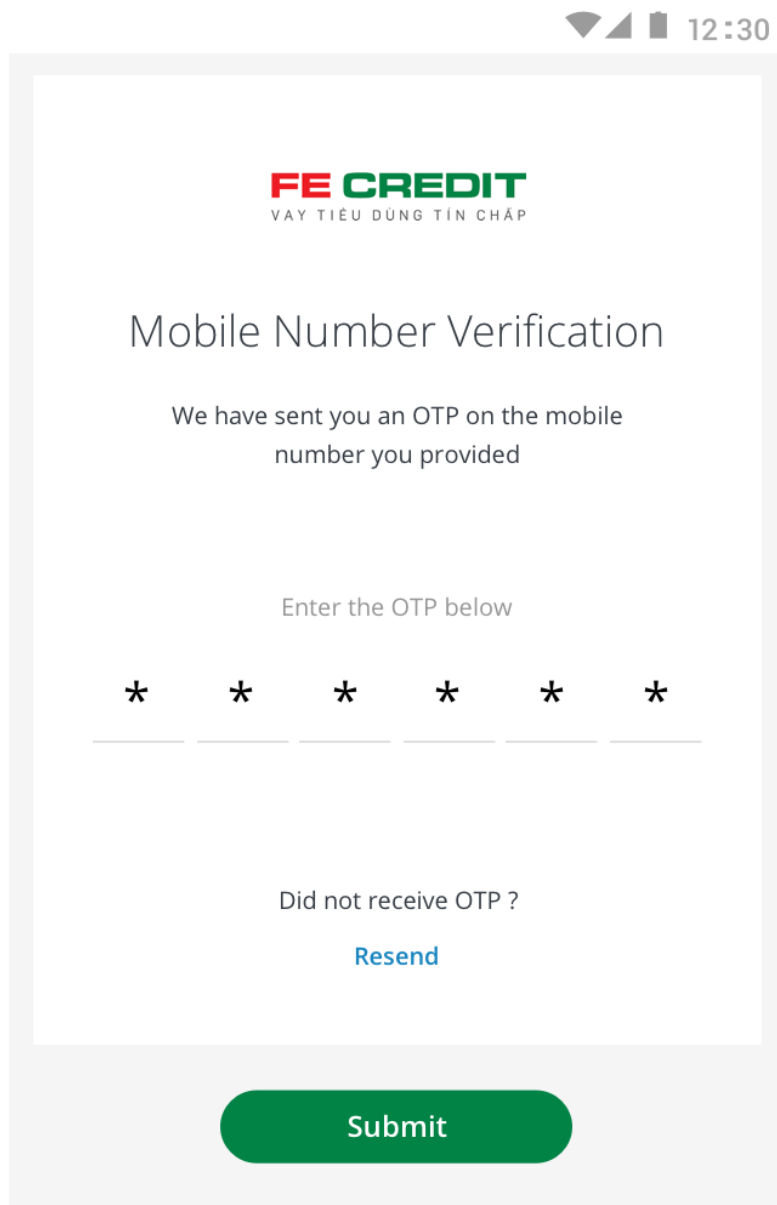


Fig 7. UI App for OTP confirmation when new user comes

We utilized a basic approach to handle portable OTP issue by moving it to unused server where it sits nonconcurrently and doesn't over-burden the server.

The backend for OTP era is composed in python and can produce different groups of OTP for the purpose of all inclusiveness of the integration.

2. Secret Pin:-

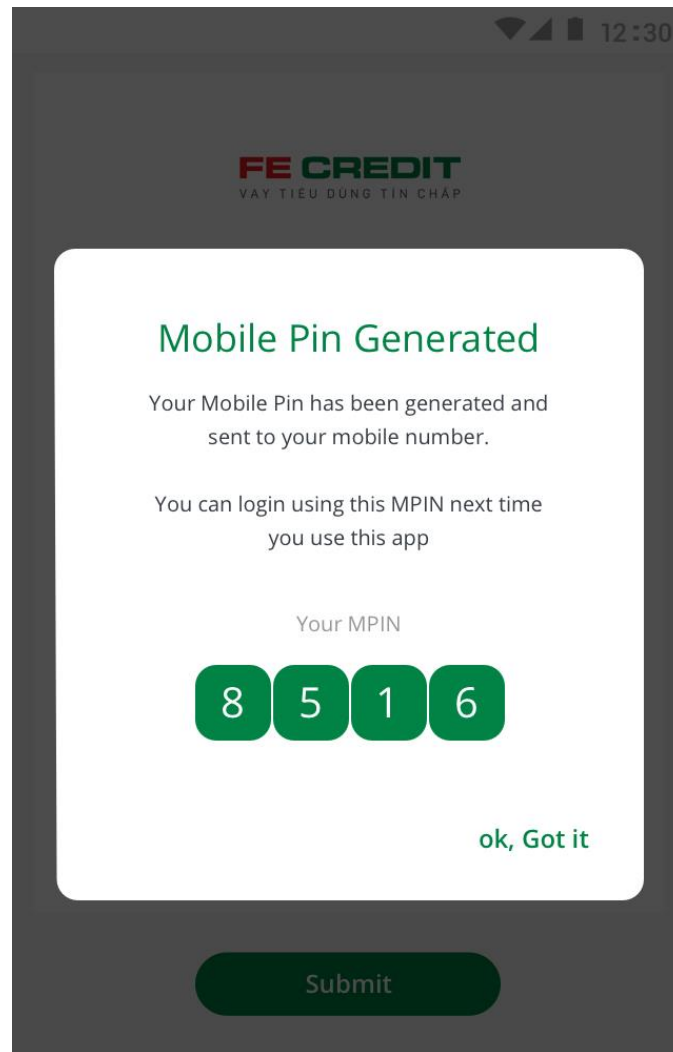


Fig 8. A secret pin setup for security in UI

For expanding security we are able up with a arrangement that we let the client to set a stick for the app so no one else can get to their private information.

Once the pin has been set at that point client not have to be confirm himself always he setup and basic stick can be utilized to get to his data and security.

Pin has be spared employing a exceptionally secure hash and different level hashing for inconceivable hacking.

3. Document Verification:-

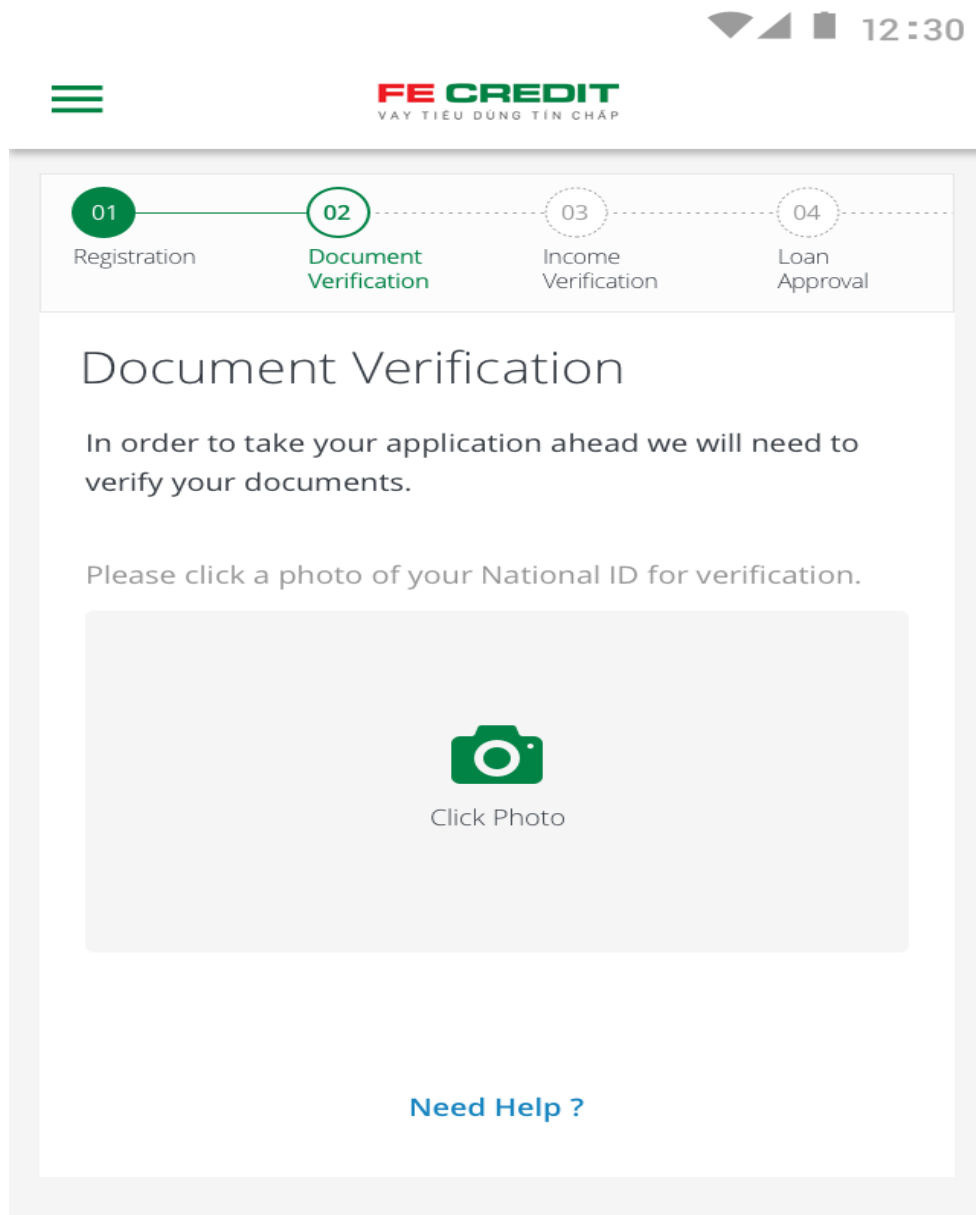


Fig 9. Document Upload UI

After the Fruitful enlistment the client has got to transfer the trusted and critical report country wide recognized so to demonstrate his genuineness and major data can be collected from those archives such that the client may not stress around physically filling each data almost himself.

By this able to guaranteed the Realness and safely confirm the data of the client against his/her records and national information.

4. Personal Information:-

We take a few individual data for enlisting the client and confirming him against his national information.

The screenshot displays the 'Personal info and Address' form in the FE CREDIT mobile application. At the top, there is a progress indicator with four steps: 01 Registration, 02 Document Verification, 03 Income Verification, and 04 Loan Approval & Disbursement. The current step is 1/3. The form is titled 'Personal info and Address' and is divided into several sections:

- Personal Information:**
 - Full Name*: **Hoang Van**
 - Date of birth*: **03 - 05 - 1986**
 - Nationality*: **Indian**
 - Gender: Male Female
 - Mobile Number*: **+91 98786 67532**
 - Email Address*: **hoangvan.abc.com**
This email address will be used for all future Communications.
- Permanent Residential Address:**
 - Address Line 1*: **Address Line 1**
 - Address Line 2*: **Address Line 2**
 - Select City / Province*: **City Name**
 - Select Ward*: **Ward Name**
 - Select District*: **Ward Name**
- Temporary Residential Address:**
 - Same as permanent residential address*: Yes

At the bottom of the form, there are two buttons: 'Cancel Application' and 'Next'.

Fig 10. User Information UI

5. Workflow and National ID

As our aadhar we have construct a beginning point were client enters his points of interest required for advance endorsement.

FE CREDIT
VAY TIÊU DÙNG TÍN CHẤP

01 Registration 02 Document Verification 03 Income Verification 04 Loan Approval & Disbursement

Work Info and National ID 2 / 3

National ID

National ID Number
7676 8787 5473 4372

Date of Issue
02 - 09 - 2014

Place of Issue
Place

Work Information

Current Employer*
Salaried / Self

Type of Company
Type of Company

Company Address
Company Address

Position*
Place

Monthly Income
₹ 50,000

Salary Date*
DD - MM - YYYY

Cancel Application Next

Fig 11. Loan Related Information UI

6. Loan Information:-

Here the client inputs the credit related subtle elements as per his prerequisites

01 Registration 02 Document Verification 03 Income Verification 04 Loan Approval & Disbursement

Loan Information 3 / 3

Loan Details

Loan Purpose*

Tentative Loan Amount
₫ 15,00,000

Loan Tenure
60 Months

Tentative Monthly Payment Amount
₫ 30,000

Preferred Monthly Payment Date*
DD - MM - YYYY

Cancel Application Accept & Continue

Fig 12. Loan Details

7. E. Sign Copy of Agreement:-

Here the client is permitted to audit the assent and carefully sign a duplicate within the app itself.

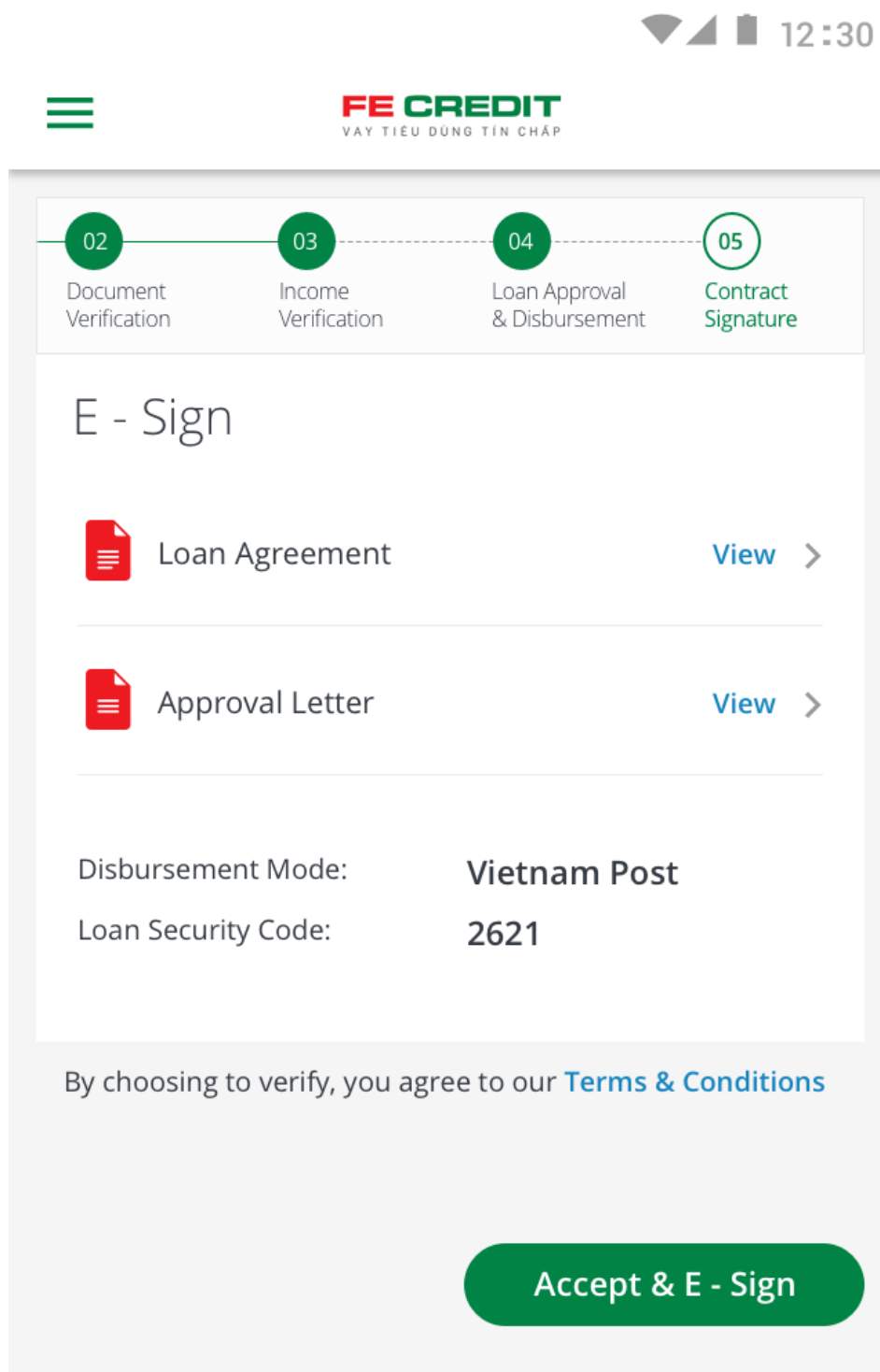


Fig 13. Online Download and Sign of Documents

8. UI Dashboard:-

We have made a dashboard for streamlined reusable frontend so we dont need to lookout of revamping any repetitive code.

UI Dashboard

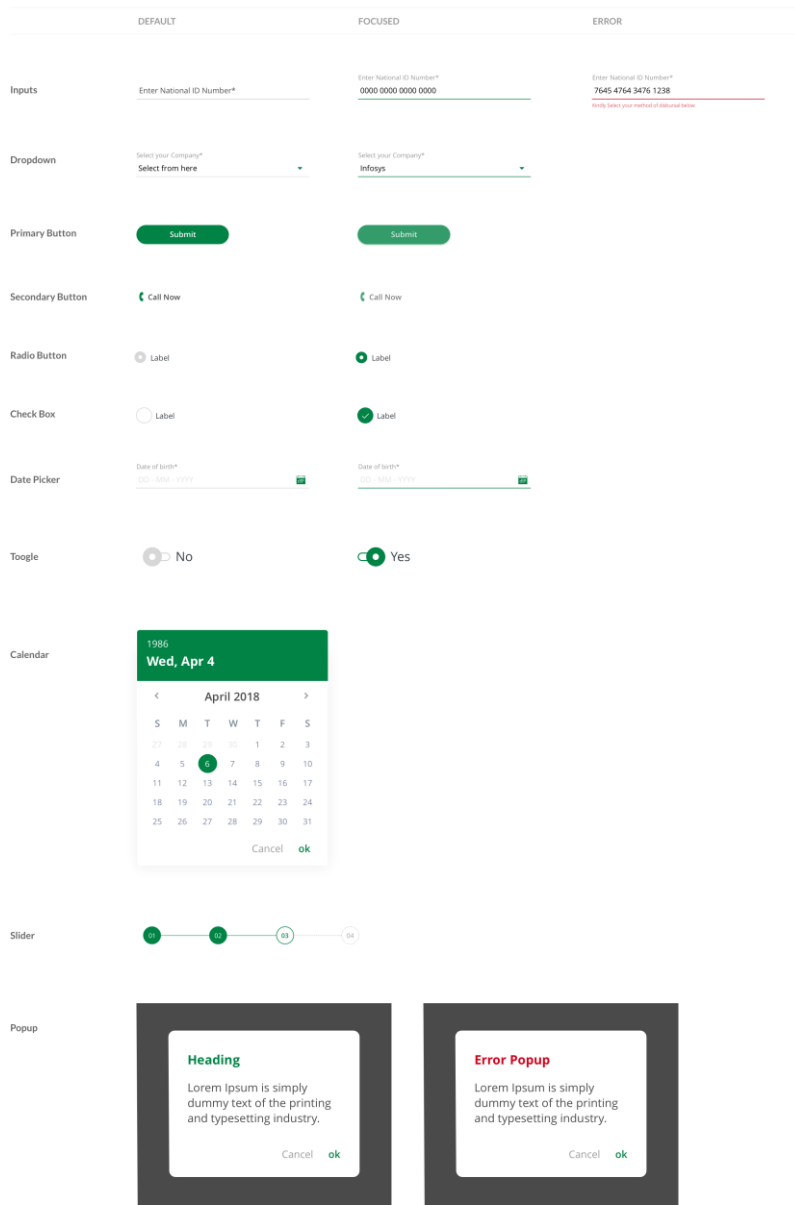


Fig 14. Reusable UI

CHAPTER-4 PERFORMANCE ANALYSIS

After completing the stage one of the venture, most of the highlights were working accurately and as the client requirements.

We included immaculate test case driven testing so that each perspective was thoroughly tried and legitimate documented.

Rest the speed of the app was tried impeccably with minor bugs and slack issues but the server and backend apis were accurately functioning.

After Bug issues were evacuated the client might effortlessly total the travel till advance sanctioning.

For the Stage 2 we had to arrange a appropriate Spry show for working.

Overall the total execution met the benchmarks of the undertaking level improvement app.

References:-

- www.kuliza.com
- www.geeksforgeeks.com
- www.wikipedia.com
- www.wikileaks.com
- www.stackoverflow.com
- Digital Lending Suite:- Kuliza
- Financial Technologies:- Kuliza magazine