

BLAS

Banking Loan Automation System

Baruch College

CLASS : CIS 4800 (System Analysis & Design)

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1.0

Project Overview

Executive summary

This group project on System Analysis and Design provides an opportunity for us as Baruch students to actively integrate and apply all they have learned to the Analysis and Design of a practical, real world project. Throughout this documentation we as students would be able to depict our knowledge and skill acquired about diverse system methodologies, project management framework, modeling, UML, and Design patterns. We will be applying our skill to a project in the banking loan management system, by analyzing the client requirement we shall create a development documentation where we describe our path and vision to automate a manual loan processing system for Mercury bank.

Project objectives

- Enable the automation of Banking Loan Management system by implementing Enterprise System.
- Reducing the manual employee working hours by 70 - 80% in the 2021 Quarter 1
- Shorten the loan processing time for each applicant by 50% faster and eliminate commute time.
- Provide data governance strategy and the implementation of necessary data management activities to ensure data quality at every step of the business process.

1.1

Introduction

This Advance Bank Loan Automation System is the foremost viable application created to keep record of all the client loaning records, finance streams, client records and cash flow for MerQury Bank. Any Non-Banking Monetary Company(NBFC) or bank will require a Credit Management System to set up the advance item and perform client overhauling. To precisely calculate the part of each installment that's to be connected to foremost, late expenses, intrigue, etc., an automated loan management system is required. It too comes with the benefits of a broad report suite counting month to month billings, credit payoffs, property charge recharges, accounting reports, account history, late takes note, property assess reestablishments, guarantees to pay and many interest explanations.

An automated bank loan automation system oversees the advanced data and the store or database. This not only fastens the processing time of each client loan but also reduces human error throughout every step. This information put away is utilized for cash stream data, following current installment status, advance adjusting and other bookkeeping errands. To manage a portfolio of credits and keep up with the financial information is fundamental is the essential reason for such a framework. A few imperative highlights of this framework must incorporate amortization schedules, sharing of central, intrigued and late charge installments between two entities, charge/collect late expenses, capacity to handle customary and non-conventional financing, accurately track halfway installments, client neighborly, capable, reasonable and fully featured.

In conclusion, This type program encompasses an incredible effect on moneylender and as the bank as the program is energetic and adaptable in nature. Speculators, not-for-profit organizations and investors, all can extricate a few great from this. It builds a few solid long-term client connections.

2.1

Document Purpose

The Purpose of this documentation is to appear a nitty abrasive portrayal of the automated banking loans system . It'll clarify the reason and highlights of the development and the interfaces of the system, what the system will do, the objectives underneath which it must work and how the system will react to exterior boosts to serve the clients and banking loan processing departments. This document is expected for both the partners and the originators of the system and will be obligated for the underwriting or protest of the degree by the community of the Bank.

2.2

Confidentiality

This document is for internal MerQury Bank use only. It should not be shared outside of MerQury Bank without prior written approval from the project executive.

2.3 Target Audience

The intended audience for this document is the project manager, project team, and the future development team. The audience or users for this system design document include the following:

- **CIS4800 Project Management Team**
- **Mercury Bank Information Technology Team**
- **Future application development team**
- **CIS4800 Project Managers and Oversight Team**
- **Internal Consulting Team**
- **Mercury bank compliance team.**

2.4 Document Objectives

The document's objectives are to provide an accurate and high level technical architectural view of the Banking Loan Automation System and its data flow.

In addition This document is intended to provide a business and technical guideline for the agile squad delivery.

2.5 Document Releases and Updates

Date	Author	Version	Change Reference
02/21/2021	Bryan Rendra Pramana	1.0 Draft	Initiated the document
02/27/2021	Farheen Zaman	1.1 Project Overview	Initiated the project objectives
03/07/2021	Bryan Rendra Pramana	2.1	Scope, Stakeholder Management, And UML Class Diagram

2.6 Document Review Tracker

Date	Reviewer Name	Version	Reviewer Details
	Prof. Jefferson Bien-Amie	1.0	Initial review
	Prof. Jefferson Bien-Amie	1.0	Design Architecture Reviewed

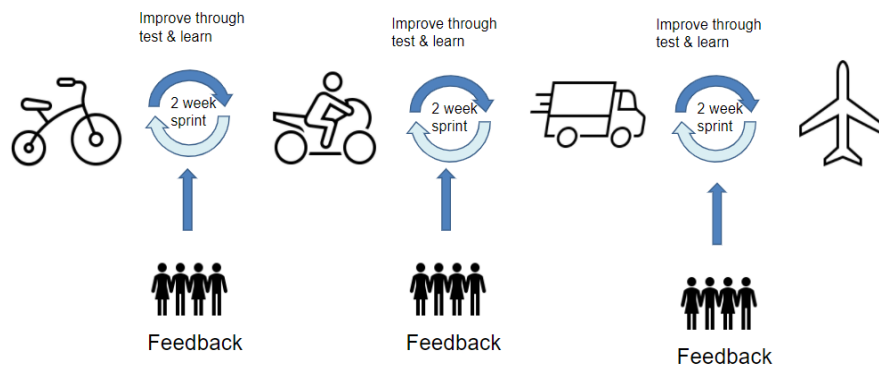
2.7 Glossary

Abbreviation	Description
BLAS	Banking Loan Automation System
DW	Data Warehouse
SFTP	Secure File Transfer Protocol
HLAD	High Level Architecture Design
DRA	Data Reporting & Analytics

PI	Program Increment
APO	Advanced Planning and Optimization
UML	Unified Modeling Language
EDP	Enterprise Data Platform
PIC	Person In Charged

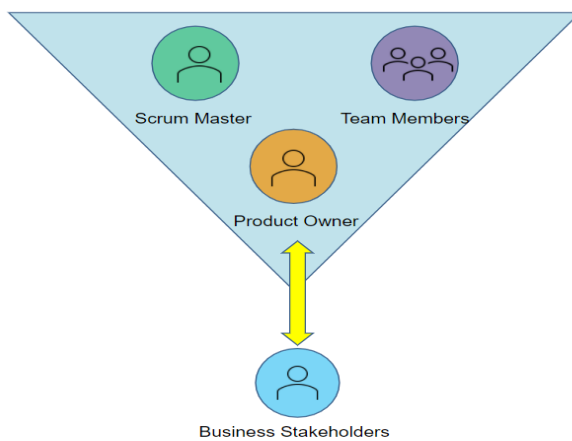
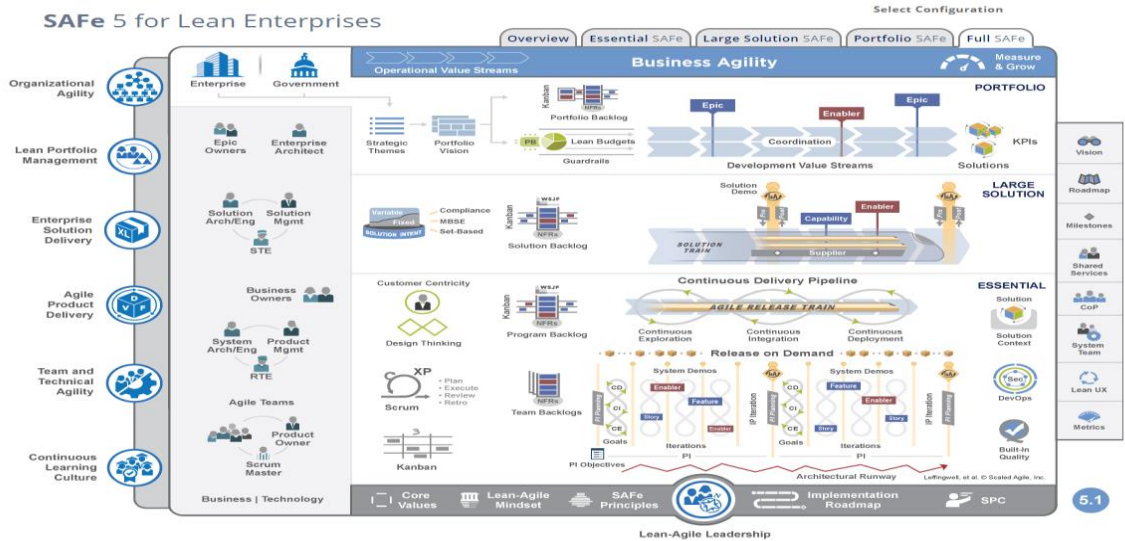
2.8 Development Methodologies

The main goal is dividing the project into multiple sprint objectives to get value early and often



The BLAS delivery squad fall into Agile Teams in the SAFe 5.0 Enterprise Board. We are working under the regional USA and by collaborating with other Agile team we could achieve global company vision.

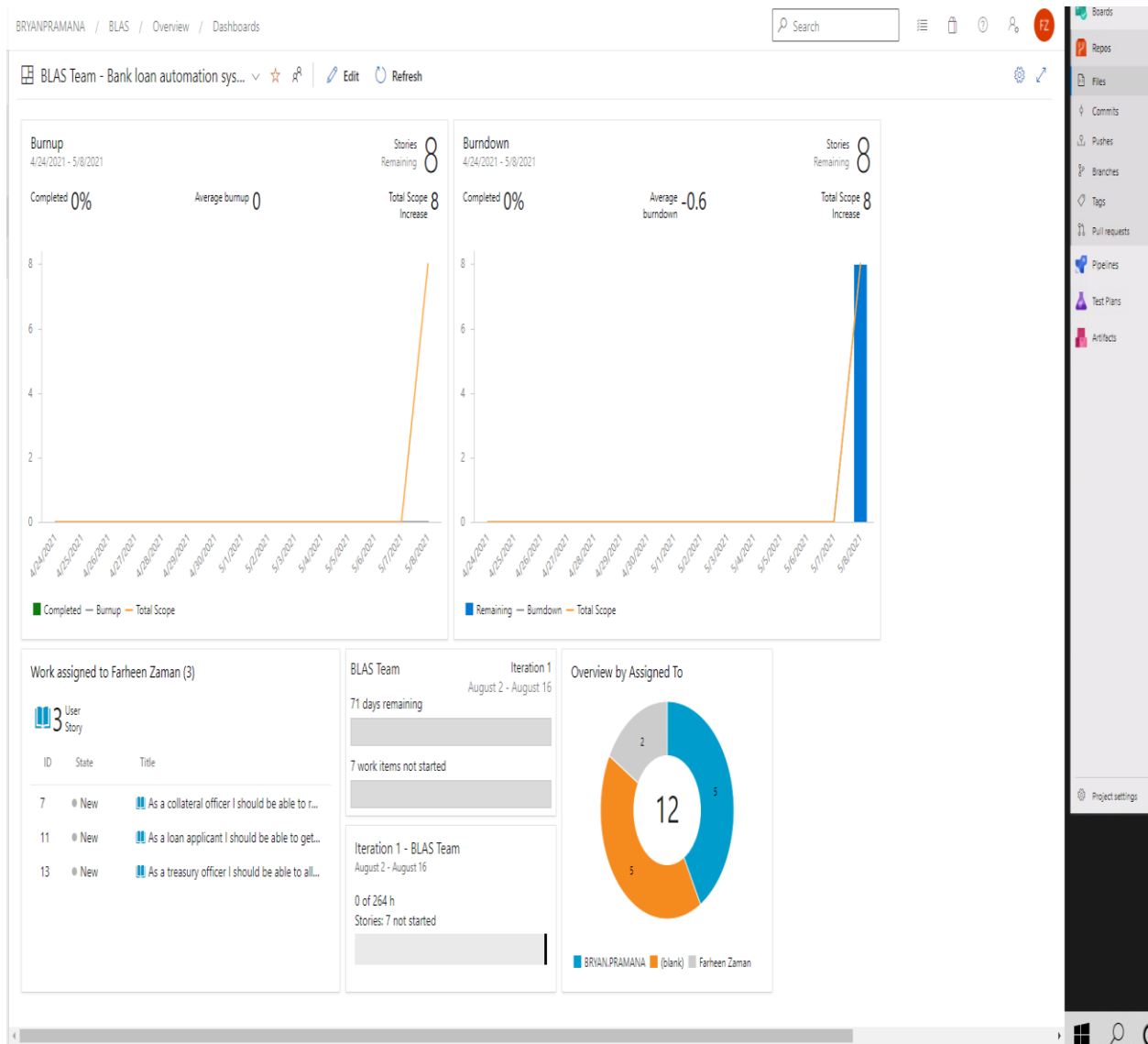
Scaled Agile Framework (SAFe)



	Defines the end goal of the project and the requirement/tasks, review and accepts deliverable and outcomes.
	Acts as the project manager and team coach, ensures project is progressing to plan, ensures team sustainability.
	Team required to complete the work, having varied roles and skills across the business.
	End user of the project deliverable, or anyone with an interest in the project

The BLAS project will fully adopt Scaled Agile Framework (SAFe 5.0) methodology for various reasons. The uncertain condition of business requirements and the possibility of new requirements in the middle of the project is taken into consideration. The demand to deliver results as early as possible is another factor why Agile is implemented.

Azure Dashboard



Azure Backlog

The screenshot shows the Azure DevOps interface for the BLAS Team. The left sidebar contains navigation options: Overview, Boards, Work items, Boards, Backlogs (selected), Sprints, Queries, Delivery Plans, and Repos. The main area displays the Backlog for the BLAS Team, showing a list of User Story work items. The table below represents the data shown in the screenshot:

Order	Work Item Type	Title	State	Story ...	Value Area
1	User Story	As a treasury officer I should be able to allocate fund to...	New		Business
2	User Story	As a loan applicant I should be able to get notification if my ...	New		Business
3	User Story	As a collateral officer I should be able to reviewed forward...	New		Business
4	User Story	As a a compliance officer I should be able to access user fla...	New		Business
5	User Story	As a bank loan officer I want to be able to access customer u...	New		Business
6	User Story	As a User I want t be able upload my identification documen...	New		Business
7	User Story	Historical Data Migration	New		Business
8	User Story	System Application Dashboard Mockup	New		Business

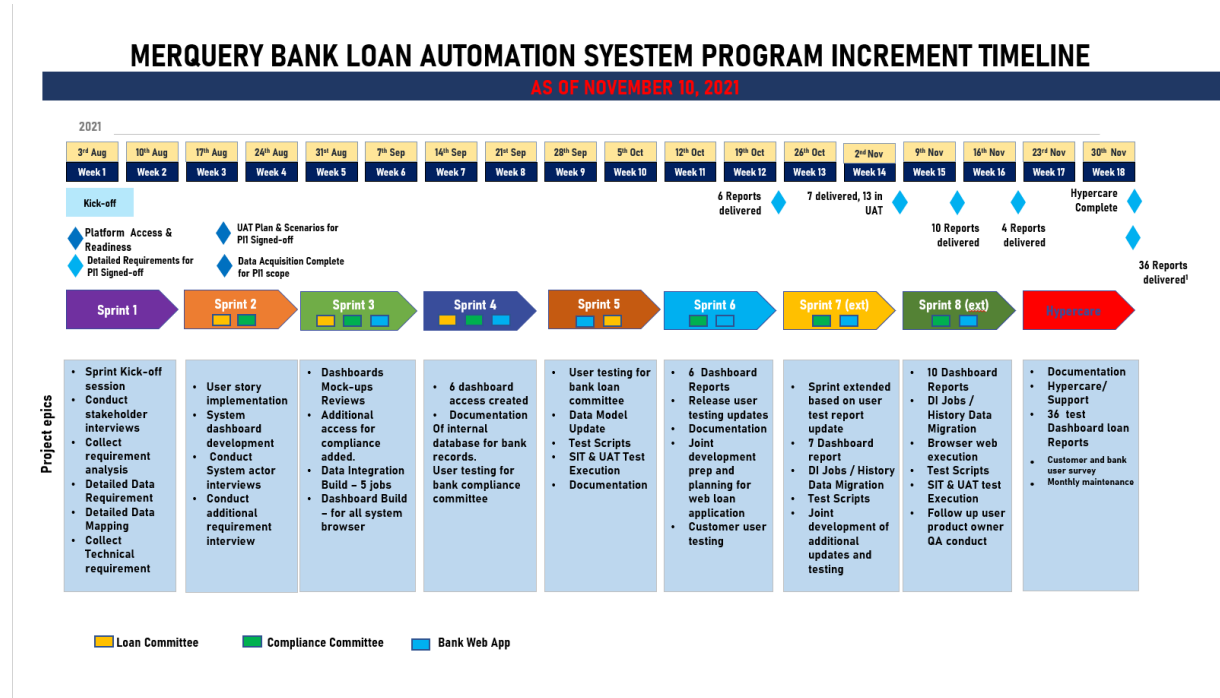
Sprints Board

The screenshot shows the Azure DevOps Sprints Board for the BLAS Team. The left sidebar is the same as the Backlog view. The main area displays the Sprints Board, showing a Kanban-style view of work items. The board is divided into columns: Taskboard, Backlog, Capacity, Analytics, New, Active, Resolved, and Closed. The 'New' column contains three items, 'Active' contains one, and 'Closed' contains one. The table below represents the data shown in the screenshot:

Item ID	Title	State	Assignee
11	As a loan applicant I should be able to get notification if my documents are reviewed so i can stay upto date with my progress	New	Farheen Zaman
7	As a collateral officer I should be able to reviewed forwarded documents by the loan officer	New	Farheen Zaman
5	As a a compliance officer I should be able to access user flagged documents to see they are following bank and state requirements	New	BRYANPRAMANA
4	As a bank loan officer I want to be able to access customer uploaded	New	
15	Twilio Notification development services	New	Farheen Zaman
16	Data approval pipeline	Active	BRYANPRAMA...
17	Application State framework dev	Closed	Unassigned

2.9

Program Incrementation timeline



The timeline and project governance of this project will be fully adopting the Agile framework. The timeline base that we are using is going to be a sprint base timeline. This project will be approximately completed within 8 sprints or equals to 16 weeks. The platform readiness and environment establishment will be completed within the first sprint along with the business requirements. And then followed by design mockup, SIT, UAT, and deployment.

3.0 Requirement Analysis

3.0.1 Non -Functional requirement

- The system should be reliable and competent with up to date browsers.
- The system interface should be adapted to desktop and mobile devices web browser accessibility.
- The system should provide customers and bank administrators natural and seamless navigation for each document review phase.
- The system web pages should be fast to load with no less than 2 seconds.
- The system web platform should be accessible and error free using LTE ,Wifi network connections and on low bandwidth zones
- The system shall be accessible to people with disabilities in accordance with the Americans with Disabilities Act of 1990
- The system should comply with standard GDPR authorization.
- The system should enable every Customer to fill a form with personal details (e.g. email address, name, age, and location) and upload financial data for loan requirements. Personal information and any data on customers uploaded documents should be stored securely .

3.0.2

Functional requirements

- The system should be available for loan application requests up to 24 hours any time of the week unless it has scheduled maintenance for customers and Bank administrations.
- System shall be able to process unlimited application requests and account creation every day.
- The access permissions for system data may only be changed by the system's data administrator.
- Passwords shall never be viewable at the point of entry or at any other time, and each system should send security alerts if there are more than 9 failed attempts.
- Each unsuccessful attempt by a to access an item of data shall be recorded on a system security audit notes.
- Customers shall receive confirmation for each loan status and document uploaded via preferred communication method of record when loan information is modified.
- The system should notify via email and update the loan officers dashboard for each loan request application.
- The system should allow bank administrators to send document requests and loan review comments from the system and notifications should be sent to customers' email and other selected communication choices.
- The system should allow loan administrators to download and edit uploaded documents for each of the customers for review purposes.
- The system should be able to produce weekly, monthly and yearly reports about loan request data and customer loan quota process.

3.1 PROJECT JUSTIFICATION – BUSINESS CASE

- Automate 75% current manual workload
- Modernize loan application form
- Develop Banking Loan Application App
- Delivering full 100% Scaled Agile Framework in the project
- Enable advance cloud based data platform

3.2 Project Scope

- Developing the graphic design theme of the website and the web application including the color, layout, template and design
 - Development the UI & UX
 - Login page and home page
 - Bank dashboard page
 - Form submission page
 - Loan application tracker page
- Development of website's concepts and every element that requested by business users

- Best quality of the frontend development in the website application by using javascript, HTML, and CSS
- Enabling the Enterprise Data Platform and Visualization by using Google Query and Tableau capability
- Provisioning Test, Development , and Production server for the data warehouse, website, and visualization
- Integrating all of the data and creating the report automation
- Developing complete backend by using PHP, Java, and Python
 - Collecting the data from the form including pipeline
 - Generate dynamic page content
 - Managing website cookies and its flow
 - Developing server script to make sure no downtime
 - Developing desktop application for the administrator
 - Maintaining database connectivity

3.2.1 In Scope

Item	Description
Technology Architecture	The overall technology and solution architecture of the Enterprise bank loan automation system and set of design patterns to facilitate accelerated delivery of loan application process.

Software and Database Platform	It is a set of technology tool which will help regulate collection of bank customer application details and process approval of each application using the Enterprise Cloud System.
Data Architecture	Definition and documentation of standard for data architecture and a physical data framework
Operating Model	Ensure adherence to defined EDP operating model standards for delivering and running

3.2.2 Out of Scope

The following items will not be delivered as part of project deliverable

- Service Introduction & knowledge transfer is out of scope
- Data Migration for historical longer than 6 months.
- Data Governance and policy setup is out of scope
- Training and Application Maintenance

3.3 Stakeholders & Deliverable Squad

Stakeholder Group	Description	Email
Farheen Z	Product Owner / System Owner	Farheen.Z@MerQuery.com
Steven	Data Source SME	steven@MerQuery.com
Debby J	Loan SME / Business Analyst	debby@MerQuery.com
Albert	Collateral SME/ Business Analyst	albert@MerQuery.com

Alexandra S	Finance SME / Business Analyst	alexandra@MerQuery.com
Jimmy C	Compliance Expert	Jimmy.C@Merquery
Deliverable Squad	Description	
Ryan A	BLAS Platform Lead	ryan@MerQuery.com
Ali M	BLAS Solution Architect	ai@MerQuery.com
Joe M	BLAS Data Model Architect	joe@MerQuery.com
Bryan P	BLAS System Enterprise Architect / System Analyst	Bryan.P@MerQuery.com
Melania E	BLAS DevOps Lead & SME	melania@MerQuery.com
Jessica D	EDP Data Engineering Lead	jessica@MerQuery.com
Alice C	BLAS Service Lead	alice@MerQuery.com

3.3.1 Stakeholder Management

Below are the list of meeting / engagement point between business users and developer team:

Meeting Name	Objective	Participant	Schedule
Daily stand up	Daily checkpoint with the agile team Including (Stakeholders representative, PO, and SM) on the task assigned to them and log the progress	Delivery Squad	Everyday 11 AM
Sprint Planning	An 2 hour session where all of the agile team member gather to plan and discuss detail task and user story for the current sprint	Delivery Squad , Stakeholders, and High level Management	1 st day of sprint or 1 day before sprint start
Backlog Grooming	Discussed with Product Owner, Scrum Master, and Tech Lead related to any backlog prioritization and change of	PO, SM , and Tech Lead	Every end of sprint Participant depending on the outcomes of the sprint

	scopes		
Spring demo	Presenting the deliverable at the end of sprint to be signed off and agreed.	Delivery Squad , Stakeholders, and High level Management	Every last day of the sprint
Sprint Retrospective	Measure what the team like, what the team does not like, happiness level, and To review the execution of the sprint including the task efforts for each PIC (e.g. If the estimated efforts need to be longer, dependencies need to be clearly mention, Scope prioritization etc)	Delivery Squad	Every last day of the sprint

3.3.2 Resource & Fund Management

Project Phase	Budgeted Total	Comments
Planning	\$75,000	Covers work hours for all project team members for gathering requirements and planning project
Design	\$158,000	Covers work hours for all project team members for work on Bank Loan conceptual design

Coding	\$250,000	Includes all work hours for coding of Bank Loan automation system
Testing	\$150,000	covers all work hours for testing (including beta testing) of web bank loan system
Transition and Closeout	\$140,000	Covers all work hours for transition to operations and project closeout

3.4

Risk Management

Impact Break down:

High : The risk will be directly impacting company financial loss and project delay.

Medium: Project has possibility to be extended, not within scope, time and budget.

Low : The risk can be mitigated within a short period of time and there is no significant negative impacts.

		Probability		
		High (80%<x<100%	Medium (50%<x<80%	Low (x<50%)
Impact	High	Exposure - Very High) Score : 100	Exposure - High) Score : 70	Exposure - Moderate) Score : 60
	Medium	Exposure - High) Score : 70	Exposure - Moderate) Score : 50	Exposure - Low) Score : 30
	Low	Exposure - Low) Score : 30	Exposure - Low) Score : 20	Exposure - Very Low) Score : 10

Risk	Probability	Impact	Owner
Additional Requirement within the timeline such as different type of loan request that has not been communicated by SME	70%	High	Product Owner
Historical data integration could not be delivered within the time frame	50%	Medium	Data Engineer
The user acceptance test score is not confirmed by Product owner and SME by the end of the sprint 8	30%	High	Technical Lead

Risk Event	Category	Mitigation Plan
Additional Requirement within the timeline such as different type of loan request that has not been communicated by SME	Organizational	The project will delivered with full scaled agile framework where we prioritize to deliver as soon as possible in every sprint. The framework is fully supporting any abrupt changes.
Historical data integration could not be delivered within the time frame	Technical	Historical data extraction and transformation will be done during fourth spring to avoid any delay of application deployment
The user acceptance test score is not confirmed by Product owner and SME by the end of the sprint 8	Project Dependency	Intensive meeting with sub department will be conducted in biweekly basis to get agreement from business side.

4.1

Vision Architecture

The technology platform's vision is to modernize and automate the Banking Loan System with a scalable and efficient platform that can easily be use in broader target market, while providing highly secure service and robust performance that together with the technology assets to provide a “Best in Class” user experience.

4.2

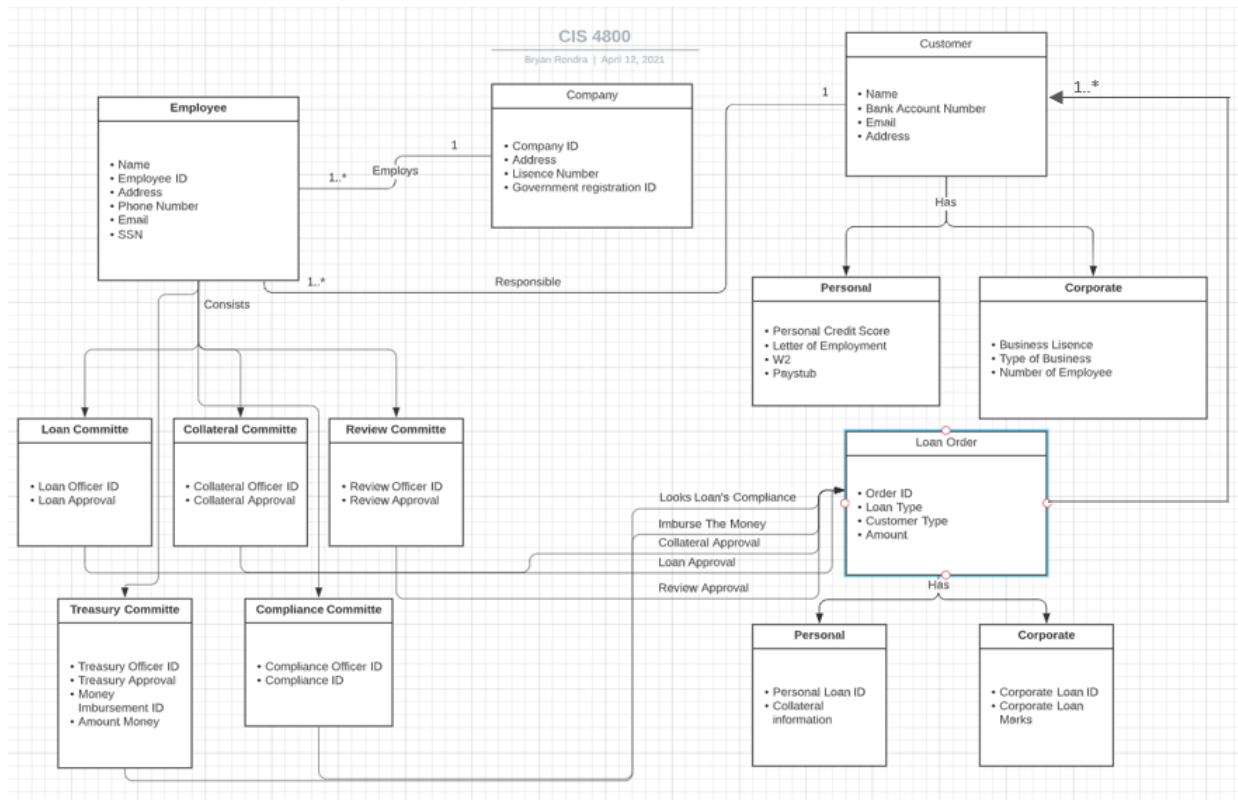
Architecture Objectives

Objective of this project is to :

- To modernize the existing manual banking system and Implementing the Enterprise Data Platform (EDP) as our cloud data warehousing system that support any Business Intelligence reporting needs
- Integrating the manual historical data that will definitely help the bank to analyze and see reports in the new way.
- To design a solution to develop user friendly mobile application along with its back end and data storage
- To enable the bank's customers apply loan anytime and anywhere they want and ease the process of loan form approval

4.2.1

UML Class Diagram (Lucid Chart)

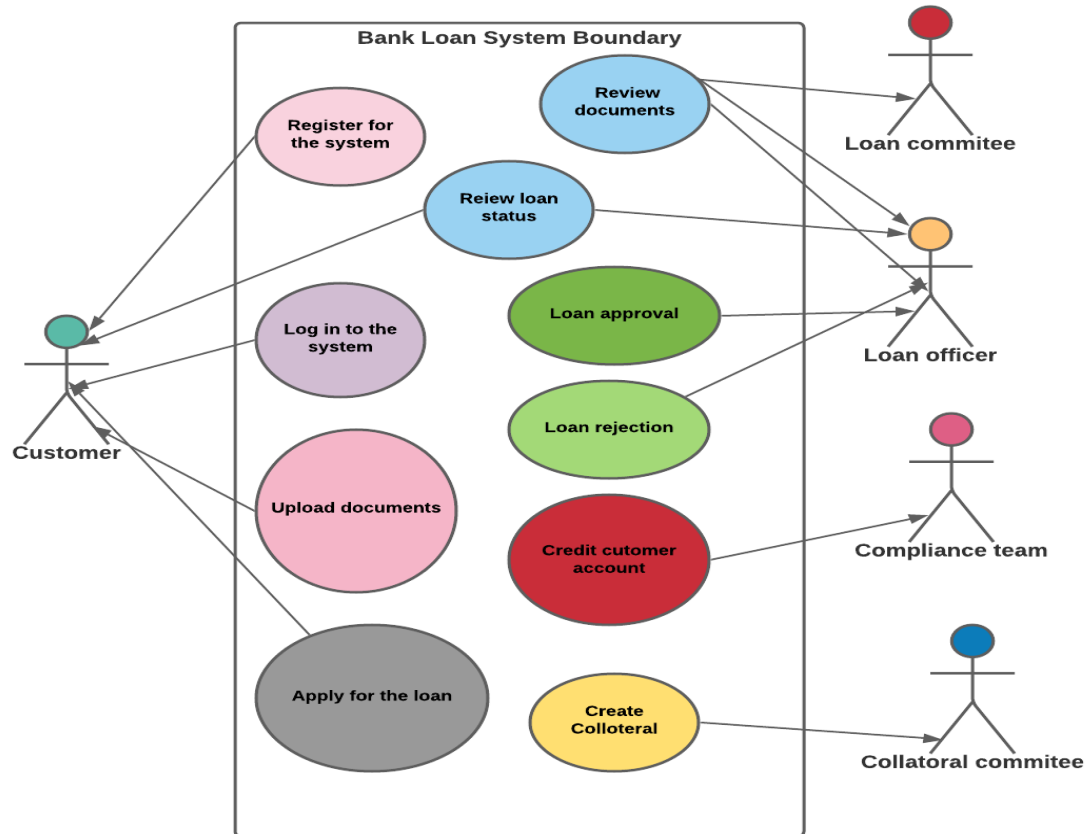


The BLAS class diagram contains features that are required by the business users at the time the requirements are gathered. Below is the list of the classes along with the explanation of each component.

1. **Company Class :** This class contains all of the information regarding the company.
2. **Employee Class:** This class contains all of the employee's personal information and the department where they are working (Loan, Collateral, Review, Treasury, Compliance)
3. **Customer Class:** There are two type of customers ; personal and corporate.
4. **Loan Order :** this is a class where has the loan order attributes.

4.2.2

UML Use Case Diagram



4.2.3

Use Case scenario descriptions

Use Case Identification number	MBLAS-001
Actors	Customer/ Loan applicant
Use Case description	This is the feature where a customer will create a login to the system and upload bank loan documents.
Goal	Upload bank loan documents.
Preconditions	The customer device or computer is plugged in.
Assumptions	<ul style="list-style-type: none">• The Customer's computer is connected to a secure internet network.• Customers' internet browser is updated to recent improved technology.• Loan system applications domain is up to date with system settings and bank policies.• Bank administration system is connected to their online applications system network .
Frequency	Unlimited application updated every 24/7
Basic Course	<ul style="list-style-type: none">• Customer searches Merquery banks loan automation system on browser and navigates to their main landing page.• The browser displays the main page attributes with a button option to create a new account.• Customer clicks to create a new account.• Customers enter all the information regarding their basic information including Name, Email and phone number.• Customer finishes the sign up application and clicks for confirmation.• The system sends email confirmation to the customers inbox with a confirmation link.

	<ul style="list-style-type: none"> • Customer clicks the emailed link to confirm the account creation. • Clicked link takes the customer back to the bank login page. • The customer enters the login information for the loan application portal. • Customer navigates thru the account and clicks to upload required documents in pdf . • Customer upload documents from their device. • Customer reviews documents and clicks submit. • Customer receives email confirmation for uploaded documents and with a courtesy email for the bank regarding the further timeline of the application
<p>Alternate Course :</p> <p>Customer uploaded the wrong document and needs to delete it from the system.</p>	<ul style="list-style-type: none"> • Customer searches Merquery banks loan automation system on browser and navigates to their main landing page. • The browser displays the main page attributes with a button option to create a new account. • Customer clicks to create a new account. • Customers enter all the information regarding their basic information including Name, Email and phone number. • Customer finishes the sign up application and clicks for confirmation. • The system sends email confirmation to the customers inbox with a confirmation link. • Customer clicks the emailed link to confirm the account creation. • Clicked link takes the customer back to the bank login page. • The customer enters the login information for the loan application portal. • Customer navigates thru the account and clicks to upload required documents in pdf . • Customers upload documents from their device. • Customer reviews documents and realizes the wrong document has been uploaded. • Customer clicks “Edit documents” option from the review page. • Customer clicks the “x” sign to delete the unnecessary documents. • Customer selects the “ add new” option to upload new documents. • Customers upload documents from their device. • Customer reviews documents and clicks submit. • Customer receives email confirmation for uploaded documents and with a courtesy email for the bank regarding the further timeline of the application
Post conditions	<ul style="list-style-type: none"> • Customer successfully created the new login account for the bank's online system. • Customer has successfully uploaded required documents to start a loan application. • Banks Loan administration team has received the updated documents with new customer information. • Customer logged out of the application portal.

Use Case Identification number	MBLAS-002
Actors	Loan officer , Customer
Use Case description	This is the function when Loan officer receives and reviews the uploaded information by new loan applicant
Goal	Review and send application status updates to Customer.
Preconditions	Their device or computer is plugged in. Their system access for the application system is updated to recent technology.
Assumptions	<ul style="list-style-type: none"> • The officer's computer is connected to a secure internet network. • Their internet browser is updated to recent improved technology. • Loan system applications domain is up to date with system settings and bank policies. • Bank administration system is connected to their online applications system network . • The officer is logged in to the system on browser • New customers have signed up using the online system with required contact information.
Frequency	Applications reviewed every 9-5 office hours.
Basic Course	<ul style="list-style-type: none"> • Officer logs in to the employee dashboard for the loan processing system. • System Dashboard displays updates on the applicants in process. • System Dashboard displays options to view new applicants signed up and old applicants in progress. • Officer clicks to view the portal new sign ups . • System displays applicants' logs organized by time frame of sign up and earliest to the top, recent to the bottom with their unique identification number. • Officer clicks to the top applicant and selects "review documents". • Officer checks status boxes on the dashboard for each document .

	<ul style="list-style-type: none"> • Officer clicks the “Finish Review” option to submit to the loan collateral committee according to the customer requested type loan. • System sends email notifications to collateral officers assigned by loan type and updates their employee dashboard. • System sends confirmation of the “application received and completed for the next step “ email to the customer.
<p>Alternate Course :</p> <p>Customer uploaded the wrong document and Loan officer reviews and requests for resubmission.</p>	<ul style="list-style-type: none"> • Officer logs in to the employee dashboard for the loan processing system. • System Dashboard displays updates on the applicants in process. • System Dashboard displays options to view new applicants signed up and old applicants in progress. • Officer clicks to view the portal new sign ups . • System displays applicants' logs organized by time frame of sign up and earliest to the top, recent to the bottom with their unique identification number. • Officer clicks to the top applicant and selects “review documents”. • Officer checks status boxes on the dashboard for each document . • Officer realizes the customer's uploaded income statement is not recent but 6 months older. • Officer checks the “Incomplete submission” box for the income statement document. • Officer reaches the end of the application and clicks the “add a comment “option. • Officer writes request to upload updated recent income statement and clicks “send review pending status” button. • Officer clicks the “ Pending application” option to finish reviewing the applicant. • System sends review confirmation to the customer , with an email stating “ Application needs additional document” Status.
Post conditions	<ul style="list-style-type: none"> • Customers successfully received an update for the bank's loan application online system. • Loan officer has successfully reviewed required documents to start a loan application. • Loan officer clicks to “ next applicant” on the dashboard portal to keep reviewing other loan applications to process. • Loan officer reviews all the current applications for the day. • Loan officer logs out of the employee portal.

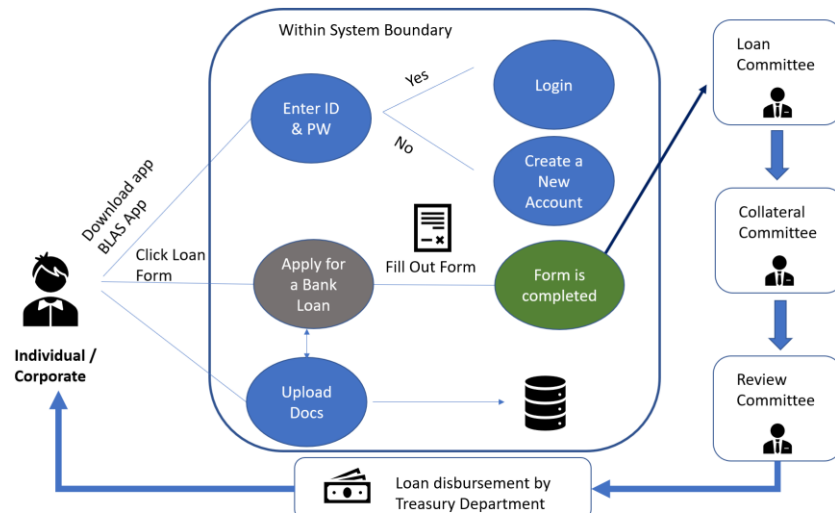
Use Case Identification number	MBLAS-003
Actors	Collateral officer, Customer
Use Case description	This is the feature where a Collateral officer reviews everything related to the Collateral and sends notification to the client for their application update.
Goal	Review customer applications and update them about collateral information.
Preconditions	Their device or computer is plugged in. Their system access for the application system is updated to recent technology.
Assumptions	<ul style="list-style-type: none"> • The Collateral officer's computer is connected to a secure internet network. • Their internet browser is updated to recently improved technology. • Loan system applications domain is up to date with system settings and bank policies. • Bank administration system is connected to their online applications system network. • The Collateral officer is logged in to the system on browser • New customers have signed up using the online system with required contact information. • Loan officers have approved the customers applications and assigned them to the collateral officer for further review.
Frequency	Applications reviewed every 9-5 office hours.
Basic Course	<ul style="list-style-type: none"> • Collateral Officer logs in to the employee dashboard for the loan processing system. • System Dashboard displays updates on the applicants in process. • System Dashboard displays options to view new applicants signed up and old applicants in progress. • Collateral Officer clicks to view the portal new sign ups assigned by the loan officer. • System displays applicants' logs organized by time frame of sign up and earliest to the top, recent to the bottom with their unique identification number.

	<ul style="list-style-type: none"> • Collateral Officer clicks to the top applicant and selects “review documents”. • The Collateral Officer checks status boxes on the dashboard for each document to match collateral requirements. • The Collateral officer matches the funds eligible for the applicant. • Officer clicks the “Finish Review” option to submit to the final review loan committee according to the customer requested type loan. • System sends email notifications to the Loan committee assigned by loan type and updates their employee dashboard. • System sends confirmation of the “application successfully matched collateral type and completed for the final review “ email to the customer.
<p>Alternate Course :</p> <p>Customers uploaded documents that seem suspicious the Loan officer updates the internal team for further investigation.</p>	<ul style="list-style-type: none"> • Collateral Officer logs in to the employee dashboard for the loan processing system. • System Dashboard displays updates on the applicants in process. • System Dashboard displays options to view new applicants signed up and old applicants in progress. • Collateral Officer clicks to view the portal new sign ups assigned by the loan officer. • System displays applicants' logs organized by time frame of sign up and earliest to the top, recent to the bottom with their unique identification number. • Collateral Officer clicks to the top applicant and selects “review documents”. • The Collateral Officer checks status boxes on the dashboard for each document to match collateral requirements. • The collateral officer finds an error while running a system check , and it seems that the customer may have used made up numbers and records to match the collateral fund. • The collateral officer clicks “ authorize compliance review for documents” option to notify for investigation • The loan Officer reaches the end of the application and clicks the “hold for internal investigation“option. • Officer writes a request to validate documents according to law and bank policy and clicks the “send review pending status” button. • The Collateral Officer clicks the “ Pending application” option to finish reviewing the applicant. • System sends review confirmation to the customer , with an email stating “ Application needs additional review status, Please wait for upcoming inquiry email” Status. • The compliance team receives the notification of a new case inquiry.
<p>Post conditions</p>	<ul style="list-style-type: none"> • Customers successfully received an update for Collateral review from the bank's loan application online system.

	<ul style="list-style-type: none">• Collateral officer has successfully reviewed the application for the next step.• Collateral officers click on the “next applicant” on the dashboard portal to keep matching other applications to Collateral funds.• Collateral officer reviews all the approved applications for the day.• Collateral officer logs out of the employee portal.
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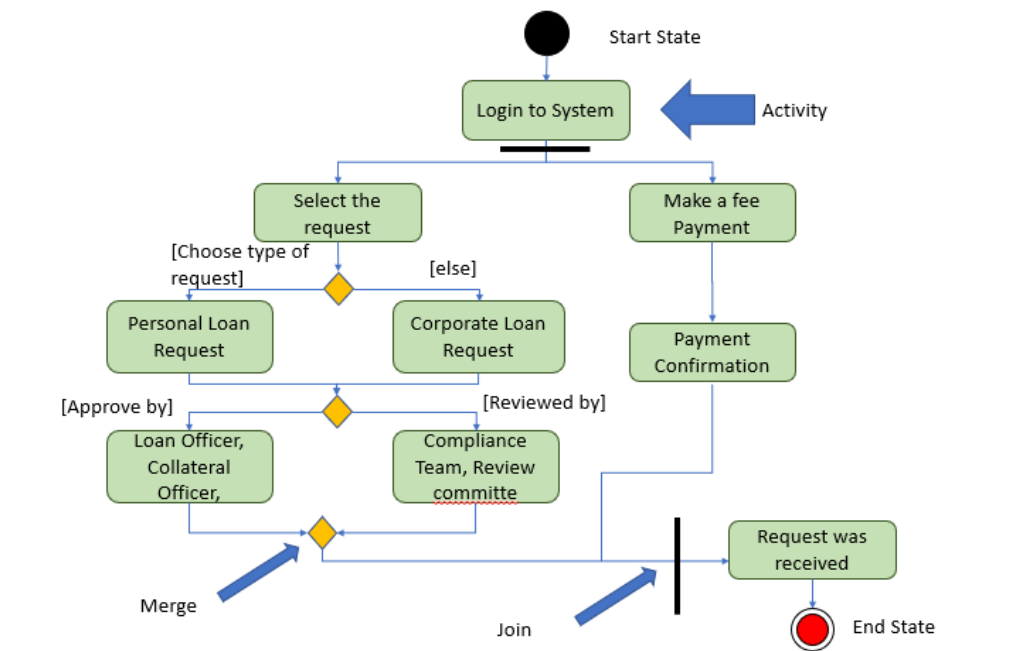
5.0

UML System Overview Diagram



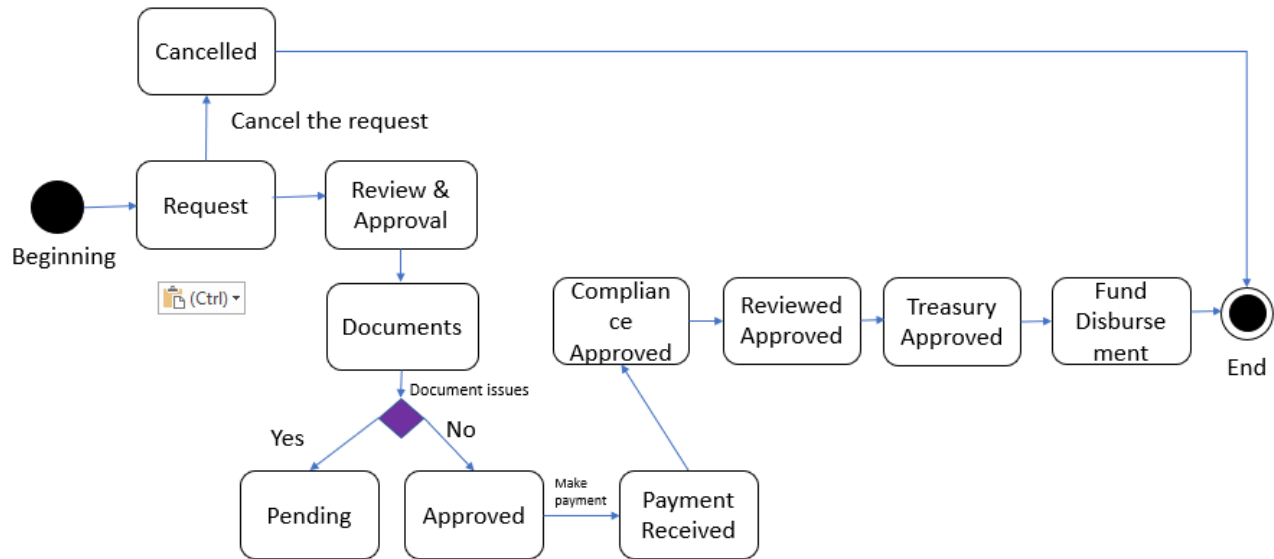
5.1

UML State Machine Diagram



5.2

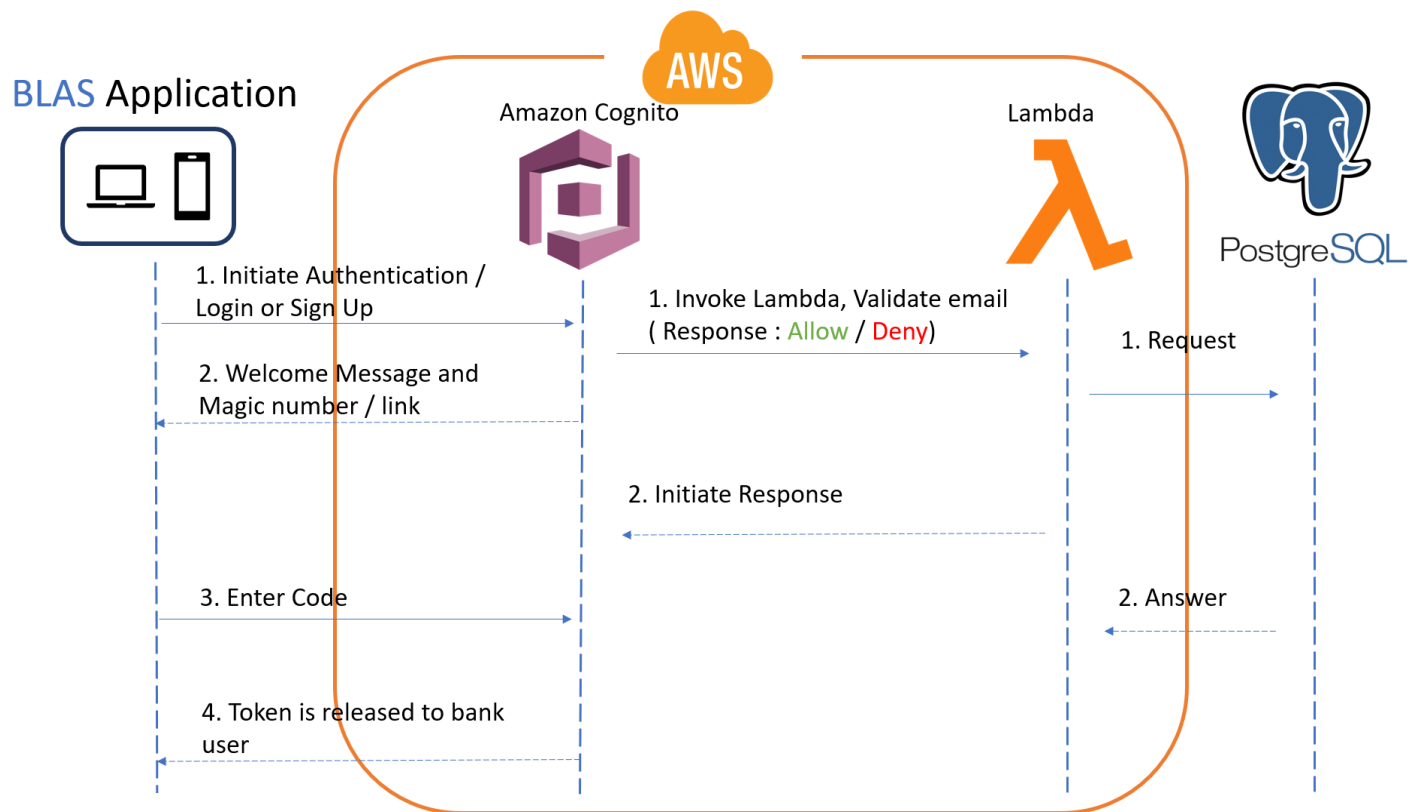
UML Sequence Diagram



The user navigates thru the system in following sequence

- User logs in
- User creates request
- User uploads document
- User request verifies
- User makes payment
- Compliance approves user request
- Fund is allocated

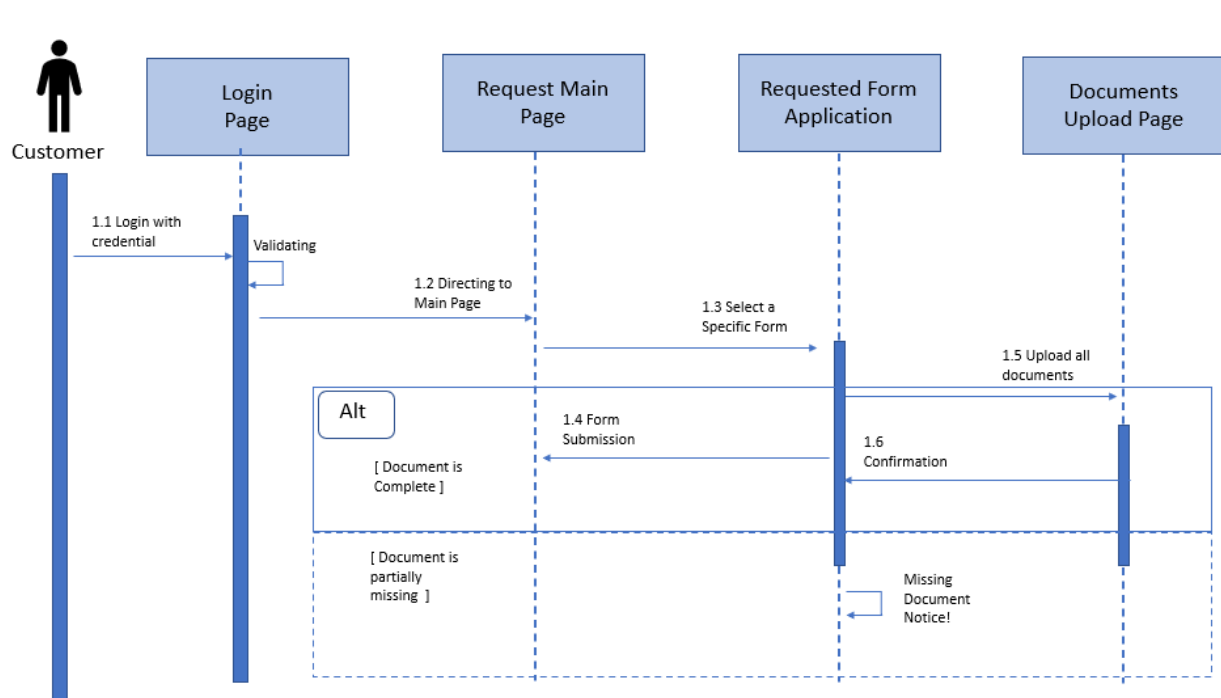
5.3 Login Authentication Sequence Model Diagram



In the beginning of the session the consumer will be prompt to input their credential via sign in platform that have been provided. After the credential is inserted, the system will raise a flag and make a request to the identity pool platform. The user access role management platform with the help of AWS Lambda will trigger a request to the authentication server and check the validity of the input. If it match, the server with the help of Security Token Service engine will generate a answer that allow the user to access the platform. And the request is ended.

5.4

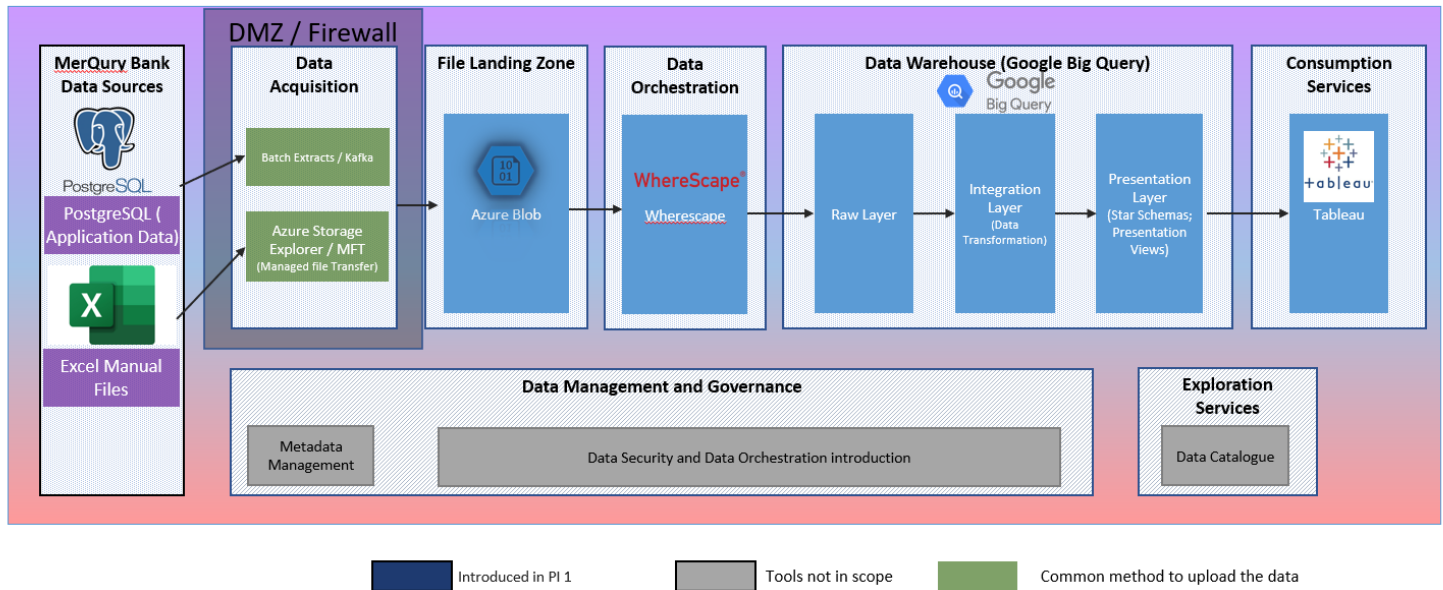
System flow diagram



The customer who is on the login page will make a request to the loan request form Page. If he/she decides to apply for a loan, they will need to make a loan form submission and upload essential documents to be approved based on specific loan type requirements. Sometimes In many situations one or more documents may not be sufficient to be approved of the request, the customer will be notified via email and the bank system will request to upload additional documents using magic link. The magic link will be communicating through a secured secondary path using SSL. The notification can also be seen on the Bank loan system dashboard. If all documents are approved and verified, then the application will be eligible to move forward to the disbursement process by the Bank loan committee.

5.5 High Level Technical Data Warehouse Architecture

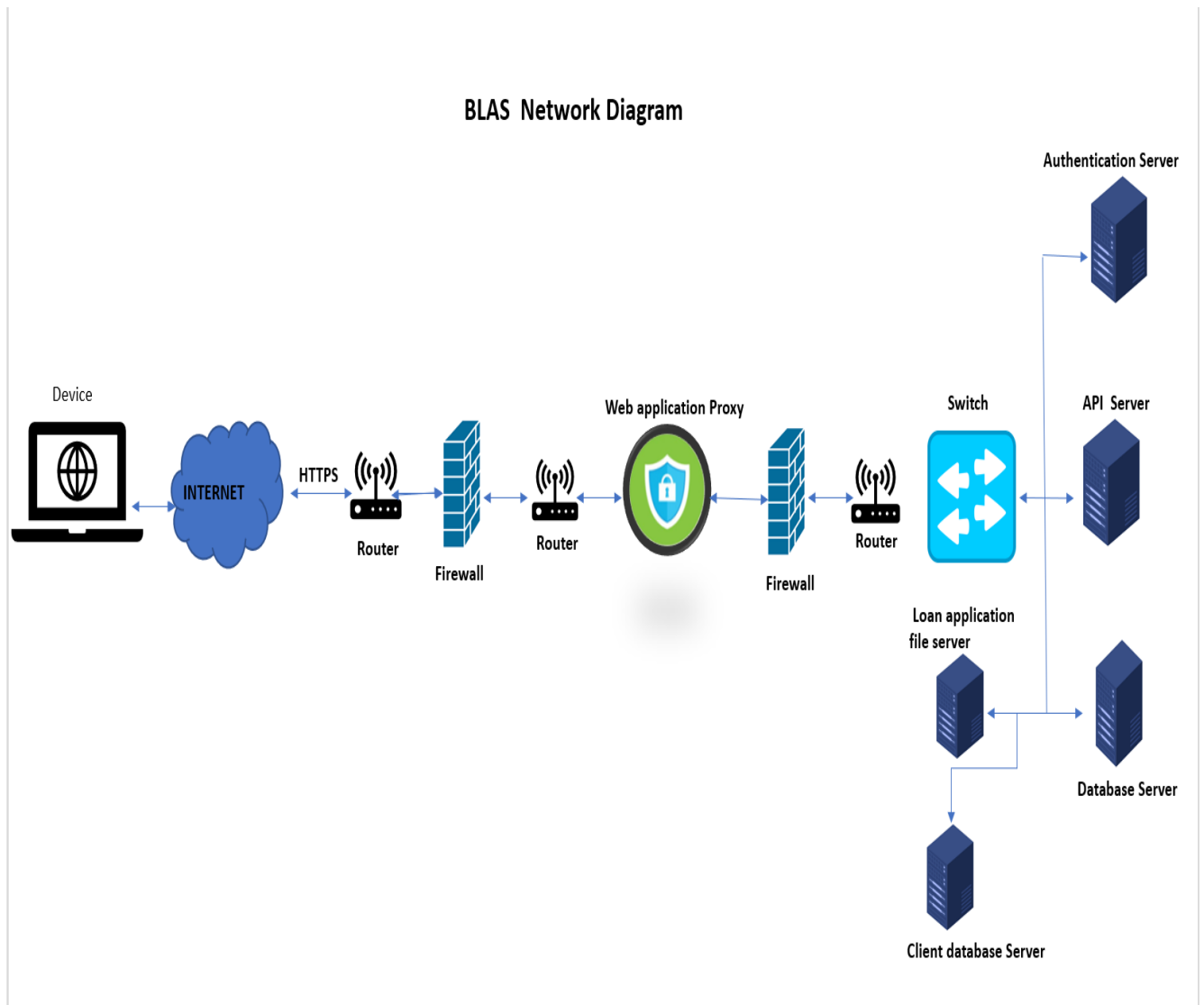
HIGH-LEVEL SOLUTION APPLICATION ARCHITECTURE



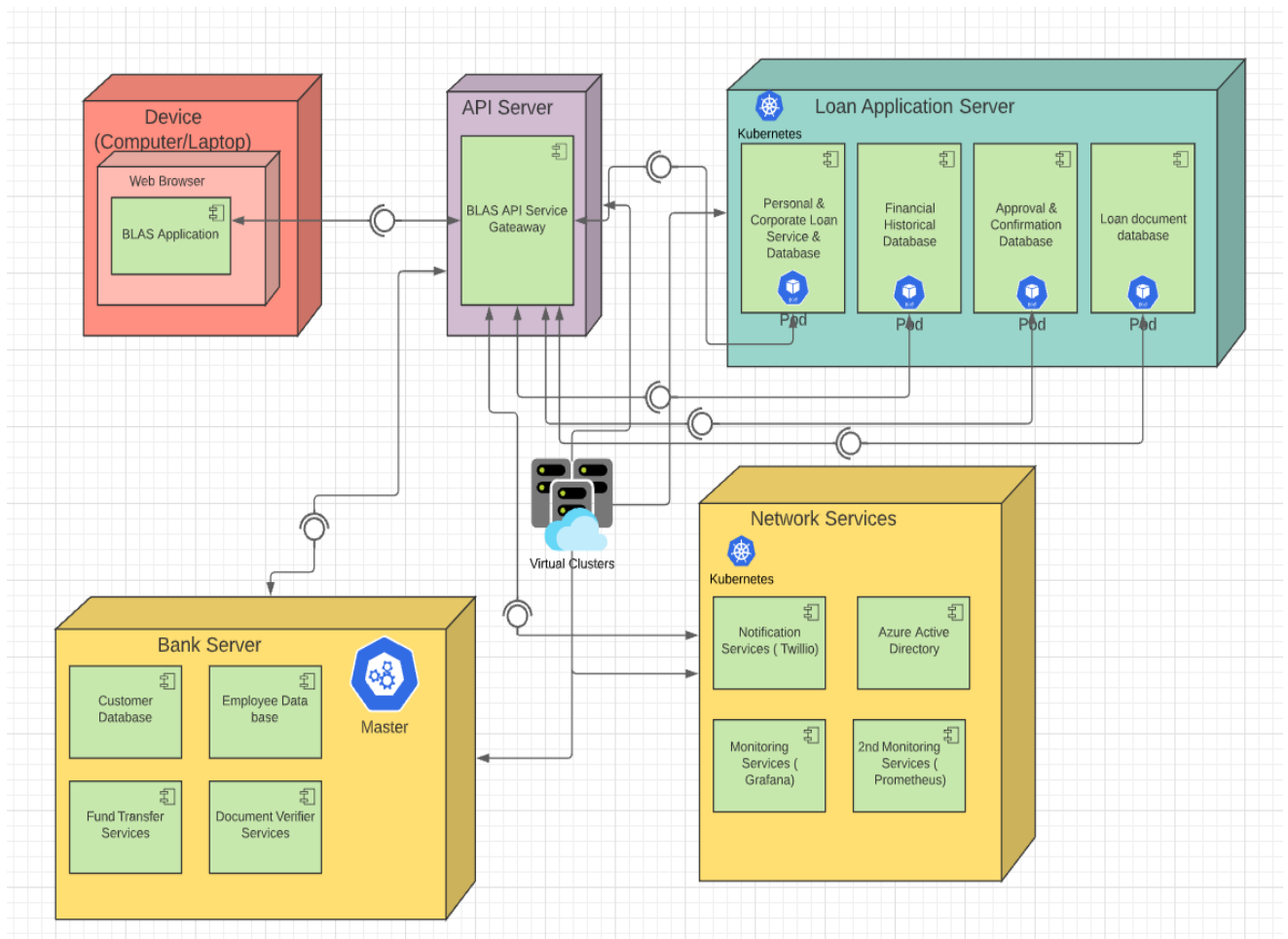
Given the situation that MerQuery Bank is planning to modernize their banking loan system, in which previously all of the data are handled manually by using Excel, This project will help not only develop enterprise level banking loan systems but also merge and integrate the past historical loan data with the current data.

5.6

Network Diagram



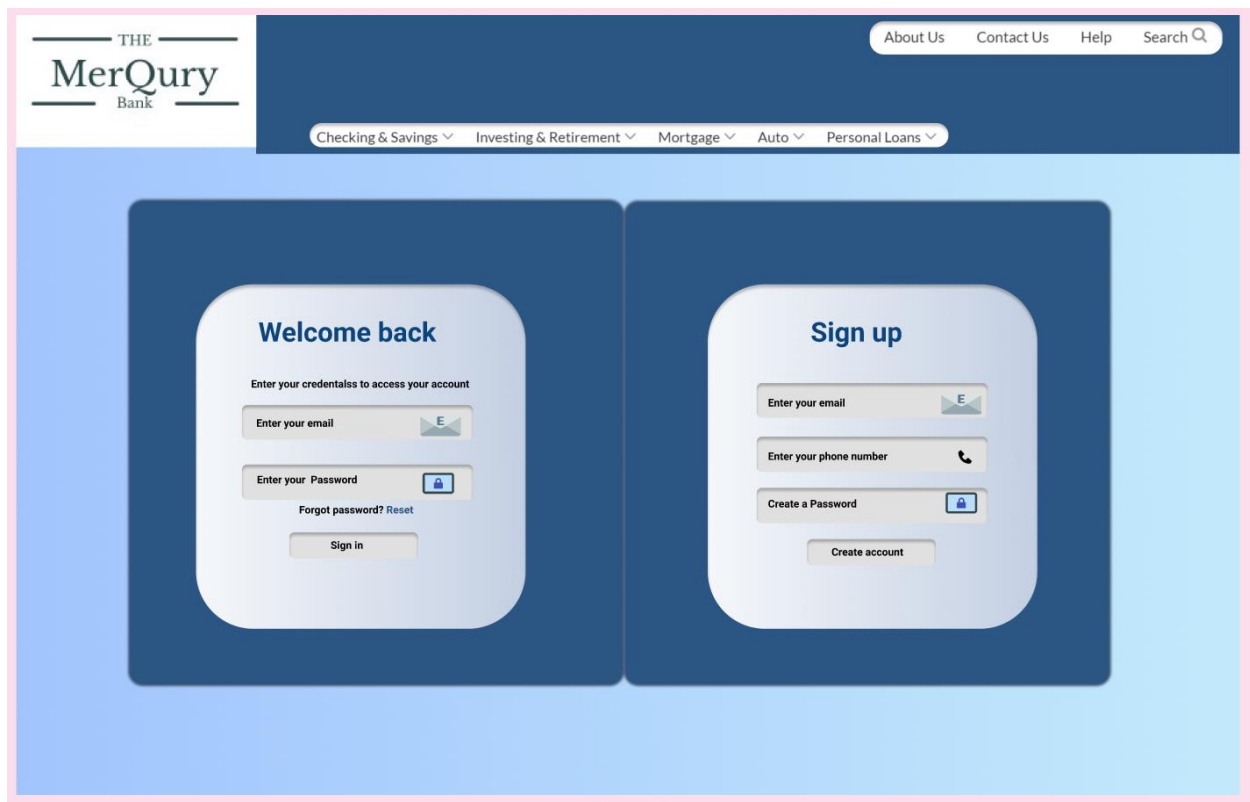
5.7 Component Diagram



Interactive UI Design link :

<https://www.figma.com/proto/PurSuvJ4rKpDV3wT0HgZmL/CIS4800?node-id=51%3A2&scaling=contain&page-id=0%3A1>

User login Page



The image shows a user login and sign up page for 'THE MerQury Bank'. The page has a dark blue header with the bank's logo on the left and navigation links (About Us, Contact Us, Help, Search) on the right. Below the header is a light blue background with two main sections: 'Welcome back' and 'Sign up'.

Welcome back

Enter your credentials to access your account

Enter your email

Enter your Password

Forgot password? [Reset](#)


Sign up

Enter your email

Enter your phone number


Create a Password

Bank account dashboard



[Home](#) [Services](#) [About us](#) [Contact us](#) [Blog](#)

[Checking & Savings](#) [Investing & Retirement](#) [Mortgage](#) [Auto](#) [Personal Loans](#)

**Hi Farheen!**


Dashboard

Friday, April 30, 2021
11.55 AM (EST)

Mercury Bank
Premium Platinum Visa
(...1445)


\$1,512,998.00
Available Balance

View



Credit Cards


Apply Credit Cards →




Saving Accounts

Start Saving →

%
Offer


 10% Cash back on your credit card purchases

Get Offer Now! →



Apply Loan

Apply for loan today!
Get it just for 4.8 % interest annually**
Request Loan →



Contact us

Contact us →

Loan request form

THE
MerQury
Bank

Loan request form

Applicant detail

Loan detail

Upload document

Track Progress

About UsContact UsHelpSearch

Checking & SavingsInvesting & RetirementMortgageAutoPersonal Loans

PLEASE TELL US ABOUT YOURSELF

Gender

Male

Female

Verify your DOB

Day

Month

Year

Verify your SSN #

XXX - XX- 1234

Verify your Zip code

Loan type

Personal

Business

Enter request amount

← Previous

Next →

Loan request form - Document Upload page

THE
MerQury
Bank

Loan request form

Applicant detail

Loan detail

Upload document


Track Progress

About UsContact UsHelpSearch


Checking & SavingsInvesting & RetirementMortgageAutoPersonal Loans

Please Upload your documents


Bank statement of last 3 months(required)

Drag and drop file hereorUpload

Connect your direct deposit account(required)

Link your account and quick secureConnect

Upload your last 2 years of tax documents(required)

Drag and drop file hereorUpload

Previous

Finish

44

Application Tracking Page

THE
MerQury
Bank

Loan request form

Applicant detail

Loan detail

Upload document

Track Progress

About UsContact UsHelpSearch

Checking & SavingsInvesting & RetirementMortgageAutoPersonal Loans

Track your applicationsDashboard

Tracking ID	Last review	Submitted	Status
123-xyz	MM/DD/YY	MM/DD/YY	Pending

Tracking ID	Last review	Submitted	Status
123-xyz	MM/DD/YY	MM/DD/YY	need additional document

Tracking ID	Last review	Submitted	Status
123-xyz	MM/DD/YY	MM/DD/YY	Accepted

Log out