

Digital Loan Approval Automation – Business Analyst Case Study

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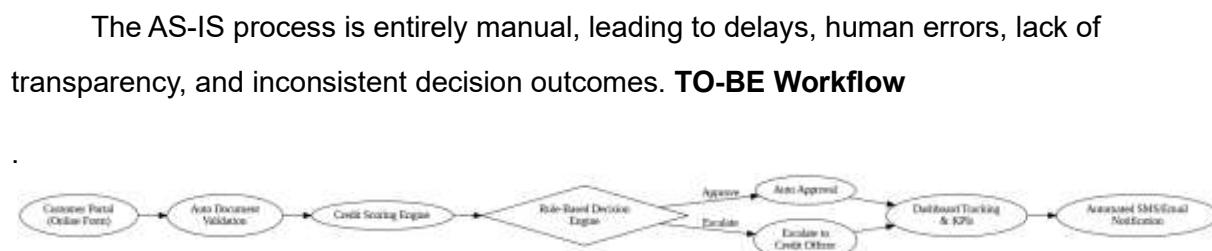
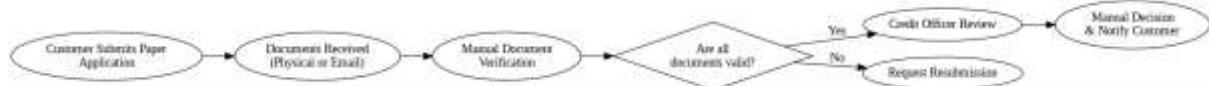
Executive Summary

This project aims to transform a manual loan approval process into a digital workflow using automation, rule-based decision scoring, and KPI tracking. The redesigned system improves processing speed, accuracy, and customer experience while reducing manual workload.

Problem Statement

The current loan process takes 48–72 hours due to manual document validation and decision handling. There is no automated scoring logic or tracking dashboard, making the process slow and inconsistent.

AS-IS Workflow



The TO-BE process introduces online submission, automated validation, scoring, decision lo

Business Requirements Document (BRD)

Requirement ID	Requirement Description	Priority
BR-01	The system must allow users to submit a loan application digitally through a web portal.	High
BR-02	The system must validate uploaded documents (ID proof, income proof, bank statements).	High
BR-03	The System must auto-calculate a credit score based on defined rules and income factors	High

BR-04	The System must provide a dashboard for loan officers to review applications and statuses	Medium
BR-05	Applicants must receive SMS/Email Notifications for approval, rejection or pending review	Medium
BR-06	The System should store application records securely and allow future reference	Medium

User Stories

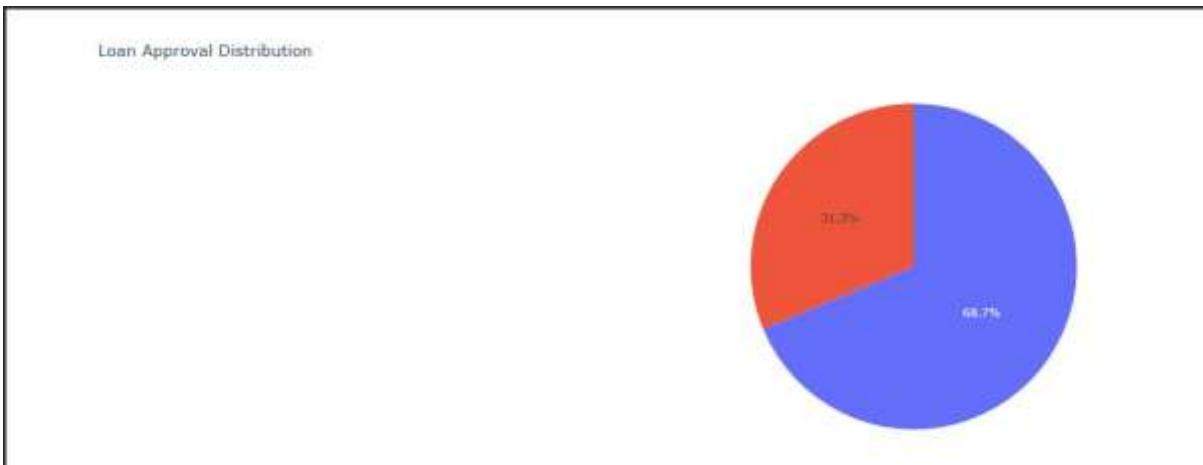
Role	User Story	Priority
Applicant	As an applicant, I want to submit my loan application online so I don't need to visit a branch physically.	High
Applicant	As an applicant, I want to upload supporting documents digitally so I can complete the process faster.	High
System	As the system, I need to automatically calculate the applicant's credit score so the decision process is standardized.	High
Loan Officer	As a loan officer, I want to view applications in a dashboard so I can monitor and review status easily.	Medium
Manager	As a manager, I want access to reports and KPIs so I can track process performance and improvements.	Medium
System	As the system, I want to send automated notification messages so applicants stay updated without manual communication.	Medium

Acceptance Criteria (GWT Format)Data & KPI Insights

User Reference	Acceptance Criteria (GWT Format)	Status
US-01	<p>Given a user fills in all required fields and uploads documents,</p> <p>When the user submits the online application,</p> <p>Then the system should store the application and display a confirmation message.</p>	Passed
US-02	<p>Given a user uploads an incorrect or missing document,</p> <p>When the system validates the file,</p> <p>Then an error message should appear indicating the issue.</p>	Passed

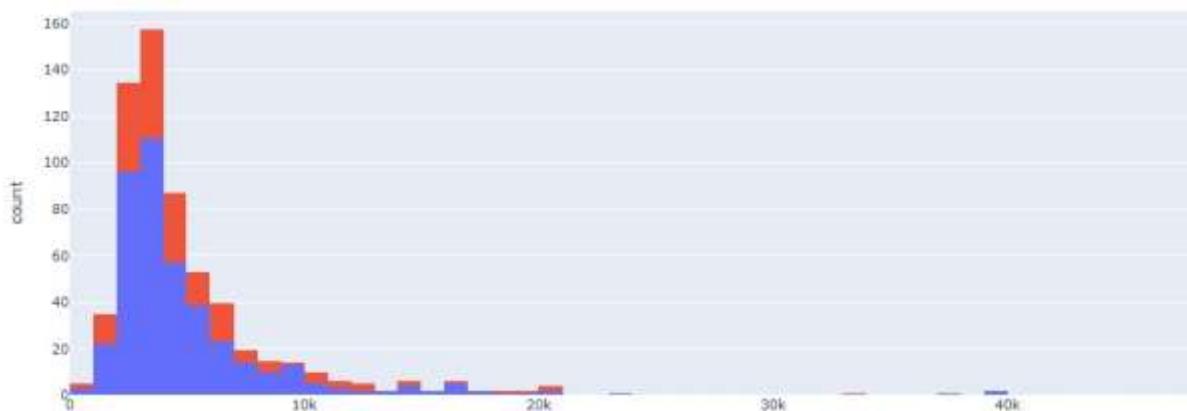
US-03	Given the system has the applicant's financial and document data, When the scoring engine executes, Then a credit score should be generated and saved automatically.	Passed
US-04	Given an applicant meets the predefined score criteria, When the scoring and decision rule runs,	Passed
	Then the system should auto-approve the application without manual review.	
US-05	Given an applicant does not meet the approval threshold, When the rule engine completes evaluation, Then the application should be escalated to a loan officer dashboard for review.	Passed

Visual Analysis

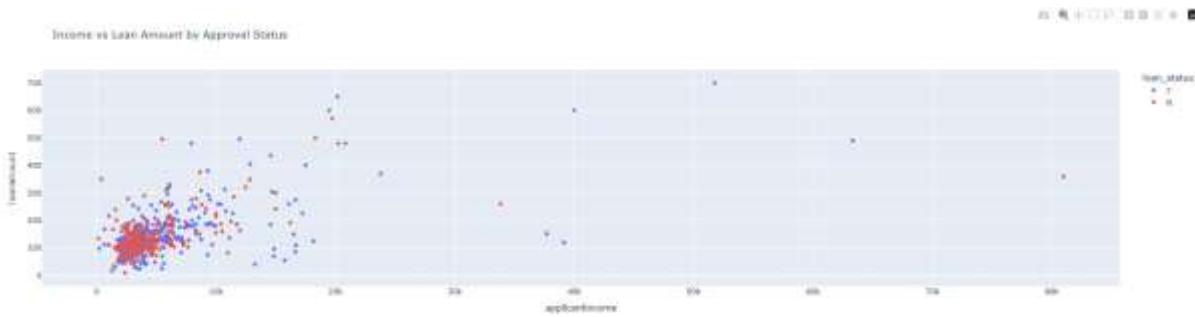


The approval rate from the dataset indicates that a majority of applicants receive approval, suggesting opportunity for automated processing.

Income Distribution by Loan Approval



Applicants with higher income show better approval trends, indicating income plays a strong role in loan eligibility.



The scatter plot shows a visible relationship between loan amount and applicant income, supporting data-driven decision logic.



Approval rates are significantly higher for applicants with strong credit history, demonstrating the need for rule-based scoring.

Analysis shows approval likelihood significantly increases for applicants with good credit history and higher income. Automating decisions using rule-based logic would standardize approvals and reduce processing time drastically.

UAT TEST CASE TABLE

Test ID	Test Case	Expected Result	Status
UAT-01	Submit loan application with valid details	Application submitted successfully	Passed
UAT-01	Upload invalid/missing documents	System shows error message	Passed
UAT-03	Automatic credit score calculation	Score is calculated accurately	Passed
UAT-04	Auto-approval for eligible applicants	Application gets auto-approved	Passed
UAT-05	Notification sent after decision	SMS/Email sent to applicant	Passed

Conclusion

The redesigned digital loan approval workflow improves processing speed, transparency, and decision quality by replacing manual steps with automated document validation, rule-based scoring, and dashboard monitoring. Based on the data insights and workflow improvements, the overall approval process time can be reduced from 48–72 hours to under 6 hours, while improving consistency and customer experience. This solution prepares the process for future enhancements such as AI scoring, fraud detection, and real-time decisioning.

Created by: Valasapalli Sai Shanth Kumar | Business Analyst Portfolio Project | 2025