

Goldbell Financial Services

Problem Statement

#1: Time-consuming approval process

There are many supporting documents that an analyst will need to vet through before approving a loan. This takes time, potentially losing customers to competitors who could provide faster or even immediate approvals.

#2: Subjectivity in decision making


Each analyst decide whether to approve a loan based on their professional judgement which is subjective. Standards differ between each analyst, which may lead to either taking on excessive or inadequate risks, both posing risks to loan revenue.

Solution #1: Developing a Credit Scoring Model

Techniques such as Weight of Evidence and Informational Value were used to assess the predictive power of variables to default risks. Variables with predictive power were added to three machine learning models – logistic regression (primary model to generate credit score), classification trees and support vector machines. Finally, a weighted predictions model which takes into account the weighted predictions of each of the three models was used. The model also allows for customisation by introducing house rules and referral criteria which will overwrite the decisions from the model.

Solution #2: Developing a Management & Analyst Dashboard

A dashboard hosted on a web application, Dash, was developed for both management and analysts' use. The dashboard consists of four tabs, (1) Homepage, (2) Other Insights, (3) Application Review and (4) Default & Delinquency. The dashboard highlights key insights including the probability of default based on each characteristic specific to the applicant (e.g., age, monthly income, occupation skill level) and specific to the loan (e.g. loan amount, tenure, loan-to-value ratio). Users can also gain insights to future revenue generated from existing pool of loan applicants, on top of historical trends. Users can also view the loan application status by keying in a specific loan reference number. This loan application status is a prediction of default risk driven by the weighted predictions model backend, which then translates to whether to “accept”, “reject” or “refer the applicant. Key details of the applicant is also shown for users to understand the models' decision, which includes conditions for referral and rejection and generating a probability of default.

Goldbell Financial Services - Individual Loans


[Homepage](#)
[Other Insights](#)
[Application Review](#)
[Default & Delinquency](#)

APPLICATION REVIEW

LOAN REF NO:

Credit Score: 492
Application Status: Accept

HIRER ID:
Conditions for Referral/Rejection:
Probability of Default (%): 7.96

Key Details:

Variables	Values
Loan Reference	
Hirer ID	
Address	

Other Information:

Variables	Values
Interest Rate	
Vehicle Brand	HONDA
Loan Amount	108000
LTV	0.79

