

Appendix

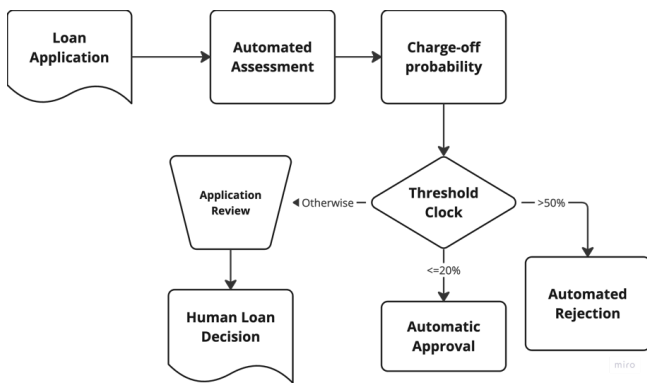


Figure 1 - Traditional Loan Approval System

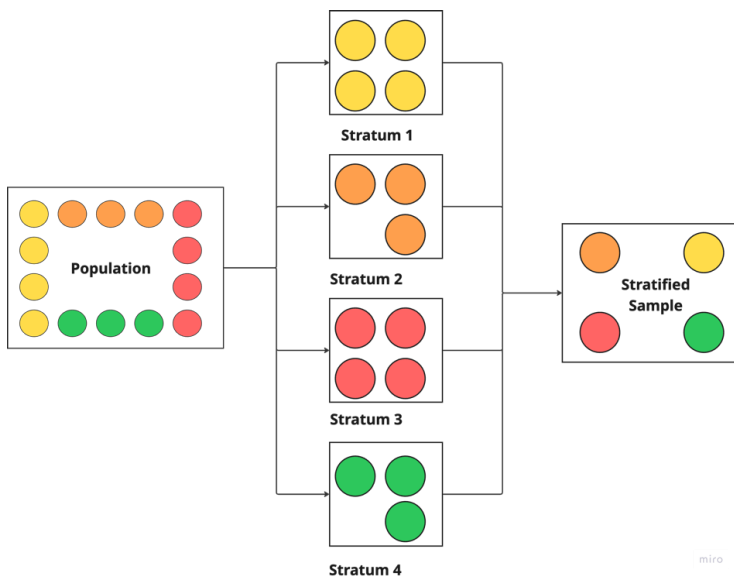


Figure 2 – Stratified Sampling used to handle class imbalance

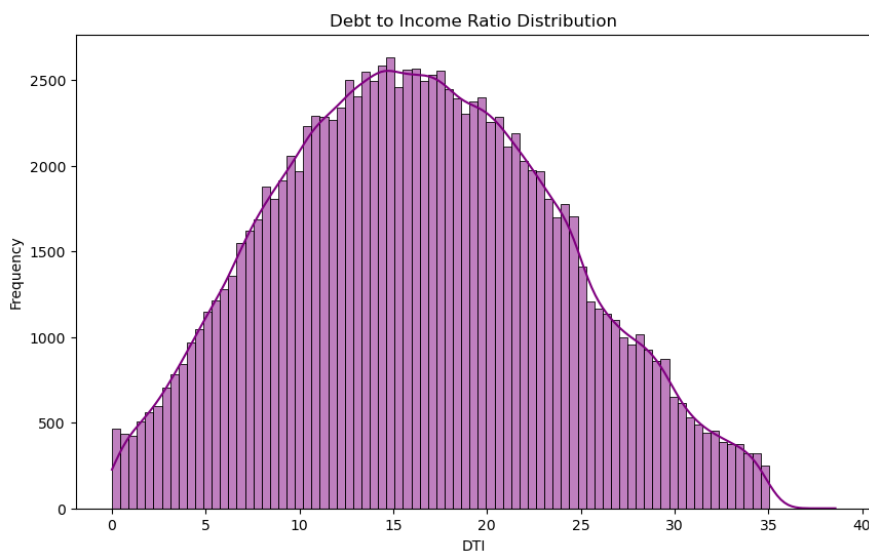


Figure 3 – Debt-to-income ratio Distribution

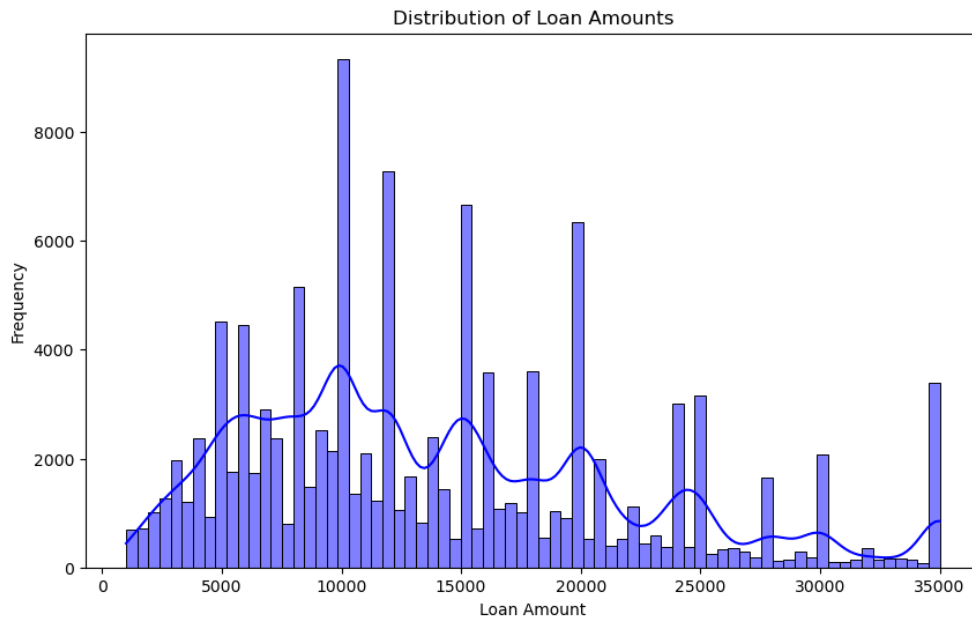


Figure 4 – Loan Amount Distribution

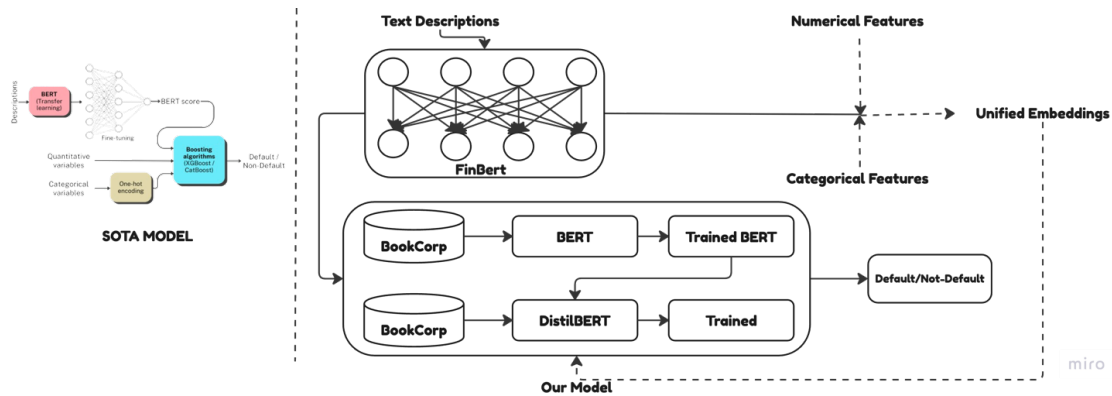


Figure 5 – SOTA model vs Our Model

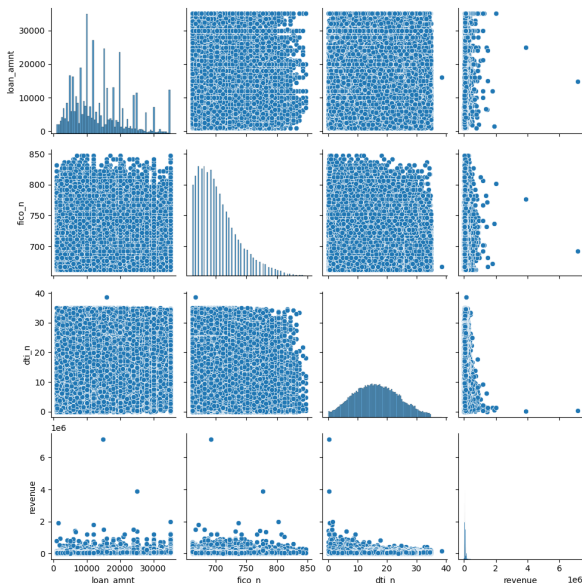


Figure 6 – Pair plot of different features

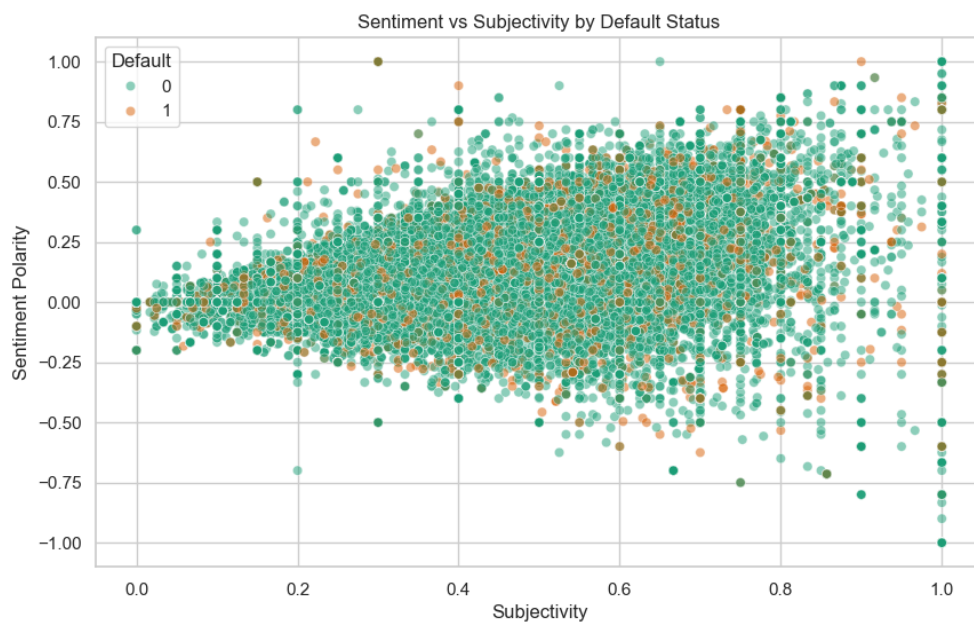


Figure 7 – Sentiment vs Subjectivity

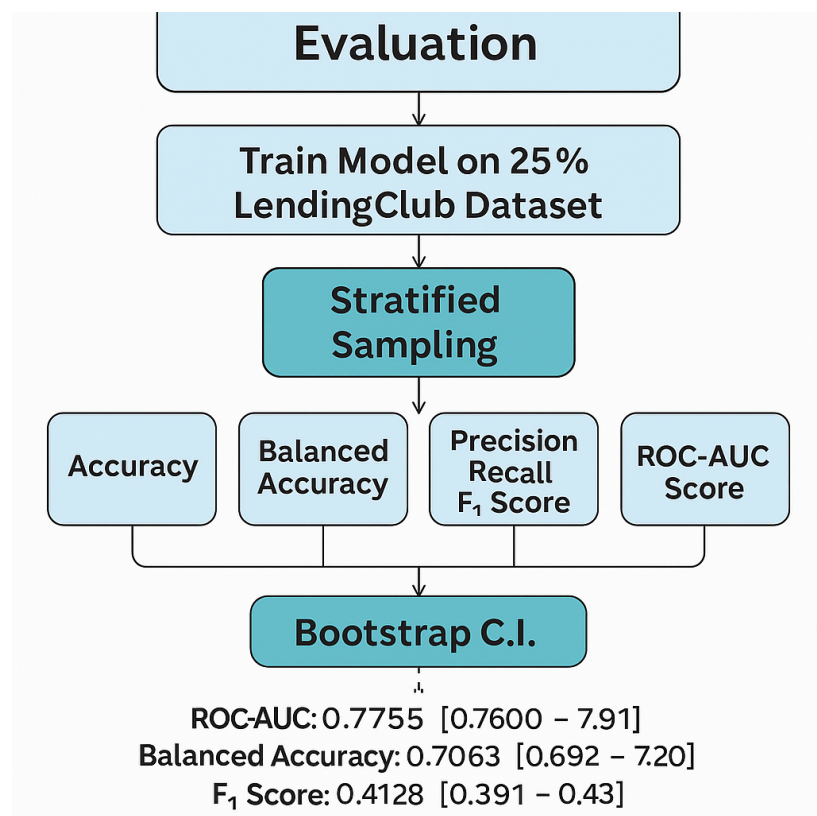


Figure 8 – Evaluation Flowchart

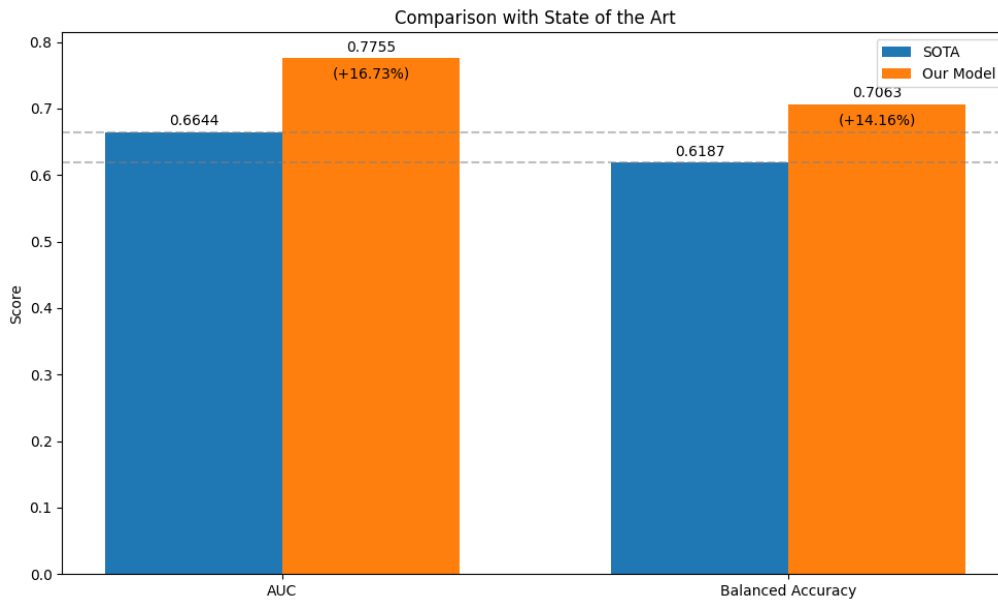


Figure 9 - Comparison of our model with Sanz-Guerrero and Arroyo (2024)

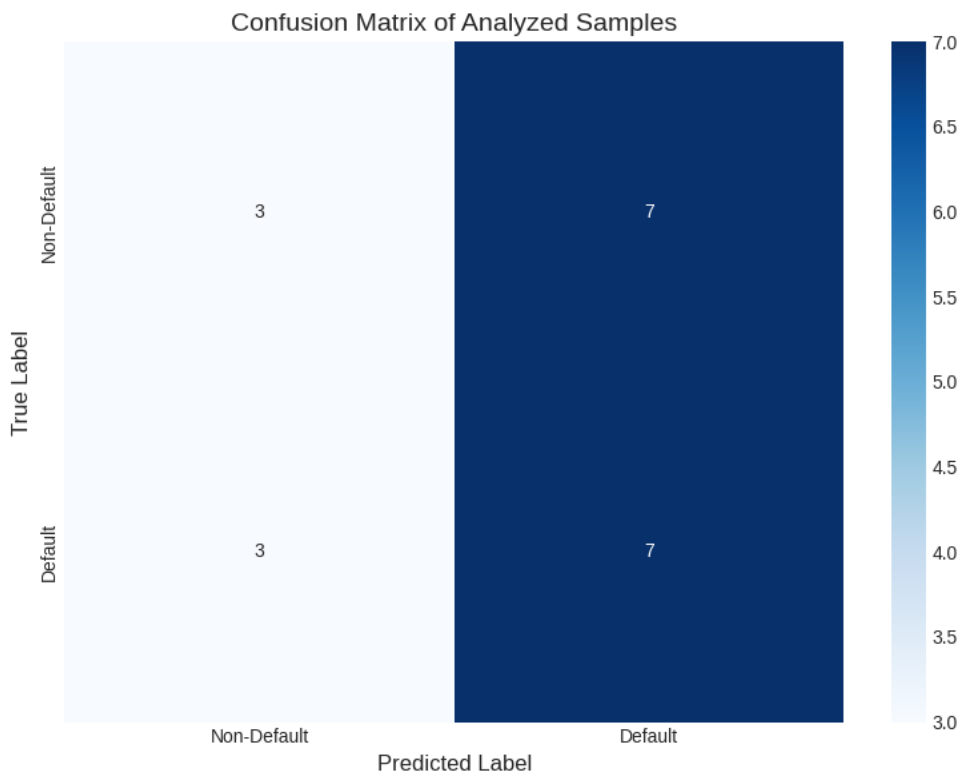


Figure 10: Confusion matrix of our model

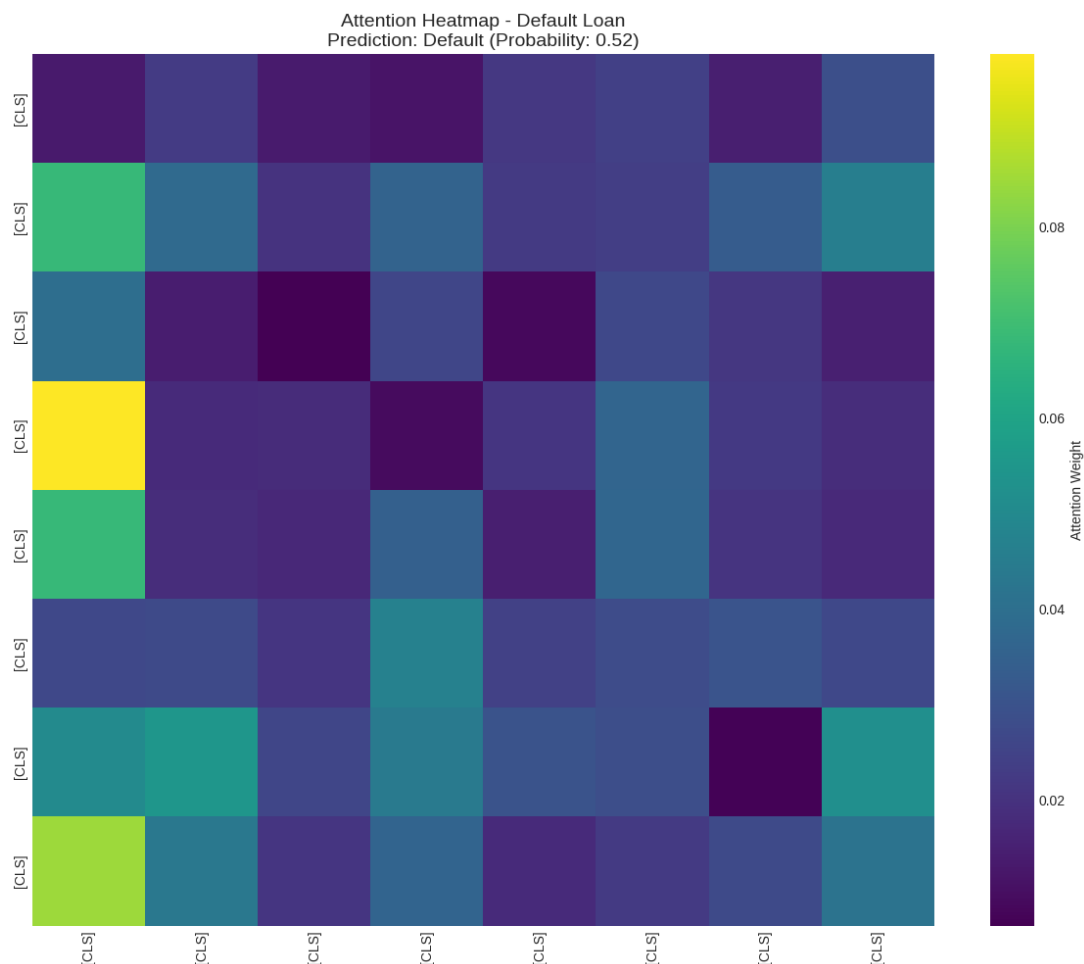


Figure 11: Attention Heatmap of Default Prediction

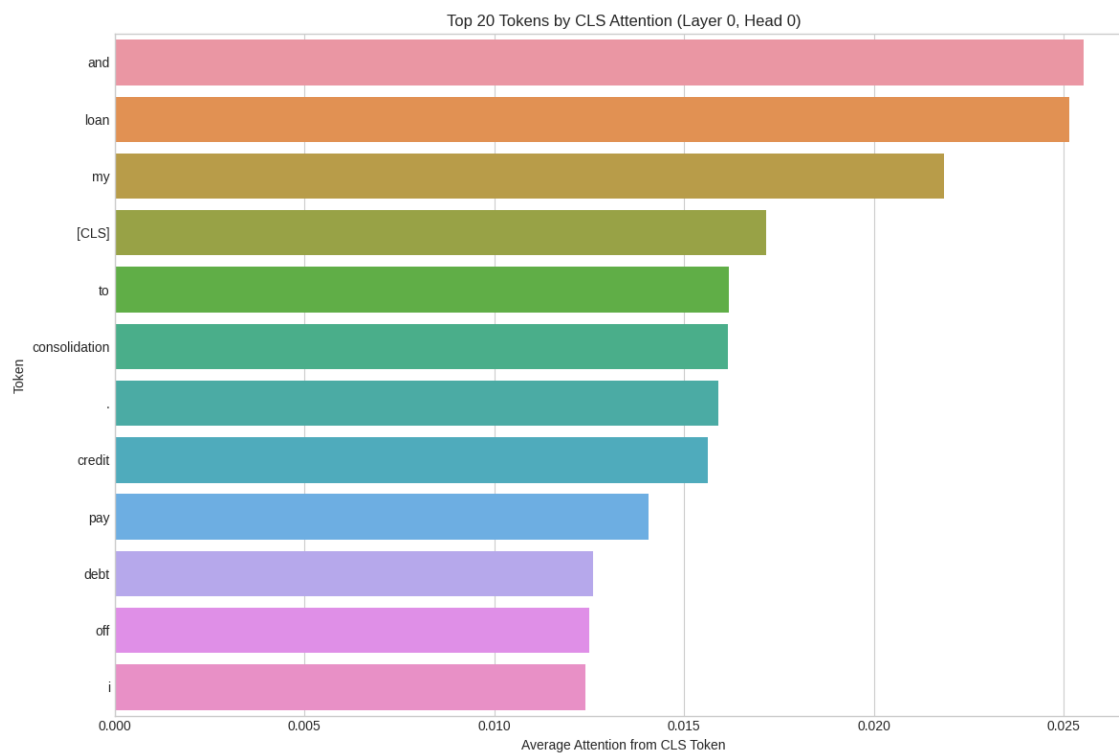


Figure 12: Most Influential Tokens for classification

Metric	Quant. + Categ. var.	+ BERT Score
BACC	0.6154	0.6187
AUC	0.6575	0.6644
F1	0.3266	0.3308
Precision	0.2168	0.2249
Recall	0.6614	0.6360
Accuracy	0.5835	0.6066

Table 1: Results from Sanz-Guerrero and Arroyo (2024)’s approach.

Class	Precision	Recall	F1-Score
Non-Default (0)	0.79	0.74	0.76
Default (1)	0.51	0.58	0.54

Table 2: Classification report on the test set.

Metric	Ours	SOTA [†]	Δ (%)
ROC-AUC	0.7755 [0.760–0.791]	0.6644	+16.7
Balanced Acc.	0.7063 [0.692–0.720]	0.6187	+14.2

Table 3: Comparison of our model’s performance against the prior state-of-the-art by Sanz–Guerrero et al. (2024).