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DECISION SLIDE: CREDIT RISK SCORING MODEL

1. Utilized Model

- **Model**: Gradient Boosting Classifier
- **Tuning**: RandomizedSearchCV (30 iterations, 5 folds CV).
- **Scorecard Scale**: 300 - 850 (Industry references).
- **Model that been equipped**:
    - Leakage column removal.
    - Feature Scaling (StandardScaler).
    - Hyperparameter Tuning.

2. Model Performance

- **ROC-AUC Score**: 0.83 -> Good enough for credit risk classification model.
- **Accuracy**: Overall have High, but need to be observed more.
- **Recall**: Much False Positive due to imbalance data.

3. SHAP Performance

The graph does not reveal the original feature names. For a more correct reading, it is advised to remap SHAP to the original column names.

4. Conclusion

When it comes to predicting credit risk, the Gradient Boosting Classifier model that has undergone hyperparameter tweaking performs fairly consistently and dependably, particularly when considering the ROC-AUC score of 0.83.

The ROC-AUC shows that this model can still effectively differentiate the classes despite the very unbalanced data (just about 1% of customers default); nonetheless, metrics like precision and recall for the default class still require improvement.

5. Recommendations

- To increase recall in the default class, use **oversampling** strategies (like SMOTE).
- Use the probability transformed scorecard as the basis for credit decision making, with thresholds adjusted to the company's risk profile.
- Monitor the model's performance on a regular basis, paying particular attention to any changes in minor classes' performance or distribution.