



# *CREDIT CARD PAYMENT DEFAULT OR NOT?*

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The background is a light beige color. It features decorative elements: a large, irregular gold paint splatter in the top-left corner; two gold leaf-like shapes in the top-right corner; a single gold leaf-like shape in the bottom-left corner; and a large, irregular gold paint splatter in the bottom-right corner. The text is centered in the middle of the slide.

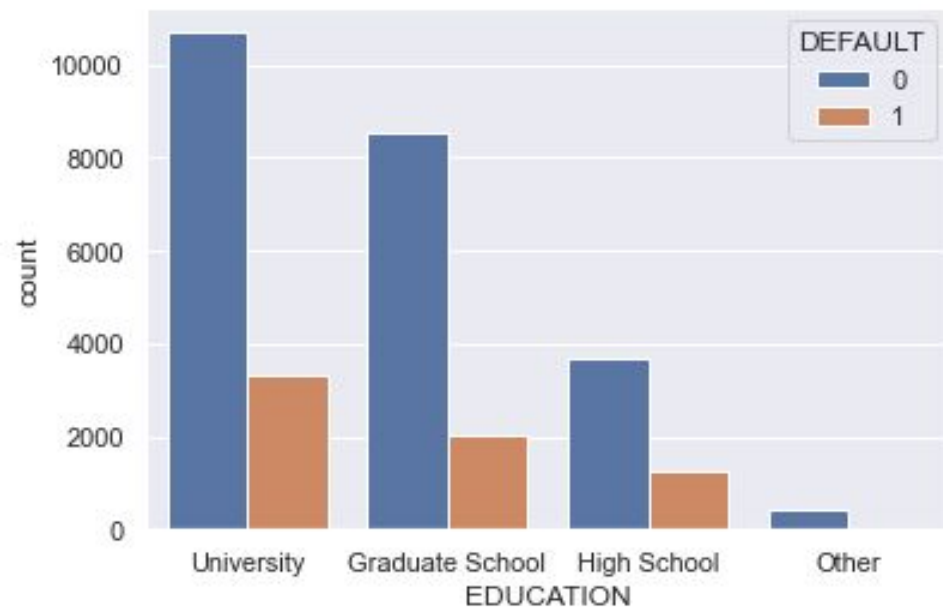
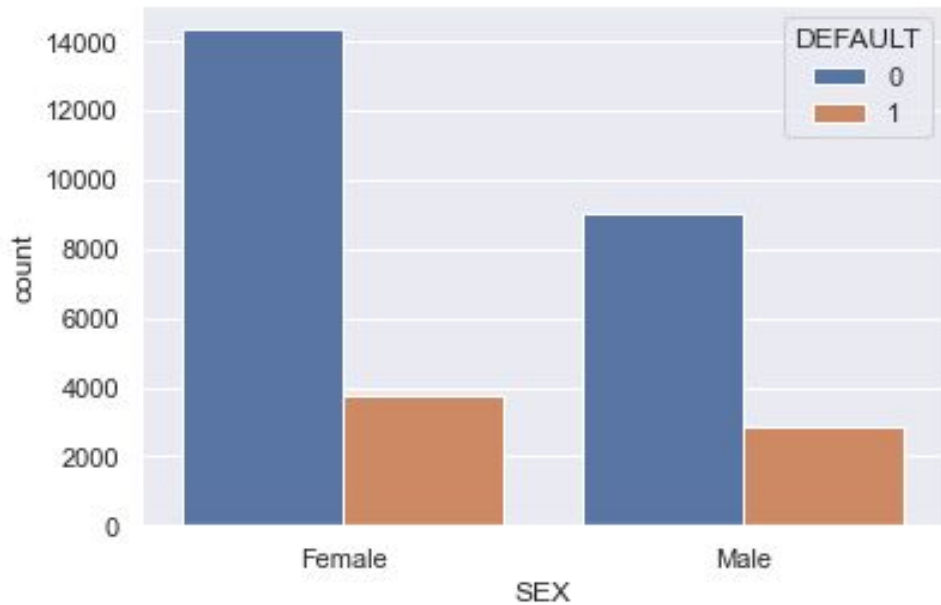
Establish a **predictive classification model** to identify **high risk debtors**

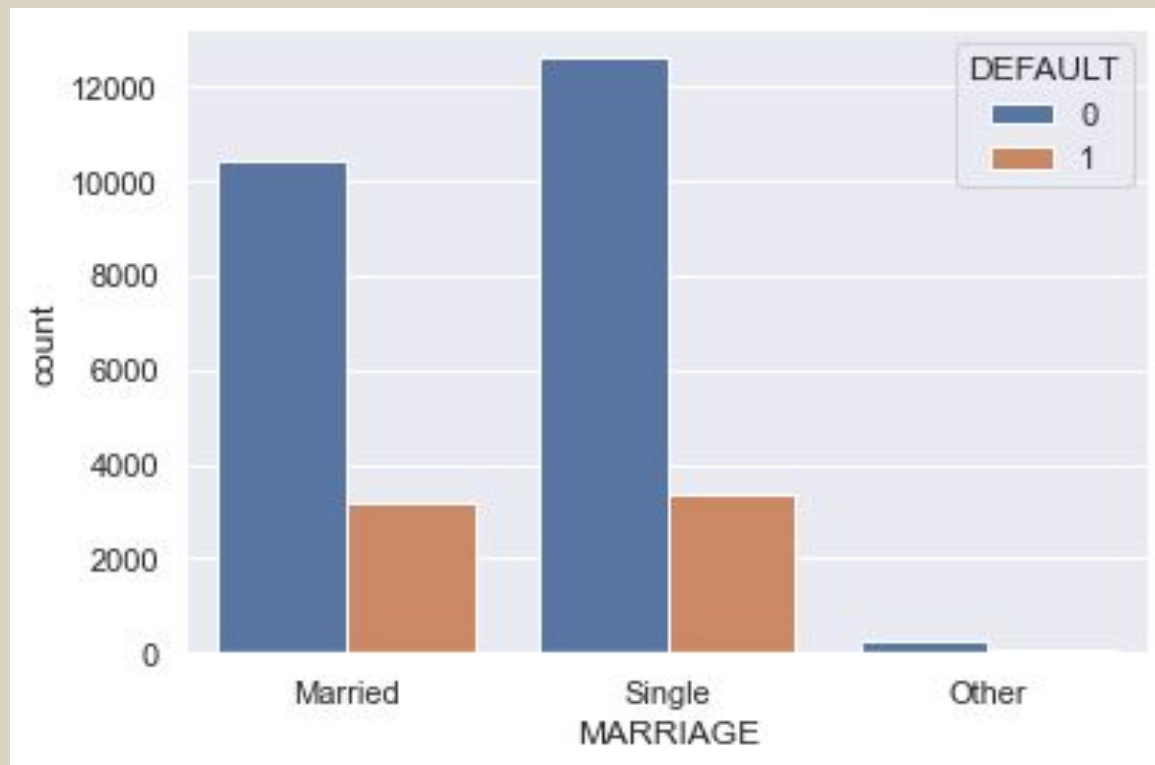
# *Why is it important?*

- Limit Financial Growth of the company
- Decrease in Revenue
- Decrease in Profit
- Decrease in Liquidity
- Decrease in Lending Potential
- Loss of Confidence from Depositors & Investors

# *Features*

- Amount of Credit
- Gender
- Education
- Marital Status
- Age
- History of Past Payments
- Amount of Past Bills





# Models and Metrics

Model	F2 Score	Accuracy	Comments
K Nearest Neighbor	.3915	.8091	GridSearchCV to optimize hyper parameter
Logistic regression	.3696	.8163	Grid Search CV to optimise C
Logistic Regression (Threshold = .4)	.5903	.6681	Imbalance Class Treatment: Balanced Class Weight & Threshold Grid Search CV to optimise C

# Models and Metrics

Model	F2 Score	Accuracy	Comments
Random Forest (Threshold = .17)	.588	.233	Imbalance Class Treatment: Threshold Grid Search CV to optimise depth and estimators
Random Forest (Threshold = .17)	.602	.655	Feature Engineering Imbalance Class Treatment: Threshold & Balanced class weight Grid Search CV to optimise depth and estimators



# CONFUSION MATRIX

Actual Label	2972 (True Negative)	1701 (False Positive)
	366 (False Negative)	961 (True Positive)
Predicted Label		

(TRUE POSITIVE RATE)  
PRECISION = .36

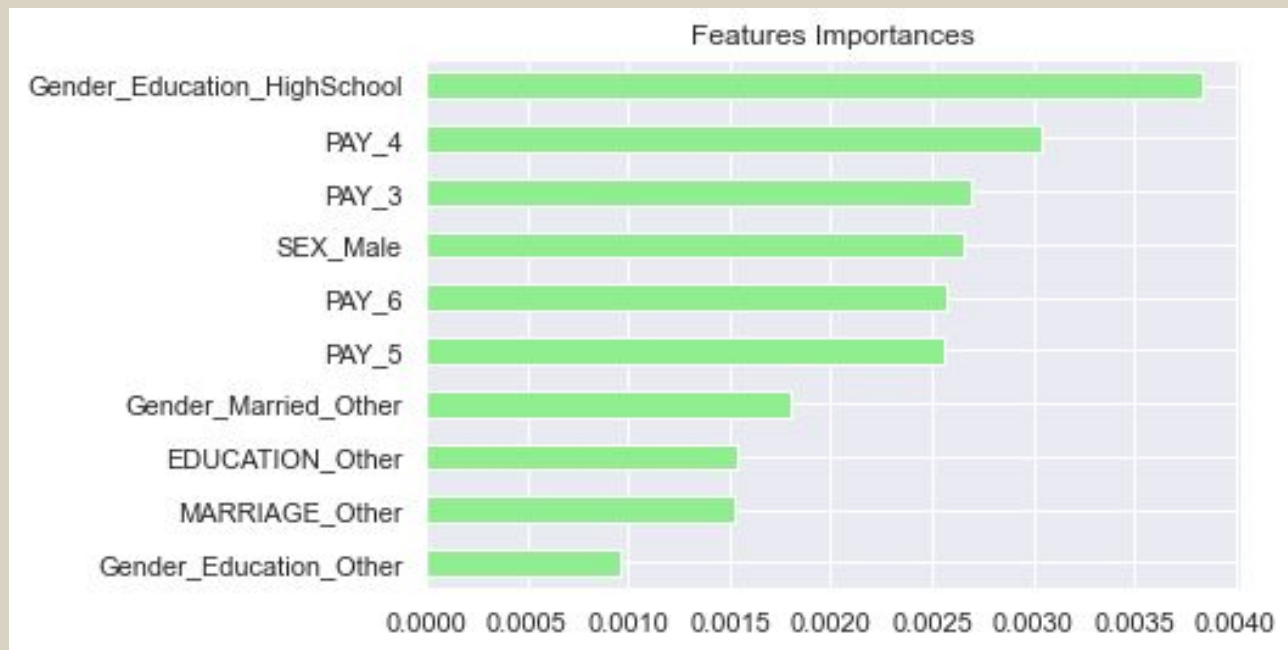
RECALL = .72

F2 SCORE = .60

## CONCLUSION:

- False Negative are more harmful than False Positive
- 72.4 % of customers who will default were correctly identified
- 36.5 %(FP) of customers who will not default were in-correctly identified
- 1% of incorrectly classified non defaulting customers (FP) may switch companies because of continuous follow up by companies.
- 72% (TP) were followed up and offered alternate plans of payment
- Gender, Education and timely payment of past dues are the most important factors to predict default probability in future

# FEATURE IMPORTANCE



The background is a light beige color. It is decorated with several gold-colored elements: two leaves in the top-left corner, one leaf in the top-right corner, and large, abstract, brush-stroke-like shapes in the bottom-left and bottom-right corners. There are also numerous small, scattered gold dots and splatters throughout the design.

*Thank You..*