CREDIT CARD DEFAULT PREDICTION

: HIGH LEVEL DESIGN :

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❖ INTRODUCTION:

There are times when even a seemingly manageable debt, such as credit cards, goes out of control. Lose of jab, medical crisis or business failure are some of the reasons that can impact your finances. In fact, credit card debts are usually the first to get out of hand in such situations due to hefty finance charges (compounded on daily balances) and other penalties. A lot of us would be able to relate to this scenario. We may have missed credit card payments once or twice because of forgotten due dates or cash flow issues. But what happens when this continues for months? How to predict if a customer will be defaulter in next months? To reduce the risk of Banks, this model has been developed to predict customer defaulter based on demographic data like gender, age, marital status and behavioral data like last payments, past transactions etc.

❖PROBLEM STATEMENT:

Financial threats are displaying a trend about the credit risk of commercial banks as the incredible improvement in the financial industry has arisen. In this way, one of the biggest threats faced by commercial banks is the risk prediction of credit clients. The goal is to predict the probability of credit default based on credit card owner's characteristics and payment history.

❖DATASET INFORMATION:

ID: ID of each client

LIMIT_BAL: Amount of given credit in NT dollars (includes individual and family/supplementary = credit)

SEX: Gender (1=male, 2=female)

EDUCATION: (1=graduate school, 2=university, 3=high school, 4=others, 5=unknown, 6=unknown)

MARRIAGE: Marital status (1=married, 2=single, 3=others)

AGE: Age in years

PAY_0: Repayment status in September 2005 (-1=pay duly, 1=payment

delay for one month, 2=payment delay for two months, … 8=payment delay for eight months, 9=payment delay for nine months and above)

PAY_2: Repayment status in August 2005 (scale same as above)

PAY_3: Repayment status in July 2005 (scale same as above)

PAY_4: Repayment status in June 2005 (scale same as above)

PAY_5: Repayment status in May 2005 (scale same as above)

PAY_6: Repayment status in April 2005 (scale same as above)

BILL_AMT1: Amount of bill statement in September 2005 (NT dollar)

BILL_AMT2: Amount of bill statement in August 2005 (NT dollar)

BILL_AMT3: Amount of bill statement in July 2005 (NT dollar)

BILL_AMT4: Amount of bill statement in June 2005 (NT dollar)

BILL_AMT5: Amount of bill statement in May 2005 (NT dollar)

BILL_AMT6: Amount of bill statement in April 2005 (NT dollar)

PAY_AMT1: Amount of previous payment in September 2005 (NT dollar)

PAY_AMT2: Amount of previous payment in August 2005 (NT dollar)

PAY_AMT3: Amount of previous payment in July 2005 (NT dollar)

PAY_AMT4: Amount of previous payment in June 2005 (NT dollar)

PAY_AMT5: Amount of previous payment in May 2005 (NT dollar)

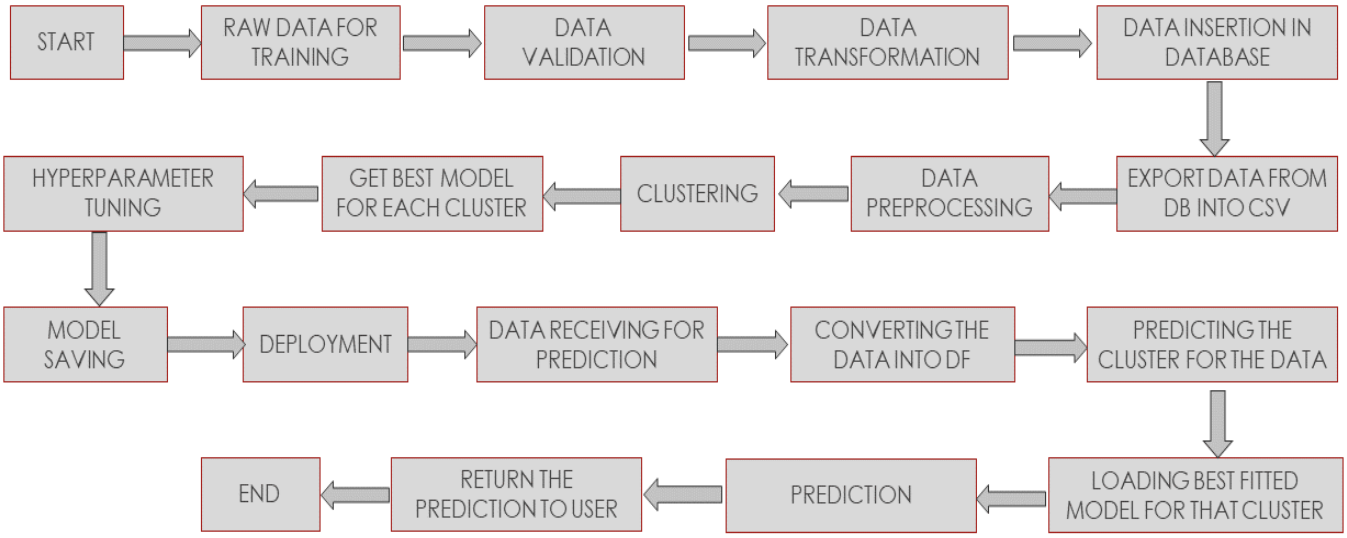
PAY_AMT6: Amount of previous payment in April 2005 (NT dollar)

Default payment next month: Default payment (1=yes, 0=no)

❖TOOLS USED:

Python programming language and frameworks such as NumPy, Pandas, Scikit-Learn, Matplotlib, and Seaborn are used to build the whole model.

❖DESIGN FLOW:



❖CONCLUSION:

The project is designed in the flask; hence it is accessible to everyone. The above design process will help banks and loan lenders predict whether customers will default the credit card payment or not, so the bank or respective departments can take necessary action, based on the model's predictions. The UI is made to be user-friendly so that the user will not need much knowledge of any tools but will just need the information for results.