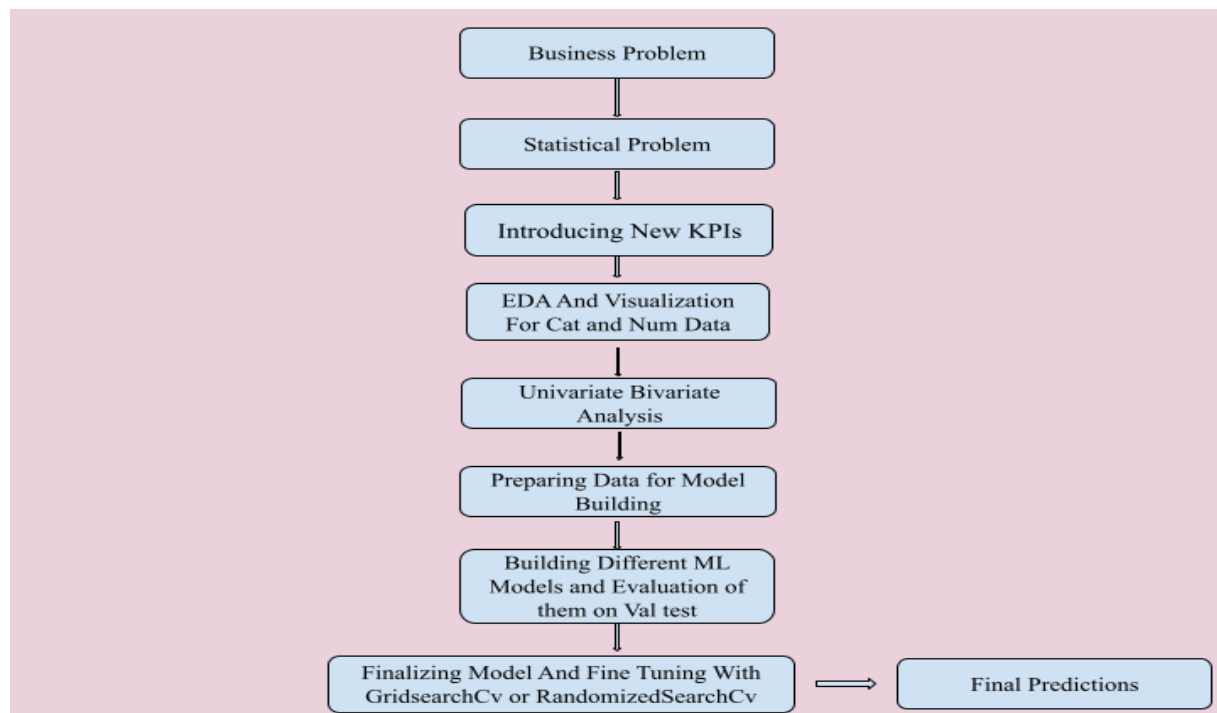# Credit Card Lead Prediction

Business Problem-

Happy Customer Bank is a mid-sized private bank that deals in all kinds of banking products, like Savings accounts, Current accounts, investment products, credit products, among other offerings.

The bank also cross-sells products to its existing customers and to do so they use different kinds of communication like tele-calling, e-mails, recommendations on net banking, mobile banking, etc.

In this case, the Happy Customer Bank wants to cross sell its credit cards to its existing customers. The bank has identified a set of customers that are eligible for taking these credit cards.

Now, the bank is looking for your help in identifying customers that could show higher intent towards a recommended credit card

Architecture of Solution -

Business Problem
↓
Statistical Problem
↓
Introducing New KPIs
↓
EDA And Visualization For Cat and Num Data
↓
Univariate Bivariate Analysis
↓
Preparing Data for Model Building
↓
Building Different ML Models and Evaluation of them on Val test
↓
Finalizing Model And Fine Tuning With GridsearchCv or RandomizedSearchCv → Final Predictions

The complete solution consisted of,

1. Advanced Data Preparation: -

   ● Building an 'enriched' customer profile by deriving "intelligent" KPIs such as occupation average balance, is_active average balance, gender average balance, gender and channel code, gender and occupation, gender and is is_active etc.
   ● Advanced Reporting: Use the derived KPI's to gain insight on the customer profiles with visualization univariate and bivariate analysis.
   ● Feature Engineering/ Pre-Processing -
     ➢ Outlier treatment with percentile method on numerical features
     ➢ Advance missing value imputation with IterativeImputer method for credit_product feature
     ➢ Label encoding with CountEncoder

   ● Trying different modeling approaches including **logistic regression, decision tree classifier, random forest cat boost and light gradient boost**
   ● Finalizing model and tuning solution with Gridsearchcv method
   ● Final prediction of customers