**Customer Segmentation**

**Problem Statement:**

XYZ bank wants to roll out Christmas offers to their customers. But Bank does not want to roll out same offer to all customers instead they want to roll out personalized offer to particular set of customers. If they manually start understanding the category of customer then this will be not efficient and also they will not be able to uncover the hidden pattern in the data (pattern which group certain kind of customer in one category). Bank approached ABC Analytics Company to solve their problem. Bank also shared information with ABC analytics that they don't want more than 5 group as this will be inefficient for their campaign.

**ML Problem:**

ABC analytics proposed customer segmentation approach to Bank.

ABC analytics assigned this talk to their analytics team and instructed their team to come up with the approach and feature which group similar behaviour customer in one category and others in different category.

**Note: Please read problem statement carefully and propose the approach which should be as per the customer requirement.**

**Task:**

1. Business Understanding

2. Data Understanding

3. EDA

4. Feature Engineering

5. Model Building

6. Model Evaluation

7. Presentation (Recommendation slide is must)

8. Document the challenges

<https://drive.google.com/drive/folders/1bfCpJIKmp6IHxiLPWvOS2nU1dc24pViB?usp=sharing>

| **Column Name** | **Description** |
| --- | --- |
| fecha\_dato | The table is partitioned for this column |
| ncodpers | Customer code |
| ind\_empleado | Employee index: A active, B ex employed, F filial, N not employee, P pasive |
| pais\_residencia | Customer's Country residence |
| sexo | Customer's sex |
| age | Age |
| fecha\_alta | The date in which the customer became as the first holder of a contract in the bank |
| ind\_nuevo | New customer Index. 1 if the customer registered in the last 6 months. |
| antiguedad | Customer seniority (in months) |
| indrel | 1 (First/Primary),  99 (Primary customer during the month but not at the end of the month) |
| ult\_fec\_cli\_1t | Last date as primary customer (if he isn't at the end of the month) |
| indrel\_1mes | Customer type at the beginning of the month ,1 (First/Primary customer),  2 (co-owner ), P (Potential),3 (former primary), 4(former co-owner) |
| tiprel\_1mes | Customer relation type at the beginning of the month, A (active), I (inactive),  P (former customer),R (Potential) |
| indresi | Residence index (S (Yes) or N (No) if the residence country is the same than the  Bank country) |
| indext | Foreigner index (S (Yes) or N (No) if the customer's birth country is different than the  bank country) |
| conyuemp | Spouse index. 1 if the customer is spouse of an employee |
| canal\_entrada | channel used by the customer to join |
| indfall | Deceased index. N/S |
| tipodom | Addres type. 1, primary address |
| cod\_prov | Province code (customer's address) |
| nomprov | Province name |
| ind\_actividad\_cliente | Activity index (1, active customer; 0, inactive customer) |
| renta | Gross income of the household |
| ind\_ahor\_fin\_ult1 | Saving Account |
| ind\_aval\_fin\_ult1 | Guarantees |
| ind\_cco\_fin\_ult1 | Current Accounts |
| ind\_cder\_fin\_ult1 | Derivada Account |
| ind\_cno\_fin\_ult1 | Payroll Account |
| ind\_ctju\_fin\_ult1 | Junior Account |
| ind\_ctma\_fin\_ult1 | Más particular Account |
| ind\_ctop\_fin\_ult1 | particular Account |
| ind\_ctpp\_fin\_ult1 | particular Plus Account |
| ind\_deco\_fin\_ult1 | Short-term deposits |
| ind\_deme\_fin\_ult1 | Medium-term deposits |
| ind\_dela\_fin\_ult1 | Long-term deposits |
| ind\_ecue\_fin\_ult1 | e-account |
| ind\_fond\_fin\_ult1 | Funds |
| ind\_hip\_fin\_ult1 | Mortgage |
| ind\_plan\_fin\_ult1 | Pensions |
| ind\_pres\_fin\_ult1 | Loans |
| ind\_reca\_fin\_ult1 | Taxes |
| ind\_tjcr\_fin\_ult1 | Credit Card |
| ind\_valo\_fin\_ult1 | Securities |
| ind\_viv\_fin\_ult1 | Home Account |
| ind\_nomina\_ult1 | Payroll |
| ind\_nom\_pens\_ult1 | Pensions |
| ind\_recibo\_ult1 | Direct Debit |