## **Project Name Customer Segmentation**

## 1. Problem Statement

In [2]: Bank Customer segmentation
 Segregating customers/clients into groups/category based on common characteristics so banks can market to each group effectively and appropriately to generate maximum revenue/benifit from providing suitable products/offers.
 To retain the customers and minimizing the loss of revenue.

import pandas as pd
import numpy as np

import matplotlib.pyplot as plt
import seaborn as sns

In [7]: cus\_df = pd.read\_csv("Cust\_segm\_Final\_16\_02.csv")

cus\_df.head()

Out[7]:		Graduated marital	Profession	defaulter l	loan	CustGender state	Transaction mount	CustAccountBalance	 Credit amount	Duration	Purpose		Credit Card PM	credit card repayment in days	Credit_Limit	Work_Experience	Spending_Score F
	<b>0</b> 56	No married	Healthcare	no	no	F Washingtor	44	17819.05	 1169	6	Home Appliances	0	2	14	3760	2.0	Low
	<b>1</b> 57	Yes married	Engineer	unknown	no	M Washingtor	84	2270.69	 5951	48	Home Appliances	5	2	93	6931	NaN	Average
	<b>2</b> 37	Yes married	Engineer	no	no	F Washingtor	74	17874.44	 2096	12	education	0	3	16	19457	6.0	Low
	<b>3</b> 40	Yes married	Lawyer	no	no	F Illinois	106	866503.21	 7882	42	Home loan	3	3	76	24003	11.0	High
	<b>4</b> 56	Yes married	Entertainment	no	yes	F Washingtor	117	6714.43	 4870	24	car	3	3	56	30667	NaN	High

5 rows × 25 columns

In [10]: plt.figure(figsize=(15,10))
 sns.heatmap(cus\_df.corr(),annot=True)

#Highest Correlation is between Annual Income & Credit Limit

Out[10]: <AxesSubplot:>

															- 1.0
age -	1	-0.032	-0.0095	-0.04	-0.0082	-0.063	-0.017	0.075	-0.021	0.0088	-0.047	-0.032	0.12		
Transaction mount -	-0.032	1	0.01	0.8	0.76	0.027	0.0075	-0.028	0.081	-0.024	0.69	0.62	-0.14		
CustAccountBalance -	-0.0095	0.01	1	0.026	0.015	-0.0099	0.02	-0.02	-0.024	-0.03	0.025	0.021	0.0047		- 0.8
Annual Income	-0.04	0.8	0.026	1	0.75	0.015	0.017	-0.038	0.065	-0.026	0.89	0.78	-0.13		
Spending Score (1-100) -	-0.0082	0.76	0.015	0.75	1	0.0062	0.021	0.019	0.042	-0.0082	0.65	0.64	-0.032		- 0.6
Credit amount -	-0.063	0.027	-0.0099	0.015	0.0062	1	0.18	0.0069	-0.008	-0.01	0.019	0.015	-0.016		
Duration -	-0.017	0.0075	0.02	0.017	0.021	0.18	1	0.018	-0.022	-0.018	0.01	0.03	-0.0089		- 0.4
Atm Used PM -	0.075	-0.028	-0.02	-0.038	0.019	0.0069	0.018	1	0.26	0.0092	-0.031	-0.028	0.17		
Credit Card PM -	-0.021	0.081	-0.024	0.065	0.042	-0.008	-0.022	0.26	1	0.0047	0.059	0.041	-0.06		- 0.2
credit card repayment in days -	0.0088	-0.024	-0.03	-0.026	-0.0082	-0.01	-0.018	0.0092	0.0047	1	-0.025	-0.015	-0.0077		0.2
Credit_Limit -	-0.047	0.69	0.025	0.89	0.65	0.019	0.01	-0.031	0.059	-0.025	1	0.67	-0.11		
Work_Experience -	-0.032	0.62	0.021	0.78	0.64	0.015	0.03	-0.028	0.041	-0.015	0.67	1	-0.093		- 0.0
Family_Size -	0.12	-0.14	0.0047	-0.13	-0.032	-0.016	-0.0089	0.17	-0.06	-0.0077	-0.11	-0.093	1		
	- age	Fansaction mount -	CustAccountBalance -	Annual Income -	Spending Score (1-100) -	Credit amount -	Duration -	Atm Used PM -	Credit Card PM -	credit card repayment in days –	Gredit_Limit -	Work_Experience	Family_Size -	_	-

In [ ]:	
In [ ]:	