

Data Analyst: Cross selling Recommendation - Group Project

How to increase cross selling of Banking Products?



Specialization: Data Analyst

Group Name: Data Storytellers

Repo link

https://github.com/LaxmiInnamuri/DataAnalyst_CrossSellingRecommendation_GroupProject.git

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Problem Description

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**How to
increase
cross selling
of Banking
Products ?**

Problem Description

XYZ credit union in Latin America is performing very well in selling the Banking products (eg: Credit card, deposit account, retirement account, safe deposit box etc) but their existing customer is not buying more than 1 product which means bank is not performing good in cross selling (Bank is not able to sell their other offerings to existing customer).

What action bank can take to increase cross selling?

Business Understanding

Customer centric view	Longer-term view of customer value rather than product-centric view of cross-selling
Single view of the customer	Identifying patterns of behavior across products
Maximize segmentation	Segment your customers into groups based on most-likely cross-sell opportunities
Channels	Delivering a message to the Target Audience
Products & Services	Which items sell best for you and what items pair well with your best sellers
Cross Selling vs. Upselling	Complementary product mix vs Upgraded product

Data Understanding

Given data from test.csv & train.csv contains Customer Data.

Test.csv contains data for the date 28-06-2016.

Train.csv contains data for the period from 28-01-2015 to 28-05-2016

Data Size

The size of training data set is about 4.9+ GB, which has 13,647,309 observations.

The test data set has 929,615 observations.

Input Features

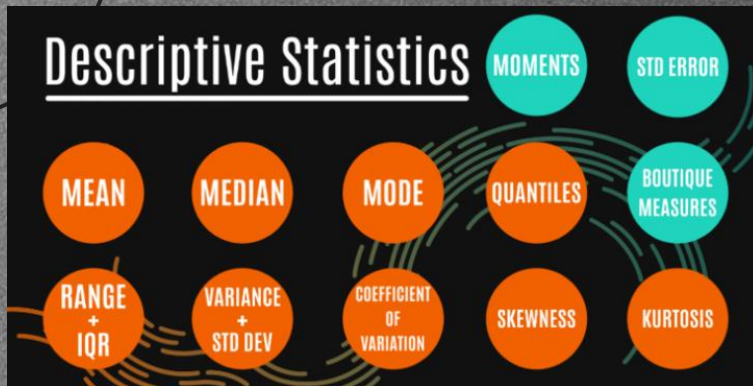
From column 1 to column 24 are the input features, which contain 21 categorical features and 3 continuous features. The input features contain customers' demographic and status with the bank information. On top of this, the observations are in the time series format. The data contains each customer's information from January 2015 to May 2016.

Output Features

From column 25 to column 48 are the output features, which contains the product purchased information according to each customer from January 2015 to May 2016. Each column stands for one product, and there are 24 products in total.



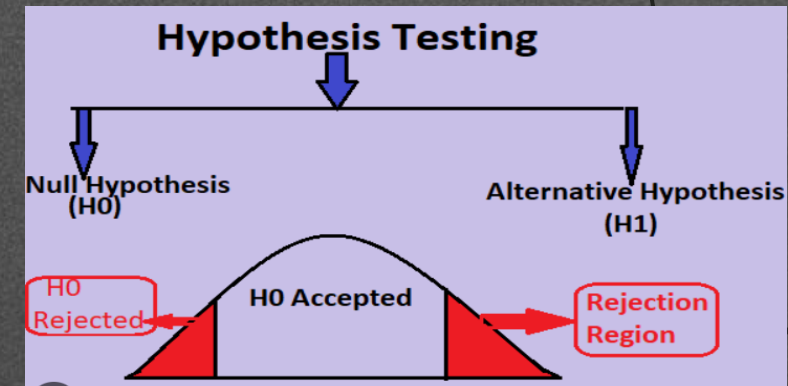
Exploratory Data Analysis



Descriptive
Statistics



Data
Visualization



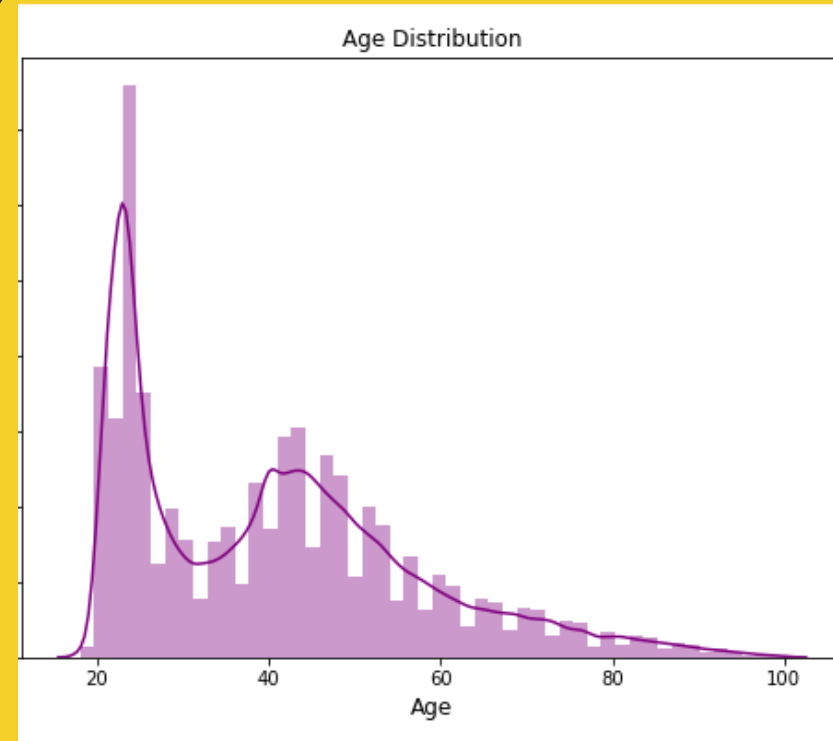
Hypothesis
Testing

What is the trend in customer distribution based on Age?

Customer count is very less below Age 20.

Highest customer range between 20 to 30

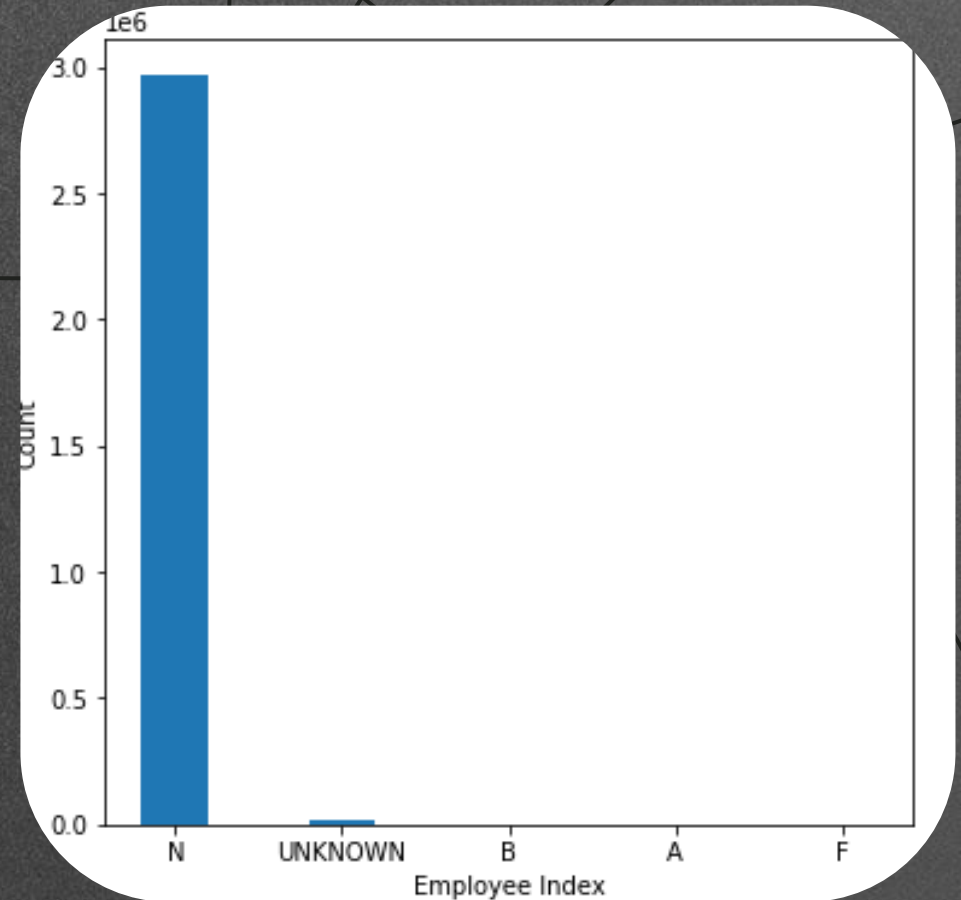
Customer decreases gradually from 60



Are the Customers related to the Company?

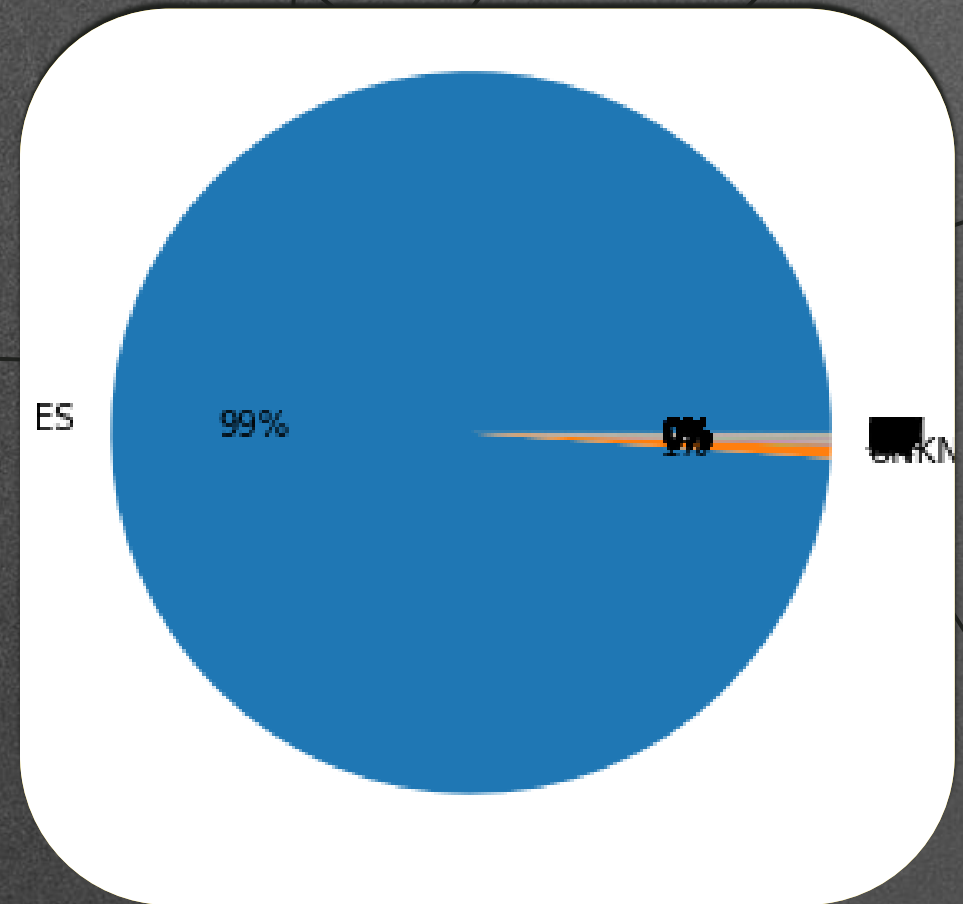
'N': 'Not An Employee', 'A': 'Active Employee', 'B': 'Ex Employee', 'F': 'Employee Relative'

Majority of Customers are not Employees



Which geographical location
are the majority customers
from?

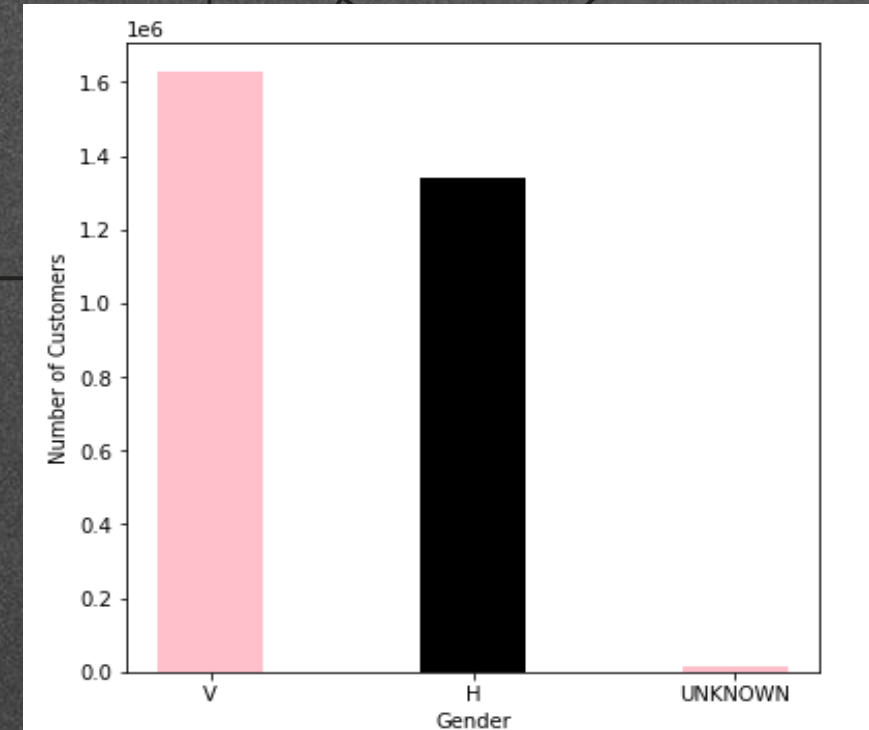
Majority of Customers are from Spain
(ES)



Male Customers or
Female Customers ?
high in number

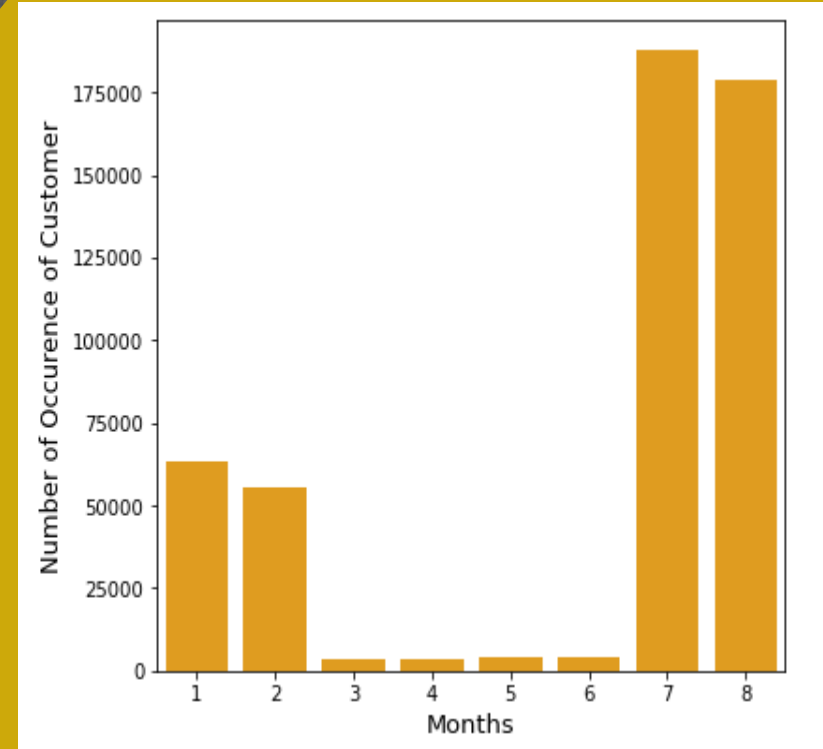


Female Customers are more in number



Which months has highest number of occurrences?

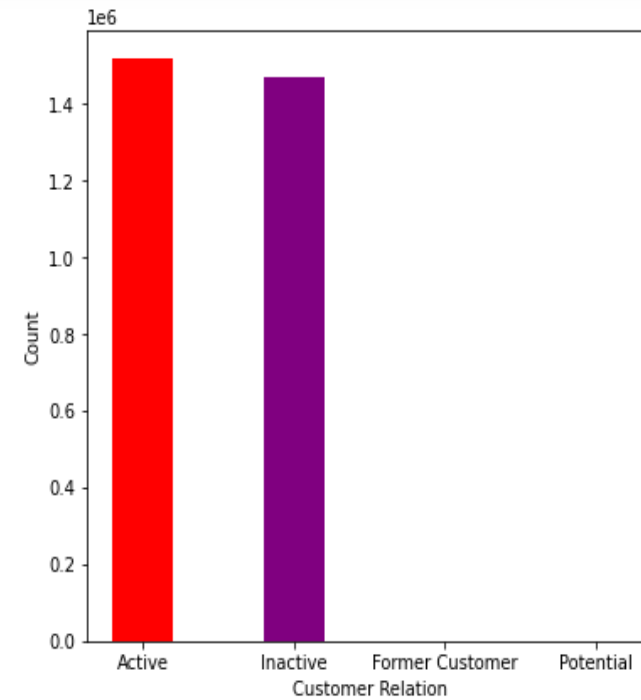
Highest Occurrence of Customer in July, August and less occurrences from March to June months



What is the Status of the Customer?

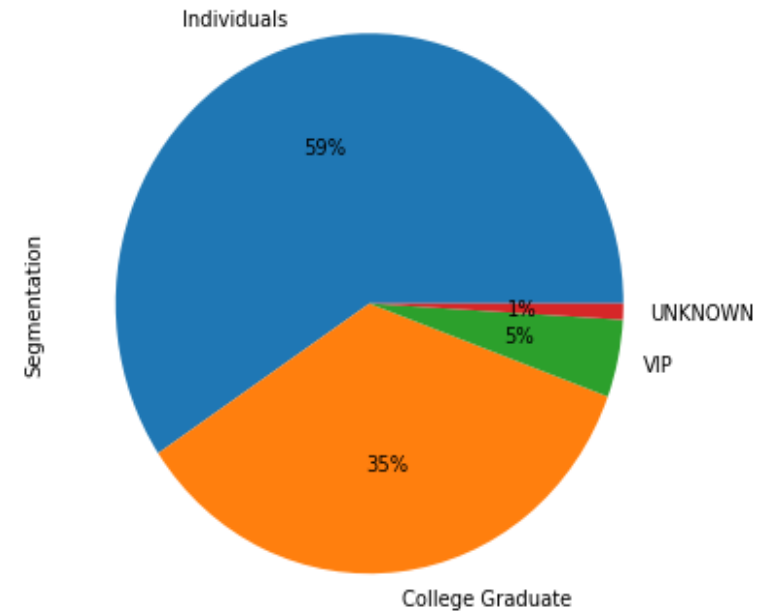
Active; Inactive; Former; Potential

Inactive Customer numbers are almost close to Active Customers



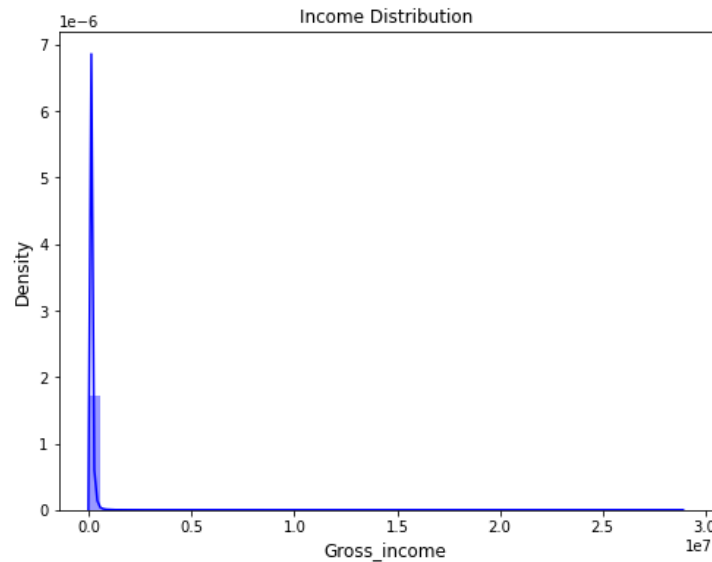
Which Customer segments are trending?

Individuals are high in number compared to College Graduates and VIP's

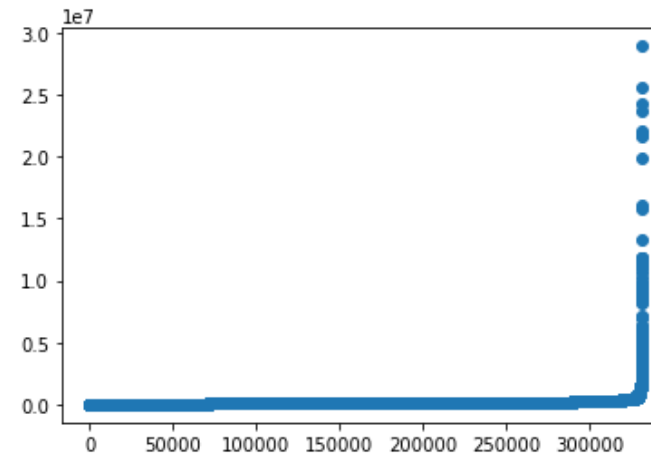


Customers Income

Relation between customer income and number of customers



From above distribution plot Income is highly skewed

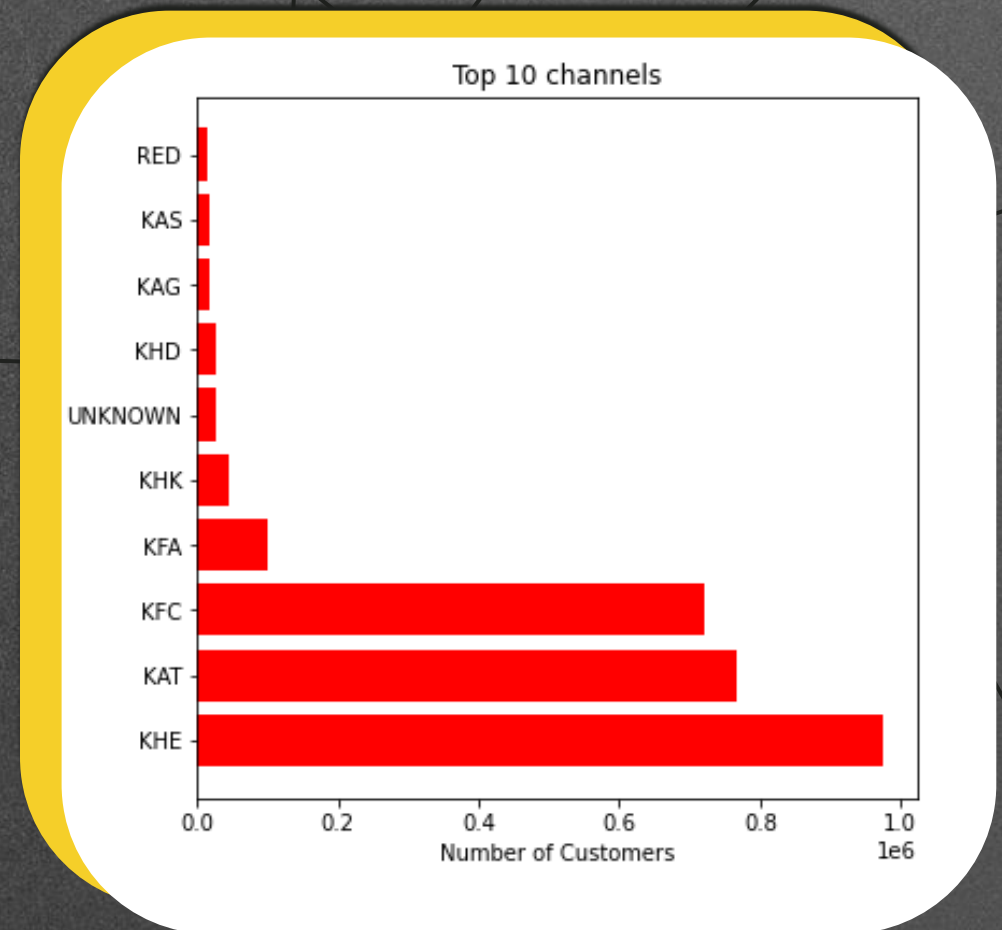


Majority Customers Gross Income is more than 300000

Which Channel is frequently used?

Top 10 Channels

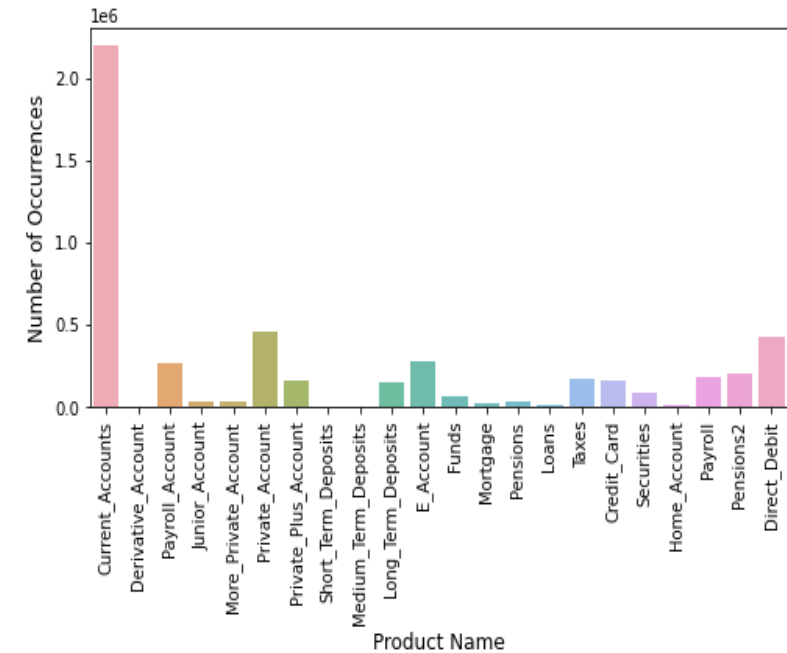
KHE is the most popular channel used by about 1 million Customers

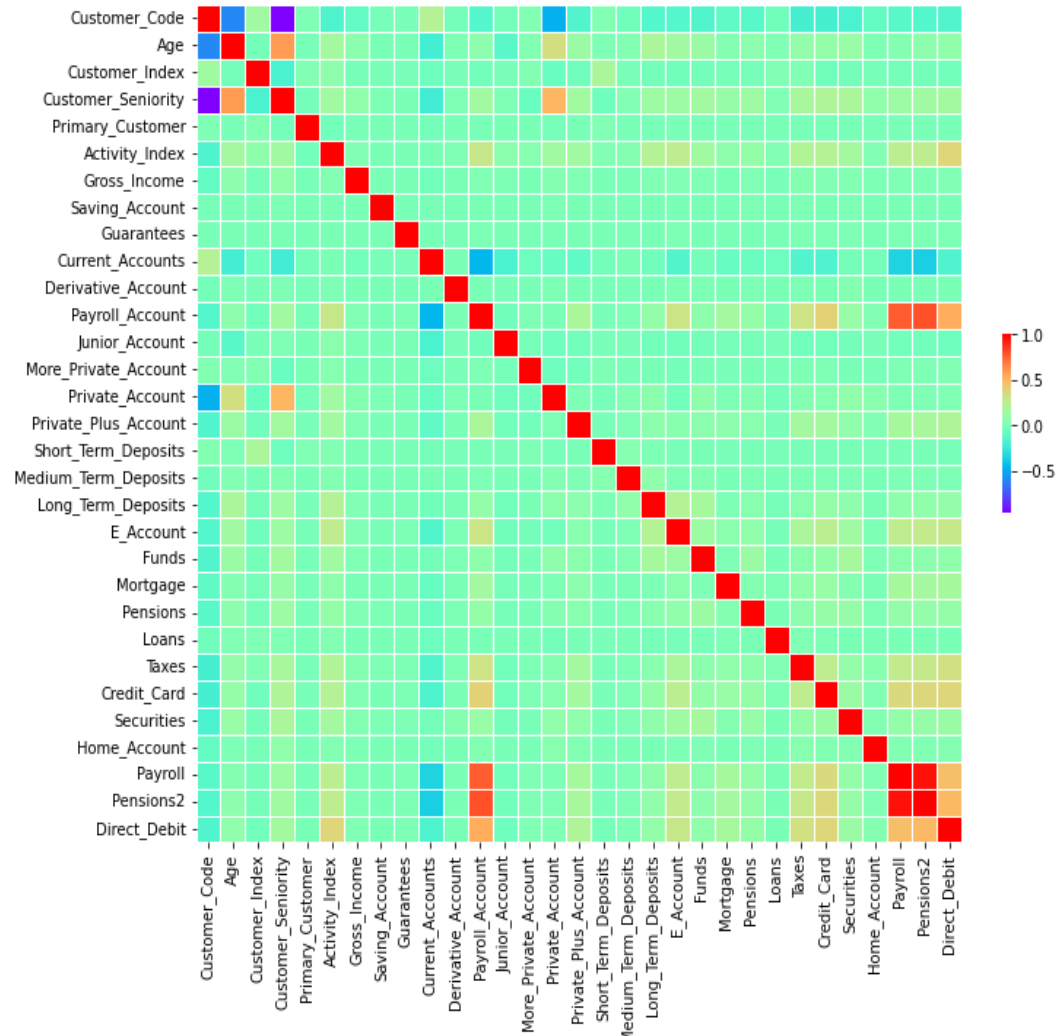


Purchase Trend

Which kind of products customers avail most?

Current account is highly preferred product.





Relationship between the variables?

The map shows high correlation between Payroll & Pensions2.

Payroll_Account has high correlation with Direct_Debit, Pensions2 & Payroll

Insights from the Analysis

- XYZ credit union highest Customer range is between 20 to 30. There are very less Customers below 20 and Customer number gradually decreases from 60.
- As per analysis on Employee Index, majority of Customers are not related to Company (Not an Employee)
- Majority of Customers are from Spain (ES) location.
- There are more Female Customers than male Customers in XYZ Union
- Highest occurrences of customer is in July, August and very less from March to June
- Inactive Customers are in significant number close to Active Customers.
- Individuals are high in number as compared to VIP & College Graduates
- Majority Customers Gross Income is more than 300000
- KHE is most popular channel used by about 1 million Customers
- Current Account is highly preferred product. Private Account, Direct Debit, Payroll Account & E_Accounts are also preferred.

Recommendations

Loyalty Marketing for Active Customers

Thank You notes, Special offers like Birthday Vouchers, Top-tier benefits. To increase their value we will apply cross-selling & up-selling strategy using product recommendation.

Retention Marketing for Existing Customers

Points-Pressure and Rewarded-behavior strategy might be effective. Customers have to collect points to unlock prize and benefits. Product recommendations and bundling offers are relevant to increase customers' buying experience.

Reactivation Marketing for Inactive Customers

The company should notify them about new products, limited products, best-selling products, and bundling offers to maintain engagement. Also improving customer service will boost customer trust and retention.

Advertising & Propaganda

Social media coverage or advertising will help customers well understand product/services provided by XYZ Credit Union.

Cross-selling

Pair high-demand products with less moving products in cross-selling.

Upselling

Maintain different Membership levels. This will help the Customers to avail for their money to choose level-one membership above basic one.

Thanks!

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