

## **Team members' details**

**Group Name:** Cross-Selling Recommendations

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## **Problem description**

XYZ Credit Union has good performance in selling banking products to new customers but struggles with cross-selling additional products to existing customers. They want to increase cross-selling to boost revenue.

## **EDA Performed on the Data:**

Looked at missing values and data types - identified issues with key columns missing numerical/categorical mix.

Created correlation heatmap to see relationships between variables.

### **Strong correlations are seen between:**

Age and Total Products - younger customers tend to have fewer products.

Income and Total Products - higher income is linked to more products.

Customer Segment and Total Products - VIP customers have more products.

Analysed the impact of segmented factors on Total Products owned:

### **Gross Income Vs Total Products:**

Customers with very High/Ultra High-income bands own 2-3x more products on average than lower-income bands. Income is a strong driver.

### **Age vs Total Products:**

Customers in the 65-75 and 75+ age bands own noticeably fewer products. Older segments are less likely to buy multiple products.

### **Customer Segment vs Total Products:**

VIP segmented customers own 2-3x more products than other segments on average. The VIP segment is strongly linked to higher product ownership.

## **Final Recommendations:**

- Target higher income customers - a significant opportunity to upsell them additional products given income-product solid linkage.
- Focus on the VIP segment for cross-selling - already own more products on average, can aim to sell them even more given their value.
- Review product fit for older customer segments - offerings may need reassessment to cater to 65+ age groups who own fewer products.
- Analyse reasons for low cross-selling to young customers - assess if it's due to limited needs or poor product fit for their life stage.
- Build predictive models to identify customers with the propensity for cross-buy based on their profile and transaction history.
- In summary, critical segments like high-income, VIP and younger customers represent significant cross-sell and upsell potential based on the EDA. Models can further boost accuracy in targeting.
- Customers with Payroll Accounts have a high affinity for Particular Plus Accounts - over 30% of Payroll customers also have this account. Strong opportunity to cross-sell Particular Plus to Payroll customers.
- Similarly, customers with Particular Plus Accounts have a high likelihood of also having a Payroll Account. Can upsell Payroll Accounts to existing Particular Plus customers.
- Payroll Account customers also likely to have Long Term Deposits, e-accounts, Taxes, Credit Card and Direct Debit. All good cross-sell targets.
- Particular Account holders likely to have Long Term Deposits, Taxes, Credit Cards and Securities. Focus cross-selling on these products.
- e-account holders likely to have Long Term Deposits, Taxes, Credit Cards. Additional products to cross-sell to this segment.
- Credit Card holders have high affinity for Taxes and Direct Debit. Can cross-sell these products.
- Direct Debit customers likely to have Taxes and Credit Cards as well. Another cross-sell opportunity.

**GitHub Repo link**

**<https://github.com/kamalpriyank/Cross-Selling-Reccommendations>**