XYZ Business Review

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Overview

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- EDA and Findings
- Analysis
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Introduction

Available information is the performance summary with some of XYZ company's loan performance - summarized by merchant.

Every merchant is paying a 2% MDR (merchant discount rate) to Company XYZ for each transaction.

Column Name	Description
category / Subcategory	merchant's industry
name	name of the merchant
merchant_id	unique identifier for the merchant
actual_repayment_pct	actual percentage of loan volume that is repaid
predicted_repayment_pct	predicted percentage of loan volume that is repaid
num_trxn	number of loans per merchant
auth_amt	total amount of user requests / apply for
loan_amt	total amount of the loan that is issued to the user
fico	score that measures a user's risk, higher score- less risk
term	duration of the loan
apr	annual percentage rate (interest rate charged to the user)

Column names and their description

Data Description

Snippets of the datasets available

merchant_category_mapping

category	subcategory	merchant_id
WOMENS_FASHION	Women's Clothing Stores - 448120	78986
HOME_FURNISHINGS	Furniture Stores - 442110	54871
#N/A	Women's Clothing Stores - 448120	86469
OTHER	Musical Instrument and Supplies Stores - 451140	42719
JEWELRY	Jewelry Stores - 448310	40242
WOMENS_FASHION	Women's Clothing Stores - 448120	11801

merchant_name_mappi

name	merchant_id
UCXMYZC	42733
OQFYEDO	28833
LVMCHQE	83007
QIGSCCQ	66431
DCZPIEU	61453
GHSPWDG	90024

performance_dataset

merchant_id	actual_repayment_pct	predicted_repayment_pct	num_trxn	avg_auth_amt	avg_loan_amt	avg_fico	avg_term	avg_apr
78986	0.927466048	0.948424716	6331	491.650278	473.727737	643	8	0.251198
54871	0.983798199	0.978641401	3293	862.99671	862.555109	715	6	0
86469	0.936781581	0.965042373	2670	636.689936	620.229734	664	8	0.214657
42719	0.96174276	0.945634244	570	719.714054	692.877934	655	10	0.257577
40242	0.867272663	0.902407609	317	380.978427	374.832065	626	9	0.160714
11801	0.822480349	0.900832479	309	179.416385	177.013298	645	7	0.24862

Problem Statement

1. Based on the data, which categories generate the most profit for Company XYZ?
2. What merchant pricing strategy will you come out to increase/decrease MDR for better overall profitability?

Data Cleaning and Manipulation

Merging Dataframes

Merged the 3 dataframes based on common values

Missing Values

Filled missing Category values based on Subcategory values

Erroneous Values

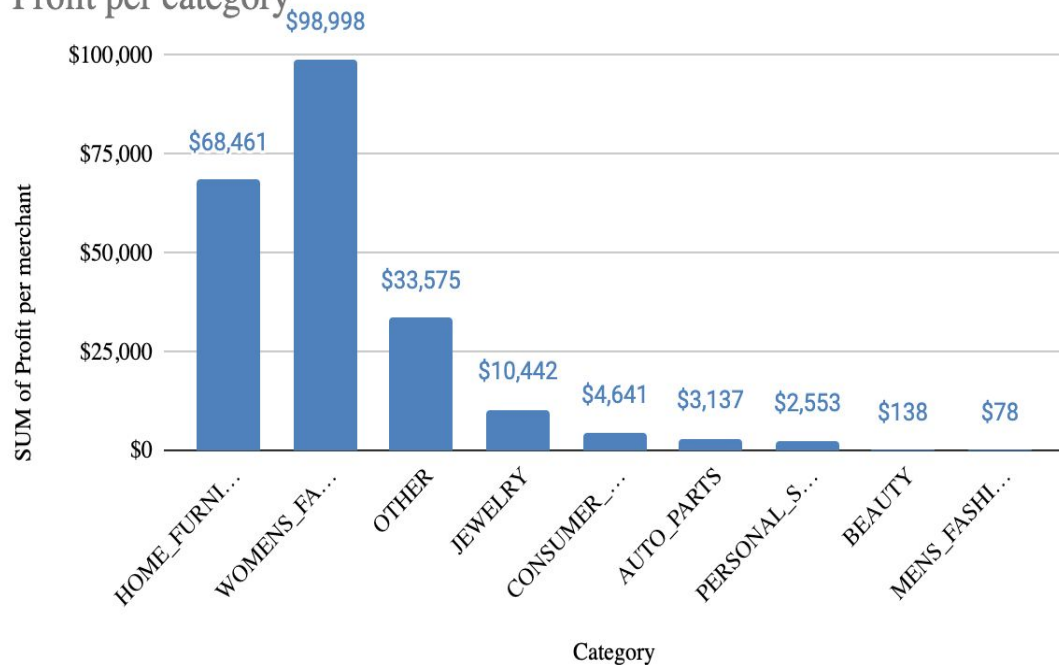Replaced some Category values 'Other' based on Subcategory values

New Columns

Added new columns - Total Loan Amt, Profit, Profit Bucket, FICO Bucket to perform various required Analysis
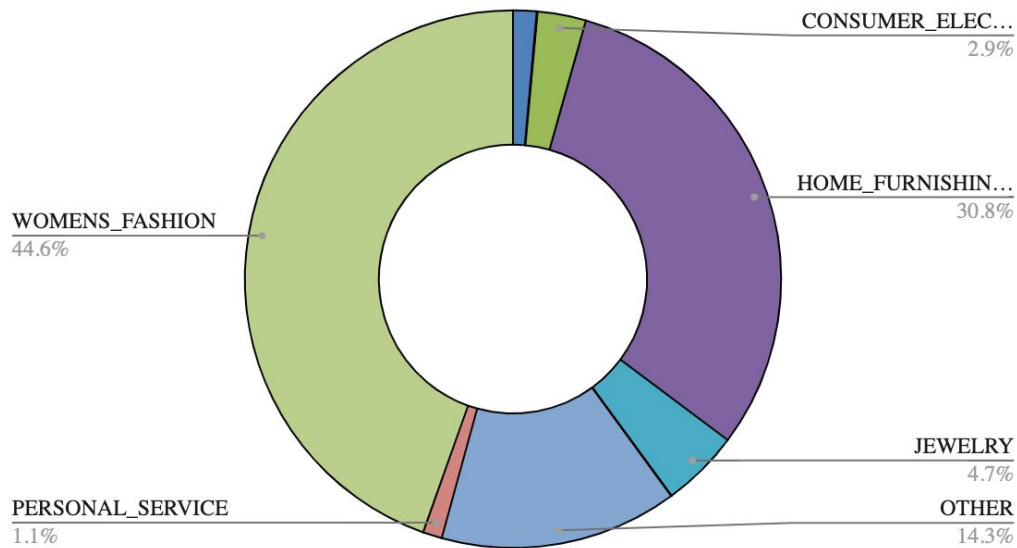
Profit by Category

Profit per category

- Top categories that drive profit for XYZ :
  - Womens_fashion (~$99k)
  - Home and Furnishings (~$68k)
  - Other (~34k)

Women's Fashion drives most of the Profit for the company

Profit Share by Category

Total Profit by Category

- Profit share by categories
    - Womens_fashion (~45%)
    - Home and Furnishings (~31%)
    - Other (~15%)

- Top 2 categories drove ~86% of profit driven by both higher # of transactions and Avg Loan amount

Classifications Created :

- Below are few groupings to note :
  - Fico [Based on US consensus] :
    - Good (>680)
    - Okay (600-680)
    - Bad (<600)
  - Merchant segment :
    - High (>5000 profit; >250k loan amount)
    - Medium (>1000 profit ; >50k loan amount)
    - Small (<1000 profit ; <50k loan amount)

Initial Findings

- ○ Less number of transactions happen within High segment but drive most of the profit
- ○ Most of the merchants have Good (~24%) or Okay (~72%) Fico score

COUNT of merchant_id Profit Bucket	Fico Bucket Bad	Good	Okay	Grand Total
High		1	3	4
Medium		5	17	22
Small	5	28	84	117
Grand Total	**5**	**34**	**104**	**143**

Profit distribution

Profit Bucket	Good	Okay	Bad	Grand Total
High	25.59%	45.49%		71.08%
Medium	4.92%	13.91%		18.83%
Small	2.96%	7.07%	0.07%	10.09%
Grand Total	**33.46%**	**66.47%**	**0.07%**	**100.00%**

Currently the profit is highly skewed toward high segment merchants with Okay Fico score

Recommendations

- Incentivize High sized merchants with Good fico score by ***reducing the MDR*** so we still capture most profit from these High Life time users
- Increase the MDR for Medium sized merchants with Okay Fico score as its risky and we are processing more transactions for less profit (given small loan amount)
- Bring in tiered approach to MDR by accounting for risk/reward
  - High sized merchants with Good Fico get the best MDR
  - Incentivize Medium sized merchants with Good Fico to become High sized by offer lower MDR's (Low risk & High Reward)
  - Repayment % can be additional gauge to see if we can update merchants through segments before Fico updates
    - Ex : If medium merchant with okay fico has better repayment rate move them to good fico bucket and offer that MDR