IMPROVING COUPON STRATEGY - A DATA DRIVEN APPROACH

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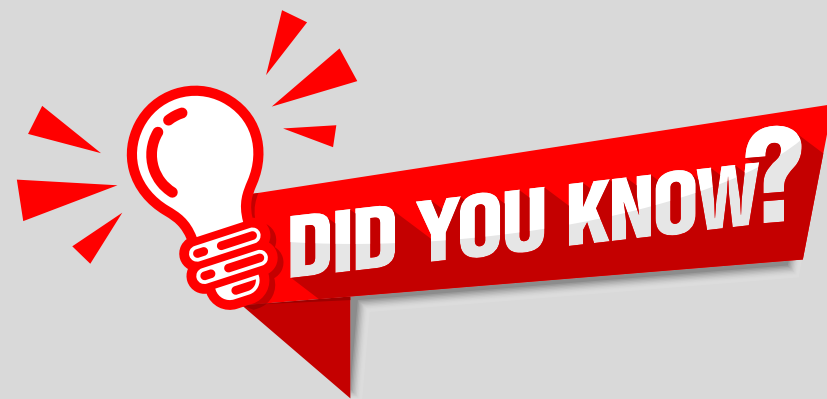**Date:** 09/09/2024

AGENDA

Problem Statement

Is a Baseline 10% Coupon For Everyone Effective for Reducing Cart Abandonment?

- Will it increase Conversion Rate (CVR)?
- Impact on Average Revenue Per User (ARPU)?
- Effect on Average Order Value (AOV)?
- Profit Increment Analysis?
- Is 10% the optimal strategy?

DID YOU KNOW?

Nearly 70% of online shopping carts are abandoned before checkout – Abmatic AI.
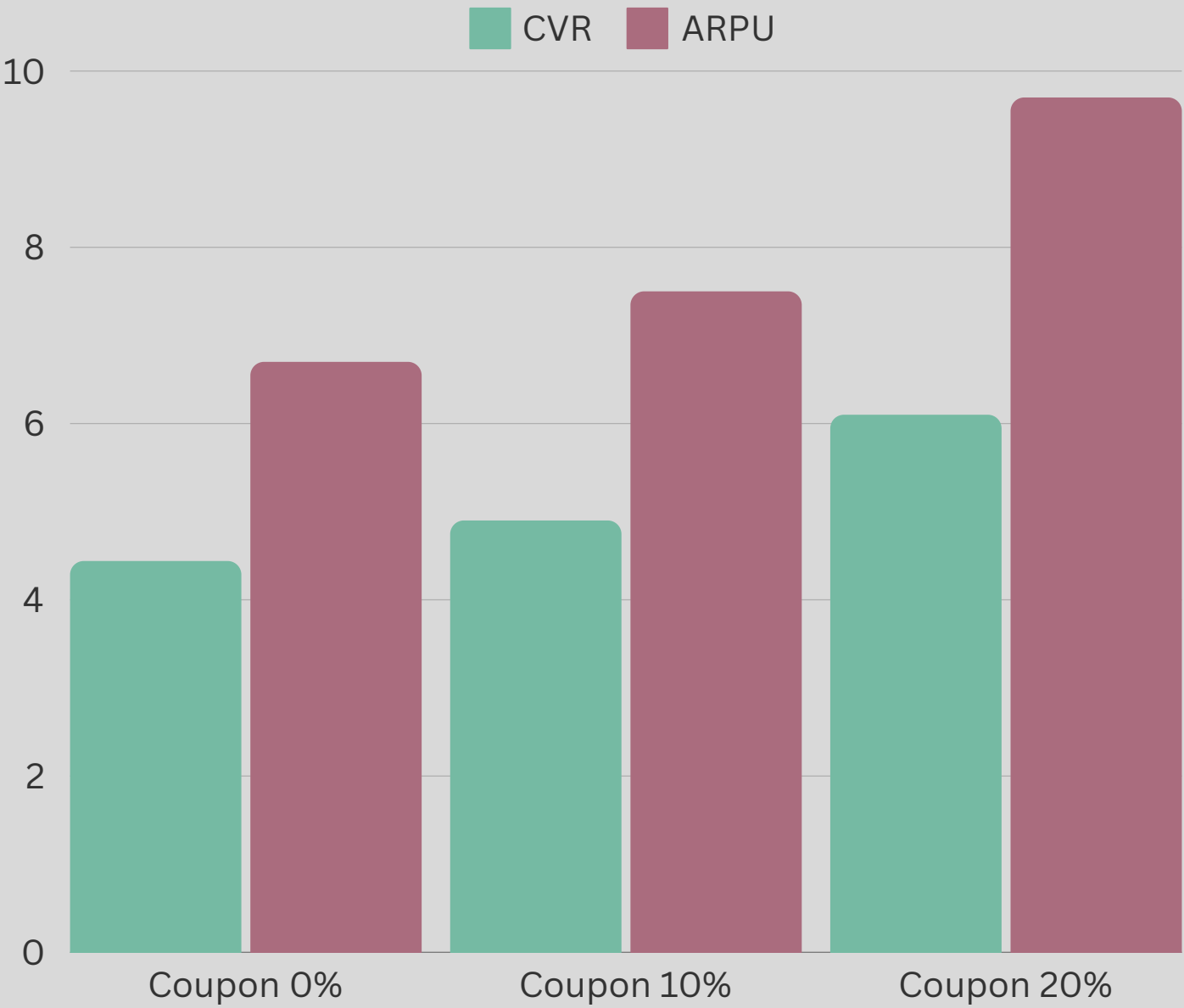
Status Quo:: A/B Testing
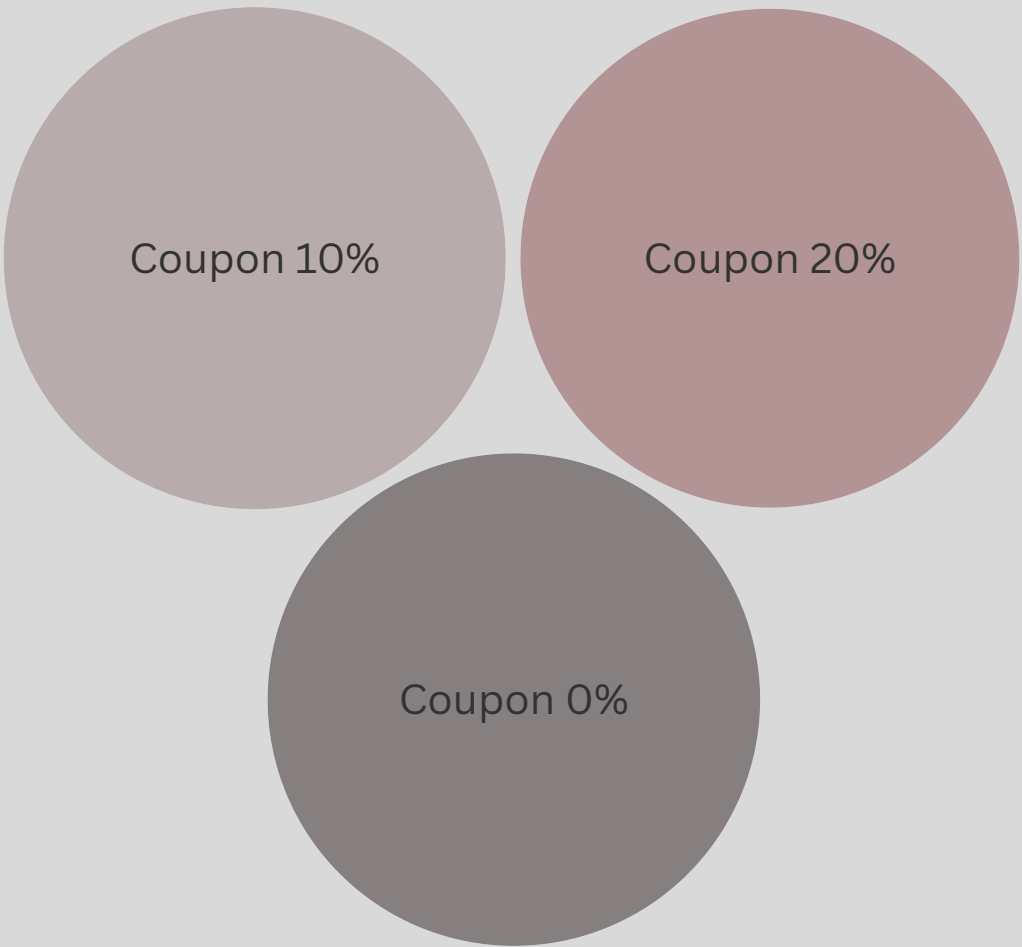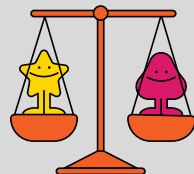**(0%, 10%, and 20% coupons mail after cart abandonment)**

Statistically Significant

Coupons infact drive CVR and ARPU

■ CVR   ■ ARPU

Statistically Not Significant

Coupons don't really influence how much customers order

10% OFF

4.7% CVR

$7.7 ARPU

Is this the best we can do?

20% OFF

6.1% CVR

$9.5 ARPU

Let us give even higher coupons to drive them ⬆️

Wait!
What about Increment in Profits?

Approach: Back to Business
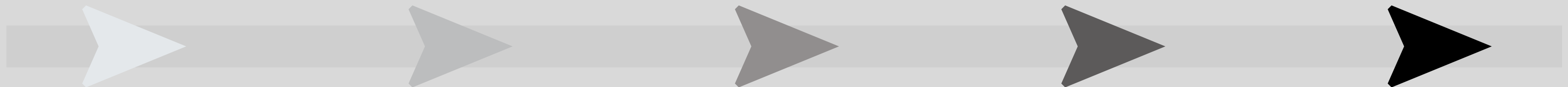# How to Personalize Coupons and beat baseline 10%?

Data Extraction	EDA	Modeling	Optimization	More Testing

Extract data from DuckDB, and create the dataset for exploration and training.

A few customers are willing to purchase without needing coupons. How can we identify them?

Predict the likelihood of a customer placing an order, while identifying key features beyond just coupons.

Segment users and personalize coupons. Move beyond 'One for All' to boost CVR, ARPU, and profits, while controlling the number of coupons distributed.

What are we waiting for? Lets dive and take action.

More Technical Details..

Model Details

- Trained Logistic Model (L1 regularization)
- Classification threshold chosen at 0.1
- Precision: 0.43
- Recall: 0.50
- F1-score: 0.46

Pyramid levels (top to bottom):
- NO OF EMAIL CLICKS IN THE PAST 14DAYS
- 20% COUPON
- 10% COUPON
- FEATURES THAT DRIVE ORDER CONVERSION

Recommended Solution

Coupon Strategy That Will Beat Baseline 10% Driving All Major KPIs

Users	NO COUPON	10% COUPON	20% COUPON
More likely to convert (prob>0.1)	✔		
Moderately likely to convert (0.05<=prob<0.1)		✔	
Least likely to convert (prob<0.05)			✔

Customer Segmentation for Coupon Personaliization

Note: Adjust probability thresholds as the predictive model improves for better performance and robustness.

What Went Well

5.2% CVR
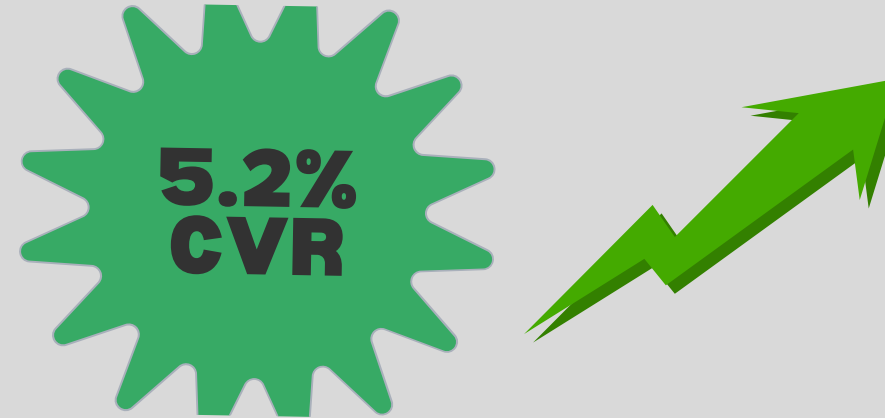
5.7% Lift from Baseline 10%

Profits?

Theoretically sound, but it needs testing and more data for validation.

What Did Not Go Well

$1.79

May be underestimated due to less robust expected revenue calculations from probabilities.

- Customer segmentation probability thresholds are skewed.
- The framework has yet to outperform the 20% coupon strategy in terms of CVR and ARPU.

Moving Forward

Points for Improvement	Recommended Actions
Predictive Modeling	Explore and implement more robust predictive models.
Coupons as a continuos feature	Introduce multiple coupon levels (e.g., 0%, 10%, 20%, 30%) and include them in the optimization process.
A/B Testing	Test the framework's impact on key metrics: CVR, ARPU, and profit growth.
Optimize Probability Thresholds	Refine probability thresholds for a more robust model.
Bulk Optimization	Optimize directly to drive KPIs, potentially bypassing customer segmentation for more efficient results.
Predictive Modeling without Coupon as Features	Test predictive modeling purely based on segmentation and explore MAB for coupon and KPI rewards.

Resource Page

Google Colab
google.com