

IMPROVING COUPON STRATEGY - A DATA DRIVEN APPROACH



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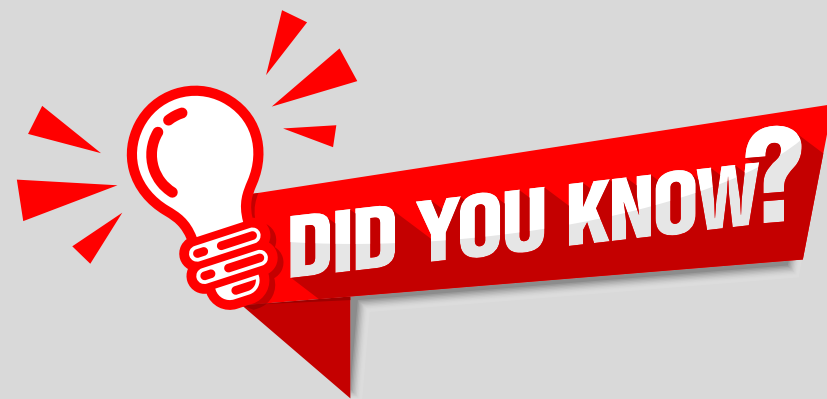
AGENDA

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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?



Nearly 70% of online shopping carts are abandoned before checkout – Abmatic AI.

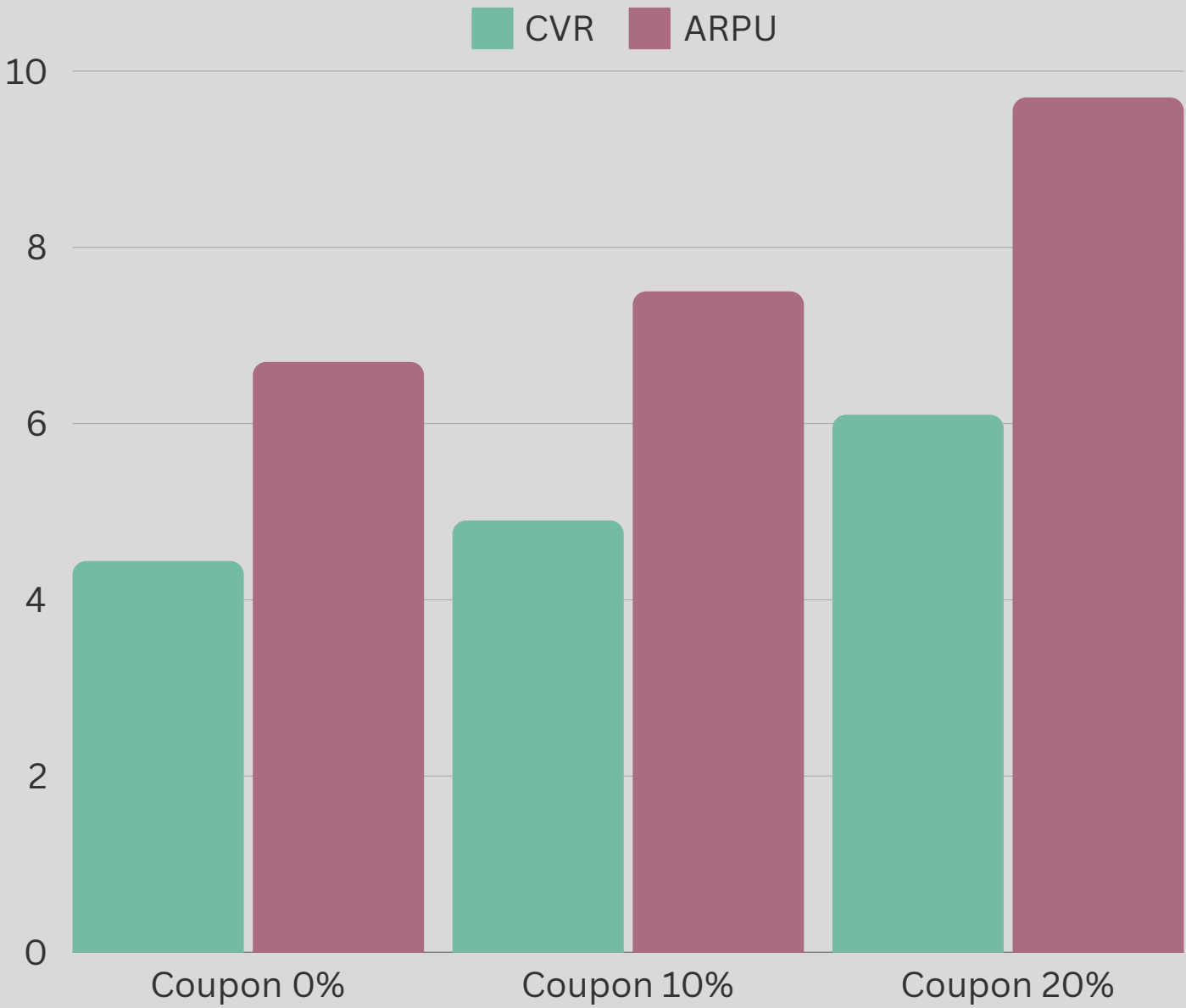


Status Quo:: A/B Testing

(0%, 10%, and 20% coupons mail after cart abandonment)

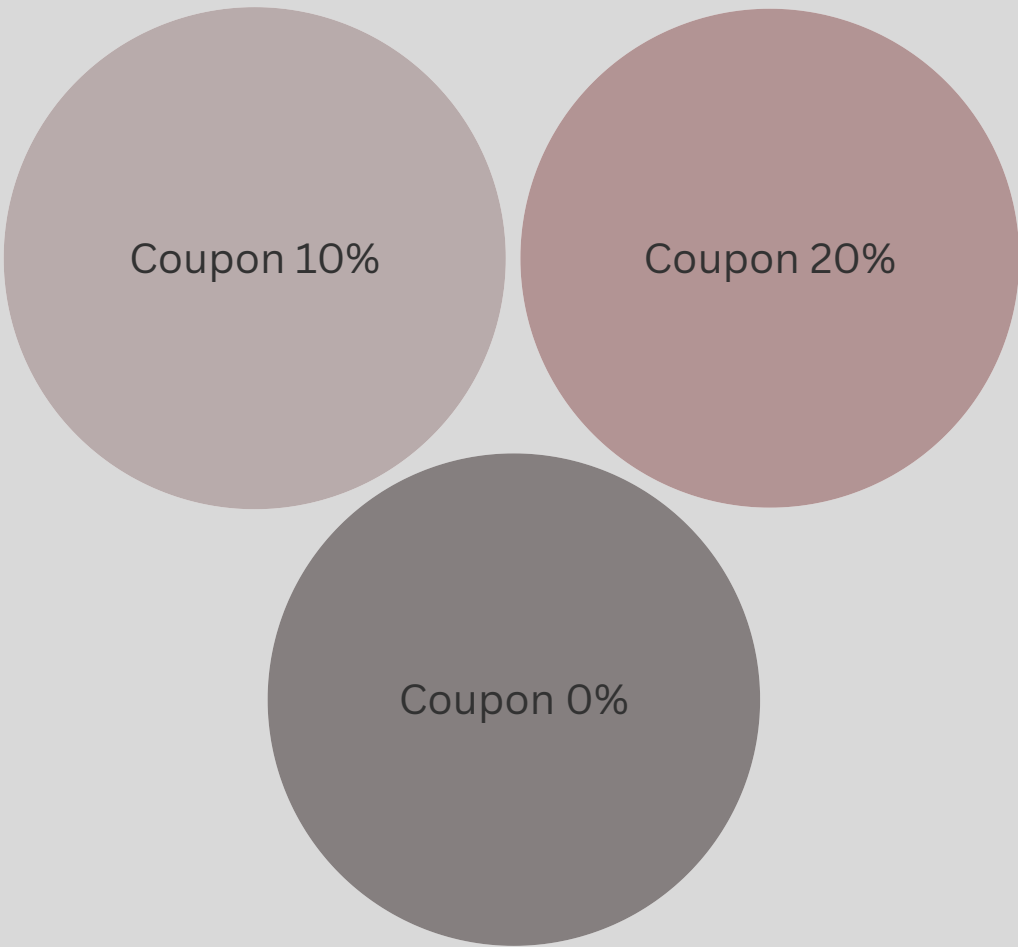
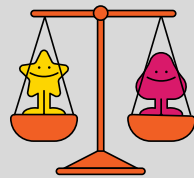
Statistically Significant

Coupons infact drive CVR and ARPU



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%?

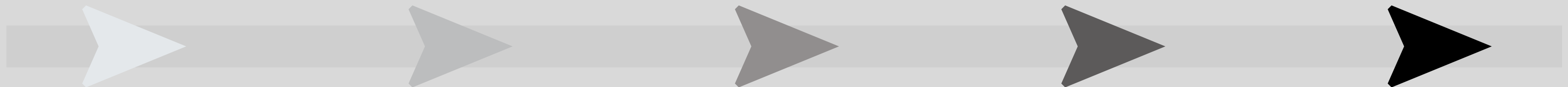
Data Extraction

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..



NO OF EMAIL CLICKS IN
THE PAST 14DAYS

20% COUPON

10% COUPON

FEATURES THAT DRIVE
ORDER CONVERSION

Model Details

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

Recommended Solution

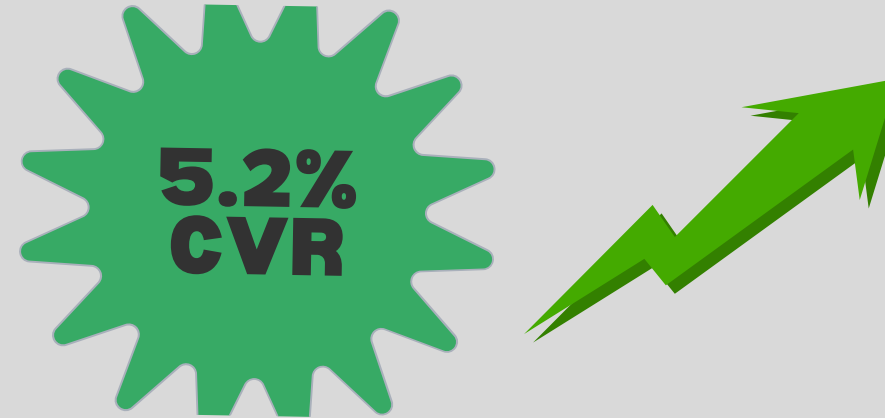
Coupon Strategy That Will Beat Baseline 10% Driving All Major KPIs

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 Personalization

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

What Went Well



5.7% Lift from Baseline 10%



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

What Did Not Go Well



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

Questions?

Thank you for participating!



Resource Page



Google Colab

 [google.com](https://colab.google.com)