

# **IMPROVING COUPON STRATEGY - A DATA DRIVEN APPROACH**



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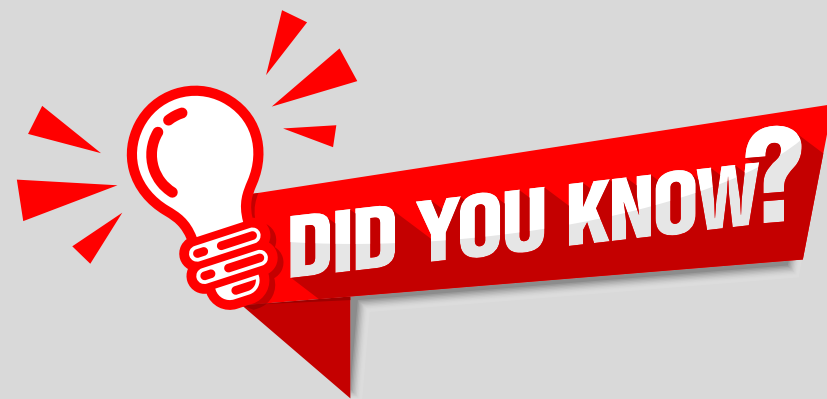
# AGENDA

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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.

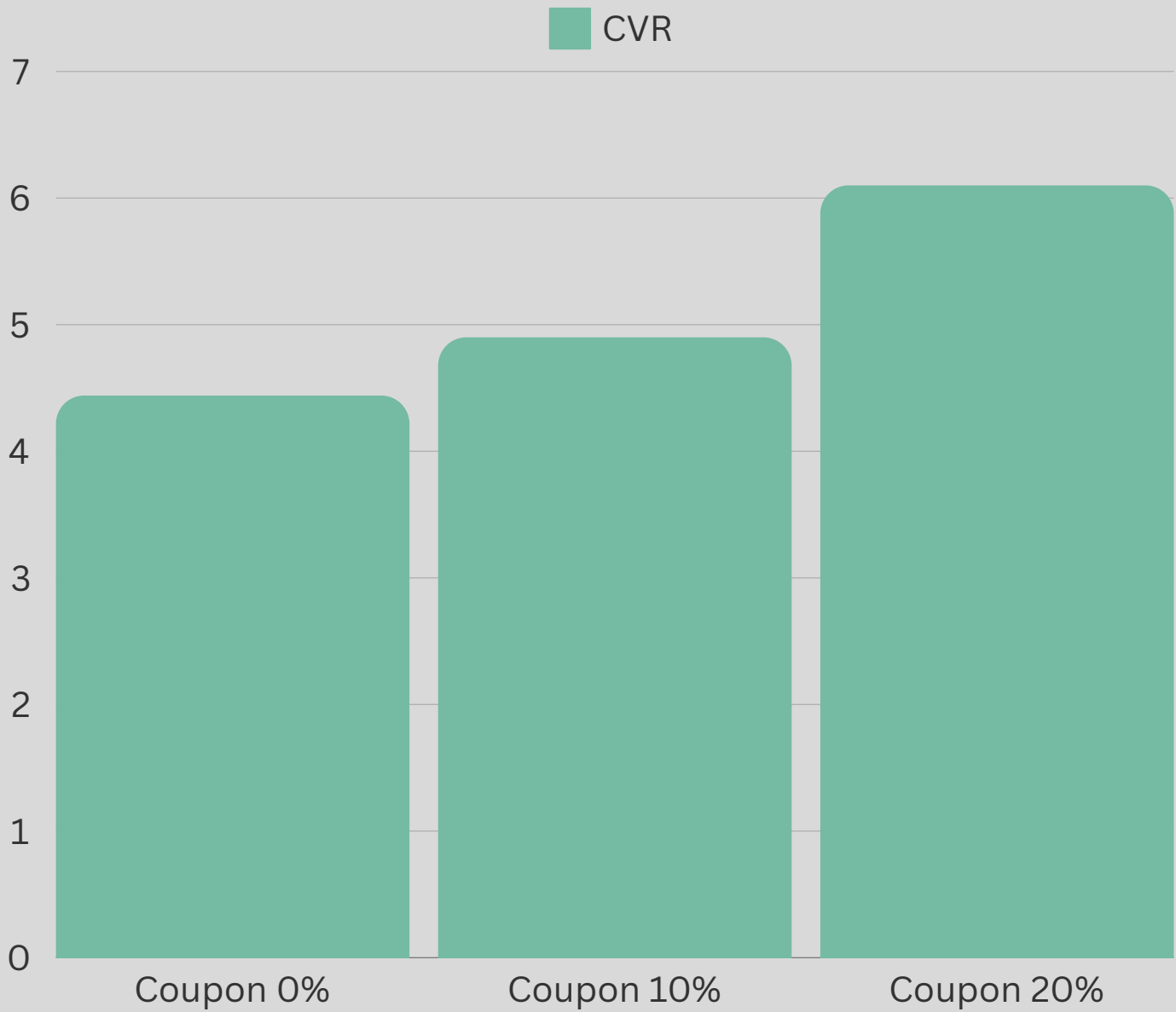


# Status Quo:: A/B Testing

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

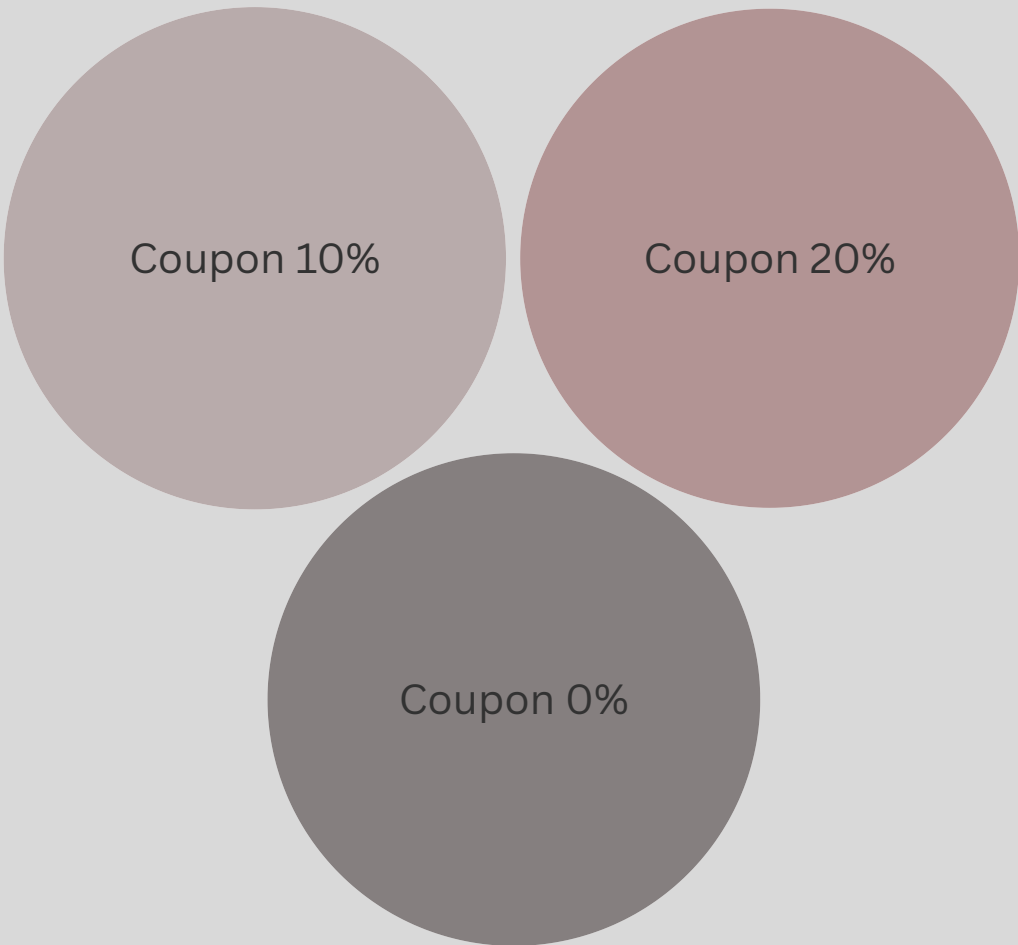
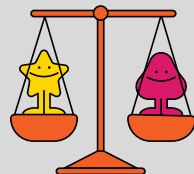
## Statistically Significant

Coupons infact drive CVR



## Statistically Not Significant for AOV

Coupons don't really influence how much customers order



**10% OFF**

**4.7%  
CVR**

Is this the best we can do?

**20% OFF**

**6.1%  
CVR**



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%?

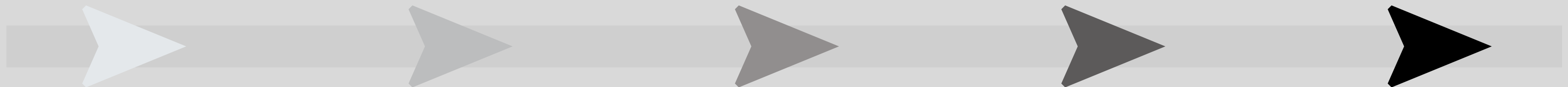
Data Extraction

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, 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

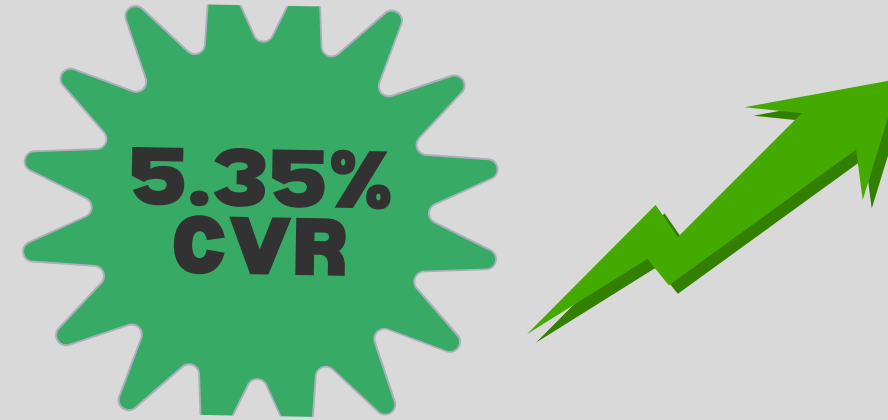
| Users                                  | NO COUPON | 10% COUPON | 20% COUPON |
|--|-----------|------------|------------|
| prob > 0.1 (with no coupon)            | ✓         |            |            |
| prob > 0.1 (after applying 10% coupon) |           | ✓          |            |
| prob < 0.1 (after 10% coupon)          |           |            | ✓          |

## Customer Segmentation for Coupon Personalization

Note: Adjust classification threshold as the predictive model improves for better performance and robustness.



# What Went Well



8.69% Lift from Baseline 10%



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

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# What Did Not Go Well

- The framework has yet to outperform the 20% coupon strategy in terms of CVR.
- The framework's strict reliance on predictive model could lead to missing potential conversions.

# Moving Forward

| Points for Testing/Improvement/Exploration                   | Recommended Actions  |
|--|--|
| A/B Testing  | Test the framework's impact on key metrics: CVR, and profit growth.  |
| Predictive Modeling  | Explore and implement more robust predictive models.   |
| Optimize Probability Thresholds                              | Refine classification threshold based on business goals.<br>(Are Type I or Type II error more severe?)                       |
| Bulk Optimization (Exploration)                              | Optimize directly to drive KPIs, potentially surpassing baseline metrics.  |
| Coupons as a continuos feature (Exploration)                 | Introduce multiple coupon levels (e.g., 0%, 10%, 20%, 30%) and include them in the optimization process (Bulk Optimization). |
| Predictive Modeling without Coupon as Features (Exploration) | Test predictive modeling purely based on segmentation and explore MAB for coupon and KPIs as rewards.                        |

# Demo - How Could the Platform Look?

([Click Here: Conceptual Prototype](#))

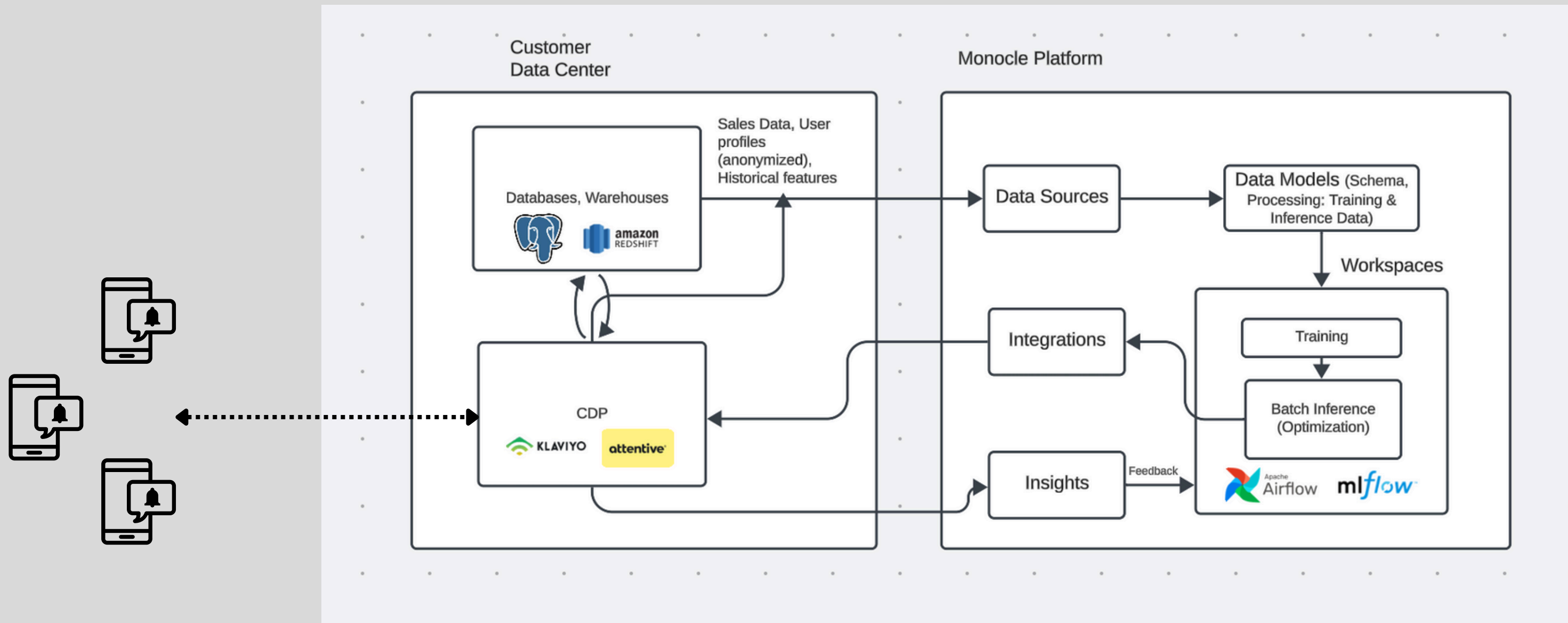


Fig. Typical Prototype's Data Flow

# Questions?

Thank you for participating!



# Resource Page



**Google Colab**

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

<https://colab.research.google.com/drive/1c0f8II6lIR6xawGb8u2DMFr--eABUZlJ#scrollTo=cfa4be09-3698-4435-9590-b58928799092>

# Miscellaneous

Platform Business KPIs:

- Coupon Hit Ratio (Response rate of promoted Coupons)
- Casual Lift in Customer KPIs (Sales, Revenue, Profits) from baseline