

Impact of Promotional Codes During Checkout on Fingerhut Customers

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Project Focus

Problem Statement

How can Bluestem Brands predict a user's behavior and activity to help inform whether it is worth it to incur marketing spend, specifically promotional codes, on this particular user session?

Our Goals

Analyze the influence of promo codes on different types of users to help inform Bluestem Brand's marketing tactics and ultimately increase conversion rate

Purpose of our Project



Model Building

Constructed a neural network model that predicts probability of purchase for sessions



User Type Identification

Grouped users by how significantly they are affected by using a promo code



Business Effect

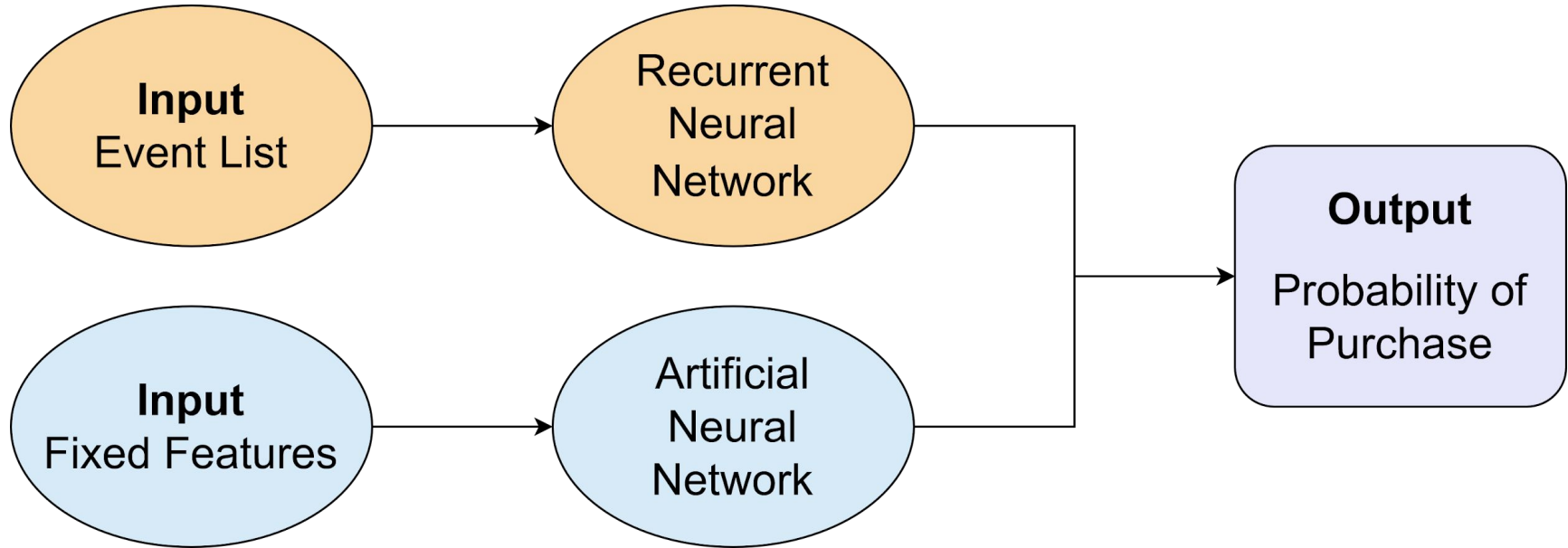
Strategically target promo codes at certain types of users to optimize conversion

Data Processing

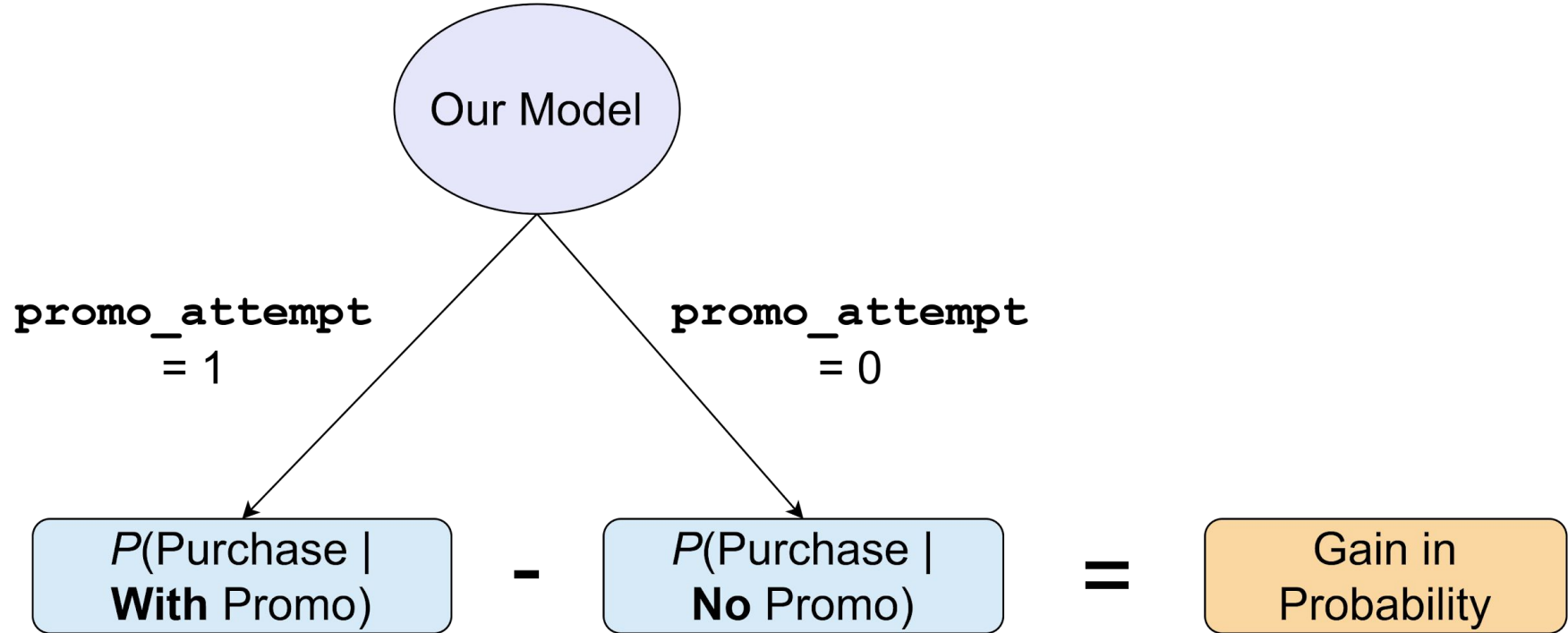
1. **Filter** to unique sessions that reach Checkout and to each session's First Checkout Confirmation
2. **Compute** features

User Attributes	Session Attributes
<ul style="list-style-type: none">– Order Recency– Behavior Score– Lifetime Order Totals– # Prev. Visits	<ul style="list-style-type: none">– # PDP & Cart Visits– Visit Duration– Device Type– Promo Attempt– Cart Features: Size; Price Sum, Range, Std– <u>Event List</u>

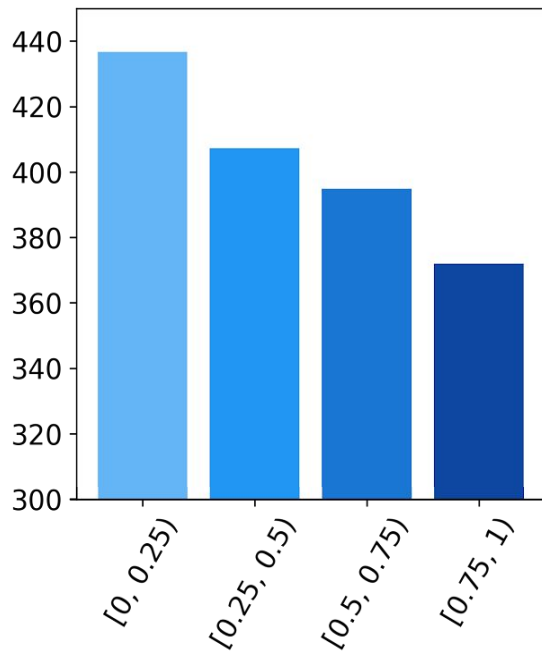
Modeling Overview



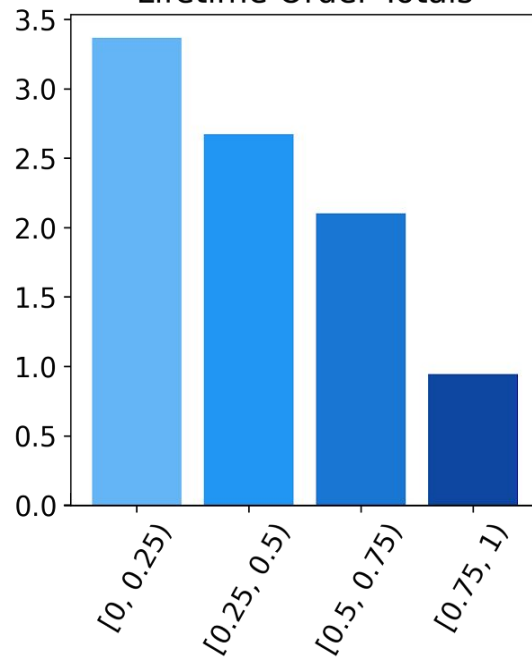
Gain in Probability of Purchase with Promo



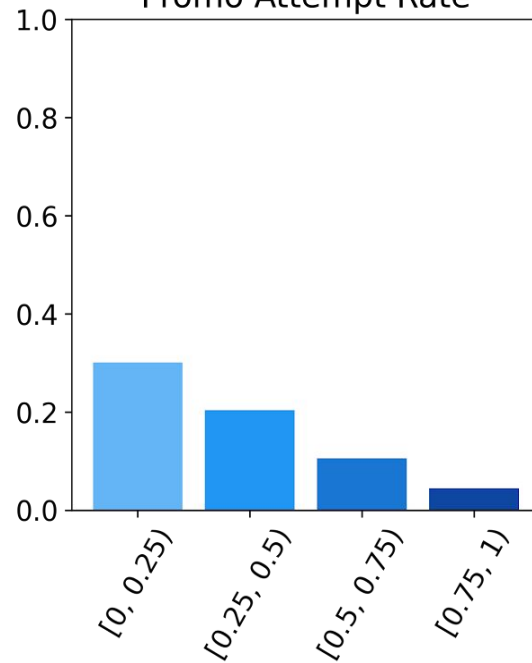
Behavior Score



Lifetime Order Totals



Promo Attempt Rate



Conclusions and Suggestions

01

New visitors are the most influenced when provided a promo code at checkout.

Fingerhut should target new users who have low purchase probability at checkout in forms such as a pop-up window.

02

Avoid offering promo codes to **returning users** at checkout in order to maximize revenue.

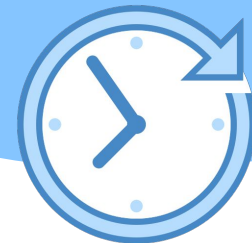
Limitations

- Promo code usage and sales may be skewed due to dataset being during a holiday season
- Unable to distinguish how customer acquired promo code in dataset



Next Steps

- Explore how different types of promo codes affect different types of users
- Investigate changes in revenue when promo codes are applied



Summary

Goal

Determined types of users that are more likely to purchase given a promotion code.

Approach

Created a neural net to predict purchase probability per session. Group sessions by the effect of promo code on probability.

Accomplishments

Defined the types of users for Bluestem Brands to target with promo codes.

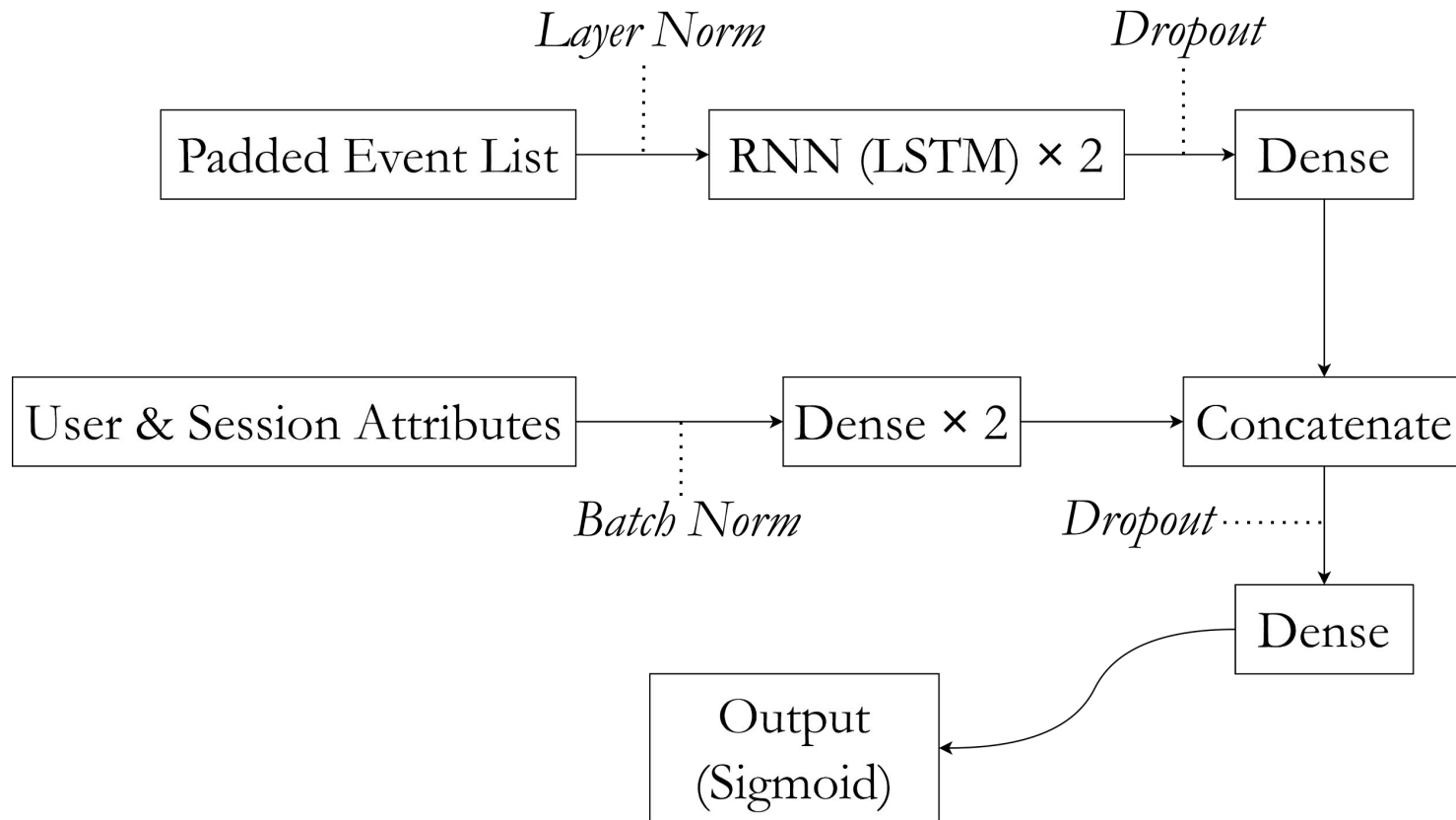
Next Steps

Investigate effect of different types of promo codes on users and incorporate effect on revenue.

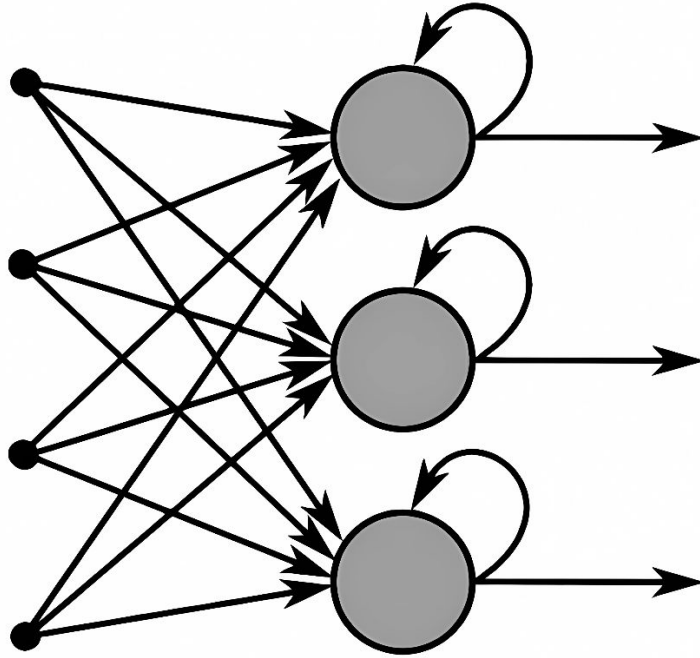


Technical Backup

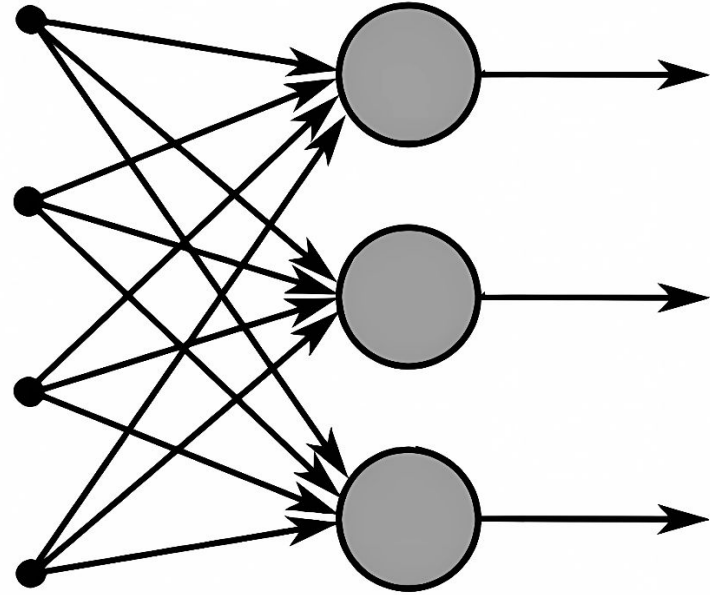
Model Architecture



RNN vs. ANN

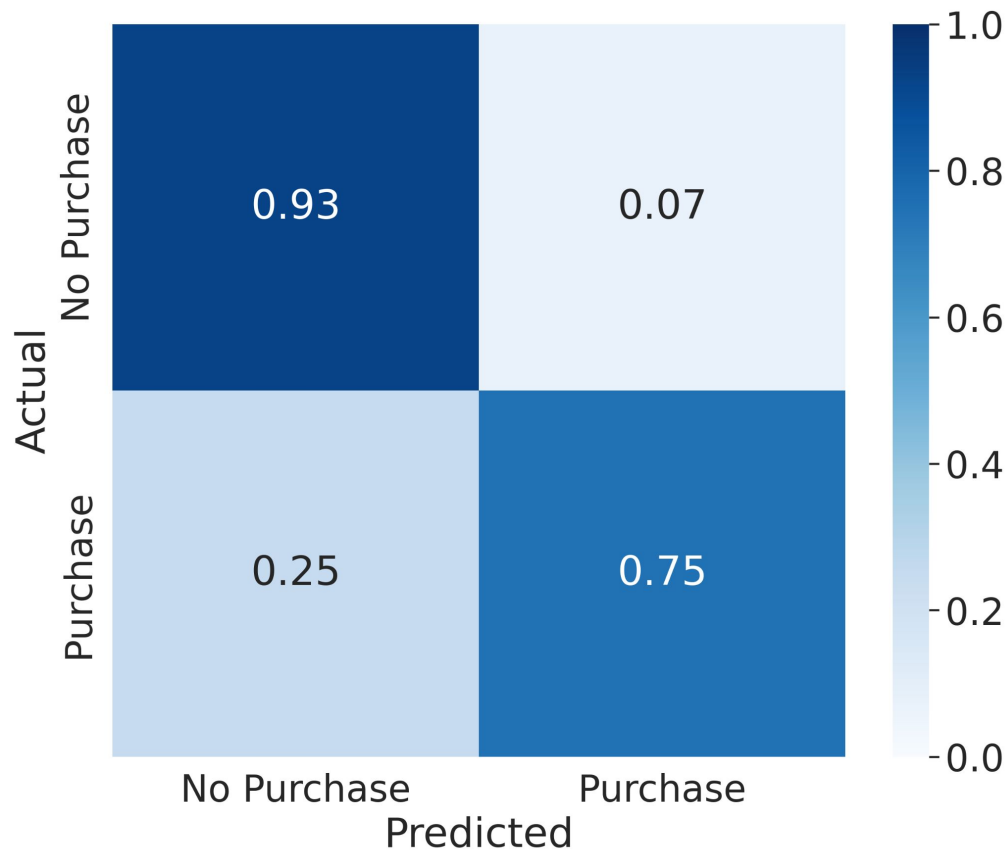


Recurrent Neural Network

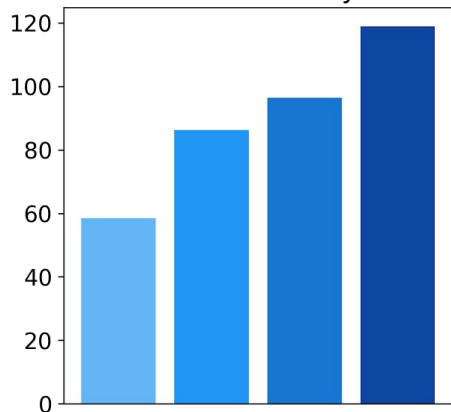


Feed-Forward Neural Network

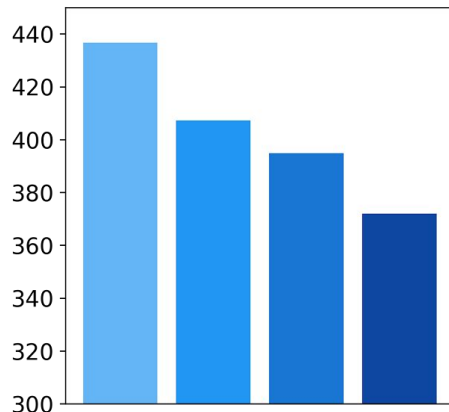
Model Performance



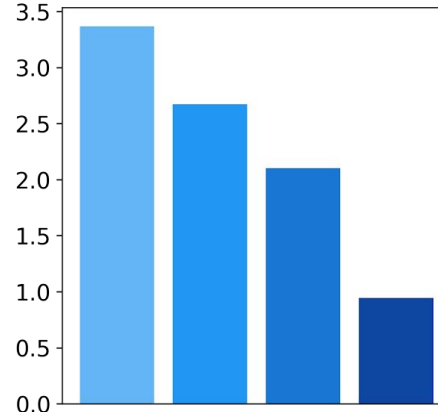
Order Recency



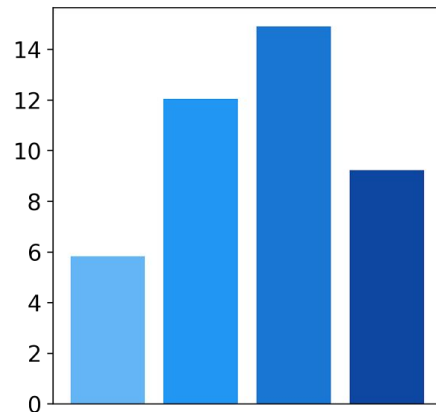
Behavior Score



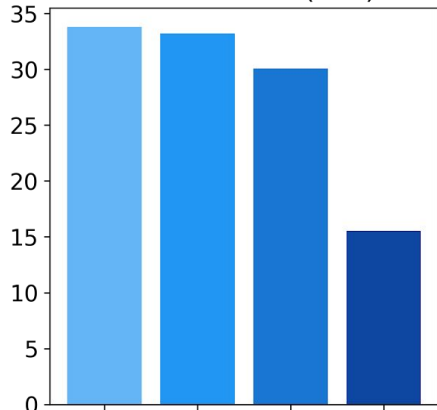
Lifetime Order Totals



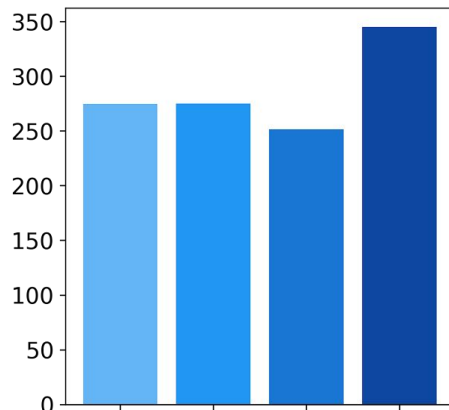
Number of PDPs



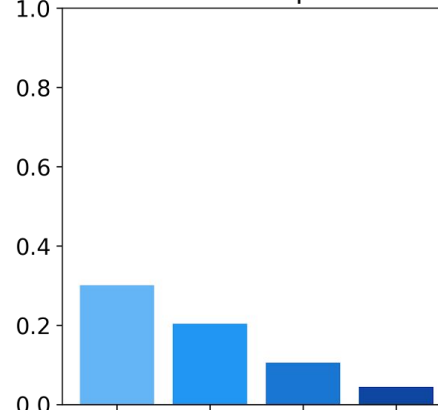
Visit Duration (min)



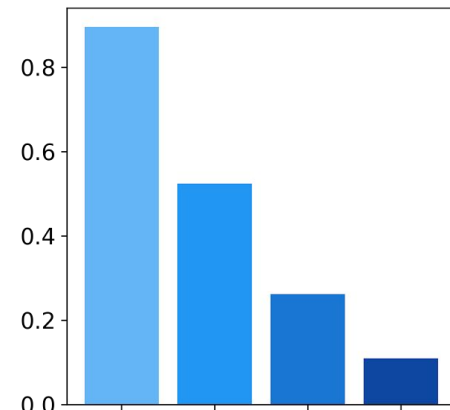
Cart Value



Promo Attempt Rate



Purchase Rate



User Types

	Order Recency	Behavior Score	Lifetime Order Totals	Visit Number	PDP Count	Visit Duration (min)
0	58.54	436.76	3.37	18.68	5.83	33.8
1	86.21	407.21	2.67	17.43	12.05	33.2
2	96.47	394.89	2.1	15.05	14.9	30.1
3	118.9	372.05	0.94	10.02	9.24	15.5

	Cart Value	Code Attempt Rate	Purchase Rate	P(purchase no promo)	P(purchase with promo)	Gain in Probability
0	274.8	0.3	0.9	0.86	0.95	0.09
1	274.97	0.2	0.52	0.46	0.84	0.38
2	251.51	0.11	0.26	0.23	0.86	0.64
3	344.99	0.04	0.11	0.1	0.92	0.81