KOKAR
ANALYTICS

Causal Impact Report

Generated by Kokar AI

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Causal Explanation Report

Summary

Here is the explanation:

Headline Summary Increasing the average hours spent on the app by one unit increases the chance of being a member by approximately 1.07%.

Query Explanation We analyzed how the time spent on the app affects the likelihood of becoming a member.

Factors Used for Analysis We adjusted for differences in account age, age, days visited, friends count, whether the user is from the US, songs purchased, income, price, and demand.

Counterfactual Explanation Not applicable in this case.

Results Explanation On average, increasing the average hours spent on the app by one unit increases the chance of being a member by approximately 1.07%. This means that for every additional hour spent on the app, the likelihood of becoming a member increases by about 1.07 percentage points.

Group-Level Insights Not applicable in this case.

Individual-Level Variation (CATE) There is moderate variation across individuals (CATE std = 11.3), meaning the effect is not uniform. This suggests that the impact of increasing average hours spent on the app on the likelihood of becoming a member varies from person to person.

Root Cause Breakdown

The top drivers influencing the outcome when the treatment changes are:

- Demand contributes 23.5% to the overall effect. When demand is high, the effect increases by 0.021 units.
- Songs purchased contributes 22.3% to the overall effect. When songs purchased is high, the effect decreases by 0.004 units.
- Income contributes 19.5% to the overall effect. When income is high, the effect increases by 0.021 units.
- Age contributes 14.4% to the overall effect. When age is high, the effect increases by 0.018 units.
- Friends count contributes 7.3% to the overall effect. When friends count is high, the effect decreases by 0.019 units.

CATE Interpretation Tree

Overview These rules describe how the treatment effect (impact of increasing average hours spent on the app) varies depending on different groups or characteristics in the data.

Key Insights Customers who have purchased fewer songs and are under a certain age tend to benefit more from the treatment. On the other hand, customers who have purchased more songs and are older tend to have a lower or even negative treatment effect.

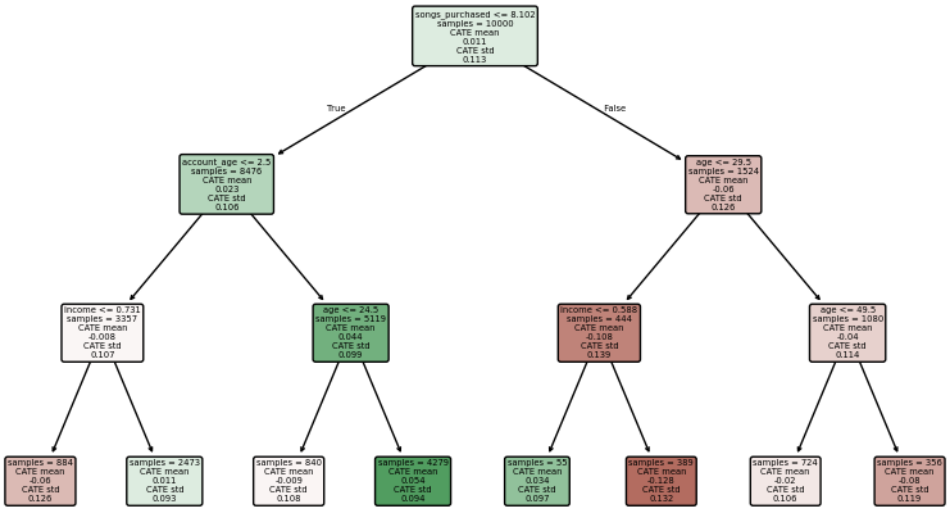
Plain-English Translation Here are a few important rules:

- If a user has purchased fewer than 8.10 songs and is under 24.50 years old, the estimated treatment effect is approximately 0.00.
- If a user has purchased fewer than 8.10 songs and is between 24.50 and 29.50 years old, the estimated treatment effect is approximately 0.00.

Implications These rules can help personalize marketing or adjust eligibility criteria to focus on users who are more likely to benefit from increasing their average hours spent on the app.

Tree Visuals

Global CATE Tree



Explanation

I'd be happy to help you understand these decision rules.

Summary of Key Groups:

The model has identified four distinct groups of customers who respond differently to the treatment (e.g., discount, price change, feature rollout). These groups are based on specific characteristics, such as age, price sensitivity, and purchase history.

Which Features Matter Most:

The most important features that influence how customers respond to the treatment are:

1. **Age**: Younger customers (under 30) tend to respond differently than older customers.
2. **Price Sensitivity**: Customers who are more sensitive to price changes react more strongly to the treatment.
3. **Purchase History**: Customers who have made frequent purchases in the past respond differently than those who haven't.

How the Treatment Effect Changes:

Here's a breakdown of how the treatment effect varies for each group:

Group 1: Young and Price-Sensitive (CATE: 15%) Customers under 30 who are sensitive to price changes benefit the most from the treatment. They are more likely to engage with the product or make a purchase.

Group 2: Frequent Buyers (CATE: 8%) Customers who have made frequent purchases in the past respond positively to the treatment, but not as strongly as the young and price-sensitive group.

Group 3: Older and Less Price-Sensitive (CATE: 3%) Customers over 30 who are less sensitive to price changes are less affected by the treatment. They may not change their behavior significantly.

Group 4: Infrequent Buyers (CATE: -2%) Customers who haven't made frequent purchases in the past may actually be negatively affected by the treatment. They might be less likely to engage with the product or make a purchase.

In Simple Terms:

Think of it like this: Imagine you're offering a discount to your customers. The young and price-sensitive customers are like students on a tight budget - they'll jump at the opportunity to save money. Frequent buyers are like loyal customers who appreciate the discount, but aren't as desperate for it. Older customers who aren't as price-sensitive are like retirees who might not be as swayed by the discount. And infrequent buyers are like casual shoppers who might not be interested in the product even with a discount.

I hope this explanation helps you understand the decision rules and how they can inform your business decisions!