

# **Causal Impact Report**

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# **Causal Explanation Report**

### **Summary**

Here is the explanation:

Headline Summary Spending more time on the app increases the chance of becoming a member by about 1.07%.

**Query Explanation** We analyzed how the average hours spent on the app affects the likelihood of having a membership.

**Factors Used for Analysis** We adjusted for differences in account age, age, days visited, friends count, location (US or not), 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 leads to a 1.07% increase in the likelihood of having a membership.

**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.

#### **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 treatment effect increases by 2.15%.
- Songs purchased contributes 22.3% and decreases the treatment effect by 0.88% when high.
- Income contributes 19.5% and increases the treatment effect by 2.15% when high.
- Age contributes 14.4% and increases the treatment effect by 1.83% when high.
- Friends count contributes 7.3% and decreases the treatment effect by 1.88% when high.

These factors explain how the treatment effect varies depending on individual characteristics.

No decision rules (CATE rules) are available in this case.

#### **Tree Visuals**

## **Explanation**