Pharmacy Analytics Case Study

Objective

To estimate the expected financial impact of increasing the visibility of non-medication items (vitamins, band-aids, etc.) during checkout and developing a strategy to assess the feature's effectiveness, post-implementation. This report includes a detailed analysis, SQL queries, assumptions, and a strategy to measure success.

Case Study Background

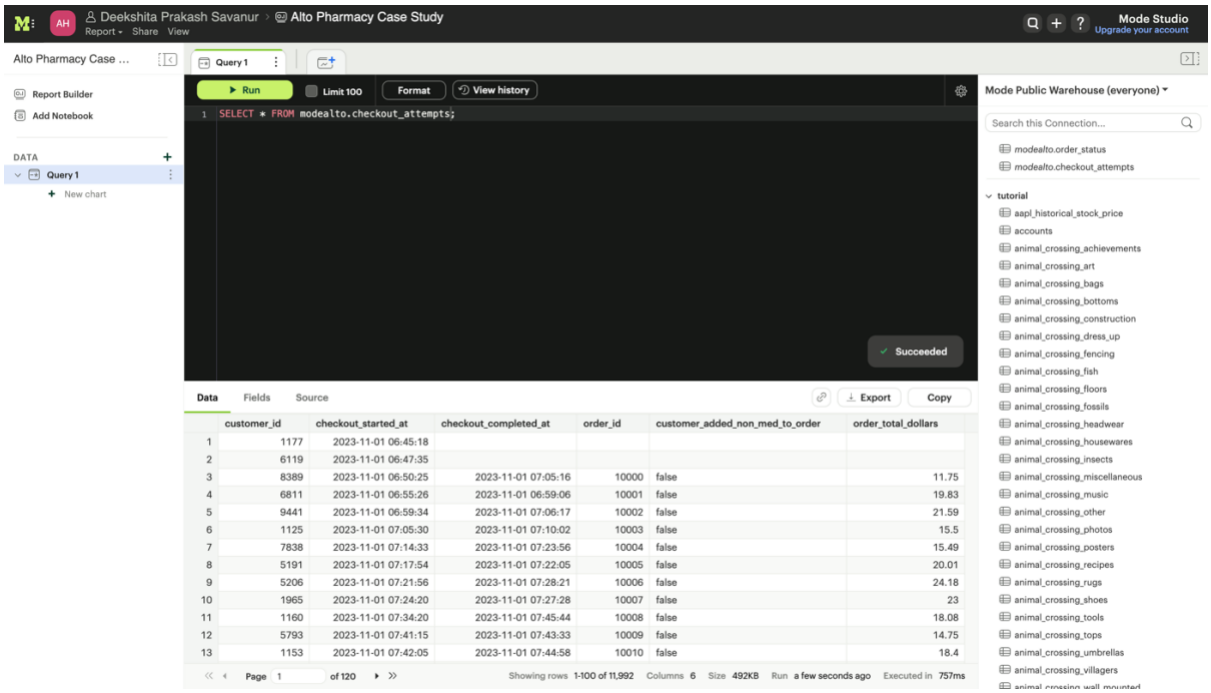
From provided data, the customers order prescription drugs through the online app, and the company sends a courier to deliver the medications to the customer. The customers can now add non-medication items to their carts when checking out from the new feature.

The Product Team anticipates that 20% of consumers will begin adding non-medication items to their carts during checkout, thereby they are considering about changing the visibility of this function in February 2024. My role, as an analyst is to:

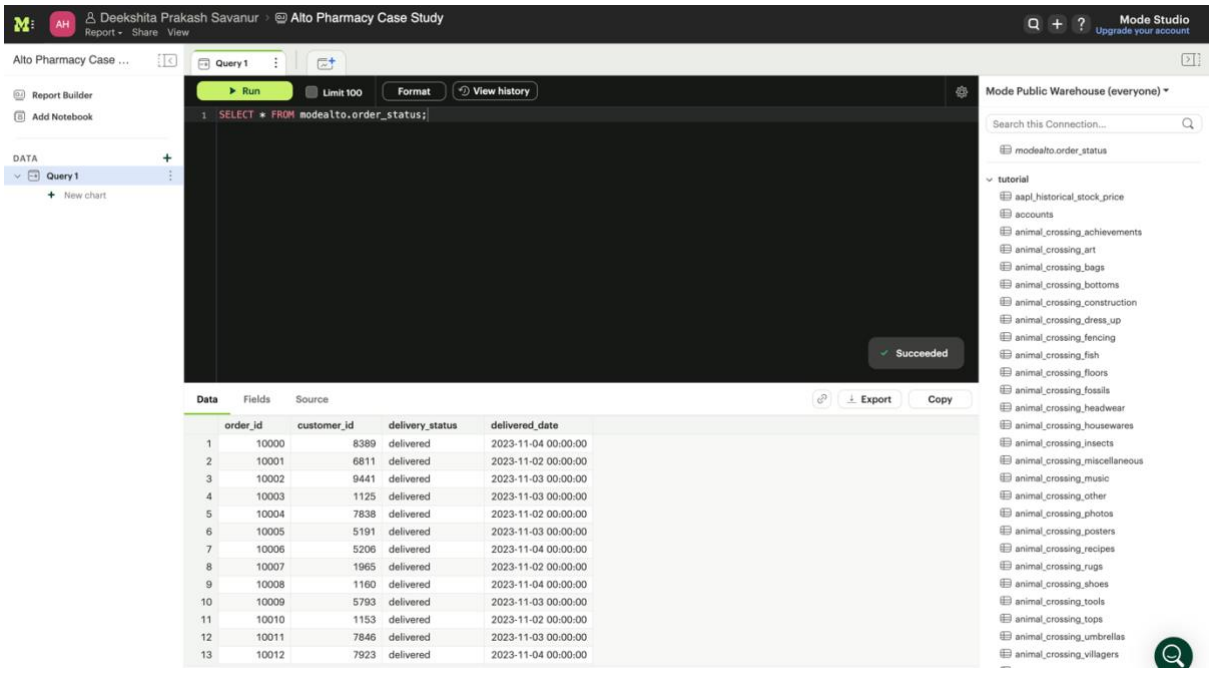
1. Evaluate the potential impact of the change.
2. Develop an experimentation plan to measure the feature's success.

Given Datasets:

modealto.checkout_attempts : 11,992 rows x 6 columns



modealto.order_status : 7156 rows x 4 columns



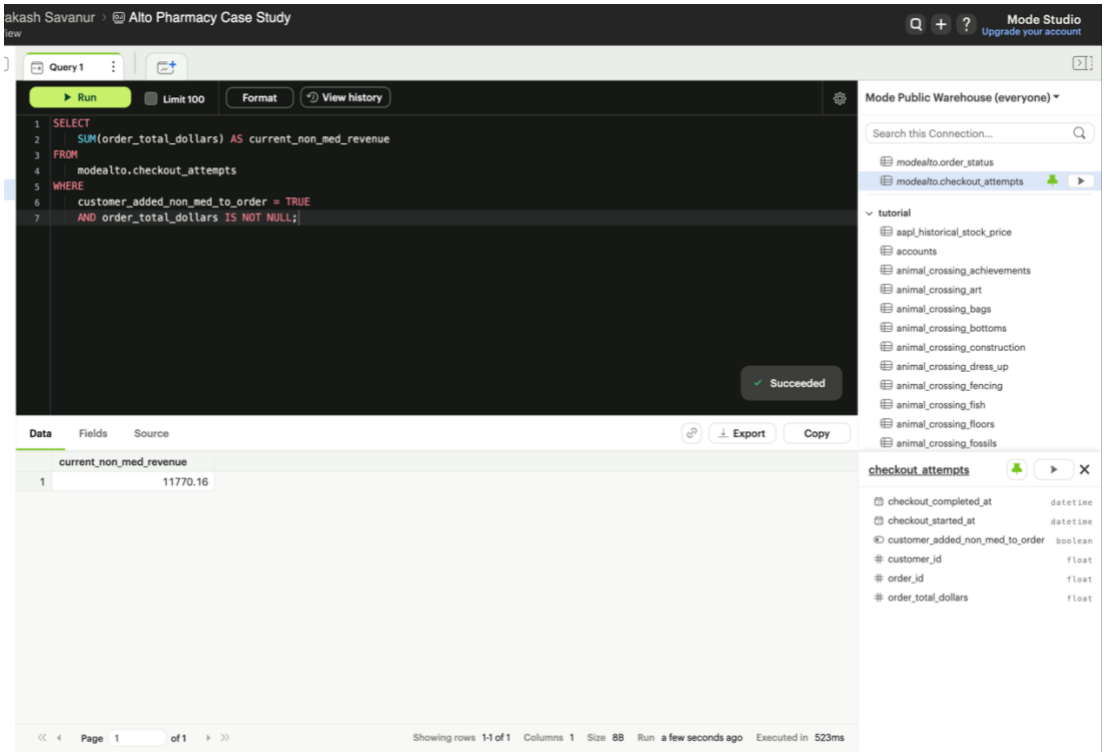
Analysis 1: Financial Impact of the Proposed Change

1. Finding the current state of the orders on the App.

Before estimating the impact of the change, I analyzed the current usage of the non-medication item feature. I've considered the following points,

- Number of Checkouts. Considering customers who completed their order.
- The Percentage (%) of customers who currently add non-medication items.
- Average order value ($) that includes non-medication items.

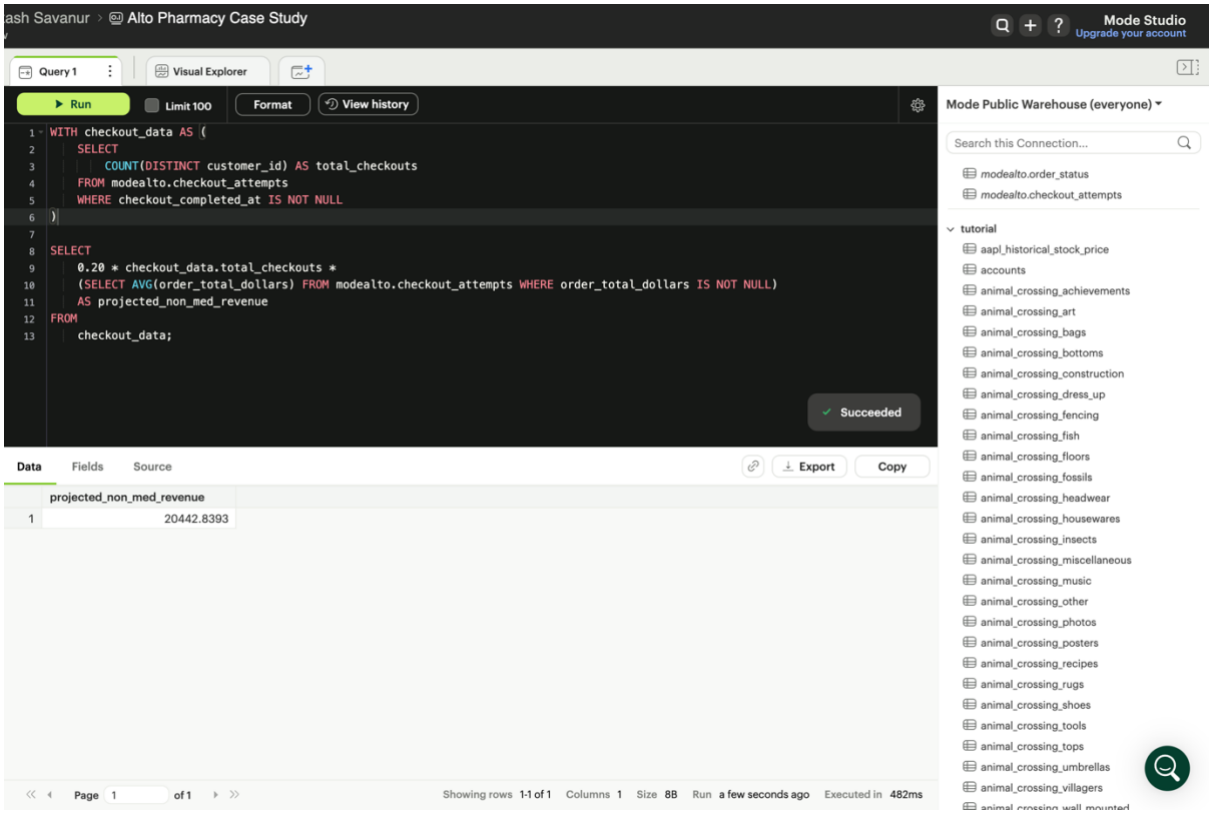
Calculating the total revenue from non-medication items :



Result: Currently, the total revenue from non-medication items is $11,770.16

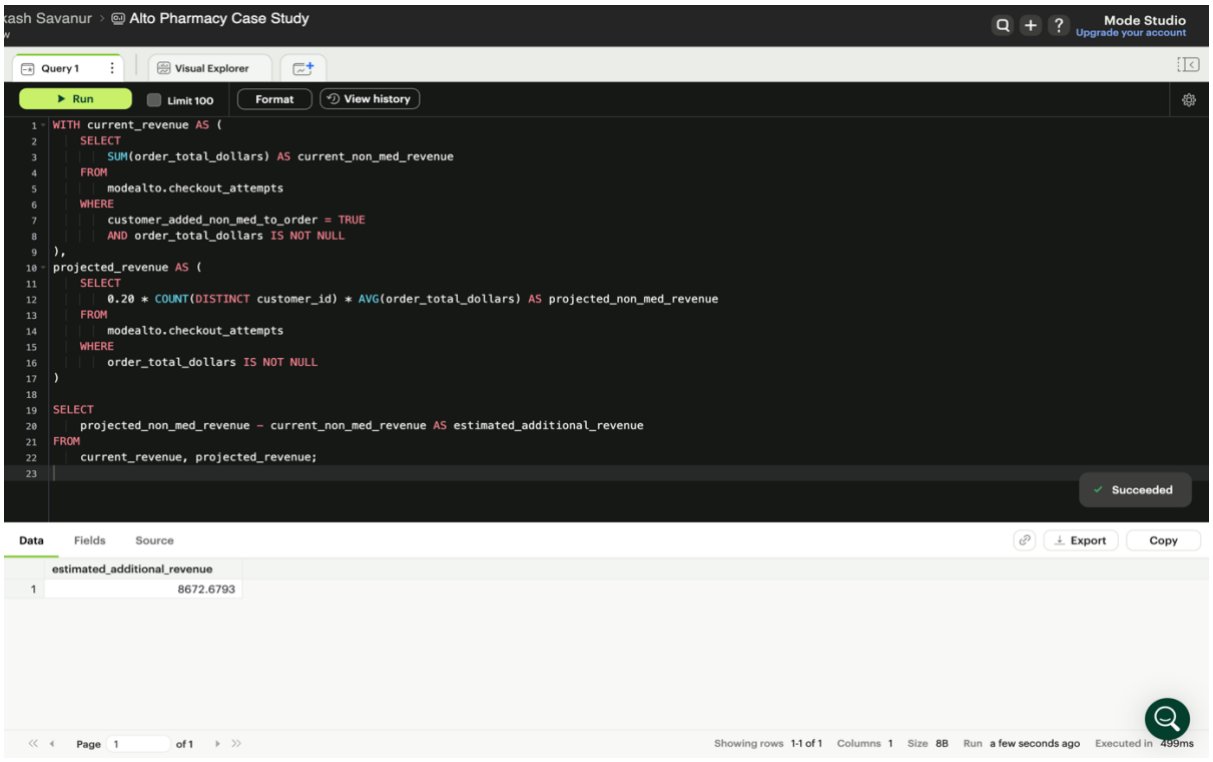
2. Estimating the future state of the orders on the App.

I estimated the future revenue based on the assumption that 20% of consumers would add non-medication products, as per the Product Team's expectation.



Result: In the future, the total revenue from non-medication items is $20,442.84

3. Calculating the financial impact by comparing the projected future revenue to the current revenue.



Result: The additional revenue generated from the increased visibility of non-medication items is $ 8672.67

Assumptions

1. I assumed that 20% of customers will interact with the increased visibility feature, as estimated by the Product Team.
2. The average revenue per order remains constant before and after the feature change.
3. The addition of non-medication items won't affect the purchase of prescription medications.
4. The customer base will remain constant during and after the feature implementation.
5. There are no major updates or promotions, other than the visibility change, that will affect customer purchasing behaviour.

Analysis 2: Experimentation Plan to Measure Success After Implementing the Proposed Change

I am conducting an A/B Test to measure if the implementation of increasing visibility of the non-medication items is a success or not.

I have split the customers to 2 groups.

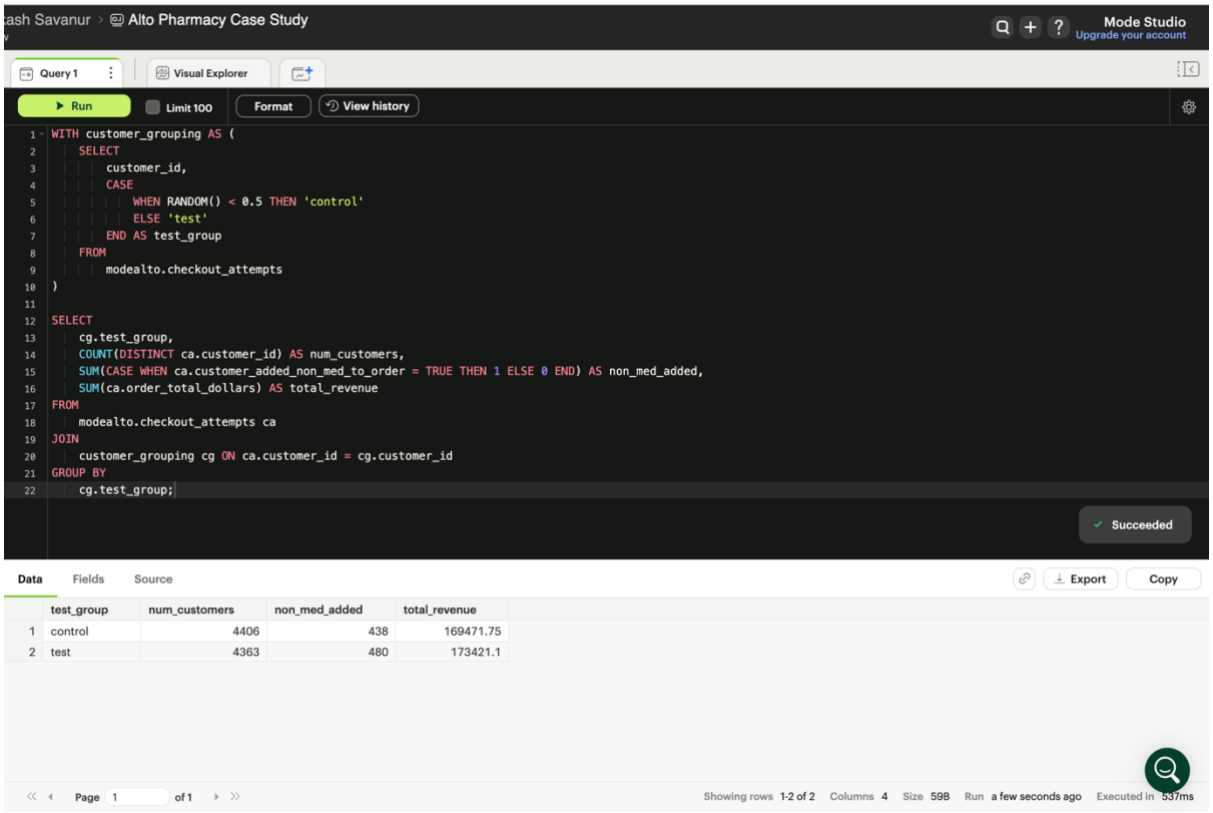
1. Control group - The customers experiencing the existing checkout flow, where the non-medication items are less visible.
2. Test group - The customers experiencing the updated checkout flow, where the non-medication items are more visible.

The KPI (Key Performance Indicators) that I have considered for the success are : Percentage of customers adding non-medication items in both the groups, Total revenue from each group and Revenue per customer in each group.

The below SQL shows the selected customers randomby being assigned to the 2 groups.

- num_customers calculates the total unique customers in each group.

- non_med_added calculates the number of customers who added non-medication items to their cart.
- total_revenue calculates the total revenue generated by each group.



1. Calculating the Percentage of customers adding non-medication items:
- Control Group : 438/4406*100 = 9.94%
- Test Group : 480/4363*100 = 11.001%

2. Calculating the Average revenue per customer:
- Control Group : 169471.75/4406 = 38.46$
- Test Group : 173421.1/4363 = 39.74$

Conclusion:

Based on the difference between the control and test groups:

- From comparing the percentage of customers adding non-med items, there is an improvement in the test group (11.001%) compared to the control group (9.94%).
- From comparing the total revenue and average revenue per customer, the revenue per customer is almost identical for both groups, with the test group slightly more than the control group.

These results were based on the randomly selected customers for the control and test group.

Based on these results, the changes made in visibility of the non-medication items have not significantly increased the number of non-medication items added to carts (only 2% increase) or total revenue. To improve the result, I would make more aggressive changes to the visibility of non-medication items, by adding discounts and even personalised recommendations using Machine Learning and Artificial Intelligence. This would encourage customer behaviour change.