codecademy

SQL Capstone

Analysis of Warby Parker Data

Warby Parker - Churn & AB Testing

1. Style Quiz Churn
2. Home try-on AB test analysis
3. Purchase funnel: Men’s vs Women’s styles

1. Style Quiz Churn

1.1 Style quiz churn

Churn for Warby Parker's style quiz starts with query counting overall responses followed by simple division: (responses) / (previous responses)

We see the lowest response rates for questions 3 (80%) and 5 (74.8%)

The style specific question 3 may be difficult to answer for new users without developed style opinions. The high response rate for question 4 (95%), shows that opinionated users are still captured. Style preference may also be less intuitive for users than color preference.

Question 5, entirely unrelated to preferences, is least intuitive question. Many users may simply not remember when their last eye exam was. I would suggest reducing the number of potential answers to increase response rate.

```
SELECT question,
       COUNT(DISTINCT user_id)
FROM survey
GROUP BY question;
```

Question	Response Count	Response Rate
1. What are you looking for?	500	1
2. What's your fit?	475	0.95
3. Which shapes do you like?	380	0.8
4. Which colors do you like?	361	0.95
5. When was your last eye exam?	270	0.748

2. AB Testing: Home try-ons

1.1 AB Test - Efficacy Analysis

Assessing the home try-on AB test (sampling 3 pairs vs 5 pairs of glasses) is started by aggregating the three tables related to the funnel. With the aggregated table, we compare the conversion rate (purchases) between the control and treatment groups.
The outcome is major, users who sample 5 pairs of glasses convert 26.2% more often. The additional samples may be providing a greater chance of finding the 'perfect pair'.

I would recommend additional tests for data on 4 and 6 pairs. There may be even more room for increasing conversion rate.

Test Condition	Test Count	Purchases	Conversion Rate
3 pairs	379	201	0.53
5 pairs	371	294	0.792
Conversion Rate Δ = 26.2%			

```
WITH ab_aggregate AS (
       SELECT DISTINCT q.user_id,
       h.user_id IS NOT NULL AS 'is_home_try_on',
       h.number_of_pairs,
       p.user_id IS NOT NULL AS 'is_purchase'
       FROM quiz q
       LEFT JOIN home_try_on h
       ON q.user_id = h.user_id
       LEFT JOIN purchase p
       ON p.user_id = q.user_id)
SELECT number_of_pairs AS 'test condition',
  COUNT(DISTINCT CASE
         WHEN number_of_pairs = '5 pairs' THEN user_id
         WHEN number_of_pairs = '3 pairs' THEN user_id
         END) AS 'test count',
  SUM(is_purchase) AS 'purchases'
FROM ab_aggregate
WHERE number_of_pairs IS NOT NULL
GROUP BY 1
ORDER BY 1;
```

3. Purchase funnel by style

1.1 Quiz > Purchase Funnel - Mens & Womens Styles

We can also track customer conversion based on other style quiz answers, in this case by the men's vs women's lines. With users shopping for men's styles converting only 2.6% more than women's, both markets seem evenly served. Gender is not explicitly tracked in the data so this is a comparison of markets for each style rather than customer gender specifically.

How well does this 2.6% difference reflect conversion rates in the industry as a whole?

Style	Quiz Responses	Purchases	Conversion Rate
Men's Styles	432	243	0.563
Women's Styles	469	252	0.537
Conversion Rate Δ = 2.6%			

```
WITH style_aggregate AS (
  SELECT DISTINCT q.user_id,
              q.style,
              p.user_id IS NOT NULL AS 'is_purchase'
       FROM quiz q
       LEFT JOIN purchase p
       ON p.user_id = q.user_id)

SELECT style,
       COUNT(DISTINCT CASE
         WHEN style = "Women's Styles" THEN user_id
         WHEN style = "Men's Styles" THEN user_id
         END) AS 'quiz responses',
  SUM(is_purchase) AS 'purchases'
FROM style_aggregate
WHERE style IS NOT "I'm not sure. Let's skip it."
GROUP BY 1
ORDER BY 1;
```

What next? Areas to be explored

Do certain styles convert more often than others? Could users be nudged into trying the more popular style?

Would 4 or 6 try-on pairs lead to increased conversion?