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Warby Parker Capstone

Learn SQL from Scratch
Michelle Tyler
April 24th, 2019

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1. Get Familiar with Warby Parker

1.1 Who is Warby Parker?

- A lifestyle brand with a focus on providing designer eyewear at an affordable price.

- They are a socially conscious company where each purchase of eyewear means distributing a pair to someone in need.

- Warby Parker believes in creative thinking, smart design, and doing good in the world.

1.1 The Funnels

- What is a funnel?
    - It's a customer's journey toward making a purchase. This process can be broken down into smaller funnels so that we can understand the throughput of customers on a granular scale and analyze when they might be giving up/leaving the website.
- Warby Parker has two funnels. The Style Quiz Funnel and the Home Try-On Funnel. The following are the table(s) associated with each:
    - Style Quiz Funnel
        - survey - holds a user's question and response, however many there are (up to 5 per user id)
    - Home Try-On Funnel
        - quiz - holds the user's answers to each of the five questions
        - home_try_on - holds the amount of pairs of glasses the user is trying on at home and their address. The amount of pairs is decided by an A/B test where 50% of users get 3 pairs and 50% get 5 pairs.
        - purchase - information about the purchase from a user such as product id, style (Women's or Men's), model name, color, price

2. The Style Quiz Funnel

2.1 The Style Quiz

Warby Parker crafted a short survey to better present the types of glasses to the user and therefore have a more curated and personal experience. There are five questions total and each have the option to skip (except for one) so the user has an opportunity to move on. Some questions are:

- What's your fit?
- Which shapes do you like?
- Which colors do you like? (Not Skippable)
- When was your last eye exam?

question	user_id	response
1. What are you looking for?	005e7f99-d48c-4fce-b605-10506c85aaf7	Women's Styles
2. What's your fit?	005e7f99-d48c-4fce-b605-10506c85aaf7	Medium
3. Which shapes do you like?	00a556ed-f13e-4c67-8704-27e3573684cd	Round
1. What are you looking for?	00a556ed-f13e-4c67-8704-27e3573684cd	I'm not sure. Let's skip it.

2.2 How Well Users Responded to Questions

- There are 500 users in this dataset, therefore we had a 100% completion rate for the first question. The following percentages are the completion rates of Questions 2 through 5:
    - Question 2: 95%
    - Question 3: 76%
    - Question 4: 72%
    - Question 5: 54%

- The biggest drops in participation are from Question 3 and Question 5. For Question 3, this might be due to people not knowing what types of glasses look good on them because they usually rely on in person try-ons with a wide selection. They also might not want to limit themselves, but are unsure because they get a limited amount of glasses to try-on at home. For Question 5, most people do not remember off-hand when their last doctor's appointments were or aren't sure how the question is relevant to the survey.

question	response_count
1. What are you looking for?	500
2. What's your fit?	475
3. Which shapes do you like?	380
4. Which colors do you like?	361
5. When was your last eye exam?	270

2.3 Was the skip option effective?

Here are the percentage of users that used that option and continued with the survey:
- Question 1: 9.8%
- Question 2: 9.9%
- Question 3: 7.6%
- Question 5: 13.3%

Result for Question 5 makes sense and I think is appropriate considering most people don't know the date of their last eye exam offhand and it's better for them to look that up later and move on to looking at the merchandise.

question	response_count	skip_count
1. What are you looking for?	500	49
2. What's your fit?	475	47
3. Which shapes do you like?	380	29
5. When was your last eye exam?	270	36

```
WITH question_responses AS (
  SELECT question, COUNT(*) AS response_count
  FROM survey
  GROUP BY 1
),
question_skips AS (
  SELECT question, COUNT(response) AS skip_count
FROM survey
WHERE response="I'm not sure. Let's skip it." OR
response="No Preference" OR response="Not Sure. Let's
Skip It"
GROUP BY 1
)
SELECT question_responses.question,
       question_responses.response_count,
  question_skips.skip_count
FROM question_responses
JOIN question_skips
     ON
question_responses.question=question_skips.question;
```

3. A/B Testing with Home Try-On Funnel

3.1 A/B Testing at the Home Try-On Stage

Warby Parker's overall purchase funnel is: Take the Style Quiz → Home Try-On → Purchase the Perfect Pair of Glasses. At the Home Try-On Stage, 50% of users will get 3 pairs to try-on and 50% will get 5 pairs to try-on.
- 3 pairs: 53% purchase rate
- 5 pairs: 79% purchase rate

This shows that sending the user 5 pairs of glasses to try-on at home is much more effective with purchasing glasses that they desire. This makes sense as people usually try on quite a few styles with in-person stores. It also limits the back and forth if they don't like the glasses they initially chose.

number_of_pairs	total_count	purchase_count
3 pairs	379	201
5 pairs	371	294

4. Additional Insights

4.1 A Bird's Eye View of User Try-On to Purchase Decisions

These results show us the decisions each user made as well as the A/B testing group placement. This table gives us the same analysis opportunities as before, in addition to being more human readable and giving the full picture of a user's journey from quiz to purchase.

Limit set to 10 for quickness, can be changed as needed.

```
SELECT quiz.user_id,
       CASE
       WHEN quiz.user_id=home_try_on.user_id
              THEN 'True'
       ELSE 'False'
   END AS is_home_try_on,
   home_try_on.number_of_pairs,
   CASE
       WHEN quiz.user_id=purchase.user_id THEN 'True'
       ELSE 'False'
   END AS is_purchase
FROM quiz
LEFT JOIN home_try_on
       ON quiz.user_id=home_try_on.user_id
LEFT JOIN purchase
   ON quiz.user_id=purchase.user_id
LIMIT 10;
```

user_id	is_home_try_on	number_of_pairs	is_purchase
4e8118dc-bb3d-49bf-85fc-cca8d83232ac	True	3 pairs	False
291f1cca-e507-48be-b063-002b14906468	True	3 pairs	True
75122300-0736-4087-b6d8-c0c5373a1a04	False	null	False

4.2 Conversion Rates

- From this aggregate data, we can determine the following conversion rates:
    - Quiz → home try-on: 75%
    - Home try-on → purchase: 49.5%

Increasing the purchase conversion rate is related to how the online home try-on process is presented.

Actionable Ideas:
- More tailored results based on quiz answers. Also show popular items.
- "Virtually try-on" where the user can upload a photo and see what the glasses might look like on their face
- Show a 360 view of a model wearing the glasses

4.3 Most Popular Quiz Answers

- We have 1000 user responses from the quiz and these are the common responses for some questions:
    - What are you looking for?
        - The results are pretty even between Women's and Men's Styles
    - What's your fit?
        - Most common answer is Narrow at 40.8%
        - Wonder if not many people have wide faces or it's an untapped market of options?
    - Which shapes do you like?
        - Most common answer is Rectangular with 39.7% but a close second is Square with 32.6%
        - Seems to align with long term popularity (neutral choice) but I'd analyze the rise of the Round glasses trend (fashion choice)
    - Which colors do you like?
        - Results were average, most common colors were Tortoise and Black (neutral choice) but Crystal was 3rd in popularity (fashion choice)

style	count/num_users
Women's Styles	0.469
Men's Styles	0.432

fit	count
Narrow	0.408
Medium	0.305
Wide	0.198

shape	count
Rectangular	0.397
Square	0.326
Round	0.180

4.3 Most Popular Purchases

- This table ranks purchases by their popularity. Insights include:
    - Lucy in Jet Black is most popular in number for women but it's counterpart color Elderflower Crystal is about 50% less popular. Lucy in Jet Black has a significant gap in numbers between it and the 2nd most popular item.
    - The popularity of the Eugene Narrow style for women is somewhat close in number between its colors. This is also true for the Brady style for Men.
    - 44% of colors chosen are some variant of Tortoise.
    - Despite its less practical nature and more of a gimmick, the Monocle style has been purchased more than expected!

style	model_name	color	count
Women's Styles	Lucy	Jet Black	86
Men's Styles	Dawes	Driftwood Fade	63
Women's Styles	Eugene Narrow	Rosewood Tortoise	62
Women's Styles	Eugene Narrow	Rose Crystal	54
Men's Styles	Brady	Layered Tortoise Matte	52
Women's Styles	Olive	Pearled Tortoise	50
Women's Styles	Lucy	Elderflower Crystal	44
Men's Styles	Brady	Sea Glass Gray	43
Men's Styles	Monocle	Endangered Tortoise	41