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Funnels With Warby Parker

Learn SQL from Scratch
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Table of Contents

1. Get Familiar With Warby Parker

1.1 Get Familiar With Warby Parker

Warby Parker is a transformative lifestyle brand with a lofty objective: to offer designer eyewear at a revolutionary price while leading the way for socially conscious businesses.
- The company uses a five question style quiz to help users find the right glasses
- Potential buyers can select five frames to try on at home for free

Questions We Will Explore
- *How many users complete all five questions in the style quiz?*
- *How many users who complete the quiz move to home try-on?*
- *How many users who participate in home try-one make a purchase?*

Data Tables Available
- survey
- quiz
- home_try_on
- purchase

2. What is the Quiz Funnel?

2.1 What is the Quiz Funnel?

To help users find their perfect frame, Warby Parker has a Style Quiz that has the following questions:

1. "What are you looking for?"
2. "What's your fit?"
3. "Which shapes do you like?"
4. "Which colors do you like?"
5. "When was your last eye exam?"

The users' responses are stored in a table called survey. Here is a small sample of responses from this table.

```
SELECT *
FROM survey
LIMIT 10;
```

question	user_id	response
1. What are you looking for?	10506c85aaf7	Women's Styles
2. What's your fit?	10506c85aaf7	Medium
3. Which shapes do you like?	27e3573684cd	Round
4. Which colors do you like?	27e3573684cd	Two-Tone
5. When was your last eye exam?	27e3573684cd	<1 Year
2. What's your fit?	27e3573684cd	Narrow
1. What are you looking for?	027e3573684cd	I'm not sure. Let's skip it.

2.2 What is the Quiz Funnel?

Users will "give up" at different points in the survey. Let's analyze how many users move from Question 1 to Question 2, etc.

Here are the numbers of responses for each question. Note the drop in completion rate as users progress through the questions.

```
SELECT question, COUNT(DISTINCT user_id)
FROM survey
GROUP BY 1;
```

questions	count	% completion
1. What are you looking for?	500	100%
2. What's your fit?	475	95%
3. Which shapes do you like?	380	76%
4. Which colors do you like?	361	72%
5. When was your last eye exam?	270	54%

2.3 Why Do Users Give Up?

Questions 3 - 5 have significantly lower completion rates (**at least 24% less** than question 1). This may be due to a few different reasons.

1. Users start the quiz not knowing or ever considering:
   a. *The color they want*
   b. *The shape they want*
   c. *When their last eye exam was*

   Since users don't know the answers, they stop to consider them or go browse the site's selection to find their answer, but never return to finish the quiz. Furthermore, if a user stops at question 3, they will most likely not complete the questions that follow it which is why there is such a significant drop in responses to questions 4 and 5.

2. Random speculation: users may also have only been on the site to shop the selection in comparison to other competitors, most specifically their current insurance carrier options. Because of this, users were only reviewing the site for a small fraction of time to get the information needed.
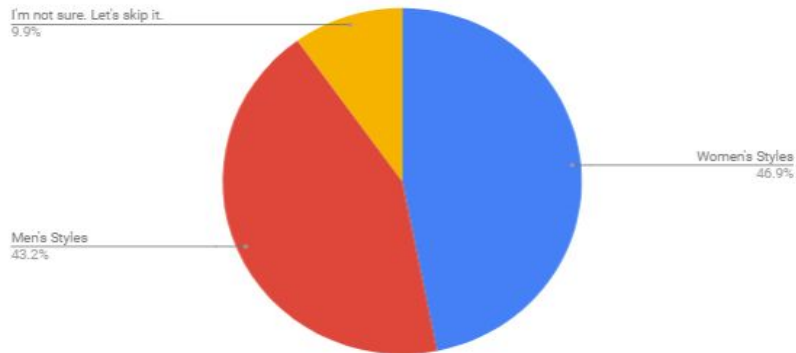
2.4 What is the Quiz Funnel?

For additional visualization of the quiz data, these are the most common results of the style quiz.

```
SELECT style AS 'Style',
       COUNT(*) AS 'Count'
FROM quiz
GROUP BY 1
ORDER BY 2 DESC;
```

Style	Count
Women's Styles	469
Men's Styles	432
I'm not sure. Let's skip it.	99

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

3.1 A/B Testing With Home Try-On Funnel

We need to create a new table with the following criteria:

- *If the user has any entries in home_try_on, then is_home_try_on will be 'True'.*
- *number_of_pairs comes from home_try_on table*
- *If the user has any entries in is_purchase, then is_purchase will be 'True'.*

This table will be used to determine conversion rates between `quiz→home_try_on` and `home_try_on→purchase`. A sample of the data is below.

```
SELECT DISTINCT(quiz.user_id),
     CASE WHEN
     home_try_on.user_id IS NOT NULL THEN "True"
ELSE "False"
     END AS 'is_home_try_on',
  home_try_on.number_of_pairs,
  CASE WHEN
     purchase.user_id IS NOT NULL 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 home_try_on.user_id = purchase.user_id
LIMIT 10;
```

user_id	is_home_try_on	number_of_pairs	is_purchase
cca8d83232ac	True	3 pairs	False
002b14906468	True	3 pairs	True
c0c5373a1a04	False	0	False
27ddd93b12e2	True	5 pairs	False

3.2 A/B Testing With Home Try-On Funnel

From our previous funnel, we can compare conversions from quiz→home_try_on and home_try_on→purchase.

From there, we can calculate the percentage of each type of conversion and the percentage of those conversions.

num_quiz	num_try_on	num_purchase	quiz_to_try_on	try_on_to_purchase
1000	750	495	75.00%	66.00%

```
WITH funnels AS(
SELECT DISTINCT(quiz.user_id),
home_try_on.user_id IS NOT NULL AS 'is_home_try_on',
home_try_on.number_of_pairs,
purchase.user_id IS NOT NULL AS 'is_purchase'
FROM quiz
LEFT JOIN home_try_on
      ON quiz.user_id = home_try_on.user_id
LEFT JOIN purchase
      ON home_try_on.user_id = purchase.user_id)
SELECT COUNT(*) AS 'num_quiz',
      SUM(is_home_try_on) AS 'num_try_on',
  SUM(is_purchase) AS 'num_purchase',
  1.0 * SUM(is_home_try_on) / COUNT(user_id) AS
'quiz_to_try_on',
  1.0 * SUM(is_purchase) / SUM(is_home_try_on) AS
'try_on_to_purchase'
FROM funnels;
```

3.3 A/B Testing With Home Try-On Funnel

Additionally, we can calculate the difference in purchase rates between customers who took home 3 pairs with ones who took home 5 pairs.

num_of_pairs	num_quiz	num_try_on	num_purchase	quiz_to_try_on	try_on_to_purchase
3 pairs	379	379	201	1	53.03%
5 pairs	371	371	294	1	79.25%

```sql
WITH funnels AS(
SELECT DISTINCT(quiz.user_id),
home_try_on.user_id IS NOT NULL AS
'is_home_try_on',
home_try_on.number_of_pairs AS 'num_of_pairs',
purchase.user_id IS NOT NULL AS 'is_purchase'
FROM quiz
LEFT JOIN home_try_on
    ON quiz.user_id = home_try_on.user_id
LEFT JOIN purchase
    ON home_try_on.user_id = purchase.user_id)
SELECT num_of_pairs,
    COUNT(*) AS 'num_quiz',
    SUM(is_home_try_on) AS 'num_try_on',
  SUM(is_purchase) AS 'num_purchase',
  1.0 * SUM(is_home_try_on) / COUNT(user_id) AS
'quiz_to_try_on',
  1.0 * SUM(is_purchase) / SUM(is_home_try_on) AS
'try_on_to_purchase'
FROM funnels
GROUP BY 1
ORDER BY 1;
```

3.4 A/B Testing With Home Try-On Funnel Summary

Conversion rates for 1000 total quizzes

- 75% move to try-on step
- 66% make a purchase after try-on

Conversion rates for 3 and 5 pair home try-ons

- 53.03% of 3 pair try-ons made a purchase
- 79.25% of 5 pair try-ons made a purchase