Funnels with Warby Parker

• • •

Learn SQL From Scratch
Sharanjit Kaur
July 24, 2019

Table of Contents:

1. Get familiar with Warby Parker

Warby Parker's Style Quiz

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?"

1.1 What columns does the table have?

The users' responses are stored in a table called survey
The table has columns called:

- question
- user_id
- response

```
1    SELECT *
2    FROM survey
3    LIMIT 10;
```

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
4. Which colors do you like?	00a556ed-f13e-4c67-8704-27e3573684cd	Two-Tone
1. What are you looking for?	00a556ed-f13e-4c67-8704-27e3573684cd	I'm not sure. Let's skip it.
2. What's your fit?	00a556ed-f13e-4c67-8704-27e3573684cd	Narrow

2. What is the Quiz Funnel

2.1 What is the number of responses for each question?

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

Create a quiz funnel using the GROUP BY command.

```sql
1   SELECT question,
2       COUNT(DISTINCT user_id)
3   FROM survey
4   GROUP BY question;
```

question	COUNT(DISTINCT user_id)
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

2.2 Percent of users who answered each question

Question	Count	Percentage
1. What are you looking for?	500	100%
2. What's your fit?	475	95%
3. Which shapes do you like?	380	80%
4. Which colors do you like?	361	95%
5. When was your last eye exam?	270	75%

Which question(s) of the quiz have a lower completion rates?

- Question 5 has a 75% response rate
- Question 3 has a 80% response rate

What do you think is the reason?

- Questions 3 and 5 may be more difficult questions to answer and requiring more thought.
- People may have never thought of what eye frame shapes they like
- People may not remember when their last exam was

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

Warby Parker's Purchase Funnel

During the Home Try-On stage, we will be conducting an A/B Test:
- 50% of the users will get 3 pairs to try on
- 50% of the users will get 5 pairs to try on

Let's find out whether or not users who get more pairs to try on at home will be more likely to make a purchase.

Take the Style Quiz →

Home Try-On →

Purchase the Perfect Pair of Glasses

3.1 First five rows of the 3 tables

user_id	style	fit	shape	color
4e8118dc-bb3d-49bf-85fc-cca8d83232ac	Women's Styles	Medium	Rectangular	Tortoise
291f1cca-e507-48be-b063-002b14906468	Women's Styles	Narrow	Round	Black
75122300-0736-4087-b6d8-c0c5373a1a04	Women's Styles	Wide	Rectangular	Two-Tone
75bc6ebd-40cd-4e1d-a301-27ddd93b12e2	Women's Styles	Narrow	Square	Two-Tone
ce965c4d-7a2b-4db6-9847-601747fa7812	Women's Styles	Wide	Rectangular	Black

user_id	number_of_pairs	address
d8addd87-3217-4429-9a01-d56d68111da7	5 pairs	145 New York 9a
f52b07c8-abe4-4f4a-9d39-ba9fc9a184cc	5 pairs	383 Madison Ave
8ba0d2d5-1a31-403e-9fa5-79540f8477f9	5 pairs	287 Pell St
4e71850e-8bbf-4e6b-accc-49a7bb46c586	3 pairs	347 Madison Square N
3bc8f97f-2336-4dab-bd86-e391609dab97	5 pairs	182 Cornelia St

user_id	product_id	style	model_name	color	price
00a9dd17-36c8-430c-9d76-df49d4197dcf	8	Women's Styles	Lucy	Jet Black	150
00e15fe0-c86f-4818-9c63-3422211baa97	7	Women's Styles	Lucy	Elderflower Crystal	150
017506f7-aba1-4b9d-8b7b-f4426e71b8ca	4	Men's Styles	Dawes	Jet Black	150
0176bfb3-9c51-4b1c-b593-87edab3c54cb	10	Women's Styles	Eugene Narrow	Rosewood Tortoise	95
01fdf106-f73c-4d3f-a036-2f3e2ab1ce06	8	Women's Styles	Lucy	Jet Black	150

```
 1  SELECT *
 2  FROM quiz
 3  LIMIT 5;
 4
 5  SELECT *
 6  FROM home_try_on
 7  LIMIT 5;
 8
 9  SELECT *
10  FROM purchase
11  LIMIT 5;
```

3.2 Using LEFT JOIN to combine the 3 tables

user_id	is_home_try_on	number_of_pairs	is_purchase
4e8118dc-bb3d-49bf-85fc-cca8d83232ac	1	3 pairs	0
291f1cca-e507-48be-b063-002b14906468	1	3 pairs	1
75122300-0736-4087-b6d8-c0c5373a1a04	0	Ø	0
75bc6ebd-40cd-4e1d-a301-27ddd93b12e2	1	5 pairs	0
ce965c4d-7a2b-4db6-9847-601747fa7812	1	3 pairs	1
28867d12-27a6-4e6a-a5fb-8bb5440117ae	1	5 pairs	
5a7a7e13-fbcf-46e4-9093-79799649d6c5	0	Ø	
0143cb8b-bb81-4916-9750-ce956c9f9bd9	0	Ø	
a4ccc1b3-cbb6-449c-b7a5-03af42c97433	1	5 pairs	
b1dded76-cd60-4222-82cb-f6d464104298	1	3 pairs	

```
1   SELECT DISTINCT q.user_id,
2       h.user_id IS NOT NULL AS
    'is_home_try_on',
3       h.number_of_pairs,
4       p.user_id IS NOT NULL AS 'is_purchase'
5   FROM quiz q
6   LEFT JOIN home_try_on h
7       ON q.user_id = h.user_id
8   LEFT JOIN purchase p
9       ON p.user_id = q.user_id
10  LIMIT 10;
```

3.3 Conversion rates from quiz -> try on -> purchase

Comparing conversion from quiz→home_try_on and home_try_on→purchase

- The percent of people who took the style quiz and tried the try at home service was 75%
- The percent of people who tried the try at home service actually purchased frames was 66%

num_quiz	num_home_try_on	num_purchase
1000	750	495

quiz_to_try_on	try_on_to_purchase
0.75	0.66

```sql
With funnels 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 COUNT (*) AS 'num_quiz',
  SUM (is_home_try_on) AS 'num_home_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;
```

3.4 Difference in purchase rates b/w number of pairs

Comparing difference in purchase rates between customers who had 3 number_of_pairs with ones who had 5.

- Those who tried on 5 pairs had a higher purchase rate (79%) than those who tried on only 3 pairs (53%)

```
1   With funnels AS (SELECT DISTINCT h.number_of_pairs,
2      h.user_id IS NOT NULL AS 'is_home_try_on',
3      p.user_id IS NOT NULL AS 'is_purchase',
4      q.user_id
5   FROM quiz q
6   LEFT JOIN home_try_on h
7      ON q.user_id = h.user_id
8   LEFT JOIN purchase p
9      ON p.user_id = q.user_id)
10  SELECT number_of_pairs,
11    COUNT (*) AS 'num_quiz',
12    SUM (is_home_try_on) AS 'num_home_try_on',
13    SUM (is_purchase) AS 'num_purchase',
14    1.0 * SUM(is_purchase) / SUM(is_home_try_on) AS
    'try_on_to_purchase'
    FROM funnels
    GROUP BY number_of_pairs
    ORDER BY number_of_pairs;
```

number_of_pairs	num_quiz	num_home_try_on	num_purchase	try_on_to_purchase
∅	250	0	0	∅
3 pairs	379	379	201	0.530343007915567
5 pairs	371	371	294	0.792452830188679

4. Actionable Insights

Actionable Insights:

- Based on conversion rates found, Warby Parker should focus on trying to get more people to purchase frames once they try them on
- Providing incentives like reward points or discounts can encourage people to purchase
- Additionally, people who tried on 5 frames compared to 3 frames have higher purchase rates
  - It is possible that because people have more options, they are more likely to purchase
  - Maybe exclusively changing the plan and offering only the option to try on 5 frames (or 5+ frames) will boost purchases