Usage Funnels for Warby Parker

Capstone Project
Learn SQL from Scratch

codecademy

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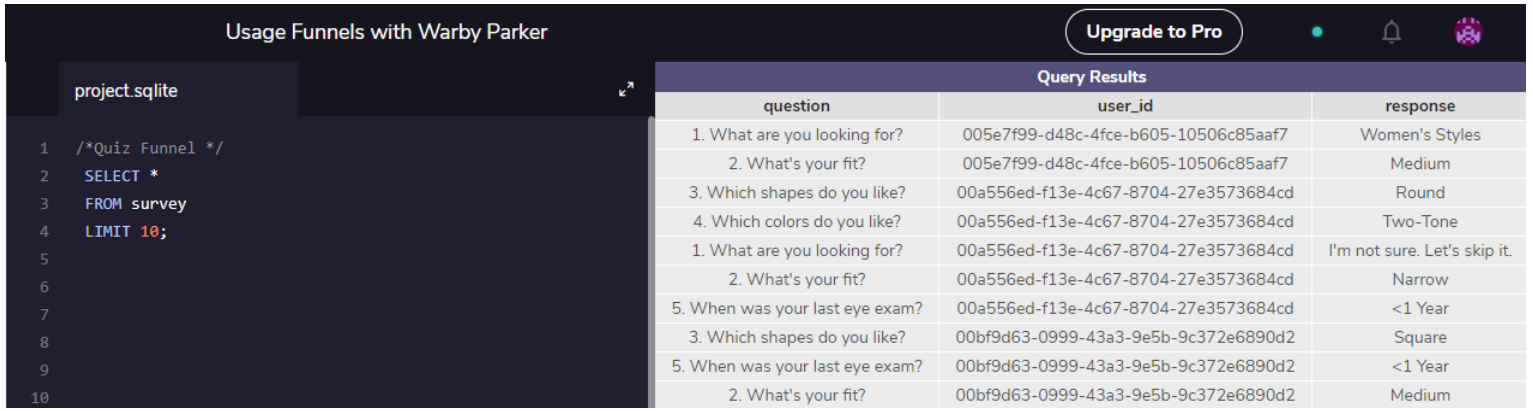
Understand the data for Warby Parker

As part of Warby Parkers customer experience, they have each of their users take a Style Quiz, each containing 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 responses to these questions are stored in a table called survey.

To look into that data we SELECT all columns from the table and limit it to the first 10 rows. The columns in the table were question, user_id, and response.



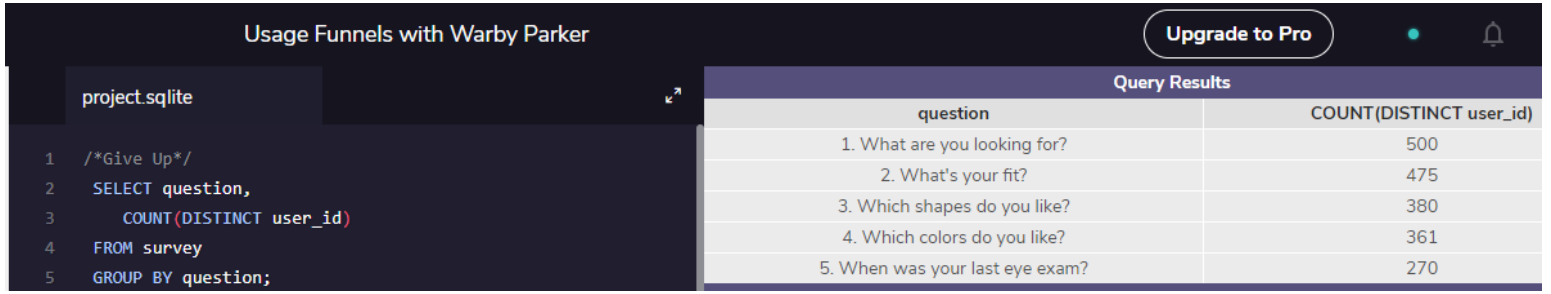
question	user_id	response
1. What are you looking for?	005e7f99-d48c-4fce-b605-10506c85aaf7	Women's Styles
2. What's your fit?	005e7f99-d48c-4fce-b605-10506c85aaf7	Medium
3. Which shapes do you like?	00a556ed-f13e-4c67-8704-27e3573684cd	Round
4. Which colors do you like?	00a556ed-f13e-4c67-8704-27e3573684cd	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
5. When was your last eye exam?	00a556ed-f13e-4c67-8704-27e3573684cd	<1 Year
3. Which shapes do you like?	00bf9d63-0999-43a3-9e5b-9c372e6890d2	Square
5. When was your last eye exam?	00bf9d63-0999-43a3-9e5b-9c372e6890d2	<1 Year
2. What's your fit?	00bf9d63-0999-43a3-9e5b-9c372e6890d2	Medium

2. Quiz Funnel

Quiz Funnel

Often, due to different reasons, users will "give up" while taking the Style Quiz. One can analyze this by seeing how many users move from Question 1 to Question 2, etc.

In order to look into this data we create a quiz funnel using the Group By command. From this one can learn where people "give up" during the quiz.



Quiz Funnel (Cont'd)

In order to understand the data deeper, we can place the responses into a spreadsheet program to calculate the percentage of users who answer the questions.

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

What do you think is the reason?

question
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?

Question	Count	Response Rate*
1	500	100%
2	475	95%
3	380	80%
4	361	95%
5	270	75%
*Note: =responses/previous responses		

After review, questions 3 and 5 had the lower completion rates compared to the other questions. A reason for why questions 3 had a lower response could be that users aren't sure what style they would like until they try on a few options, leading them to leaving the answer blank. As for question 5, it could be a case of survey fatigue or that they simply forgot when they had an exam last.

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

A/B Testing with Home Try-On Funnel

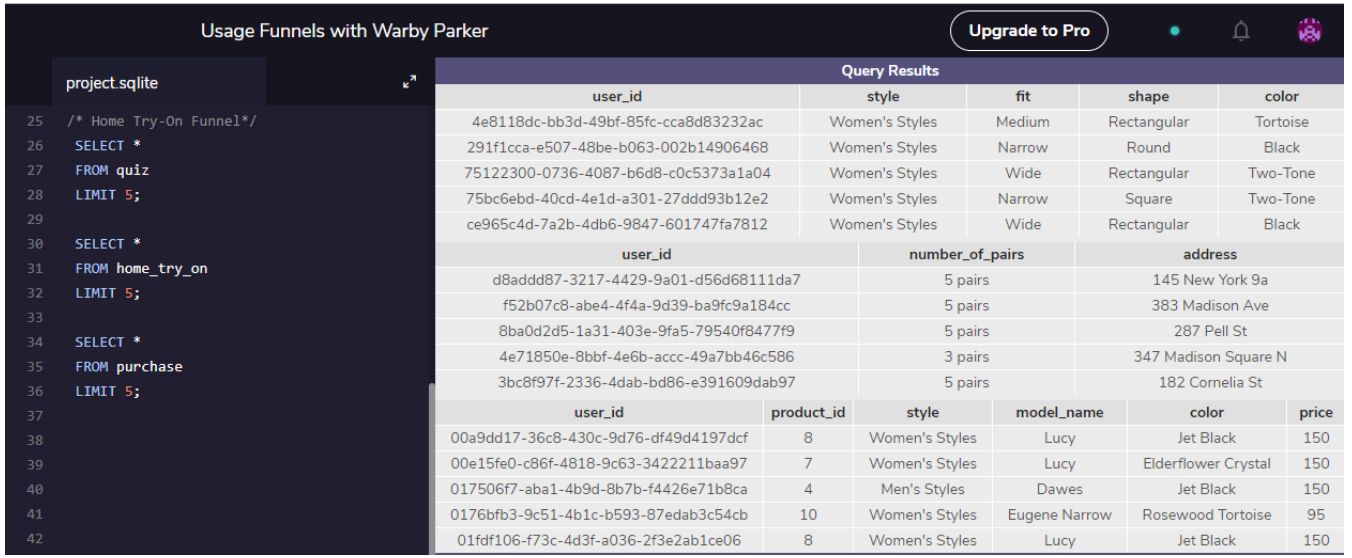
For the Home Try-On portion of the experience, we will be conducting an A/B test.

1. 50% of users will get 3 pairs to try on
2. 50% of 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. To do this we will look at 3 tables:

- quiz
- home_try_on
- purchase

We will examine the first 5 rows to limit the amount of information seen. The name of each table can be seen below.



A/B Testing with Home Try-On Funnel

Next, we would like to create a data set with all three tables. To do this we will use LEFT JOIN, and will start with the top of the funnel and work down.

```sql
SELECT q.user_id,
  CASE
    WHEN h.user_id IS NOT NULL THEN 'True'
    ELSE 'False'
  END AS 'is_home_try_on',
  h.number_of_pairs,
  CASE
    WHEN p.user_id IS NOT NULL THEN 'True'
    ELSE 'False'
  END 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

LIMIT 10;
```

Query Results

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	Ø	False
75bc6ebd-40cd-4e1d-a301-27ddd93b12e2	True	5 pairs	False
ce965c4d-7a2b-4db6-9847-601747fa7812	True	3 pairs	True
28867d12-27a6-4e6a-a5fb-8bb5440117ae	True	5 pairs	True
5a7a7e13-fbcf-46e4-9093-79799649d6c5	False	Ø	False
0143cb8b-bb81-4916-9750-ce956c9f9bd9	False	Ø	False
a4ccc1b3-cbb6-449c-b7a5-03af42c97433	True	5 pairs	False
b1dded76-cd60-4222-82cb-f6d464104298	True	3 pairs	False

A/B Testing with Home Try-On Funnel

Now lets calculate the overall conversion rates by aggregating across all rows of the tables.

```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 AS 'q'

LEFT JOIN home_try_on AS 'h'
  ON h.user_id = q.user_id

LEFT JOIN purchase AS 'p'
  ON p.user_id = h.user_id)

SELECT COUNT(*) AS 'browsers',
SUM(is_home_try_on) AS 'checkouts',
SUM(is_purchase) AS 'purchasers'
FROM funnels;
```

Query Results

browsers	checkouts	purchasers
1000	750	495

A/B Testing with Home Try-On Funnel

Next, we can compare the conversion from quiz → home_try_on and home_try_on → purchase.

```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 AS 'h'
  ON h.user_id = q.user_id
LEFT JOIN purchase AS 'p'
  ON p.user_id = h.user_id)
SELECT COUNT(*) AS 'browsers',
SUM (is_home_try_on) AS 'checkouts',
SUM (is_purchase) AS 'purchasers',
1.0 * SUM(is_home_try_on) / COUNT(user_id) AS 'browse_to_checkout',
1.0 * SUM(is_purchase) / SUM(is_home_try_on) AS 'checkout_to_purchase'
FROM funnels;
```

Query Results

browsers	checkouts	purchasers	browse_to_checkout	checkout_to_purchase
1000	750	495	0.75	0.66

A/B Testing with Home Try-On Funnel

Lastly, we can calculate the difference in purchase rates between customers who had 3 and 5 numbers_of_pair.

```
67  WITH funnels AS(
68  SELECT DISTINCT q.user_id,
69    h.user_id IS NOT NULL AS 'is_home_try_on',
70    h.number_of_pairs,
71    p.user_id IS NOT NULL AS 'is_purchase'
72  FROM quiz q
73  LEFT JOIN home_try_on AS 'h'
74    ON h.user_id = q.user_id
75    AND number_of_pairs LIKE '3%'
76  LEFT JOIN purchase AS 'p'
77    ON p.user_id = h.user_id)
78  SELECT COUNT(*) AS 'browsers',
79  SUM (is_home_try_on) AS 'checkouts',
80  SUM (is_purchase) AS 'purchasers',
81  1.0 * SUM(is_home_try_on) / COUNT(user_id) AS 'browse_to_checkout',
82  1.0 * SUM(is_purchase) / SUM(is_home_try_on) AS 'checkout_to_purchase'
83  FROM funnels;
```

This set of code was run twice, once with '3%' in line 75 and once with '5%' in line 75.

3 Pairs Sent

Query Results

browsers	checkouts	purchasers	browse_to_checkout	checkout_to_purchase
1000	379	201	0.379	0.530343007915567

5 Pairs Sent

Query Results

browsers	checkouts	purchasers	browse_to_checkout	checkout_to_purchase
1000	371	294	0.371	0.792452830188679

From this, we learned that when customers were sent 3 pairs, 53% made a purchase, verse 79% when

Actionable Insights

Actionable Insights

- Based on the data we just collected, it seems that customers who received 5 pairs were 26% more likely to move forward with a purchase verse those who received 3, it would seem that sending out 5 pairs during the try-on period would be more beneficial.
- Additionally, women seem to be more likely to use Warby Parker as seen by the number of responses to the quiz being for Women's Styles. Though, this difference grows closers once you bring in the results from the purchase table.

Query Results	
style	COUNT(style)
I'm not sure. Let's skip it.	99
Men's Styles	432
Women's Styles	469

Quiz Table

Query Results	
style	COUNT(style)
Men's Styles	243
Women's Styles	252

Purchase Table

With that being said, Warby Parker could consider increasing their marketing efforts to attached more men to try the service to begin with as it seems that once someone tries the service, both men and women are equally likely to move forward with a purchases.

Actionable Insights

- Lastly, we can take a look at interest in certain models. It seems to be that the two least popular models are the Monocle and Olive, this could be due to them only having a single color option. On the other side of the spectrum, it seems that the Dawes and Eugene Narrow models are the more popular choice, with 107 and 116 bought for each respectively. Though overall the Jet Black color seems to be the most popular color.
- With this insight, Warby Parker might want to see about offering the Eugene Narrow frame in Jet Black as well, combining two of their stronger selling aspects together.

Query Results			
model_name	COUNT(model_name)	color	COUNT(color)
Brady	52	Layered Tortoise Matte	52
Brady	43	Sea Glass Gray	43
Dawes	63	Driftwood Fade	63
Dawes	44	Jet Black	44
Eugene Narrow	54	Rose Crystal	54
Eugene Narrow	62	Rosewood Tortoise	62
Lucy	44	Elderflower Crystal	44
Lucy	42	Jet Black	42
Monocle	41	Endangered Tortoise	41
Olive	50	Pearled Tortoise	50