codecademy

Usage Funnels with Warby Parker

Capstone Project
Learn SQL from Scratch
Audrey Basham
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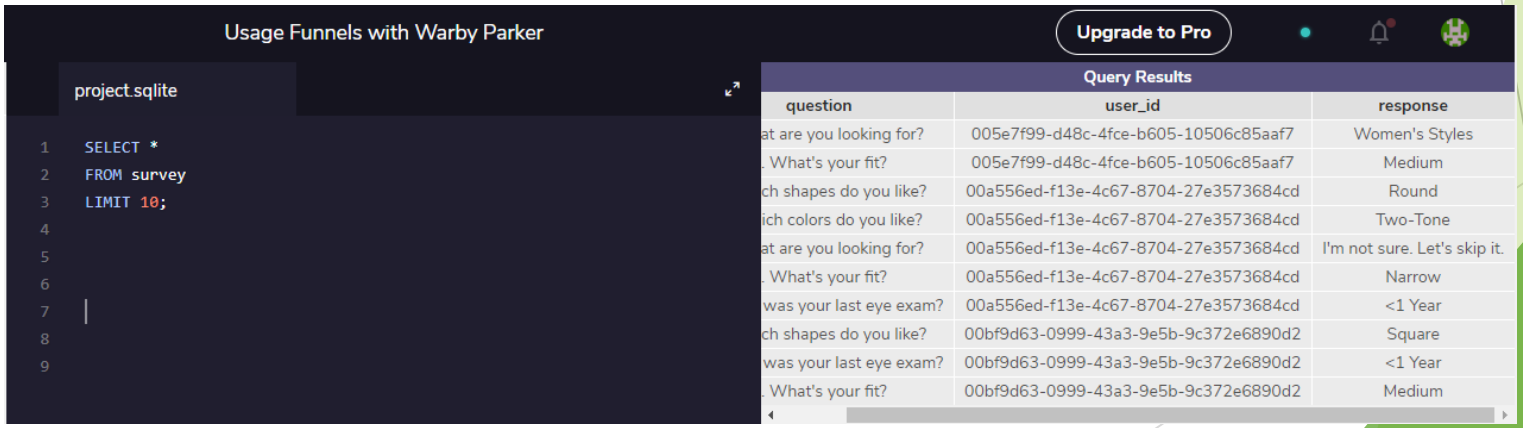
1. Get familiar with Warby Parker

Get familiar with Warby Parker

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.
Select all columns from the first 10 rows. What columns does the table have? (*Answer: question, user_id, response)*

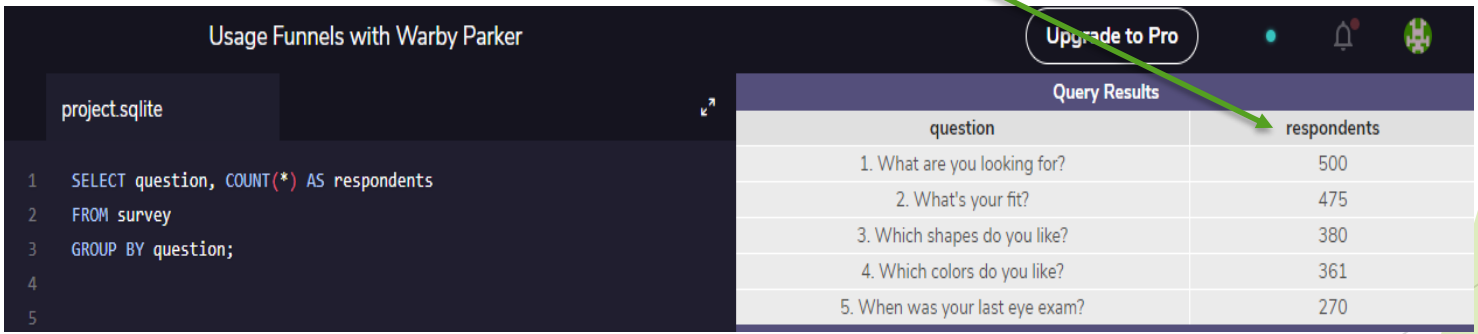


2. The Quiz Funnel

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.

- Create a quiz funnel using the GROUP BY command.
- What is the number of responses for each question?



The Quiz Funnel (Cont'd)

Using a spreadsheet program like Excel or Google Sheets, calculate the percentage of users who answer each question:

Which question(s) of the quiz have a lower completion rates? What do you think is the reason?

= responses/responses to prior question

Quiz Question	Responses	Response Rate
1	500	100%
2	475	95%
3	380	80%
4	361	95%
5	270	75%

Query Results
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?

- Questions #3 and #5 have a lower completion rate compared to the other questions. For question #3, it is possible respondents aren't sure yet before they try on the glasses which shape they prefer. As a result, they do not respond. Alternatively, they may want to choose multiple shapes and are unable to do so. For question #5, perhaps respondents could not recall their last eye exam or just got tired of answering questions.

3. A/B Testing with Home try-on Funnel

A/B Testing with Home Try-On Funnel

During the Home Try-On stage, we will be conducting an A/B Test:

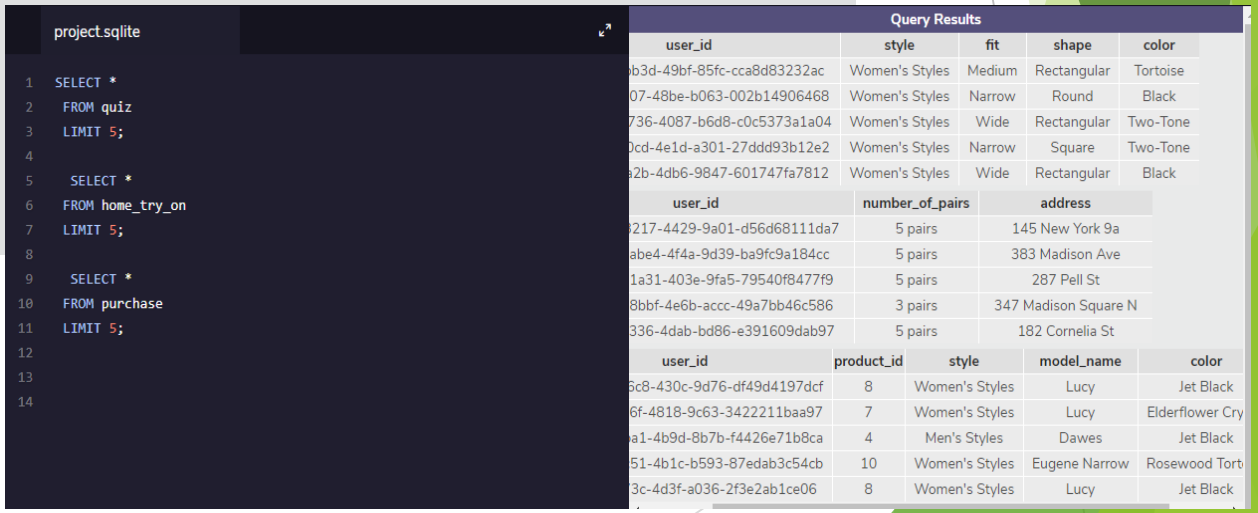
•50% of the users will get **3** pairs to try on
•50% of the users will get **5** pairs to try on

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.
The data will be distributed across three tables:

•quiz
•home_try_on
•purchase

Examine the first five rows of each table

What are the column names? *(A. user_id, style, fit, shape, color)*



A/B Testing with Home Try-On Funnel

Use a LEFT JOIN to combine the three tables, starting with the top of the funnel (browse) and ending with the bottom of the funnel (purchase).

Select only the first 10 rows from this table.

```sql
SELECT DISTINCT b.user_id,
  CASE
  WHEN c.user_id IS NOT NULL THEN 'True'
  ELSE 'False'
   END AS 'is_home_try_on',
   c.number_of_pairs,
   CASE
  WHEN p.user_id IS NOT NULL THEN 'True'
  ELSE 'False'
   END AS 'is_purchase'
FROM quiz AS 'b'

LEFT JOIN home_try_on AS 'c'
  ON b.user_id = c.user_id

LEFT JOIN purchase AS 'p'
  ON c.user_id = p.user_id
LIMIT 10;
```

- 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'.

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

Once we have the data in this format, we can analyze it in several ways:

•We can calculate overall conversion rates by aggregating across all rows.

```sql
WITH funnels AS (
SELECT DISTINCT b.user_id,
  c.user_id IS NOT NULL AS 'is_home_try_on',
  c.number_of_pairs,
  p.user_id IS NOT NULL AS 'is_purchase'
FROM quiz AS 'b'
LEFT JOIN home_try_on AS 'c'
  ON c.user_id = b.user_id
LEFT JOIN purchase AS 'p'
  ON p.user_id = c.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 (Cont'd)

We can compare conversion from quiz→home_try_on and home_try_on→purchase

```
WITH funnels AS (
SELECT b.user_id,
  c.user_id IS NOT NULL AS 'is_home_try_on',
  c.number_of_pairs,
  p.user_id IS NOT NULL AS 'is_purchase'
FROM quiz AS 'b'
LEFT JOIN home_try_on AS 'c'
  ON c.user_id = b.user_id
LEFT JOIN purchase AS 'p'
  ON p.user_id = c.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

Quiz to home try on = browsers to checkouts (75%)

Home try-on to purchase = checkout to purchase (66%)

A/B Testing with Home Try-On Funnel (Cont'd)

We can calculate the difference in purchase rates between customers who had 3 number_of_pairs with ones who had 5.

```sql
WITH funnels AS (
SELECT DISTINCT b.user_id,
c.user_id IS NOT NULL AS 'is_home_try_on',
c.number_of_pairs,
p.user_id IS NOT NULL AS 'is_purchase'
FROM quiz AS 'b'
LEFT JOIN home_try_on AS 'c'
 ON c.user_id = b.user_id
  AND number_of_pairs LIKE '3%'
LEFT JOIN purchase AS 'p'
  ON p.user_id = c.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;
```

I ran this query twice and replaced '3%' with '5%' to get my results.

Those who tried on 3 pairs at home

Query Results

browsers	checkouts	purchasers	browse_to_checkout	checkout_to_purchase
1000	379	201	0.379	0.530343007915567

Those who tried on 5 pairs at home

Query Results

browsers	checkouts	purchasers	browse_to_checkout	checkout_to_purchase
1000	371	294	0.371	0.792452830188679

- 53% of those who tried on 3 pairs made a purchase
- 79% of those who tried on 5 pairs made a purchase

Actionable Insights

- Since the group who tried on 5 pairs vs. 3 pairs of glasses had 26% higher purchases, it it makes sense to send potential buyers 5 pairs to try on to give more options. However, the cost of loss/damages could also increase and should be evaluated against higher purchase rates.

- It appears that rectangular is the most popular shape. This is an important insight to take into consideration for inventory planning.

Query Results

shape	COUNT(shape)
No Preference	97
Rectangular	397
Round	180
Square	326

- Currently, women probably make up your biggest population. The Dawes and Eugene Narrow are your most popular products Apply this knowledge to Marketing efforts and inventory planning.

Query Results

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

Query Results

product_id	COUNT(product_id)	model_name
3	63	Dawes
10	62	Eugene Narrow
9	54	Eugene Narrow
1	52	Brady
6	50	Olive
4	44	Dawes
7	44	Lucy
2	43	Brady
8	42	Lucy
5	41	Monocle

Cont'd on next slide…

Actionable Insights

- Black frames are trending right now! Consider offering more styles in black if they are not already available.

Query Results	
color	COUNT(color)
Jet Black	86
Driftwood Fade	63
Rosewood Tortoise	62
Rose Crystal	54
Layered Tortoise Matte	52
Pearled Tortoise	50
Elderflower Crystal	44
Sea Glass Gray	43
Endangered Tortoise	41

- Perhaps consider allowing multiple options for the quiz questions to get a deeper story into potential buyers. Also, storing individual preferences in a database to allow for customized future try-on options may be an added feature that could lead to repeat customers.