codecademy

Capstone: Funnels with Warby Parker

Learn SQL from Scratch

Saharla Hershi

August 1, 2018

Warby Parker

Warby Parker is a transformative lifestyle brand that offers designer eyewear at a revolutionary price while leading the way for socially conscious businesses.

Founded in 2010 and named after two characters in an early Jack Kerouac journal, Warby Parker believes in creative thinking, smart design, and doing good in the world — for every pair of eyeglasses and sunglasses sold, a pair is distributed to someone in need.

Quiz Funnel

Survey Table

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

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

- The first thing that Warby Parker does when trying to get to know their customer's style is to ask them a few questions about themselves.
- Above is data pulled from their survey table, where you can see the 5 questions asked and some of the user's responses.

Survey Aggregates

Using the COUNT aggregate allows you to see the amount of people responding to the survey questions. The numbers show that by the end of the quiz many fall off.

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

question	COUNT(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

Survey Aggregates

Looking at the percentage that continue with the survey we can draw the same conclusion that less people are likely to answer survey questions the farther they are into the quiz.
This may be because they got tired of answering the questions, and looking at it from the perspective of a customer I've also felt that answering quiz questions can get a bit tedious.
It may also just be the nature of trying to buy glasses online. People may just be used to going off of the look and feel of glasses when trying them on in person, so trying to categorize what kind of glasses they would like best online feels a bit unnatural.

question	COUNT(user_id)	% Users
1. What are you looking for?	500	25.18%
2. What's your fit?	475	23.92%
3. Which shapes do you like?	380	19.13%
4. Which colors do you like?	361	18.18%
5. When was your last eye exam?	270	13.60%
	1986	1

Home-Try-On Funnel

For more insight into the customer we can compare the funnels from A/B testing. In this case, what were the differences in purchases between the users who got 3 vs 5 pairs of glasses for home try on?

The Tables Used

```
SELECT * FROM quiz LIMIT 5;
SELECT * FROM home_try_on LIMIT 5;
SELECT * FROM purchase LIMIT 5;
```

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

Left Joins

```
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 home_try_on.user_id=quiz.user_id
 LEFT JOIN purchase
  ON purchase.user_id=home_try_on.user_id
 LIMIT 10;
```

Because the data is distributed across the three tables, using multiple LEFT JOINS we can get it into a format to get the aggregates and information that we want.

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

Analysis

Using the combined table and the other tables that we have we can start making conclusions from the data.

Conversions

- Of the 1000 users that took the quiz, 750 did the home try on, and 495 ended up purchasing glasses.
- 49.5% of users who took the quiz bought glasses.
- A question to ask would be why the 255 who did home try on didn't purchase. Could they have been given another 5 to try on? Maybe a follow up survey would be useful.

num_quiz	num_home_try_on	num_purchase
1000	750	495

```
WITH funnel AS(
  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 home_try_on.user_id=quiz.user_id
  LEFT JOIN purchase
  ON purchase.user_id=home_try_on.user_id)

 SELECT COUNT(*) AS 'num_quiz',
  COUNT(CASE
  WHEN funnel.is_home_try_on='True' THEN user_id
  END) AS 'num_home_try_on',
  COUNT(CASE
  WHEN funnel.is_purchase='True' THEN user_id
  END) AS 'num_purchase'
  FROM funnel;
```

3 Pairs vs. 5 Pairs

- Of those who did the home try on, how did the amount of glasses effect whether or not the user purchased?
- The data shows that users who received 5 pairs ended up purchasing a pair of glasses 26.21% more.

```
SELECT COUNT(CASE
   WHEN home_try_on.number_of_pairs='3 pairs' THEN home_try_on.user_id
END) AS 'hto_3pairs',
 COUNT(CASE
WHEN home_try_on.number_of_pairs='3 pairs'
AND purchase.user_id IS NOT NULL THEN home_try_on.user_id
END) AS 'purchase_3pairs',
 COUNT(CASE
WHEN home_try_on.number_of_pairs='5 pairs' THEN home_try_on.user_id
END) AS 'hto_5pairs',
 COUNT(CASE
WHEN home_try_on.number_of_pairs='5 pairs'
AND purchase.user_id IS NOT NULL THEN home_try_on.user_id
END) AS 'purchase_5pairs'
 FROM home_try_on
 LEFT JOIN purchase
  ON home_try_on.user_id=purchase.user_id;
```

hto_3pairs	purchase_3pairs	hto_5pairs	purchase_5pairs
379	201	371	294

Style and Purchase

- How does the style effect whether the user ended up purchasing glasses?
- Although there is not a large disparity in the percent who purchased between the Women's and Men's style, those who were unsure and decide to skip the question did not purchase at all.

style	num_users	purchased
I'm not sure. Let's skip it.	99	0
Men's Styles	432	243
Women's Styles	469	252

```
SELECT quiz.style,
COUNT(quiz.user_id) AS 'num_users',
COUNT(CASE
WHEN purchase.user_id IS NOT NULL THEN quiz.user_id
END) AS 'purchased'
FROM quiz
LEFT JOIN purchase on quiz.user_id=purchase.user_id
GROUP BY quiz.style;
```

Style and Purchase

- What could this mean?
  - Maybe they were just browsing and had no intention to buy.
  - This could also be looked at as a gap in customer support and guidance, where extra information or support could have gotten the user to purchase.

style	num_users	purchased
I'm not sure. Let's skip it.	99	0
Men's Styles	432	243
Women's Styles	469	252

```
SELECT quiz.style,
COUNT(quiz.user_id) AS 'num_users',
COUNT(CASE
WHEN purchase.user_id IS NOT NULL THEN quiz.user_id
END) AS 'purchased'
FROM quiz
LEFT JOIN purchase on quiz.user_id=purchase.user_id
GROUP BY quiz.style;
```