codecademy

Usage Funnel with Warby Parker

Learn SQL from Scratch

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1. Get familiar with Warby Parker

1.1 Know 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.

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.

2. What is the Quiz Funnel

2.1 What are the Quiz Questions?

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

- “What are you looking for?”
- “What’s your fit?”
- “Which shapes do you like?”
- “Which colors do you like?”
- “When was your last eye exam?”

The users’ responses are stored in a table called survey.

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
5. When was your last eye exam?	00bf9d63-0999-43a3-9e5b-9c372e6890d2	<1 Year

2.2 What is the number/percentage of responses for each question?

Question 5 has the lowest completing rate.

The reasons could be:

1. It's a personal question.
2. People don't keep track of their eye exam history.

question	COUNT (user_id)	percent completing this question
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%**

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

3.1 Warby Parker's Purchase Funnel

Warby Parker's purchase funnel is:
Take the Style Quiz → Home Try-On → Purchase the Perfect Pair of Glasses

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

The data will be distribute through three tables:
quiz
home_try_on
purchase

3.2 Create a Funnel Table

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).

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	n/a	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	1
5a7a7e13-fbcf-46e4-9093-79799649d6c5	0	n/a	0
0143cb8b-bb81-4916-9750-ce956c9f9bd9	0	n/a	0
a4ccc1b3-cbb6-449c-b7a5-03af42c97433	1	5 pairs	0
b1dded76-cd60-4222-82cb-f6d464104298	1	3 pairs	0

```
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 purchase.user_id = quiz.user_id

LIMIT 10;
```

3.3 Compare Funnels for A/B test

We can calculate the difference in purchase rates between:

- customers who had 3 number_of_pairs and
- customers who had 5 number_of_pairs.

is_purchase	3 pairs	5 pairs
0	178	77
1	201	294

Purchase Rate	3 pairs	5 pairs
	53%	79%

```
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 is_purchase,
             COUNT(DISTINCT CASE
    WHEN number_of_pairs = '3 pairs'
        THEN user_id
    END) AS '3 pairs',
  COUNT(DISTINCT CASE
       WHEN number_of_pairs = '5 pairs'
        THEN user_id
       END) AS '5 pairs'
 FROM funnels
 GROUP BY 1;
```

Customers who try on 5 pairs are more likely to purchase than ones who try on 3 pairs.

Warby Parker should offer five or more pairs for customers to try on at home.

3.4 Compare Conversion Rate of Try-on Funnels

Compare conversion from

- **quiz → home_try_on**
- **home_try_on → purchase**

Num_browse	num_home_try_on	num_purchase	quiz_to_ home_try_on	home_try_on_to _purchase
1000	750	495	**0.75**	**0.66**

75% of the customers who took the quiz asked for the home-try -on service.

66% of the customers who try on the glasses at home actually made the purchase.

```
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_browse',
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_home_try_on',
1.0 * SUM(is_purchase)/SUM(is_home_try_on) AS
'home_try_on_to_purchase'
FROM funnels;
```

Should look into the reasons why customers decided not to buy after try on the glasses.
Make sure the try-on glasses are in good condition, and/or the service satisfaction of the try-on is high.

3.5 Most Popular Style in Quiz and Purchase

The most common results of the style in **quiz** is **Women's Style**.

```
SELECT style, COUNT(style)
FROM quiz
GROUP BY style;
```

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

The most common results of the style in **purchase** is **Women's Style**, which is consistent with the quiz result.

```
SELECT style, COUNT(style)
FROM purchase
GROUP BY style;
```

Style	Count(Style)
Men's Styles	243
Women's Styles	**252**

The survey reflects the actual purchase tendency.