codecademy

Usage Funnels: Warby Parker

Learn SQL from Scratch

Delaney Dorsey

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Part 1
Getting to know Warby Parker

WARBY PARKER

Warby Parker was founded with a rebellious spirit and a lofty objective: to offer designer eyewear at a revolutionary price, while leading the way for socially conscious businesses.

Every idea starts with a problem. Thiers was simple: glasses are too expensive.

Part 2
Warby Parker’s Quiz Funnel

2.1 Warby Parker's Style Quiz

The Warby Parker Style Quiz helps users/potential customers find the frame style that's right for them. The quiz asks five 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? We are able to gain a better understanding by examining users' quiz responses, which are stored in a table called `survey`
The columns in `survey` include:

- `question`
- `user_id`
- `response`

```sql
--Quiz Funnel
SELECT *
FROM survey
LIMIT 10;
```

question	user_id	response

2.2 The Warby Parker Quiz Funnel

The Warby Parker Style Quiz helps users/potential customers find the frame style that's right for them. The quiz asks five 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? We are able to gain a better understanding by examining users' quiz responses, which are stored in a table called `survey` The columns in `survey` include:

- `question`
- `user_id`
- `response`

```sql
--Quiz Funnel
SELECT *
FROM survey
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

2.3 How many users complete the survey?

Not all users who start the Style Quiz complete the quiz in its entirety. Users quit the quiz at different points throughout the survey. Fewer and fewer users complete the survey as the questions go on.

```
5   SELECT question,
6    COUNT(DISTINCT user_id)
7    FROM survey
8    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

2.4 When do users “give up?”

The question with the lowest completion rate is the final question: “When was your last eye exam?”

This is likely because:

1. People are easily able to answer questions regarding style preference, but may be unable to recall their most recent visit to the optometrist.
2. Users are concerned about disclosing personal information.

question	COUNT(DISTINCT user_id)	% Advancing to Next Question
1. What are you looking for?	500	100.0%
2. What's your fit?	475	95.0%
3. Which shapes do you like?	380	80.0%
4. Which colors do you like?	361	95.0%
5. When was your last eye exam?	270	74.8%

Part 3
Warby Parker’s Purchase Funnel

Take the Style Quiz → Home Try-On → Purchase the Perfect Pair of Glasses

3.1 Home Try-On Funnel

During the Home Try-On stage:

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

By examining the data distributed across the `quiz`, `home_try_on`, and `purchase` tables, we can determine whether or not users who get more pairs to try on at home will be more likely to make a purchase.

```
 9   SELECT *
10   FROM quiz
11   LIMIT 5;
12   SELECT *
13   FROM home_try_on
14   LIMIT 5;
15   SELECT *
16   FROM purchase
17   LIMIT 5;
```

`quiz` table has the following columns:

- `user_id`
- `style`
- `fit`
- `shape`
- `color`

`home_try_on` table has the following columns:

- `user_id`
- `number_of_pairs`
- `address`

`purchase` table has the following columns:

- `user_id`
- `product_id`
- `style`
- `model_name`
- `color`
- `price`

3.2 Home Try-On Funnel

In order to gain a better understanding of the data and to analyze conversion rates, we will combine the `quiz`, `home_try_on`, and `purchase` tables using a **left join,** and call this new combined table "funnel." It's limited to the first 10 rows to prevent the query from running slowly.

```
SELECT 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
LIMIT 10;
```

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

3.3 Purchase Funnel Insights

By organizing the data in the format using the **left join**, we are able to analyze it in several ways.
We can see that more quiz-taking users are interested in women's styles. The most popular style of glasses purchased is the "Eugene Narrow." Of the glasses purchased, more were women's styles.

```
29  SELECT style,
30    COUNT(style)
31  FROM quiz
32  GROUP BY style;
```

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

```
33  SELECT model_name,
34    COUNT(model_name)
35  FROM purchase
36  GROUP BY model_name
37  ORDER BY 2 DESC;
```

model_name	COUNT(model_name)
Eugene Narrow	116
Dawes	107
Brady	95
Lucy	86
Olive	50
Monocle	41

```
38  SELECT style,
39    COUNT(style)
40  FROM purchase
41  GROUP BY style
42  ORDER BY 2 DESC;
```

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

3.4 Home Try-On Funnel: Insights

By examining the data, we are able to determine the following the overall conversion rates:
1. The number of users who completed the quiz and ended up purchasing glasses (49.5%)
2. The number of users who completed the quiz and then the home try-on (75%)
3. The number of users who completed the home try-on and ended up purchasing glasses (66%)

```sql
with funnel as
(SELECT DISTINCT q.user_id,
    h.user_id IS NOT NULL AS 'is_home_try_on',
    h.number_of_pairs as '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 'wp_quiz', sum(is_purchase) as 'purchased',
1.0 * sum(is_purchase) / (count(*)) as 'overall_purchase_rate'
from funnel;
```

wp_quiz	purchased	overall_purchase_rate
1000	495	0.495

```sql
with funnel as
(SELECT DISTINCT q.user_id,
    h.user_id IS NOT NULL AS 'is_home_try_on',
    h.number_of_pairs as '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 'wp_quiz', sum(is_home_try_on) as 'try_on',
1.0 * sum(is_home_try_on) / (count(*)) as
'quiz_to_try_on_rate'
from funnel;
```

wp_quiz	try_on	quiz_to_try_on_rate
1000	750	0.75

```sql
with funnel as
(SELECT DISTINCT q.user_id,
    h.user_id IS NOT NULL AS 'is_home_try_on',
    h.number_of_pairs as '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 sum(is_home_try_on) as 'try_on', SUM(is_purchase) as
'purchased', 1.0 * SUM(is_purchase) / (SUM(is_home_try_on)) as
'try_on_to_purchase_rate'
FROM funnel;
```

try_on	purchased	try_on_to_purchase_rate
750	495	0.66

3.5 Home Try-On Funnel: A/B Test Insights

Finally, we are able to calculate the difference in purchase rates between customers who had 3 numer_of_pairs and the customers who had 5. This is an imperative piece of information for Warby Parker and is essential to their business model. **Ultimately, 79% of customers who were able to try on 5 pairs purchased glasses, while only 53% of customers who tried on 3 pairs did.**

```sql
with funnel as
(SELECT DISTINCT q.user_id,
   h.user_id IS NOT NULL AS 'is_home_try_on',
   h.number_of_pairs as '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 sum(is_home_try_on) as '3_pair_try_on',
sum(is_purchase) as '3_pair_purchase', 1.0 * sum(is_purchase)
/ sum(is_home_try_on) as 'try_on_to_purchase_rate_3pair'
FROM funnel
WHERE number_of_pairs = '3 pairs';
```

```sql
with funnel as
(SELECT DISTINCT q.user_id,
   h.user_id IS NOT NULL AS 'is_home_try_on',
   h.number_of_pairs as '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 sum(is_home_try_on) as '5_pair_try_on',
sum(is_purchase) as '5_pair_purchase', 1.0 * sum(is_purchase)
/ sum(is_home_try_on) as 'try_on_to_purchase_rate_5pair'
FROM funnel
WHERE number_of_pairs = '5 pairs';
```

3_pair_try_on	3_pair_purchase	try_on_to_purchase_rate_3pair
379	201	0.530343007915567
5_pair_try_on	**5_pair_purchase**	**try_on_to_purchase_rate_5pair**
371	294	0.792452830188679

Actionable Insights

The information obtained from the analysis of this data is crucial to Warby Parker's functioning as a successful business. I recommend the following actions to improve business and increase profit:

1. Simplify the style quiz as much as possible. Continue to keep it short and simple and do not expand to more than 5 questions. It would even make sense to shorten it to 3 or 4 questions. Users are more likely to continue through the purchase funnel with style and aesthetics-based questions. Keep in mind that the lowest percent of respondents answered the final question about their last eye exam.
2. Provide each customer with five pairs of try-on glasses. 79% of customers that were able to try on 5 pairs ultimately purchased a pair of Warby Parker glasses, compared to only 53% of those who tried 3 pairs. Providing 5 pairs will likely not cost Warby Parker a significant amount, but will increase sales.