codecademy

Usage Funnels with Warby Parker

Learn SQL from Scratch

Chuck Cao

August 28th, 2018

Style Quiz

Customers respond to 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?”

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

Responses are captured in the ***survey*** table by **question, user_id, response**

question	user_id	response

These responses are then sorted in the ***quiz*** table by **user_id** to to create a record of **style, fit, shape, and color**

user_id	style	fit	shape	color

Question Completion

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

It appears that customers are less likely to complete Question 3 and 5:

- **3. Which shapes do you like?** This may be due to not knowing preference and/or options
- **5. When was your last eye exam?** This may be due to not remembering previous exam date and/or the personal nature of the question

Question	Responses	Completion Rate
1. What are you looking for?	500	
2. What's your fit?	475	95%
3. Which shapes do you like?	380	80%
4. Which colors do you like?	361	95%
5. When was your last eye exam?	270	75%

Purchase Funnel Tables

```
SELECT *
FROM quiz
LIMIT 5;

SELECT *
FROM home_try_on
LIMIT 5;

SELECT *
FROM purchase
LIMIT 5;
```

In addition to the ***quiz*** table,

The data collected and stored in the ***home_try_on*** table consists of **user_id, number_of_pairs, and address**

user_id	number_of_pairs	address

The data collected and stored in the ***purchase*** table consists of **user_id, product_id, style, model_name, color, and price**

user_id	product_id	style	model_name	color	price

Popularity

The most common result of the style quiz were Narrow, Tortoise color glasses when a style of men's/women's chosen, with Narrow, Black color being popular with or without a chosen style.

The most popular men's style purchase was the Dawes
The most popular women's style was the Eugene Narrow

```
SELECT style, fit, color, count(*) as num_of_result
FROM quiz
GROUP BY style, fit, color
ORDER BY style, num_of_result desc;


SELECT style, model_name, color, price, count(*) as
total_purchase
FROM purchase
GROUP BY style, model_name, color
ORDER BY style, total_purchase desc;
```

Overall Conversion

Overall conversion from taking the quiz to purchase for customers was 49.5%

```
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 q.user_id = h.user_id
LEFT JOIN purchase AS 'p'
  ON q.user_id = p.user_id)
SELECT COUNT(*) AS 'num_quiz',
   SUM(is_purchase) AS 'num_purchase',
   1.0 * SUM(is_purchase) / COUNT(user_id) AS
'overall_conversion'
FROM funnels;
```

num_quiz	num_purchase	overall_conversion
1000	495	50%

Conversion From Each Step

num_quiz	num_try_on	num_purchase	quiz_to_try_on	try_on_to_purchase
1000	750	495	75%	66%

The conversion from quiz to try on was 75%

The conversion from try on to purchase was 66%

```
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 q.user_id = h.user_id
LEFT JOIN purchase AS 'p'
  ON q.user_id = p.user_id)
SELECT COUNT(*) AS 'num_quiz',
   SUM(is_home_try_on) AS 'num_try_on',
   SUM(is_purchase) AS 'num_purchase',
   1.0 * SUM(is_home_try_on) / COUNT(user_id) AS
'quiz_to_try_on',
   1.0 * SUM(is_purchase) / SUM(is_home_try_on) AS
'try_on_to_purchase'
FROM funnels;
```

A/B Testing

It appears that customers were more likely to buy if sent 5 pairs of glasses to try on

```
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 q.user_id = h.user_id
LEFT JOIN purchase AS 'p'
  ON q.user_id = p.user_id)
SELECT number_of_pairs, COUNT(*) AS 'num_quiz',
   SUM(is_home_try_on) AS 'num_try_on',
   SUM(is_purchase) AS 'num_purchase',
   1.0 * SUM(is_home_try_on) / COUNT(user_id) AS
'quiz_to_try_on',
   1.0 * SUM(is_purchase) / SUM(is_home_try_on) AS
'try_on_to_purchase'
FROM funnels
GROUP BY number_of_pairs
ORDER BY number_of_pairs;
```

number_of_pairs	num_quiz	num_try_on	num_purchase	quiz_to_try_on	try_on_to_purchase
3 pairs	379	379	201	100%	53%
5 pairs	371	371	294	100%	79%

Men and Women

Based on the self-identified men's and women's styles, there does not appear to be a large difference in purchase rates.

However, it appears men more often purchased the higher priced ($150(1st), $95(2nd), $50(3rd), while women are less definitive with Eugene Narrow ($95), Lucy ($150), and Olive ($95) purchased in that order of sales.

quiz_style	purchase_style	num_quiz	percentage
Men's Styles	Did Not Buy	189	44%
Men's Styles	Men's Styles	243	56%
Women's Styles	Did Not Buy	217	46%
Women's Styles	Women's Styles	252	54%

```
WITH funnels AS (
SELECT distinct q.user_id, q.style as quiz_style, p.style as
purchase_style, p.user_id IS NOT NULL AS 'is_purchase'
FROM quiz AS 'q'
LEFT JOIN purchase AS 'p'
  ON q.user_id = p.user_id)
SELECT quiz_style, purchase_style, COUNT(*) AS 'num_quiz',
   SUM(is_purchase) AS 'num_purchase',
   1.0 * SUM(is_purchase) / COUNT(user_id) AS 'percentage_purchase'
FROM funnels
GROUP BY quiz_style, purchase_style
ORDER BY quiz_style;

SELECT style, model_name, price, count(*)
FROM purchase
GROUP BY style, model_name, price
ORDER BY price desc;
```

Recommendations and Next Steps

Based on the analysis, it is recommended to move forward with having home try-ons be with five pairs and re-evaluate. Further study can be done varying the number of pairs to four or six or beyond and determining the effect.

In addition, further A/B testing can be performed to collect further data on the marketing of colors on effect on sales. Marketing to men and women can be explored, and testing can be focused on price consciousness between men and women.