code_cademy

Usage Funnels with Warby Parker

Learn SQL from Scratch

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1. About 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. Marketing Funnels: Quiz & Home Try-On

Analyzing Warby Parker's marketing funnels in order to calculate conversion rates

2.1 Quiz Funnel

To help users find their perfect frame, Warby Parker has a <u>Style Quiz</u> 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.

2.1 Quiz Funnel - What columns does the survey table have?

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```
1  -- 2.1 Quiz Funnel
2  -- Question 1: Select all columns from the first 10 rows. What columns does the table have?
3
4  SELECT *
5  FROM survey
6  LIMIT 10;
```

Column Names Are

- question
- user_id
- response

Query Results

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

2.1 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.?

500 users answered question 1

475 users answered question 2

380 users answered question 3

361 users answered question 4

270 users answered question 5

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```
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1    -- 2.1 Quiz Funnel
2    -- Question 2: Creat a quiz funnel using the GROUP BY command.
3
4    SELECT question ,
5        COUNT(DISTINCT user_id)
6    FROM survey
7    GROUP BY question;
```

Query Results

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

2.1 Quiz Funnel - Using a spreadsheet program like Excel or Google Sheets, calculate the percentage of users who answer each question.

Question	# Completed	% Completed This Question
1	500	100%
2	475	95%
3	380	80%
4	361	95%
5	270	75%

Q - Which question(s) of the quiz have a lower completion rates?

A - Lowest is question 5 (last exam), next lowest is question 3 (shapes)

Q - What do you think is the reason?

A - Either people don't remember, or haven't had a recent enough exam to get a prescription immediately

2.2 Home Try-On Funnel

Warby Parker's Home Try-On 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

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

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```sql
-- 2.2 Home Try-On Funnel
-- Question 4: Examine the first five rows of each table

SELECT *
FROM quiz
LIMIT 5;

SELECT *
FROM home_try_on
LIMIT 5;

SELECT *
FROM purchase
LIMIT 5;
```

Query Results

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-4db6-9847-6017447fa7812	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
01750f6f7-aba1-4b9d-8b7b-f442e671b8ca	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

Column Names for Each Table

From quiz: user_id, style, fit, shape, color

From home_try_on: user_id, number_of_pairs, address

From purchase: user_id, product_id, style, model_name, color, price

2.2 Home Try-On Funnel – We'd like to create a new table with the following layout:

user_id	is_home_try_on	number_of_pairs	is_purchase
4e8118dc	True	3	False
291f1cca	True	5	False
75122300	False	NULL	False

Each row will represent a single user from the browse table:

- 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'.

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 (otherwise, the query will run really slowly).

2.2 Home Try-On Funnel – We'd like to create a new table with the following layout. Cont'd:

Query Results

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	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

is_purchase
False
False
False

Note that is_purchase in the example looks slightly different than the result of our query. The default result of our query will give an integer response, which is easier to use for calculations.

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```
1   -- 2.2 Home Try-On Funnel
2   -- Question 5: Create new table using LEFT JOIN
3
4   SELECT DISTINCT q.user_id,
5     h.user_id IS NOT NULL AS 'is_home_try_on',
6     h.number_of_pairs,
7     p.user_id IS NOT NULL AS 'is_purchase'
8   FROM quiz AS q
9   LEFT JOIN home_try_on AS h
10    ON q.user_id = h.user_id
11  LEFT JOIN purchase AS p
12    ON p.user_id = q.user_id
13  LIMIT 10;
```

3 Home Try-On Funnel – A/B Testing

project.sqlite

```sql
--How many distinct users?
SELECT COUNT(DISTINCT q.user_id),
    h.user_id IS NOT NULL AS 'is_home_try_on',
    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 p.user_id = q.user_id;

--How many purchases resulted from 3-pair-home-try-on?
SELECT h.number_of_pairs,
    SUM(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 p.user_id = q.user_id
    WHERE h.number_of_pairs LIKE '%3%';

--How many purchases resulted from 5-pair-home-try-on?
SELECT h.number_of_pairs,
    SUM(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 p.user_id = q.user_id
    WHERE h.number_of_pairs LIKE '%5%';
```

Query Results

COUNT(DISTINCT q.user_id)	is_home_try_on	is_purchase
1000	0	0

number_of_pairs	is_purchase
3 pairs	201

number_of_pairs	is_purchase
5 pairs	294

project.sqlite

```sql
--Total Purchases to double-check
SELECT
    SUM(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 p.user_id = q.user_id;
```

Query Results

is_purchase
495

There are 1000 distinct users that have tried on glasses at home.

201 purchased after having a 3-pair trial:

201/1000 = 20% of all users

294 purchased after having a 5-pair trial:

294/1000 = 29% of all users

Out of total purchases (201 + 294 = 495)

201/495 = 41% of all purchases were from 3-pair trial

294/495 = 59% of all purchases were from 5-pair trial

500 users had a 3-pair trial. 500 users had a 5-pair trial.

201/ 500 = 40% of users that had a 3-pair trial made a purchase.

294/ 500 = 59% of users that had a 3-pair trial made a purchase.

59% - 40% = Users are 19% more likely to make a purchase if they have a 5-pair trial.

4 Double-Checking Our Data

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project.sqlite

```sql
1   -- Double-checking how many users
2   SELECT COUNT(user_id)
3   FROM quiz;
4
5   -- Compare to distinct users
6   SELECT COUNT(DISTINCT user_id)
7   FROM quiz;
```

Query Results

COUNT(user_id)	COUNT(DISTINCT user_id)
1000	1000

By checking to see if our total number of users differs from the number of distinct users, we can see that no user took the quiz more than once.

4 Double-Checking Our Data

Learn SQL from Scratch: Funnels

project.sqlite

```sql
1   -- Double-checking how many users
2   SELECT COUNT(user_id)
3   FROM home_try_on;
4
5
6   -- Compare to distinct users
7   SELECT COUNT(DISTINCT user_id)
8   FROM home_try_on;
```

Query Results

COUNT(user_id)
750

COUNT(DISTINCT user_id)
750

By checking to see if our total number of users differs from the number of distinct users, we can see that no user did more than one home trial.

4 Double-Checking Our Data

Learn SQL from Scratch: Funnels

project.sqlite

```
1   -- Double-checking how many users
2   SELECT COUNT(user_id)
3   FROM purchase;
4
5   -- Compare to distinct users
6   SELECT COUNT(DISTINCT user_id)
7   FROM purchase;
```

Query Results
COUNT(user_id)
495
COUNT(DISTINCT user_id)
495

By checking to see if our total number of users differs from the number of distinct users, we can see that no user bought more than one pair of glasses.

5 Results

Quiz

Query Results	
COUNT(user_id)	1000
COUNT(DISTINCT user_id)	1000

Home-Try-On

Query Results	
COUNT(user_id)	750
COUNT(DISTINCT user_id)	750

Purchase

Query Results	
COUNT(user_id)	495
COUNT(DISTINCT user_id)	495

- 750 users did the home trial, but only 495 made a purchase.

- 1000 users, 750 users did home trial: 75% of all users did a home trial.

- Of the 750 users that did a home trial, 495 made purchase making a conversion rate of 66%.

- 1000 users took the quiz, 495 made purchase. (49.5% of all users made a purchase)

6.1 - Other important information – Common Results

The most common results of the style quiz.

Which is more popular, Men's or Women's?

Query Results

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

```
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1   -- 6.1 Other important information
2   -- Common results of the style quiz
3   -- Which is more popular, Men's or Woman's?
4
5   SELECT style,
6       COUNT(style) AS 'total'
7   FROM quiz
8   GROUP BY 1;
```

Out of all responses selected in the style quiz, 47% preferred Women's styles.

6.2 – Other important information – Common Results, Cont'd

Which fit is most popular?

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```
project.sqlite

1   -- 6.2 Other important information
2   -- Which fit is the most popular?
3
4   -- Finding Woman's Preferences
5   SELECT fit,
6      COUNT(fit) AS 'w_fit_q_total'
7   FROM quiz
8   WHERE style = "Women's Styles"
9   GROUP BY 1;
10
11  -- Finding Men's Preferences
12  SELECT fit,
13     COUNT(fit) AS 'm_fit_q_total'
14  FROM quiz
15  WHERE style = "Men's Styles"
16  GROUP BY 1;
```

Query Results

fit	w_fit_q_total
I'm not sure. Let's skip it.	46
Medium	131
Narrow	189
Wide	103

fit	m_fit_q_total
I'm not sure. Let's skip it.	37
Medium	142
Narrow	174
Wide	79

All users prefer a Narrow fit, and their second preference is medium fit. A Wide fit is the least desired option.

6.3 – Other important information – Common Results, Cont'd

Which shape is most popular?

Learn SQL from Scratch: Funnels

project.sqlite

```
1   -- 6.3 Other important information
2   -- Which shape is the most popular?
3
4   -- Finding Woman's Preferences
5   SELECT shape,
6       COUNT(shape) AS 'w_shape_q_total'
7   FROM quiz
8   WHERE style = "Women's Styles"
9   GROUP BY 1;
10
11  -- Finding Men's Preferences
12  SELECT shape,
13      COUNT(shape) AS 'm_shape_q_total'
14  FROM quiz
15  WHERE style = "Men's Styles"
16  GROUP BY 1;
```

Query Results

shape	w_shape_q_total
No Preference	46
Rectangular	184
Round	81
Square	158

shape	m_shape_q_total
No Preference	44
Rectangular	176
Round	80
Square	132

Men and Woman both prefer the Rectangular shape most.

The second most preferred shape for all users is Square.

6.4 – Other important information – Common Results, Cont'd
Which color is more popular?

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project.sqlite

```
1   -- 6.4 Other important information
2   -- Which color is the most popular?
3
4   -- Finding Woman's Preferences
5   SELECT color,
6       COUNT(color) AS 'w_color_q_total'
7   FROM quiz
8   WHERE style = "Women's Styles"
9   GROUP BY 1;
10
11  -- Finding Men's Preferences
12  SELECT color,
13      COUNT(color) AS 'm_color_q_total'
14  FROM quiz
15  WHERE style = "Men's Styles"
16  GROUP BY 1;
```

Query Results

color	w_color_q_total
Black	126
Crystal	106
Neutral	58
Tortoise	142
Two-Tone	37

color	m_color_q_total
Black	121
Crystal	81
Neutral	44
Tortoise	128
Two-Tone	58

color	w_color_q_total
Tortoise	142
Black	126
Crystal	106
Neutral	58
Two-Tone	37

color	m_color_q_total
Tortoise	128
Black	121
Crystal	81
Two-Tone	58
Neutral	44

Men and Woman have very similar interests in colors, but their two least preferred colors are swapped. Women would prefer a neutral color over two-tone, and men would prefer two-tone over neutral.

7 - What are some actionable insights for Warby Parker?

1. Once Warby Parker has made a sale, I would suggest using the data collected from quiz to offer sunglasses that meet the top two or three preferences for the user. This could also be done as an upsell just before purchase completion.

2. I would be interested to know a user's answers to the styles, colors, etc. before and after the home try on. If there are differences, targeting those trends when the user is browsing online may be helpful. Do those preferences change after they see the glasses on their own face instead of the screen?

3. Warby Parker may have good luck in sending a pair of sunglasses that are similar to a recent purchase as a home trial to generate an impulse purchase.