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Usage Funnels with Warby Parker

Learn SQL from Scratch

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1. What columns does the ‘survey’ table have?

The columns on the ‘survey’ table are: question, user_id, response

```
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
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. What is the number of responses for each question?

Question 1 got 500 responses; question 2 got 475, question 3 got 380; question 4 got 361; and question 5 got 270.

```
SELECT question, count(*) as responses
FROM survey
GROUP BY question;
```

question	responses
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

3. Which question(s) of the quiz have a lower completion rates? What do you think is the reason?

Questions 5 and 3 have the lowest response rates at 75% and 80%, respectively.

On Q5, it may be a difficult question for people to answer, and I ask: what is the value of it? Does it affect the offer? Unless it is necessary, I'd argue for removing the question.

Regarding Q3, there are four possible responses: rectangular, round, square and no preference. An explanation for the drop-off could be that a customer has some other preference that is not depicted as an answer, such as aviator or d-frame. Another, that a customer would like to pick several shapes. Therefore, expanding the range or allowing customers to pick several responses could help. Additionally, since fit has an effect on whether a shape will look good or not on you, customers could get a recommended shape based on their response to Q2.

question	responses	response rate % (from previous)	Response rate % (from first)
1. What are you looking for?	500	100%	100%
2. What's your fit?	475	95%	95%
3. Which shapes do you like?	380	80%	76%
4. Which colors do you like?	361	95%	72%
5. When was your last eye exam?	270	75%	54%

4. What are the column names of the ‘quiz’, ‘home_try_on’ and ‘purchase’ tables?

These are the column names:

- On quiz: user_id, style, fit, shape, color
- On home_try_on: user_id, number_of_pairs, address
- On purchase: user_id, product_id, style, model_name, color, price

```
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

5. Create a 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

user_id	is_home_try_on	number_of_pairs	is_purchase
4e8118dc-bb3d-49bf-85fc-cca8d83232ac	True	3	False
291f1cca-e507-48be-b063-002b14906468	True	3	True
75122300-0736-4087-b6d8-c0c5373a1a04	False	NULL	False
75bc6ebd-40cd-4e1d-a301-27ddd93b12e2	True	5	False
ce965c4d-7a2b-4db6-9847-601747fa7812	True	3	True
28867d12-27a6-4e6a-a5fb-8bb5440117ae	True	5	True
5a7a7e13-fbcf-46e4-9093-79799649d6c5	False	NULL	False
0143cb8b-bb81-4916-9750-ce956c9f9bd9	False	NULL	False
a4ccc1b3-cbb6-449c-b7a5-03af42c97433	True	5	False
b1dded76-cd60-4222-82cb-f6d464104298	True	3	False

```
SELECT quiz.user_id,
  CASE
    WHEN home_try_on.number_of_pairs IS NULL THEN 'False'
    ELSE 'True'
  END AS is_home_try_on,
  CASE
    WHEN home_try_on.number_of_pairs = '3 pairs' THEN '3'
    WHEN home_try_on.number_of_pairs = '5 pairs' THEN '5'
    ELSE 'NULL'
  END AS number_of_pairs,
  CASE
    WHEN purchase.user_id IS NULL THEN 'False'
    ELSE 'True'
  END AS is_purchase
FROM quiz
LEFT JOIN home_try_on on quiz.user_id = home_try_on.user_id
LEFT JOIN purchase on quiz.user_id = purchase.user_id
LIMIT 10;
```

6. Actionable insights A: send five pairs

Whereas only around 53% of customers that received 3 pairs of glasses went on to purchase, this number goes up to 79% for customers that received 5 pairs.

The results of the A/B test strongly show that sending 5 pairs of glasses improve purchases.

number_of_pairs	tried_on	purchased	purchased %
3	379	201	53%
5	371	294	79%

```
WITH aggregated AS (SELECT quiz.user_id,
  CASE
    WHEN home_try_on.number_of_pairs IS NULL THEN 'False'
    ELSE 'True'
  END AS is_home_try_on,
  CASE
    WHEN home_try_on.number_of_pairs = '3 pairs' THEN '3'
    WHEN home_try_on.number_of_pairs = '5 pairs' THEN '5'
    ELSE 'NULL'
  END AS number_of_pairs,
  CASE
    WHEN purchase.user_id IS NULL THEN 'False'
    ELSE 'True'
  END AS is_purchase
FROM quiz
LEFT JOIN home_try_on on quiz.user_id =
home_try_on.user_id
LEFT JOIN purchase on quiz.user_id = purchase.user_id)

SELECT number_of_pairs, count(*) AS tried_on, sum(
  CASE
    WHEN is_purchase = 'True' THEN 1
    ELSE 0
  END) AS purchased
FROM aggregated
WHERE number_of_pairs IS NOT 'NULL'
GROUP BY 1;
```

6. Actionable insights B: don’t send glasses unless style is known

There were 69 people who received home try-on glasses even though they didn’t pick a style. Looking down the funnel, none of those went on to purchase glasses. This resulted in shipment costs for WP for nothing.

I suggest that customers have to pick a style in order to receive glasses to try at home.

style	answered	tried_on	purchased
I'm not sure. Let's skip it.	99	69	0
Men's Styles	432	320	243
Women's Styles	469	361	252

```
WITH aggregated AS (SELECT quiz.user_id,
  CASE
    WHEN home_try_on.number_of_pairs IS NULL THEN 'False'
    ELSE 'True'
  END AS is_home_try_on,
  CASE
    WHEN home_try_on.number_of_pairs = '3 pairs' THEN '3'
    WHEN home_try_on.number_of_pairs = '5 pairs' THEN '5'
    ELSE 'NULL'
  END AS number_of_pairs,
  CASE
    WHEN purchase.user_id IS NULL THEN 'False'
    ELSE 'True'
  END AS is_purchase
FROM quiz
LEFT JOIN home_try_on on quiz.user_id =
home_try_on.user_id
LEFT JOIN purchase on quiz.user_id = purchase.user_id)

SELECT style, count(*) as answered, sum(
  CASE
    WHEN is_home_try_on = 'True' THEN 1
    ELSE 0
  END) as tried_on, sum(
  CASE
    WHEN is_purchase = 'True' THEN 1
    ELSE 0
  END) as purchased
FROM quiz
LEFT JOIN aggregated on aggregated.user_id = quiz.user_id
GROUP BY 1;
```

6. Actionable insights C: test whether asking for shape is needed

Every step in a funnel adds drop-off. As we saw previously, 24% of people do not answer the shape question on the quiz.

Digging further in the data, I see that those that select ‘No preference’ to that question actually convert better than those that select a particular shape. I hypothesize from here that this question is not necessary and would recommend to test by dropping it from the quiz. An idea, on the backend, would be to recommend shapes based on fit.

shape	answered	tried_on	purchased	% purchase rate
No Preference	97	71	53	55%
Rectangular	397	288	189	48%
Round	180	140	95	53%
Square	326	251	158	48%

```
WITH aggregated AS (SELECT quiz.user_id,
  CASE
    WHEN home_try_on.number_of_pairs IS NULL THEN 'False'
    ELSE 'True'
  END AS is_home_try_on,
  CASE
    WHEN home_try_on.number_of_pairs = '3 pairs' THEN '3'
    WHEN home_try_on.number_of_pairs = '5 pairs' THEN '5'
    ELSE 'NULL'
  END AS number_of_pairs,
  CASE
    WHEN purchase.user_id IS NULL THEN 'False'
    ELSE 'True'
  END AS is_purchase
FROM quiz
LEFT JOIN home_try_on on quiz.user_id =
home_try_on.user_id
LEFT JOIN purchase on quiz.user_id = purchase.user_id)

SELECT shape, count(*) as answered, sum(
  CASE
    WHEN is_home_try_on = 'True' THEN 1
    ELSE 0
  END) as tried_on, sum(
  CASE
    WHEN is_purchase = 'True' THEN 1
    ELSE 0
  END) as purchased
FROM quiz
LEFT JOIN aggregated on aggregated.user_id = quiz.user_id
GROUP BY 1;
```

6. Actionable insights D: focus on the higher-end of the market

Despite the caveat that I don't have data on the number of glasses sent per price point, it seems that WP's customers are not highly price-sensitive. Glasses priced at 45 are the worst-selling, whereas glasses at 95 sell best, followed closely by glasses at 150.

A recommendation would be to double-down on the higher-end of the market.

price	purchases
50	41
95	261
150	193

```
SELECT price, count(*) AS purchases
FROM purchase
GROUP BY 1;
```

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Thank you!

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