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Warby Parker Usage Funnel

Learn SQL from Scratch

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1. Get familiar with Warby Parker

1.1. Select all columns from the first 10 rows. What columns does the Survey table have?

```sql
-- 1. Select first 10 rows of the Survey table:
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

The Select all columns query on the Survey table answers this question. The table has the columns

- Question
- User_id
- Response

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2. What is the quiz funnel

2.1. Create a quiz funnel using the GROUP BY command. What is the number of responses for each question?

```
6    --2. What is the number of responses for each
   question?
7    SELECT question,
8     COUNT(DISTINCT user_id) AS 'response count'
9    FROM survey
10   GROUP BY 1;
```

I count the times each user responds to each question and group this count by question.

question	response count
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

Calculate the percentage of users who answer each question:

question	response count	**Completion Rate** (People completing each step/ people completing the previous step)
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%

I calculate the completion rate by dividing the number of people completing each step by the number of people completing the previous step.

2.2. Which question(s) of the quiz have a lower completion rates?

The questions of the quiz with the lowest completion rates were question 5, when was your last eye exam? with 74.8% completion rate followed by question 3, which shapes do you like? with 80% completion rate.

2.3. What do you think is the reason?

For question 5, the reason might be that the people doing the quiz didn't remember when was their last eye exam or didn't want to give out this information.

For question 3, it could be that people didn't quite know which shapes they liked.

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

3.1. What are the column names of the *quiz*, *home_try_on* and *purchase* tables?

```
12    --4. Examine first 5 rows of each table:
13    SELECT *
14    FROM quiz
15    LIMIT 5;
16
17    SELECT *
18    FROM home_try_on
19    LIMIT 5;
20
21    SELECT *
22    FROM purchase
23    LIMIT 5;
```

The column names are:

Quiz
- user_id
- Style
- Fit
- Shape
- Color

Home_try_on
- user_id
- Number_of_pairs
- Address

Purchase
- user_id
- Product_id
- Style
- Model_name
- Color
- Price

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

```
25   --5. Combine the three tables starting from the top of
     the funnel (browse) and ending with the bottom of the
     funnel (purchase)
26   SELECT DISTINCT q.user_id,
27   h.user_id IS NOT NULL AS 'is_home_try_on',
28   h.number_of_pairs,
29   p.user_id IS NOT NULL AS 'is_purchase'
30   FROM quiz as 'q'
31   LEFT JOIN
32   home_try_on as 'h'
33   ON q.user_id = h.user_id
34   LEFT JOIN purchase as 'p'
35   ON p.user_id = q.user_id
36   LIMIT 10;
```

- If the user has any entries in home_try_on, then is_home_try_on “IS NOT NULL” will be 'True’ or = 1.
- number_of_pairs comes from home_try_on table
- If the user has any entries in is_purchase, then is_purchase “IS NOT NULL” will be 'True’ or = 1.

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

3.2. Calculate the difference in purchase rates between customers who had 3 number_of_pairs with ones who had 5

```sql
--7. Find out whether or not users who get more pairs to try on at home will be more likely to make a purchase.
WITH Funnel 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 p.user_id = q.user_id
)
SELECT number_of_pairs,
SUM(Funnel.is_home_try_on) AS 'num_home_try_on',
SUM(Funnel.is_purchase) As 'num_purchase',
ROUND(1.0*SUM(is_purchase)/SUM(is_home_try_on),2) AS '% Try on to purchase'
FROM Funnel
WHERE number_of_pairs IS NOT NULL
GROUP BY 1;
```

number_of_pairs	num_home_try_on	num_purchase	% Try on to purchase
3 pairs	379	201	0.53
5 pairs	371	294	0.79

Find out whether or not users who get more pairs to try on at home will be more likely to make a purchase

The purchase rate for those customers who got 3 pairs of glasses was 53% while for those who got 5 pairs was 79%.

In this case, the group who received more pairs of glasses to try on had more people who purchased than the group who received 3. This could be because those who had more options to choose from had a higher chance of finding a model they liked than those with less options.

3.3. Calculate overall conversion rates by aggregating across all rows.

```sql
--6. Calculate overall conversion rates by aggregating across all rows
WITH Funnel 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 p.user_id = q.user_id
)
SELECT COUNT(*) AS 'num_browse',
SUM(Funnel.is_home_try_on) AS 'num_home_try_on',
SUM(Funnel.is_purchase) As 'num_purchase',
ROUND(1.0*SUM(is_home_try_on)/COUNT(user_id),2) AS '% browse to try on',
ROUND(1.0*SUM(is_purchase)/SUM(is_home_try_on),2) AS '% Try on to purchase',
ROUND(1.0*SUM(is_purchase)/COUNT(user_id),2) AS '% browse to purchase'
FROM Funnel;
```

The overall conversion rate from browse to try on was 75% and from try on to purchase was 66%. The conversion rate from browse to purchase was 49%.

Almost half of the people who started browsing the web ended up purchasing glasses.

num_browse	num_home_try_on	num_purchase	% browse to try on	% Try on to purchase	% browse to purchase
1000	750	495	0.75	0.66	0.49

3.4. Compare conversion from quiz→home_try_on and home_try_on→purchase.

```sql
--6. Calculate overall conversion rates by aggregating across all rows
WITH Funnel 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 p.user_id = q.user_id
)
SELECT COUNT(*) AS 'num_browse',
SUM(Funnel.is_home_try_on) AS 'num_home_try_on',
SUM(Funnel.is_purchase) As 'num_purchase',
1.0*SUM(is_home_try_on)/COUNT(user_id) AS '% browse to try on',
1.0*SUM(is_purchase)/SUM(is_home_try_on) AS '% Try on to purchase'
FROM Funnel;
```

The overall conversion rate from browse to try on was 75% and from try on to purchase was 66%.

There were more people who started browsing who continued to try on the glasses (75%) than people who tried on the glasses who proceeded to purchase (66%).

num_browse	num_home_try_on	num_purchase	% browse to try on	% Try on to purchase
1000	750	495	0.75	0.66

What are the most common results of the style quiz?

```sql
--8. What are the most common results of the Style Quiz?
SELECT response,
  COUNT(DISTINCT user_id) AS 'response count', question
 FROM survey
 GROUP BY 1
 ORDER BY 2 DESC;
```

- There are more people looking for Men's styles than Women's styles.
- A common preferred fit is Narrow and
- the most common answer for when was your last eye exam is less than a year.

response	response count	question
Men's Styles	242	1. What are you looking for?
Women's Styles	209	1. What are you looking for?
Narrow	208	2. What's your fit?
<1 Year	141	5. When was your last eye exam?
Rectangular	141	3. Which shapes do you like?
Medium	132	2. What's your fit?

What are the most common types of *purchase* made?

```sql
--9. What are the most common types of purchase made?
SELECT product_id, COUNT(DISTINCT user_id) AS 'Purchase count',
price, model_name, style, color
FROM purchase
GROUP BY 1
ORDER BY 2 DESC
LIMIT 5;
```

The most common type of purchases made were the product_id 3 or Dawes Model in Driftwood Fade color and the product_id 10 or the Eugene Narrow model in Rosewood Tortoise.

product_id	Purchase count	price	model_name	style	color
3	63	150	Dawes	Men's Styles	Driftwood Fade
10	62	95	Eugene Narrow	Women's Styles	Rosewood Tortoise
9	54	95	Eugene Narrow	Women's Styles	Rose Crystal
1	52	95	Brady	Men's Styles	Layered Tortoise Matte
6	50	95	Olive	Women's Styles	Pearled Tortoise

What are some actionable insights for Warby Parker?

- We saw that 75% of the people who browse the web try the glasses on and then 66% of people who try them on end up purchasing but only if you try them on can you purchase. Even though allowing users to try the glasses on before purchasing is a good idea to move them through the funnel and get them to purchase, it could be a good option to also allow them to purchase without necessarily having to try them on. This way people who want to buy them as presents for someone else or who don't want to go through the returning-the-glasses step won't quit their customer journey after browsing.

- With the previous measure we would be trying to increase the 49% conversion rate from browse to purchase and people would still have the option to try them on if they wanted to.

- Regarding the A/B testing, I would recommend Warby Parker to keep sending 5 pairs instead of 3 as the are higher chances of people finding something they like and end up buying.