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Usage Funnels with Warby Parker

Learn SQL from Scratch

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1. Get Familiar with Warby Parker

1.1 Understanding Table Layouts

You first need to understand what columns each table contains and the overall Database Schema.

- There are 4 tables: home_try_on, purchase, survey, and quiz
- Each table contains 3-6 columns and each column is either text or an integer.
- Each table contains anywhere from 495-1986 rows
- The code below selected all columns and limited it to 2 rows to see what each table looked like.

```
select *
from home_try_on
limit 2;

select *
from purchase
limit 2;

select *
from survey
limit 2;

select *
from quiz
limit 2;
```

Database Schema	
home_try_on	750 rows
user_id	TEXT
number_of_pairs	TEXT
address	TEXT
purchase	495 rows
user_id	TEXT
product_id	INTEGER
style	TEXT
model_name	TEXT
color	TEXT
price	INTEGER
survey	1986 rows
question	TEXT
user_id	TEXT
response	TEXT
quiz	1000 rows
user_id	TEXT
style	TEXT
fit	TEXT
shape	TEXT
color	TEXT

2. Quiz Funnel

2.1 Quiz Funnel – Response Rate

Now that we understand the Database Schema, we deep dive into some of the response rates on questions.

- **Q:** What is the number of responses for each question?
  A: Table 1 outlines the responses and completion rates

- **Q:** What question(s) of the quiz have a lower completion rate?
  A: Questions 3 and 5 have the lowest completion rates.

- **Q:** What do you think is the reason?
  A: Question 3: there may not be enough shapes to please the customer or there may not be enough infrastructure to accurately describe each shape.
  Question 5: responses may be low on this question because the customer may not know when their last eye exam was or may have to go research to find out.

```
--Quiz Funnel

--1. What columns does the survey table have?

select *
from survey
limit 10;



-- 2. What is the number of responses for each question?

SELECT question,
       COUNT(DISTINCT user_id) AS 'Responses'
FROM survey
GROUP BY 1
ORDER BY 2 DESC;
```

question	Responses	Completion Rate
1. What are you looking for?	500	100%
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%

Table 1

3. Home Try On Funnel

3.1 Examining Home Try-On Funnel

Examined the Home Try-On funnel to understand the conversion of customers try home try on and who purchases.

- **Q:** What are the column names for each table?

  A:

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

```
--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;
```

3.2 Creating the New Table

Created a new table that tracks users have tried home try on, the number of pairs of glasses they tried, and if they were inclined to purchase after using home try on.

This information is important to understand conversion and use in further analyses.

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		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		0
0143cb8b-bb81-4916-9750-ce956c9f9bd9	0		0
a4ccc1b3-cbb6-449c-b7a5-03af42c97433	1	5 pairs	0
b1dded76-cd60-4222-82cb-f6d464104298	1	3 pairs	0

```
--5. Create a new table

SELECT DISTINCT quiz.user_id,
   home.user_id IS NOT NULL AS 'is_home_try_on',
   home.number_of_pairs,
   purchase.user_id IS NOT NULL AS 'is_purchase'

FROM quiz AS 'quiz'

LEFT JOIN home_try_on 'home'
  ON home.user_id = quiz.user_id

LEFT JOIN purchase 'purchase'
  ON purchase.user_id = quiz.user_id

LIMIT 10;
```

3.3 Calculating Conversion

Now we want to calculate overall conversion rates including conversion from quiz to home_try_on as well as the conversion from home_try_on to purchase.

Results:
75% of customers elect to try on glasses at home after finishing the quiz

Of the 75% of customers who tried glasses on at home, 66% of them converted into buying.

```
--6. Conversion
WITH funnels AS (
SELECT
   DISTINCT quiz.user_id,
   home.user_id IS NOT NULL AS 'is_home_try_on',
   home.number_of_pairs,
   purchase.user_id IS NOT NULL AS 'is_purchase'
FROM quiz AS 'quiz'
LEFT JOIN home_try_on 'home'
  ON home.user_id = quiz.user_id
LEFT JOIN purchase 'purchase'
  ON purchase.user_id = quiz.user_id)
SELECT COUNT(*) as 'num_quiz',
              SUM(is_home_try_on) as 'sum_home_try_on',
  SUM(is_purchase) as 'sum_is_purchase',
  1.0 * SUM(is_home_try_on) / COUNT(user_id) as 'quiz_home_conversion',
  1.0 * SUM(is_purchase) / SUM(is_home_try_on) as 'home_purchase_conversion'
FROM funnels ;
```

num_quiz	sum_home_try_on	sum_is_purchase	quiz_home_conversion	home_purchase_conversion
1000	750	495	0.75	0.66

3.4 Home Try On 3 vs 5 Pair Conversion

Now we want to calculate the conversion of customers into purchasing at varying number of pairs of glasses they tried on at home

Results:
Customers are more likely to purchase if they have more options. The conversion into purchasing for customers who requested 5 pairs of home try on was 79% compared to conversion of customers who only tried 3 pairs which was 53%.

```
--6. Home Try On 3 vs. 5 pairs
WITH funnels AS (
SELECT
   DISTINCT quiz.user_id,
   home.user_id IS NOT NULL AS 'is_home_try_on',
   home.number_of_pairs,
   purchase.user_id IS NOT NULL AS 'is_purchase'
FROM quiz AS 'quiz'
LEFT JOIN home_try_on 'home'
  ON home.user_id = quiz.user_id
LEFT JOIN purchase 'purchase'
  ON purchase.user_id = quiz.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'
 FROM funnels
 GROUP BY number_of_pairs;
```

number_of_pairs	num_quiz	num_try_on	num_purchase
0	250	0	0
3 pairs	379	379	201
5 pairs	371	371	294

4. Other Findings

4.1 Other Insights

Finding other insights is simple now that we understand the Database Schema and we're familiar with how each table is laid out.

- **Q:** What is the most common results of the Style Quiz?
  A: Women's Styles

- **Q:** What is the most common shape of purchase?
  A: Customers seem to prefer rectangular glasses

- **Q:** What are some actionable insights for Warby Parker?
  A: Warby Parker should invest in the most common responses for each question of the quiz to ensure multiple options for customers. They should also try to investigate how to get customers who get Home Try On to select 5 pairs and increase purchase conversion.

```
--6. Most common results of the style quiz
SELECT style,
COUNT(DISTINCT user_id) as 'num_respond'
FROM quiz
GROUP BY style
ORDER BY num_respond DESC;


--6. Most common shape of purchase
SELECT shape,
COUNT(DISTINCT user_id) as 'num_respond'
FROM quiz
GROUP BY shape
ORDER BY num_respond DESC;
```

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

shape	num_respond
Rectangular	397
Square	326
Round	180
No Preference	97