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Funnels with Warby Parker

Learn SQL from Scratch
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1. Getting Familiar with Warby Parker

What are the two funnels?

Quiz Funnel
survey

Home Try-On Funnel
quiz
home_try_on
purchase

- survey table holds user_id, address, and question
- quiz table holds all the answers that users inputted in the survey stage
- Home try-on funnel holds the information for the A/B test and whether users received 3 or 5 pairs of glasses as well as their address

question
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?

Questions from the Warby Parker survey

```
SELECT distinct question
FROM survey;

SELECT *
FROM quiz
LIMIT 10;

SELECT *
FROM home_try_on
Limit 10;
```

Getting to know the quiz table

I wanted to explore the different options for shape, style, and fit within the quiz table and found the following results.

```
SELECT distinct shape
FROM quiz;

SELECT distinct style
FROM quiz;

SELECT distinct fit
FROM quiz;
```

shape
Rectangular
Round
Square
No Preference

style
Women's Styles
Men's Styles
I'm not sure. Let's skip it.

fit
Medium
Narrow
Wide
I'm not sure. Let's skip it.

The Purchase table

Quiz Funnel
survey

Home Try-On Funnel
quiz
home_try_on
Purchase

Glasses come in 8 different colors, 3 different prices and 6 different models. There are also women's or men's styles.

Color	Price
Jet Black	150
Elderflower Crystal	95
Driftwood Fade	50
Sea Glass Gray	
Endangered Tortoise	
Layered Tortoise Matte	
Rose Crystal	
Pearled Tortoise	

Model Count
6

2. What is the Quiz Funnel?

Snapshot of the survey table

Selected the first 10 rows of the survey table to get an idea of the columns and some of the potential answers.

```
1   SELECT *
2   FROM survey
3   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

What is the number of responses for each question?

```sql
1  SELECT  question as 'Question',
2          COUNT(distinct user_id) as 'Number of
           Users'
3  FROM survey
4  GROUP BY 1;
```

Question	Number of Users
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

Used the "Group By" function to retrieve the number of users that submitted an answer to each question.

Quiz Funnel Conversion

Which question(s) of the quiz have a lower completion rates?
Questions 3 and 5 have lower completion rates.

What do you think is the reason?
I think people might have been overwhelmed with all the options for Question 3 and some people may have dropped off here. If you know what shape you want, you are probably more likely to know what color you want (you're determined!). I think the lower completion rate for Question 5 may be due to people not knowing when the last time they had an eye exam was or they might have just been trying to see the options in the quiz.

Conversion was calculated by dividing the number of people that completed each step by the total number of people that completed the previous step.
i.e. for Q2: (475/500)x100 = 95%

Question	Number of Users
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

Question	Percent of Users Completing this Question
1	100%
2	95
3	80
4	95
5	75

2. What is the Home Try-On Funnel?

Tables in Warby Parker's Database

quiz

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

home_try_on

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

purchase

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

I selected first five rows from each of the tables to see what I was working with and how the tables were connected.

Creating a new Funnel table

I used a series of left joins to create a larger table that combined the quiz, home_try_on, and purchase tables. The larger table returns a "True" or "False" answer if the user ordered glasses to try on at home or purchased them.

```
SELECT distinct q.user_id,
    CASE
        WHEN h.address IS NOT NULL THEN
        'True' ELSE 'False'
        END as 'is_home_try_on',
    h.number_of_pairs,
    CASE
        WHEN p.product_id IS NOT NULL THEN
        'True' ELSE 'False'
        END as 'is_purchase'
FROM quiz q
LEFT JOIN home_try_on h ON q.user_id = h.user_id
LEFT JOIN purchase p on h.user_id = p.user_id
LIMIT 10;
```

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

User Conversion From Quiz to Home Try-On

(750/1000) x 100 = 75%
- 75% of users made it from the quiz funnel to the home try-on funnel

Number of Total Users
1000

Number of Home Try-On Users
750

```
WITH funnels AS (SELECT distinct q.user_id,
        CASE
             WHEN h.address IS NOT NULL THEN
             'True' ELSE 'False'
             END as 'is_home_try_on',
         h.number_of_pairs,
        CASE
             WHEN p.product_id IS NOT NULL THEN
             'True' ELSE 'False'
             END as 'is_purchase'
FROM quiz q
LEFT JOIN home_try_on h ON q.user_id = h.user_id
LEFT JOIN purchase p on h.user_id = p.user_id)

SELECT count(distinct user_id) AS 'Quiz to Home Try
On'
FROM funnels f
WHERE f.is_home_try_on = 'True';
```

User Conversion from Home Try-On to Purchasing

(495/750) x 100 = 66%
- 66% of users made it to the purchase step in the funnel

Overall more people made it from the quiz to the home try-on phase than from the home-try on phase to purchasing a pair of glasses.

Number of Home Try-On Users
750

Number of Users that Purchased
495

```
WITH funnels AS (SELECT    distinct q.user_id,
    CASE
        WHEN h.address IS NOT NULL THEN 'True' ELSE
            'False'
        END as 'is_home_try_on',
    h.number_of_pairs,
    CASE
        WHEN p.product_id IS NOT NULL THEN 'True' ELSE
            'False'
        END as 'is_purchase'
FROM quiz q
LEFT JOIN home_try_on h ON q.user_id = h.user_id
LEFT JOIN purchase p on h.user_id = p.user_id)

SELECT count(distinct user_id) AS 'Home Try On to
Purchase'
FROM funnels f
WHERE f.is_purchase = 'True';
```

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

Difference in Purchase Rates for 3 vs. 5 pairs

- 201/495 x 100 = **40.6%** of users received 3 pairs of glasses and went on to purchase something.
- 294/495 x 100 = **59.4%** of users received 5 pairs of glasses and went on to purchase something.

Number of Users Who Purchased	Number of Pairs
201	3 pairs
294	5 pairs

```
WITH funnels AS (SELECT    distinct q.user_id,
        CASE
            WHEN h.address IS NOT NULL THEN
            'True' ELSE 'False'
             END as 'is_home_try_on',
        h.number_of_pairs,
        CASE
            WHEN p.product_id IS NOT NULL THEN
            'True' ELSE 'False'
            END as 'is_purchase'
FROM quiz q
LEFT JOIN home_try_on h ON q.user_id = h.user_id
LEFT JOIN purchase p on h.user_id = p.user_id)

SELECT count(distinct user_id) AS 'Number of Users Who
        Purchased',
        number_of_pairs as 'Number of Pairs'
FROM funnels f
WHERE f.is_purchase = 'True'
GROUP BY number_of_pairs;
```

4. Insights for Warby Parker

Most Common Results from Style Quiz

- Slightly more men are looking for glasses than women

Fit
- Only 19% of users picked Wide fit >> Warby Parker should have a smaller selection of Wide fit glasses or custom make some as needed.
- 44% of users need a "narrow" fit

Shape & Color
- 68% of users prefer square or rectangular glasses
- 63% of users prefer Black or Tortoise for color
- Might be beneficial for Warby Parker to have more of these types of glasses & colors available or allocate more resources towards these styles.

Eye Exam
- Most people had an eye exam in the past year

Question	Answer	Number of Users
1. What are you looking for?	I'm not sure. Let's skip it.	92
1. What are you looking for?	Women's Styles	209
1. What are you looking for?	Men's Styles	242
2. What's your fit?	Wide	88
2. What's your fit?	Medium	132
2. What's your fit?	Narrow	208
3. Which shapes do you like?	No Preference	29
3. Which shapes do you like?	Round	91
3. Which shapes do you like?	Square	119
3. Which shapes do you like?	Rectangular	141
4. Which colors do you like?	Two-Tone	27
4. Which colors do you like?	Neutral	36
4. Which colors do you like?	Crystal	69
4. Which colors do you like?	Black	112
4. Which colors do you like?	Tortoise	117
5. When was your last eye exam?	Not Sure. Let's Skip It	36
5. When was your last eye exam?	3+ Years	37
5. When was your last eye exam?	1-3 Years	56
5. When was your last eye exam?	<1 Year	141

Insights from Purchase Table

Model Name	Style	Price	Color	Number of Users
Monocle	Men's Styles	50	Endangered Tortoise	41
Olive	Women's Styles	95	Pearled Tortoise	50
Eugene Narrow	Women's Styles	95	Rosewood Tortoise	116
Brady	Men's Styles	95	Sea Glass Gray	95
Dawes	Men's Styles	150	Driftwood Fade	107
Lucy	Women's Styles	150	Elderflower Crystal	86

```
SELECT model_name as 'Model Name',
       style as 'Style',
       price as 'Price',
       color as 'Color',
       COUNT(distinct user_id) as 'Number
of      Users'
FROM purchase
GROUP BY 1
ORDER BY 3, 4;
```

- The "Eugene Narrow" model in Rosewood Tortoise is the most popular Women's purchase
- The "Dawes" model in Driftwood Fade is the most popular Men's purchase
- Total revenue: $55,795 ⬇ (sum of this column)

Price	Number of Users	Total Revenue
50	41	2050
95	50	4750
95	**X** 95 **=**	9025
95	116	11020
150	86	12900
150	107	16050

Calculated total revenue by multiplying the number of user that purchased each model by the price and summing those numbers up.

Warby Parker could try to market these two styles more in the popular section for people who don't know what they want.