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Warby Parker Funnel Analysis

Learn SQL from Scratch

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1. Get Familiar with Warby Parker

1.1 Warby Parker's Data, tables

Warby Parker utilizes two types of funnels when customers navigate their sites. These funnels illustrate the customer journey from Warby Parker's website, to trying on glasses, to ultimately purchasing the product.

Quiz Funnel	Home Try-on Funnel
Survey	Quiz
	Home Try-On
	Purchase

1.2 Warby Parker's Data, tables cont.

Warby Parker's Funnels are made up of different types of tables that store data. The different types of tables are outlined below, as well as the number of rows.

Survey (1986 Rows)	Quiz (1000 Rows)	Home Try On (750 Rows)	Purchase (495 rows)
Question	user_id	user_id	user_id
user_id	style	number _of_pairs	product_id
response	fit	address	style
	shape		model_name
	color		color
			price

2. What is the Quiz Funnel?

2.1 Warby Parker's Data, Question #1

User Responses are stored in the table called **survey**. An example of the query results are below.

From the query results, we can see the questions that users were asked during the quiz funnel. Stored in each row of the table is the question a specific user was asked, along with the users' user id, and their response to the question.

```
SELECT *
FROM survey
LIMIT 10;
```

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

2.2 Warby Parker's Data, Question #2

User Responses are stored in the table called **survey**. Users do not always finish the entire funnel. There are times where users will leave at a certain point in the funnel. We are able to see the data below.

From the query results, we have grouped the table by the specific questions that were asked and the distinct number of users who answered each question. No user id was repeated in each question.

```
SELECT
  question,
  COUNT (DISTINCT user_id)
FROM survey
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

2.3 Warby Parker's Data, Question #3

With the data from the previous table, we are able to calculate the number of users answer each question. The numbers are derived by dividing the number of people completing each step by the number of people who completed the previous step.

This data tells us question 3 and 5 have the lowest completion rates in the set. This may be due to users not knowing what shapes they like or the date of their last eye exam, identifying knowledge gaps in customers.

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

```
SELECT
  question,
  COUNT (DISTINCT user_id)
FROM survey
GROUP BY question;
```

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

3.1 Warby Parker's Home Try On Funnel, Question #4

Warby Parker's second funnel captures user data of customers who have taken the style quiz, have done the home-try on trial, and have purchased a pair of glasses.

From our query, we can see that the different tables have varying number of columns in them. Some columns are similar, while others are distinct to their individual tables. Those columns are see below.

Quiz (1000 Rows)	Home Try On (750 Rows)	Purchase (495 rows)
user_id	user_id	user_id
style	number _of_pairs	product_id
fit	address	style
shape		model_name
color		color
		price

```
SELECT *
FROM quiz
LIMIT 5;

SELECT *
FROM home_try_on
LIMIT 5;

SELECT *
FROM purchase
LIMIT 5;
```

3.2 Warby Parker's Home Try On Funnel A/B Testing, Question #5

Warby Parker conducted A/B testing with customers, offering customers the option to try on 3 or 5 pairs of glasses. This test was conducted to find out whether or not customers who get more pairs to try on at home will be more likely to make a purchase.

By aggregating data across all 3 tables from Warby Parker's home-try on funnel, we will be able to analyze the data to determine overall conversion rate, whether or not the number of pairs affects conversion rates, conversion rates between user movement in the funnels, and more.

```
SELECT
  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 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	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

3.3 Warby Parker's Home Try On Funnel Analysis, Question #6

After conducting the A/B tests, we are able to pull insights from the data collected. In aggregate, we see the follow:

- Overall conversion rate from Quiz to Home-Try on is 75%
- Overall conversion rate from Home Try-On to Purchase is 66%

This data tells us, in aggregate, that Warby Parker's conversion rate decreases as users move further within the funnel.

For the results of the A/B test, we will need to look at the data more granularly to see whether or not the number of pairs users put in their cart had an effect on conversion rate.

```
WITH funnels 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 h.user_id = p.user_id)

SELECT
 COUNT(*) as 'Num_Users',
 SUM(is_home_try_on) AS '# of Try Ons',
 SUM(is_purchase) AS '# of Purchases',
 1.0 * SUM(is_home_try_on) /
  COUNT (user_id) AS 'Quiz to Home Try-on Conversion
Rate',
  1.0 * SUM(is_purchase) /
  SUM(is_home_try_on) 'Home Try-on to Purchase
Conversion Rate'
FROM funnels;
```

Query Results				
Num_Users	# of Try Ons	# of Purchases	Quiz to Home Try-on Conversion Rate	Home Try-on to Purchase Conversion Rate
1000	750	495	0.75	0.66

3.4 Warby Parker's Home Try On Funnel Analysis, Question #6 cont.

After looking into the funnel and grouping it by the number of pairs that users were allowed to try on at home, we see the following:

- Conversion rates from quiz to home try-on are 100%
- Users who had the option to select 5 pairs had a larger amount of purchases compared to 3 pairs
- Users who had the option to select 5 pairs were 26% more likely to purchase after the home try on than users who had to option to select 3 pairs.

Actionable insight: Warby Parker should allow users to try on 5 pairs to increase the likelihood that a customer will end up making a purchase.

Query Results

number_of_pairs	Num_Users	# of Try Ons	# of Purchases	Quiz to Home Try-on Conversion Rate	Home Try-on to Purchase Conversion Rate
Ø	250	0	0	0.0	Ø
3 pairs	379	379	201	1.0	0.530343007915567
5 pairs	371	371	294	1.0	0.792452830188679

```
WITH funnels 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 h.user_id = p.user_id)

SELECT
 number_of_pairs,
 COUNT(*) as 'Num_Users',
 SUM(is_home_try_on) AS '# of Try Ons',
 SUM(is_purchase) AS '# of Purchases',
 1.0 * SUM(is_home_try_on) /
  COUNT (user_id) AS 'Quiz to Home Try-on Conversion
Rate',
  1.0 * SUM(is_purchase) /
  SUM(is_home_try_on) 'Home Try-on to Purchase
Conversion Rate'
FROM funnels
GROUP BY number_of_pairs;
```