Note!

This Powerpoint goes into fairly granular detail about the SQL code (for eg. why certain commands are used, and when). I did this deliberately to force myself to write out my thought process in a step-by-step manner and is a way for me to learn the ins-and-outs of SQL at a much deeper level.

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Warby Parker Usage Funnels Analysis

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Section 1
Getting Familiar with Warby Parker

What columns does “quiz” have?

- The “quiz” table has three columns: *question, user_id, response*

SQL CODE:

```
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

Quiz Responses

How responses were there for each question?

500 responses were collected for the first question.

What percentage of users move onto the next question having completed the current one?

Please see the chart at the bottom right.

Which question(s) have lower completion rates? What could be the reason?

Questions 3 and 5 have the lowest completion rates (80% and 75% respectively).

For Question 3, most people probably have no idea what shapes look good on their face (people traditionally try on different frames in-person in optical stores without necessarily devoting a lot of time to thinking about what shape frames fit their face shape the best. People doing an online quiz probably have even less of an idea of what shape frames best suit them).

For Question 5, most people probably don't remember the exact date (or roughly when) they had their last eye exam, and this is likely the reason why this question has the lowest response rate.

SQL CODE:

```
SELECT question, count(distinct user_id)
FROM survey
GROUP BY question;
```

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

question	count(distinct user_id)	% users who proceed to the next question
1	500	
2	475	95%
3	380	80%
4	361	95%
5	270	75%

Column names of “quiz”, ”home_try_on”, “purchase”

SQL CODE:

```
SELECT *
FROM quiz
LIMIT 5;

SELECT *
FROM home_try_on
LIMIT 5;

SELECT *
FROM purchase
LIMIT 5;
```

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

Create table showing core information

- We want to create a table that shows whether or not a user participated in the “Home Try On” program, and whether they purchased any glasses.
- To do this, we can LEFT JOIN the information in the tables “quiz”, “home_try_on” and “purchase”. It’s important that we LEFT JOIN because this will allow us to keep any NULL entries (unlike an INNER JOIN which will eliminate any rows with NULL in it)
- But we also need a way to mark whether a user participated in the “Home Try On Program” and whether they bought anything. We do this by SELECTing the *user_id*s from the “home_try_on” and “purchase” tables.
- The critical key to understand is that the same *user_id* will repeat in two or more of these tables (first in “home_try_on” and then “purchase”) if they tried on glasses and then ultimately bought something.
- In order to mark whether these events occurred (1- true) or not (0 - false), we add a IS NOT NULL statement to our SELECT statement for *user_id* belonging to “quiz” and “home_try_on”.

SQL CODE:

```
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 q
LEFT JOIN home_try_on h
ON q.user_id = h.user_id
LEFT JOIN purchase p
ON p.user_id = q.user_id
LIMIT 10;
```

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
8fe8b9a7-d5d0-4aeb-a0d2-b8dd43f50a95	0		0
9fc1bcfe-1c3b-4b78-bb3b-af3586c2f05c	1	5 pairs	1
20b03d28-d39c-46cf-81af-9fb479e823c0	1	5 pairs	1
ffe1b116-6f09-4408-9aba-f0d268c67fbe	1	3 pairs	0

Section 2
Additional Analysis

Warby Parker Effective at Getting Customers to Buy - Healthy Funnel Rates

- We can calculate the rates at which users move from “quiz” to the “Home Try On” program to “purchase”.

- The code inside the “calculate_numbers” alias will produce the following results: 1000 (total number of users who complete the quiz), 750 (total number of users who participate in the “Home Try On” program and 495 (total number of those who make a purchase).

- We can see that 75% of users who took the quiz then participate in the “Home Try On” program. Of these users participating in the Home Try On program, 66% go on to make a purchase.

- **This indicates that Warby Parker is effective at moving customers from initial contact to the Home Try On program to completing a purchase and handing over their hard-earned cash.**

SQL CODE:

```
/* LEFT JOIN "quiz", "home_try_on and
"purchase" tables */
WITH all_join AS (SELECT * FROM quiz
LEFT JOIN home_try_on
ON quiz.user_id = home_try_on.user_id
LEFT JOIN purchase
ON home_try_on.user_id = purchase.user_id),

/* Count up the individual columns from
"all join" table */
calculate_numbers AS (SELECT COUNT(*) AS
total_count, count(number_of_pairs) AS
hto_count, COUNT(price) AS purchase_count
FROM all_join)

/* Final calculation showing Funnel Rates */
SELECT 1.0 * total_count / total_count as "quiz
total",
1.0 * hto_count / total_count AS "quiz to hto",
1.0 * purchase_count / hto_count AS "hto to
purchase"
FROM calculate_numbers;
```

total_count	hto_count	purchase_count
1000	750	495

quiz total	quiz to hto	hto to purchase
1.0	0.75	0.66

Customers Significantly More Likely To Buy When Trying on Five Pairs

- We can look at purchase rates of users who try 3 pairs of frames versus those who try 5 pairs. Those who try 5 pairs ultimately make at least one purchase at a significantly higher rate than those who only try 3 pairs.

- Warby Parker may want to consider encouraging more customers to try five rather than three pairs as 19% more customers will buy when trying the higher number.

- At what point will there be diminishing returns to letting customers try more pairs of frames? Seven pairs? Nine pairs? Or maybe fewer pairs (for example, 2 pairs) would be even more effective as it might make customers more decisive (perhaps by reducing decision fatigue from having to pick amongst so many pairs). This is something that Warby Parker may consider testing if they are looking for a sweet spot that maximizes their sales.

SQL CODE:

```
/* LEFT JOIN "home try on" and "purchase" tables */
WITH step_one AS (SELECT h.user_id,

CASE
WHEN (h.number_of_pairs = "5 pairs")
AND (p.price IS NOT NULL)
THEN 1
ELSE 0
END AS "five_pairs_and_bought",

CASE
WHEN (h.number_of_pairs = "3 pairs")
AND (p.price IS NOT NULL)
THEN 1
ELSE 0
END AS "three_pairs_and_bought",

p.user_id IS NOT NULL AS purchase_id
FROM home_try_on AS h
LEFT JOIN purchase AS p
ON h.user_id = p.user_id),

/* Sum up columns for # of users who try on 3 and 5
pairs of glasses. Also sum up the number of unique users
who bought something*/
step_two AS (SELECT SUM(five_pairs_and_bought) AS
"sum_five", SUM(three_pairs_and_bought) AS "sum_three",
SUM(purchase_id) AS "total_purchase" FROM step_one)

/* Final calculation for purchase rates of those who
tried on 3 pairs vs 5 pairs */
SELECT 1.0 * sum_three / total_purchase AS "Three
pairs",
1.0 * sum_five / total_purchase AS "Five pairs",
1.0 * total_purchase / total_purchase AS "Total"
FROM step_two;
```

Three pairs	Five pairs	Total
0.406060606060606	0.593939393939394	1.0

Most popular models of frames

- Of the frames that are ultimately purchased by users, the top-3 selling models are (in order of most popular to less): Eugene Narrow, Dawes and Brady.

- If Parker Warby wanted to eliminate any models, they could stop selling the Monocle (assuming the margins on this model are also not that great)

SQL CODE:

```
SELECT model_name, COUNT(*) as counter FROM
purchase
GROUP BY model_name
ORDER BY counter DESC;
```

model_name	counter	% of all frames sold
Eugene Narrow	116	23%
Dawes	107	22%
Brady	95	19%
Lucy	86	17%
Olive	50	10%
Monocle	41	8%