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SQL Project

Usage Funnels with WARBY PARKER
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Table of Contents

1. Introduction
2. SQL Query
3. Usage Funnel Calculations
4. Insights and Action Plan

1. Introduction

Project Introduction

- Warby Parker is a transformative lifestyle brand with a lofty objective: to offer designer eyewear at a revolutionary price while leading the way for socially conscious businesses. Founded in 2010 and named after two characters in an early Jack Kerouac journal, Warby Parker believes in creative thinking, smart design, and doing good in the world. For every pair of eyeglasses and sunglasses sold, a pair is distributed to someone in need.
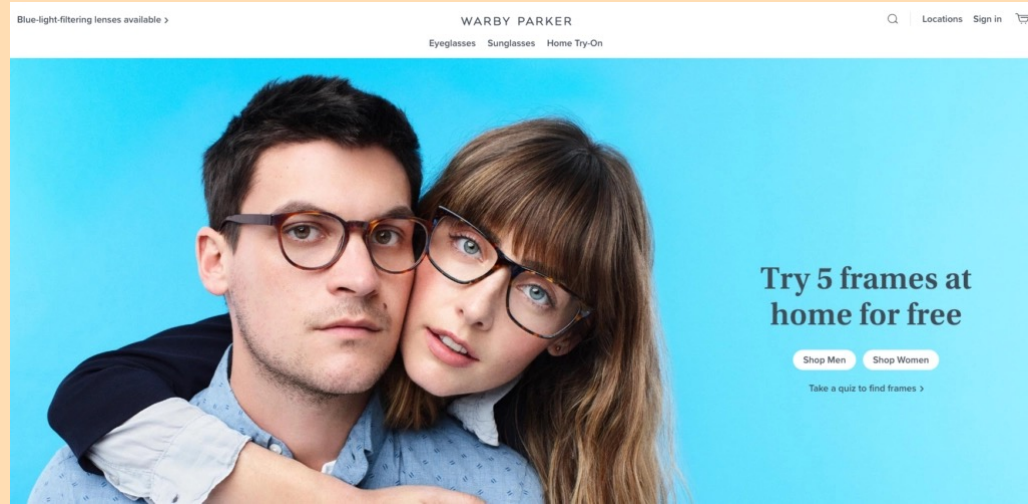
Warby Parker's purchase funnel

- Take the Style Quiz → Home Try-On → Purchase the Perfect Pair of Glasses
- During the Home Try-On stage, I will be conducting an A/B Test:

  - 50% of the users will get 3 pairs to try on

  - 50% of the users will get 5 pairs to try on

- The data will be distributed across three tables:

  - `quiz`

  - `home_try_on`

  - `purchase`

Warby Parker's Style Quiz

Warby Parker greets new visitors with a quiz to find the perfect pair of frames on their homepage

To help users find their perfect frame, Warby Parker has a Style Quiz that has the following questions:

- "What are you looking for?"
- "What's your fit?"
- "Which shapes do you like?"
- "Which colors do you like?"
- "When was your last eye exam?"
- The users' responses are stored in a table called survey.

2. SQL Query and Results

Funnels & Tables used

Quiz Funnel:
- `survey`

Home Try-On Funnel:
- `quiz`
- `home_try_on`
- `purchase`

`quiz` funnel

- -- get a feel of the survey table
- SELECT *
- FROM survey
- LIMIT 10;
-
  -- see the number responses for each question
- SELECT question, COUNT(*) AS 'number of responses'
- FROM survey
- GROUP BY 1
- ORDER BY 2 DESC;

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

percentage of users who answer each question
(Google Sheets used separately)

question	num_response	%Total	Completion rate
1. What are you looking for?	500	25.2%	
2. What's your fit?	475	23.9%	95.0%
3. Which shapes do you like?	380	19.1%	80.0%
4. Which colors do you like?	361	18.2%	95.0%
5. When was your last eye exam?	270	13.6%	74.8%
	1986		

`home_try_on` funnel

- `-- 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;`

user_id	style	fit
4e8118dc-bb3d-49bf-85fc-cca8d83232ac	Women's Styles	Medium
291f1cca-e507-48be-b063-002b14906468	Women's Styles	Narrow
75122300-0736-4087-b6d8-c0c5373a1a04	Women's Styles	Wide
75bc6ebd-40cd-4e1d-a301-27ddd93b12e2	Women's Styles	Narrow
ce965c4d-7a2b-4db6-9847-601747fa7812	Women's Styles	Wide

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
00a9dd17-36c8-430c-9d76-df49d4197dcf	8	Women's Styles
00e15fe0-c86f-4818-9c63-3422211baa97	7	Women's Styles
017506f7-aba1-4b9d-8b7b-f4426e71b8ca	4	Men's Styles
0176bfb3-9c51-4b1c-b593-87edab3c54cb	10	Women's Styles
01fdf106-f73c-4d3f-a036-2f3e2ab1ce06	8	Women's Styles

New table with a certain layout

Each row will represent a single user from
the browse table:

```
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 q.user_id = p.user_id
```

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

Calculate conversion rates

```
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 q
LEFT JOIN home_try_on h
ON q.user_id = h.user_id
LEFT JOIN purchase p
ON q.user_id = p.user_id
)
SELECT 1.0 * SUM(is_purchase)/ COUNT(user_id) AS total_conversion,
1.0 * SUM(is_home_try_on) / COUNT(user_id) AS quiz_to_home,
1.0 * SUM(is_purchase) / SUM(is_home_try_on) AS home_to_purchase
FROM funnel
```

- Total Conversion Rate: 49.5%
- Quiz to Home Conversion Rate: 75%
- Home to Purchase Rate: 66%

total_conversion	quiz_to_home	home_to_purchase
0.495	0.75	0.66

3-pair vs 5-pair A/B Test

```
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 q
LEFT JOIN home_try_on h
ON q.user_id = h.user_id
LEFT JOIN purchase p
ON q.user_id = p.user_id
)
SELECT ROUND(1.0 * SUM(is_purchase) /
SUM(is_home_try_on),2) AS three_conversion
FROM funnel
WHERE number_of_pairs = '3 pairs'
SELECT ROUND(1.0 * SUM(is_purchase) /
SUM(is_home_try_on),2) AS five_conversion
FROM funnel
WHERE number_of_pairs = '5 pairs'
```

three_conversion
0.53

five_conversion
0.79

- Conversion rate of customers who received 3 pairs: 53%
- Conversion rate of customers who received 5 pairs: 79%

Action Plan

1. During the quiz, the completion rate of the No.5 question "When was your last eye exam?" drastically dropped, suggesting that this question might be too sensitive or troublesome to answer. The company should replace this question.

Action Plan

2. As for the conversion rates, home-to-purchase conversion rate, 66%, is apparently lower that quiz-to-home conversion rate, suggesting that the process of home try-on wasn't satisfactory enough for customers to purchase.

Thus, I suggest the company further investigate into this to pinpoint the source of the problem, be it delivery experience, glasses design, or payment.

Action Plan

3. As for the A/B test, customers who received 5 pairs to try on were far more likely to make the purchase. The company should thus consider offering 5 pairs to all customers to try on.