



Funnels with Warby Parker

Learn SQL from Scratch

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1. Project Overview

Project Overview

Project Objective: Provide analytics on Warby Parker's marketing funnels and understand where customers drop off as they move through steps of the purchase process.

Through the course of the project, we'll visit series of data within four tables (**survey**, **quiz**, **home_try_on**, and **purchase**) and perform queries as well as conversion rate calculations to assess whether consumer behavior is aligned with Warby Parker's marketing objectives.

WARBY PARKER HIGH LEVEL PURCHASE FUNNEL

Take the Style Quiz

Home Try On

Purchase
Glasses

2. Style Quiz Funnel

Style Quiz Funnel

First, we'd like to get familiar with the data presented in the **survey** table, which contains customer's responses to the Style Quiz.

```
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

Style Quiz Funnel

To create a funnel on the Style Quiz, we run the query below. The funnel results demonstrate the number of responses received by each user per quiz question.

```
SELECT question,  
COUNT(DISTINCT user_id) as  
'responses per question'  
FROM survey  
GROUP BY question;
```

question	responses per question
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

Style Quiz Funnel

By running the quick query below, we can verify that we have a total of 500 unique users in the **survey** table.

```
SELECT COUNT(DISTINCT user_id)
FROM survey;
```

After calculating the completion rate for each question, we can see that questions 3 and 5 have the lower completion rates.

question	responses per question	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	74.8%

Users may drop off at questions 3 due to the amount of time it'd take them to evaluate and decide which shapes they prefer, as they are making a decision without yet having seen those shapes on their face. Users may exit the quiz at question 5 if: a) they don't remember the last time they went to the eye doctor and don't want to spend time looking back in their calendars to answer accurately, b) they know their prescription hasn't been updated in over a year, so they decide not to purchase glasses with an outdated prescription, or c) they have never had an eye exam.

3. Home Try On Funnel: A/B Testing

Home Try On Funnel

We'll analyze the results of an A/B test where half of the customer population will get 3 pairs in the Home Try On and the other half will receive 5 pairs.

Let's get familiar with the data presented in the three tables: **quiz**, **home-try_on**, and **purchase** tables.

We can see the resulting column headers by running the query below.

```
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
d8add87-3217-4429-9a01-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-acc-c-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
01fd106-f73c-4d3f-a036-2f3e2ab1ce06	8	Women's Styles	Lucy	Jet Black	150

Home Try On Funnel

We can create a funnel table to demonstrate the following:

- Each unique user ID per customer participating in the A/B test in the 'user_id' column
- If customers partook in the Home Try On program, the 'is_home_try_on' column reads 'True' using a CASE statement.
- If customers did the Home Try On, the 'number_of_pairs' column shows how many pairs they received (as part of the A/B test).
- If the customer made a final purchase from Warby Parker, the 'is_purchase' column reads 'True' using a CASE statement.

We selected the first 10 rows to visualize the new **funnel** table. Below are the SQL query and the first 5 rows of the table as an example.

```
WITH funnel AS
  (SELECT DISTINCT quiz.user_id AS 'user_id',
    CASE WHEN home_try_on.user_id IS NOT NULL
      THEN 'True' ELSE 'False'
    END AS 'is_home_try_on',
    home_try_on.number_of_pairs AS 'number_of_pairs',
    CASE WHEN purchase.user_id IS NOT NULL
      THEN 'True' ELSE 'False'
    END AS 'is_purchase'
  FROM quiz
  LEFT JOIN home_try_on
    ON home_try_on.user_id = quiz.user_id
  LEFT JOIN purchase
    ON purchase.user_id = home_try_on.user_id)
SELECT *
FROM funnel
GROUP BY user_id
LIMIT 10;
```

user_id	is_home_try_on	number_of_pairs	is_purchase
00a9dd17-36c8-430c-9d76-df49d4197dcf	True	5 pairs	True
00e15fe0-c86f-4818-9c63-3422211baa97	True	3 pairs	True
0143cb8b-bb81-4916-9750-ce956c9f9bd9	False		False
016078d5-b646-49a8-abfe-5b6c5670b47a	False		False
017506f7-aba1-4b9d-8b7b-f4426e71b8ca	True	3 pairs	True

4. Findings & Insights

Findings & Insights: A/B Conversion

To analyze the results of the A/B test, we performed calculations with the following resulting table:

number_of_pairs	num_quiz	num_home_try_on	num_purchase	quiz_to_home_try_on	home_try_on_to_purchase
0 pairs	250	0	0	0.0	
3 pairs	379	379	201	1.0	0.530343007915567
5 pairs	371	371	294	1.0	0.792452830188679

Conversion Observations:

- For both variants (customers receiving 3 pairs and customers receiving 5 pairs), 100% of customers who took the quiz ended up using the Home Try On program.
 - 53% of customers who received 3 pairs in the Home Try On ended up making a final purchase
 - 79% of customers who received 5 pairs in the Home Try On ended up making a final purchase

Conclusion: Customers who are given more frame options to try at home are more likely to finalize a purchase!

Findings & Insights: Overall Conversion

For the overall conversion, we ran a query to analyze the following table:

num_quiz	num_home_try_on	num_purchase	total_quiz_to_hto	total_hto_to_purchase	overall_conversion
1000	750	495	0.75	0.66	0.495

Conversion Observations:

- The total conversion rate of customers moving from the Style Quiz to utilizing the Home Try On program was 75%.
- The total conversion rate of customers moving from the Home Try On to making a final purchase was 66%.
- The overall conversion rate (i.e. the total number of customers that made a final purchase out of the total number of customers that took the Style Quiz) equated to 49.5%.

Conclusion: For the full population of customers, about half made it through the funnel from Style Quiz to a final frame purchase!

Findings & Insights: Additional Information

By running queries on the individual tables, we discovered the following:

model_name	style	frames purchased
Eugene Narrow	Women's Styles	116
Dawes	Men's Styles	107
Brady	Men's Styles	95
Lucy	Women's Styles	86
Olive	Women's Styles	50
Monocle	Men's Styles	41

fit	fit count
Narrow	408
Medium	305
Wide	198
I'm not sure. Let's skip it.	89

color	color count
Tortoise	292
Black	280
Crystal	210
Neutral	114
Two-Tone	104

“Eugene Narrow” is the most purchased frame for women (and overall), and Daves is the most purchased frame for men!

On the Style Quiz, Narrow was the most popular fit, and Tortoise was the favorite color (followed closely by black)!

**Thank you Codecademy
& Warby Parker**