



Warby Parker Marketing Funnels Project

Learn SQL from Scratch

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1. Getting Familiar with Warby Parker

1.1 Getting Familiar with Warby Parker

Warby Parker is a revolutionary retail company whose main marketing channel is allowing customers to try on at home a number of their products before making a final purchase. The funnel starts on their website with a quiz to the customer about what types of styles and colors they would be looking for. From there, customers can pick a number of styles matching that criteria or any others that Warby Parker offers to be sent to their home directly to try on before making their final decision for purchase.

Our goal for this exercise is to:

- Analyze the marketing channels from quiz to purchase for any patterns
- Recommend any actionable insights from analysis

WARBY PARKER

2. The Survey Funnel

2.1 The Survey Funnel: What's in the data?

Our table contains a full list of all the quiz responses in three columns:

- Question: The question is the user answering
- User_id: Unique user identification for user taking the survey
- Response: Multiple choice answer given in the survey

Each row of the table represents one question response by one user. If a user left the quiz in the middle of the survey, they would cease having any more rows populated in the table.

```
-- Explore survey table
SELECT *
FROM survey
LIMIT 10;

-- Get unique questions in
to understand the funnel
SELECT DISTINCT question AS
'survey_question_funnel'
FROM survey;
```

survey_question_funnel
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?

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

2.2 The Survey Funnel: Finding dropout points

In order to understand the success of driving users to finish the survey and move onto the home try on step, we want to make it as easy as possible to get through the survey. Let's look at how many users make it through the whole survey by counting how many answered the first question all the way to the last and looking for high dropout rates between questions.

```
-- Count the responses for each question to  
understand dropout throughout the survey
```

```
SELECT  
    question,  
    COUNT(question) AS 'num_responses'  
FROM survey  
GROUP BY question;
```

question	num_responses
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 The Survey Funnel: Finding dropout points

Using the number of responses for each question, we can see which points in the survey caused users to dropout. Two additional columns have been added to count the number and the rate of dropout.

- Highest dropout comes at the last question. Questions like this are factual and hard to find the answer if you don't know. Perhaps leaving this question off is an option, especially considering this would only apply to those interested in purchasing prescription glasses.
- The question about shapes also seemed to cause a high dropout rate. Could more education about glasses shapes and corresponding face shapes be added to with this question in increase completion?

question	num_responses	dropout count	dropout rate
1. What are you looking for?	500		
2. What's your fit?	475	25	5.0%
3. Which shapes do you like?	380	95	20.0%
4. Which colors do you like?	361	19	5.0%
5. When was your last eye exam?	270	91	25.2%

3. The Home Try-On Funnel

3.1 The Home Try-On Funnel: What's in the data?

The home try-on funnel data is spread out into 3 tables:

- users that took the quiz
- users that did a home try-on
- users that purchased

Each table's first column is `user_id`, which is our primary key for each and is the columns we will join on all three tables.

```
-- Explore quiz, home  
try-on, and purchase tables
```

```
SELECT * FROM quiz LIMIT 5;  
SELECT * FROM home_try_on  
LIMIT 5;  
SELECT * FROM purchase  
LIMIT 5;
```

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

user_id	number_of_pairs	address
d8addd87-3217-4429-9a01-d56d68111da7	5 pairs	145 New York 9a
4e71850e-8bbf-4e6b-acc4-49a7bb46c586	3 pairs	347 Madison Square N

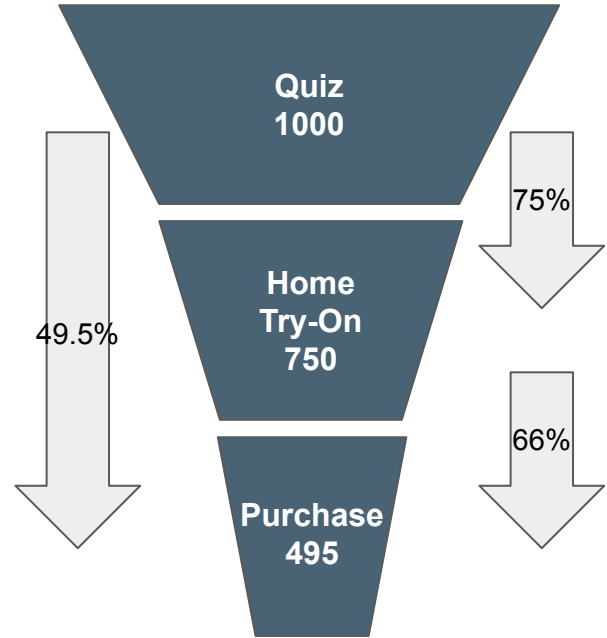
user_id	product_id	style	model_name	color	price
00a9dd17-36c8-430c-9d76-df49d4197dcf	8	Women's Styles	Lucy	Jet Black	150
017506f7-aba1-4b9d-8b7b-f4426e71b8ca	4	Men's Styles	Dawes	Jet Black	150

3.2 The Home Try-On Funnel: Overall Conversion

We can count the number of users that reach each part of the funnel with the query to the right, then calculate the conversion between each step in the funnel (in Excel or similar.)

Overall conversion is 49.5%.
Conversion from quiz to home try-on is 75% and
conversion from home try-on to purchase is 66%.

```
WITH results_table AS (  
  SELECT quiz.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,  
         CASE WHEN purchase.user_id IS NOT NULL  
           THEN 'True' ELSE 'False'  
         END AS 'is_purchase'  
  FROM quiz  
  LEFT JOIN home_try_on  
    ON quiz.user_id = home_try_on.user_id  
  LEFT JOIN purchase  
    ON quiz.user_id = purchase.user_id  
  GROUP BY quiz.user_id )  
SELECT 'quiz' AS 'funnel_step', COUNT(*) AS  
  'count' FROM results_table  
UNION  
SELECT 'home_try_on' AS 'funnel_step', COUNT(*)  
  AS 'count' FROM results_table WHERE  
  is_home_try_on = 'True'  
UNION  
SELECT 'purchase' AS 'funnel_step', COUNT(*) AS  
  'count' FROM results_table WHERE is_purchase =  
  'True'  
ORDER BY 2 DESC;
```



3.3 The Home Try-On Funnel: Num of Try-On Pairs A/B Test

To look at the different test groups, we need to count the number of users and purchases in each group. With a slight change to our previous query, we can easily count the number of users and sum the number of purchases in each group.

The table below shows the output of this query. What we clearly see is that purchase rate of the 5 pair home try-on test group (79.25%) is much higher than the 3 pair try-on test group (53.03%.) Going forward, Warby Parker should offer 5 pairs for home try-on to increase conversion.

number_of_pairs	count	purchase	conversion_rate
3 pairs	379	201	53.03
5 pairs	371	294	79.25

```
-- Create a temporary table with numerical binary
values for whether user did home try-on and purchased

WITH results_table AS (
  SELECT
    quiz.user_id,
    CASE WHEN home_try_on.user_id IS NOT NULL
      THEN 1 ELSE 0 END AS 'is_home_try_on',
    home_try_on.number_of_pairs,
    CASE WHEN purchase.user_id IS NOT NULL
      THEN 1 ELSE 0 END AS 'is_purchase'
  FROM quiz
  LEFT JOIN home_try_on
    ON quiz.user_id = home_try_on.user_id
  LEFT JOIN purchase
    ON quiz.user_id = purchase.user_id
  GROUP BY quiz.user_id
)
SELECT
  number_of_pairs,
  COUNT(*) AS 'count',
  SUM(is_purchase) as 'purchase',
  ROUND((1.0*SUM(is_purchase))/COUNT(*)*100,2) AS
  'conversion_rate'
FROM results_table
WHERE is_home_try_on = 1
GROUP BY number_of_pairs;
```

4. Evaluating Product Offering

4.1 Evaluating Product Offering: What is available?

If we assume every product has sold at least one unit, we can use our data to find the current product offering from Warby Parker. We can pull every unique product from the purchase table to get this. For this exercise, we will evaluate *color* for only *women's styles*.

Warby Parker offers 3 women's glasses styles with two in 2 different colors for a total product offering of 5 unique styles.

Reorienting this data to match our more general colors, we see they offer 3 colors.

```
WITH product_offering AS (  
  SELECT model_name, color  
  FROM purchase  
  WHERE style LIKE 'Women%'  
  GROUP BY model_name, color  
)  
SELECT  
  CASE  
    WHEN color LIKE '%Tortoise' THEN  
      'Tortoise'  
    WHEN color LIKE '%Black' THEN  
      'Black'  
    WHEN color LIKE '%Crystal' THEN  
      'Crystal'  
    WHEN color LIKE '%Neutral' THEN  
      'Neutral'  
    WHEN color LIKE '%Two-Tone' THEN  
      'Two-Tone'  
    ELSE 'Other'  
  END AS 'style_color',  
  COUNT(*) AS 'count'  
FROM product_offering  
GROUP BY 1;
```

model_name	color
Eugene Narrow	Rose Crystal
Eugene Narrow	Rosewood Tortoise
Lucy	Elderflower Crystal
Lucy	Jet Black
Olive	Pearled Tortoise

color	count	%
Black	1	20%
Crystal	2	40%
Tortoise	2	40%

4.2 Evaluating Product Offering: What users want

Understanding the color percentage breakdown of the offering will be an interesting piece of data to match up to our survey data.

From the quiz table, we find that tortoise is the color with the most interest from the survey - it was chosen 30% of the time. Black was chosen 27% of the time and Crystal was chosen 23% of the time.

Given these results, WP should continue to invest in tortoise frames as they are doing. They should add another option for black frames give the high interest and scale back on investment in the crystal frames. They could also add one frame for neutral and two-tone colors considering there is some interest for these colors.

```
-- Find color with the most interest from the quiz responses

SELECT color, COUNT(*) AS 'count'
FROM quiz
WHERE style LIKE 'Women%'
GROUP BY color
ORDER BY 2 DESC;
```

color	count	%
Tortoise	142	30.3%
Black	126	26.9%
Crystal	106	22.6%
Neutral	58	12.4%
Two-Tone	37	7.9%