



Warby Parker Capstone Project

Learn SQL from Scratch

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Table of Contents

1. The Quiz
2. Home Try-On & More

1. The Quiz

1.1 Warby Parker Quiz Questions

1.2 The Quiz Funnel

1. Warby Parker Quiz Questions

Warby Parker has a Style Quiz for customers to find the perfect frame based on their responses. Warby Parker captures the user's identification, the question and the user's answer. The table looks like this:

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. The Quiz Funnel

Results

- 500 users respond to question one
- Only 270 users, or 54%, complete all five questions
- Question five has the greatest abandonment rate, followed by question three

A few plausible reasons for question abandonment

Question five - "When was your last eye exam?"

- Users might not know this answer
- Users might not want to admit that it's been a long time since their last eye exam
- Users might have decision fatigue (is five questions is too many?)
- Users might perceive this question to be too personal

Question three - "Which shapes do you like?"

- Users might not know which shape(s) compliments their features
- Frame shape might feel like a foreign language
- Users get distracted by something else (a tweet, cute dog pics, their boss walks by?)

```
5 SELECT question, COUNT(DISTINCT user_id)
6 FROM survey
7 GROUP BY 1
8 ORDER BY 1;
```

Question	Number of Responses	% Completion Rate
1. What are you looking for?	500	
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	75%

2. Home Try-On & More

2.1 Home Try-On A/B Testing

2.2 Home Try-On A/B Testing continued

2.3 Conversion

2.4 Quiz Results

2.5 Popularity

2.6 Average Purchase Price + Actionable Insights

2.1 A/B Testing with Home Try-On Funnel

Prework:

- Identify the column names for the the quiz, home_try_on and purchase tables

```
10 SELECT *
11 FROM quiz
12 LIMIT 5;
13
14 SELECT *
15 FROM home_try_on
16 LIMIT 5;
17
18 SELECT *
19 FROM purchase
20 LIMIT 5;
```

quiz Table Columns	home_try_on Table Columns	purchase Table Columns
user_id	user_id	user_id
style	number_of_pairs	product_id
fit	address	style
shape		model_name
color		color
		price

- LEFT JOIN these three tables on the column name they all share: user_id
- This joined table has been given its own temporary name, 'funnel', in the following examples.

```
22 SELECT DISTINCT q.user_id,
23                 h.number_of_pairs,
24                 h.user_id IS NOT NULL AS 'is_home_try_on',
25                 p.user_id IS NOT NULL AS 'is_purchase'
26 FROM quiz q
27 LEFT JOIN home_try_on h
28     ON q.user_id = h.user_id
29 LEFT JOIN purchase p
30     ON p.user_id = h.user_id
31 LIMIT 10;
```

2.2 A/B Testing with Home Try-On Funnel

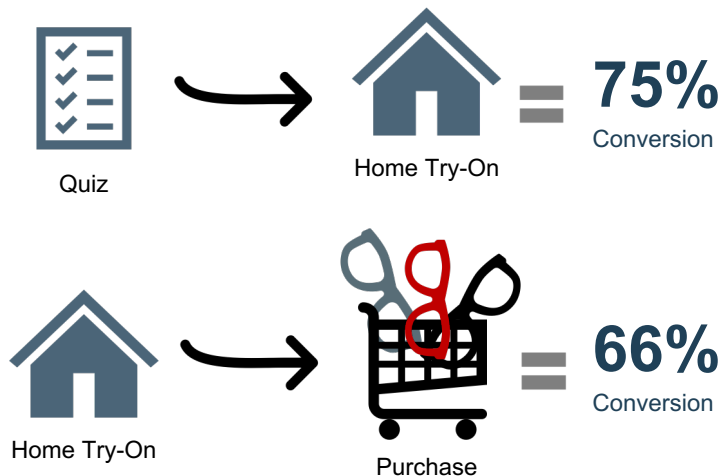
A/B Testing: Which home try-on quantity leads to more purchases?



```
33 WITH funnel AS (  
34     SELECT DISTINCT q.user_id,  
35         h.number_of_pairs,  
36         h.user_id IS NOT NULL AS 'is_home_try_on',  
37         p.user_id IS NOT NULL AS 'is_purchase'  
38 FROM quiz q  
39 LEFT JOIN home_try_on h  
40     ON q.user_id = h.user_id  
41 LEFT JOIN purchase p  
42     ON p.user_id = h.user_id  
43 SELECT SUM(is_home_try_on) AS 'num_try_on',  
44     SUM(is_purchase) AS 'num_purchase'  
46 FROM funnel  
47 WHERE number_of_pairs IS NOT NULL  
48 GROUP BY number_of_pairs;
```

# Try-On	# of Pairs	# Purchase	% Conversion
379	3 pairs	201	53%
371	5 pairs	294	79%

2.3 Conversion Summary



Overall Conversion Rate: **49.5%**

```
50 WITH funnel AS (  
51   SELECT DISTINCT q.user_id,  
52     h.number_of_pairs,  
53     h.user_id IS NOT NULL AS 'is_home_try_on',  
54     p.user_id IS NOT NULL AS 'is_purchase'  
55   FROM quiz q  
56   LEFT JOIN home_try_on h  
57     ON q.user_id = h.user_id  
58   LEFT JOIN purchase p  
59     ON p.user_id = h.user_id)  
60   SELECT COUNT(user_id) AS 'num_quiz',  
61     SUM(is_home_try_on) AS 'num_try_on',  
62     SUM(is_purchase) AS 'num_purchase',  
63     1.0 * SUM(is_home_try_on) / COUNT(user_id) AS '% Quiz to Try-on',  
64     1.0 * SUM(is_purchase) / SUM(is_home_try_on) AS '% Try-on to Purchase',  
65     1.0 * SUM(is_purchase) / COUNT(user_id) AS '% Total Conversion'  
66   FROM funnel;
```

# Quiz Response	# Home Try-On	# Purchases	Quiz to Try-on	Try-on to Purchase	Total Conversion
1000	750	495	75%	66%	49.5%

2.4. Quiz Results

Quiz response results seem to indicate:

- Users shopping for Men's Styles prefer a narrow fit.
- Users shopping for Women's Styles aren't sure about the fit they prefer, but they like square shaped, tortoise colored frames.

Style	Fit	Shape	Color	Results
Women's Styles	I'm not sure. Let's skip it.	Square	Tortoise	292
Men's Styles	Narrow	Round	Black	280
Men's Styles	Narrow	Square	Crystal	210
Men's Styles	Narrow	Square	Neutral	114
Men's Styles	Narrow	Round	Two-Tone	104

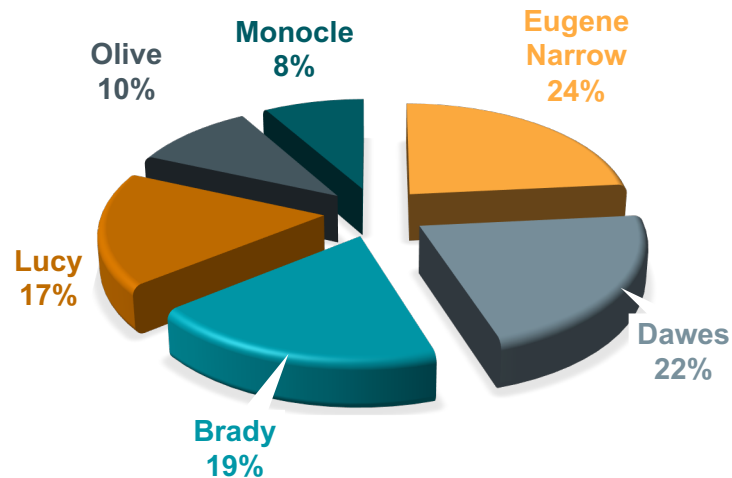
```
SELECT style, fit, shape, color,  
COUNT(DISTINCT user_id) AS 'results'  
FROM quiz  
GROUP BY 4  
ORDER BY 5 DESC;
```

2.5 Popularity Based on Purchases

Frame Model	Style	Number of Purchases
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

```
SELECT DISTINCT model_name, style,  
COUNT(user_id) AS 'num_purchases'  
FROM purchase  
GROUP BY model_name  
ORDER BY 3 DESC;
```

FRAME PURCHASES



2.6 Average Purchase Price + Actionable Insight

Customers that purchase Women's Styles spend, on average, \$2.14 more per transaction than customers purchasing Men's Styles.

Number of Purchases	Average Price
495	\$112.72

Style	Number of Purchases	Average Price
Women's Styles	252	\$113.77
Men's Styles	243	\$111.63

```
SELECT COUNT(user_id) AS 'num_purchases',  
round(AVG(price), 2) AS 'avg_price'  
FROM purchase;
```

```
SELECT style, COUNT(user_id) AS 'num_purchases',  
round(AVG(price), 2) AS 'avg_price'  
FROM purchase  
GROUP BY style  
ORDER BY 3 DESC;
```

Actionable Insight:

1. Consider adding more narrow fits to the Men's catalog since the Quiz results indicate men like the narrow fit.
2. Based on Women's Style purchases, the Eugene Narrow is quite popular. Consider additional colors and keep an eye on inventory levels – selling out means missed sales.
3. Eliminate the 3 pair Home Try-On program. The 5 pair Home Try-On box converts to purchases much better. Having only one Try-On box quantity will eliminate confusion for shipping and fulfillment teams.
4. Sales seem to be split rather equally, both in quantity and dollars, between Men's and Women's Styles. If this is the goal, keep the marketing efforts consistent. If not, consider changing the marketing strategy.
5. Research why so many users shopping for Women's Styles answer the quiz fit question with "I'm not sure. Let's skip it." Is there something Warby Parker could provide that would help women with this question?