



# Warby Parker Case

Learn SQL from Scratch

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# 1. Quiz Funnel

# 1.1 The Survey

By selecting all the columns from the survey table we can see that the three columns are:

- Question
- User\_Id
- Response

```
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

## 1.2 The Survey Results

From using the query on the right we are able to build a funnel to analyse the number of responses to each of the questions. We want to count the number of responses (user\_id) column and rather than having that as the text name we have used an alias as “result” to improve the readability of the results.

Below illustrates the number of respondents to each of the questions in the survey.

Question	Result
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

```
SELECT question, COUNT(user_id) as result
FROM survey
GROUP BY question;
```

## 1.3 The Survey Completion Rates

- By dividing the number of people completing each question/ by the number of people completing the previous question will give us the completion rate. It can then be used to determine the drop off rate of responses for each of the questions which then allows Warby Parker to re-assess the questions in the quiz and make changes.
- We can see that Questions 2 and 4 have high completion rates, but Questions 3 and 5 have lower rates.
- The lowest results came from Q5. asking when their last eye examination was which may be personal information that they don't want to share/may be embarrassed by the time lapse or feel like they won't be able to get the at home service if they haven't had an examination for quite some time.
- Question 3 regarding the shapes also came in slightly lower. It may be due to respondents not knowing what they actually want /like or perhaps the quiz should be changed to show illustrations on real life pictures rather than drawings to give consumers more of an idea of the differences.

Question	Result	Response %
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	75%

## 2. Home Try-On Funnel

## 2.1 Home Try-On

- By selecting the first 5 rows from each table we are able to get a visual feel for the type of data included in each and the column names that they each contain.
- The quiz table contains 5 columns: user\_id, style, fit, shape and color.
- The home\_try\_on table contains 3 columns: user\_id, number\_of\_pairs and address
- The purchase table contains 6 columns: user\_id, product\_id, style, model\_name, color and price.
- As a starting point for analyzing any data by performing a simple query like this enables the analyst to start thinking about any links for queries and what data is available ( e.g. Joins with user\_id columns that appear in all 3 tables)

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

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

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



## 2.2 Home Try-On- LEFT JOIN

- A LEFT JOIN is added into the query so that we can join the 3 tables ( quiz, home\_try\_on and purchase) altogether, while still retaining any unmatched rows. Combining the information allows us to easily review and analyze the data and makes it easier to build onto the query.
- As user\_id is the matching value in all of the tables, we use this to tell SQL how to perform the join amongst the 3 tables
- By selecting only certain columns from each table and using DISTINCT to filter, the readability of the results is easier as SELECT \* will result in all 14 columns and user\_id column in multiple times.
- By including IS NOT NULL query results in either a 1 (True) if a non-empty value is found and a 0 ( False) if a NULL value is found. Using our example if the user\_id field is not in the purchase table, but has participated in the home try on, a 1 ( True) will be the result of the 'is\_home\_try\_on' and a 0 ( False) will be the result in the 'is\_purchase' column.

```
SELECT DISTINCT quiz.user_id,  
                home_try_on.number_of_pairs,  
                home_try_on.user_id IS NOT NULL AS  
'is_home_try_on',  
                purchase.user_id IS NOT NULL 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  
LIMIT 10;
```

## 2.3 Home Try-On Results

- We can see that of the 1000 respondents for the quiz that 75% of respondents went on to participate in the home try on.
- Of those 750, 495 then went on to make a purchase representing 66%
- Warby Parker can work on decreasing the 25% drop off rate from the quiz to encourage more people to participate in the home- try on.

```
WITH funnels AS (  
    SELECT DISTINCT quiz.user_id,  
        home_try_on.number_of_pairs,  
        home_try_on.user_id IS NOT NULL AS 'is_home_try_on',  
        purchase.user_id IS NOT NULL 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 COUNT(*) AS 'num_quiz_responses',  
        SUM(is_home_try_on) AS 'num_try_on',  
        SUM(is_purchase) AS 'num_purchase',  
        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 funnels;
```

num_quiz_responses	num_try_on	num_purchase	quiz to home	home to purchase
1000	750	495	0.75	0.66

## 2.4 Home Try-On Number of Pairs Analysis

- We know from the previous query that of the 1000 respondents for the quiz that 250 of those didn't partake in the home try on. We can also see this below, this time the results have been split up to show those that took home 3 pairs vs 5 pairs for the home try on.
- 379 of the respondents were sent 3 pairs for home try on which resulted in a 53% home to purchase in comparison to the 371 that were sent 5 pairs which resulted in a 73% purchase rate.
- Warby Parker can work on increasing the home try on pairs from 3 to 5, as the data shows as the number of pairs increase, purchases also increase.
- The average purchase price paid for glasses is \$112.72

num_quiz_responses	num_try_on	num_purchase	quiz to home	home to purchase
250	0	0	0	
379	379	201	1	53%
371	371	294	1	79%

```
WITH funnels AS (  
  SELECT DISTINCT quiz.user_id,  
    home_try_on.number_of_pairs,  
    home_try_on.user_id IS NOT NULL AS 'is_home_try_on',  
    purchase.user_id IS NOT NULL 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 COUNT(*) AS 'num_quiz_responses',  
  SUM(is_home_try_on) AS 'num_try_on',  
  SUM(is_purchase) AS 'num_purchase',  
  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 funnels  
GROUP BY number_of_pairs  
ORDER BY number_of_pairs;  
  
SELECT ROUND(AVG(price), 2) as 'Average Price'  
FROM purchase;
```

# **3. Additional Findings**

## 3.1 Additional findings – Style Quiz

- By querying the quiz table we can see the results of each individual column
  - Color: Tortoise, black and crystal were the most popular choices by both male and females. Overall accounted for 78% of the results. The only difference in choice by males and females was Two-tone and Neutral color, where Two-tone was more popular with the men (13% of respondents) in comparison to 8% of respondents for the females. Neutral color choice was selected by 10% of the male respondents and 12% for females.
  - Style: Of the 1000 responses, 432 were men and 469 woman. 99 respondents chose to skip the question
  - Shape: Both sexes preferred Rectangular and square shape overall making up 72% of the responses, with 10% having no preference to the shape.
  - Fit: Over 71% of respondents stated that their face shape was narrow or medium, 9% were unsure despite the quiz prompting the user to choose medium if they were unsure.

## 3.2 Additional findings – Purchase

- By querying the purchase table we can see the results of each individual column
  - Price: We can see that there is 3 different price points; \$50, \$95 and \$150, with \$95 being the most popular with 261 of the 495 purchases falling into this category. A total of \$55,795 of sales were made from purchases.
  - Color: Top 3 Color purchases were: Jet Black (86 purchases), Driftwood Fade (63 purchases) and Rosewood Tortoise (62 purchases) making up 43% of the total purchases.
  - Style: Of the 495 purchases, 243 were Men's styles and 252 were Woman's styles.
  - Product\_Id: Top 3 products were #3, #10 and #9 making up 36% of all purchases.
  - Model\_name: 45% of purchases made came from products where Eugene Narrow and Dawes were modelling the frames. Eugene models the top 2 products ( product\_id # 10 & 9), Dawes has the top selling product (#3) and models product #4 which has sold 44 pairs.

# 4. Conclusion

## 4.1 Conclusion & Actionable Insights

- Warby Parker can work on decreasing the 25% drop off rate from the quiz to encourage more people to participate in the home- try on.
- Increasing the home try on pairs from 3 to 5, as the data shows as the number of pairs increase, purchases also increase.
- The Survey results showed a decrease in Q3 ( shapes) and Q5 (last eye examination). Warby Parker could work on tweaking the way the question is asked, changing the question or altering the cartoon images to real life pictures to enable participants to clearly see the shapes. The majority of the survey questions are looking for what customers are interested in to generate a filtered result of glasses they may like. We noted that Q5 had the lowest response. It could be asked on another page ( i.e. the address page when the take home glasses are sent out) and replaced with another question that could filter more results out for the participants needs ( i.e. What brands they are interested in) Warby Parker should be looking at getting as much data as possible from the questions about their likes to increase the home try on %.
- Warby Parker could test taking away the ability to skip the question and then analyze the data again to see if there is a drop off from participants giving up on doing the survey or if it benefits the data as each response % would be 100% .
- The purchase data showed that Eugene and Dawes modelled the top 3 selling products, Warby Parker could look at changing the models for the lower selling products (i.e. product #2, #8 and 5) and then re-analyzing purchasing data to see if this makes impacts positively on purchase rates.