



An Analysis of *Warby Parker*

Capstone Project for *Learn SQL from Scratch*
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August 3, 2018



Table of Contents

1. Who is ***Warby Parker***?
2. What does our data look like?
3. Consumer ***Style Quiz*** Analysis

- *What survey questions are customers choosing to not answer?*
- *Are the majority of customers in need of eye exams?*
- *Do customers change color preferences when purchasing eyeglasses?*

4. ***Home Try-On Funnel*** Analysis

- *Do customers who take advantage of Warby Parker's Home Try-On Program actually purchase eyeglasses?*
- *Of the customers who do take advantage of the Home Try-On Program, are they more likely to make a purchase if they try 3 or 5 pairs of eyeglasses?*

5. Consumer Purchase Trends

- *What style of eyeglasses are most popular among the purchases made?*
- *What are the most popular SKUs being purchased by customers?*
- *Which model is grossing the most total profit?*



1. Who is *Warby Parker*?



1.1 Who is *Warby Parker*?



- An eyewear **industry disruptor**
- **In-House Designer** of trendy, custom-fitted eyeglasses
- **Revolutionary provider** of a home try-on program where consumers can try on multiple pairs of glasses at home before purchasing their perfect pair of glasses
- **Global servants:** for every one pair of glasses sold, one pair is distributed to someone in need
- **A kind company** where employees treat customers the way employees would like to be treated

* *Information sourced directly from WarbyParker.com*

2. What does our data look like?



2.1 What does our data look like?

Quiz Funnel:

survey:

question	user_id	response
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Home Try-On Funnel:

quiz:

user_id	style	fit	shape	color
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home_try_on:

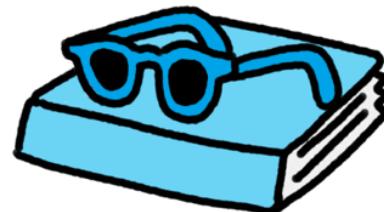
user_id	number_of_pairs	address
---------	-----------------	---------

purchase:

user_id	product_id	style	model_name	color	price
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The database schema to the right detail the tables we have been provided from *Warby Parker* to analyze different marketing funnels. The *survey* table will be used to analyze the **Quiz Funnel**. This will help us to determine best practices for how to ask customers about their preferences.

The *quiz*, *home_try_on*, and *purchase* tables will allow us to analyze the **Home Try-On Marketing Funnel**. This will help us determine targeting techniques for various eyeglasses and prices.



3. Consumer *Style Quiz* Analysis



3.1 Consumer *Style Quiz* Analysis - What's a *Style Quiz*?

Prior to picking the perfect frame, online shoppers are given a ***Style Quiz*** that consists of 5 questions to provide customers with personally-catered suggestions:

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?*”

The SQL code to the right queries the number of responses for each question from each *distinct* user ID so that a user ID is not counted more than once.

SQL Code Used to Count *Style Quiz* Response Counts:

```
SELECT question AS 'Survey Question',
       COUNT(DISTINCT user_id) AS 'Count of Distinct User Submissions'
  FROM survey
 GROUP BY question;
```



3.2 Consumer Style Quiz Analysis - What survey questions are customers choosing to not answer?

Below are the results from the *Style Quiz* SQL query shown in slide 3.1. It can be noted that Questions 3 and 5 have the lowest number of responses and can be considered the biggest deterrent questions. Instead of asking which shapes customers like, *Warby Parker* could ask a question that is more specific for each shape. For example, the question could be, “*Do you like round shapes - yes or no?*” or “*Do you like oval shapes - yes or no?*” This could potentially guide customers better and help make the selection process easier.

For Question 5, instead of asking for a specific date, the *Style Quiz* could ask a more general question: “*Do you think your most recent prescription has expired - yes or no?*” Not having to think back to a rough date may be easier for customers and result in more customers answering these questions.

Survey Question	Count of Distinct User Submissions	% of Users Who Answered Each Question
1. What are you looking for?	500	100.0%
2. What's your fit?	475	95.0%
3. Which shapes do you like?	380	80.0%
4. Which colors do you like?	361	95.0%
5. When was your last eye exam?	270	74.8%

NOTE These percentages are based on the number of answers of the previously asked question. For example, the percentage of shoppers who answered Question 3 (“*Which shapes do you like?*”) can also be phrased as “*Of the 475 users who answered Question 2, what percentage of shoppers answered Question 3?*”

3.3 Consumer Style Quiz Analysis - Are the majority of customers in need of eye exams?

Continuing with analyzing the *Style Quiz* results, we can gain a better understanding of whether or not most customers require an eye exam before purchasing eyeglasses. Traditionally, eye exams are valid for 1 year. Using the query on the right, we can group all quiz responses by the potential answers to Question 5.

Looking at the results, we can see that about 52% of customers will not need to have an eye exam prior to purchasing eyeglasses. 48% of customers, however, will need to have an eye exam (assuming the 13% who skipped the question will need an exam).

These results help to validate that *Warby Parker* should continue to offer eye exams in their stores. The demand for an eye exam applies to roughly half of the customers who took this survey, so the offer for exams seems justified.

SQL Code Used to Count Responses to Eye Exam Question:

```
SELECT question,
       response,
       COUNT(response)
  FROM survey
 WHERE question = '5. When was your last eye exam?'
 GROUP BY 2
 ORDER BY 3 DESC;
```

Responses to “When was your last eye exam?”	Count of Responses	% of Total Q5 Responses
<1 Year	141	52.22%
1 - 3 Years	56	20.74%
3+ Years	37	13.70%
Not Sure. Let's Skip It	36	13.33%

3.4 Consumer Style Quiz Analysis - Do customers change color preferences when purchasing eyeglasses?

We can use the *quiz* table and the *purchase* table to see if customer tastes change when they decide to purchase eyeglasses. The query to the right joins these two tables and selects both the quiz question “*Which color do you like?*”, as well as the purchased color for each user who took the survey. This query to the right is *only* for customers that answered “**Black**” on the quiz. We can change which color is between the two “%” symbols to see results for other colors.

The chart below shows that a majority of customers change their minds regarding color preferences between the time they take the *Style Quiz* and make a purchase. The results might suggest that *Warby Parker* adjust this color question in the survey, because it may not be as dependable of a question.

SQL Code Used to Compare Quiz Color to Purchase Color:

```
SELECT DISTINCT(q.user_id),
    q.color AS 'Quiz Color',
    p.color AS 'Purchased Color'
FROM quiz AS 'q'
    LEFT JOIN purchase AS 'p'
        ON q.user_id = p.user_id
WHERE q.color LIKE '%Black%'
GROUP BY q.user_id
ORDER BY 3 desc;
```

Color Options on Quiz	Number of Responses on Quiz	Color Purchased Similar to Quiz Color	Count of Color Purchased Similar to Quiz Color	% of Purchases where Quiz = Purchase Color
Black	280	Jet Black	24	8.57%
Crystal	210	Elderflower Crystal OR Rose Crystal	24	11.43%
Neutral	114	All Colors	48	42.11%
Tortoise	292	Rosewood Tortoise OR Pearled Tortoise OR Layered Tortoise Matte OR Endangered Tortoise	47	16.10%
Two-Tone	104	Driftwood Fade	4	3.85%

4. Home Try-On Funnel

Analysis



4.1 Home Try-On Funnel Analysis - Do customers who take advantage of Warby Parker's Home Try-On Program actually purchase eyeglasses?

Warby Parker is curious to see whether or not users who get more pairs to try on at home will be more likely to make a purchase.

Using the SQL code to the right, we can see that 1,000 total individual quizzes were taken. Of those 1,000 quizzes taken, 750 (75%) customers opted in to try on glasses at home. Of those 75 customers who tried on eyeglasses at home, 495 (66% of the 750 home try-ons) placed an order.

SQL Code Used:

```
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 AS 'q'
    LEFT JOIN home_try_on AS 'h'
        ON h.user_id = q.user_id
    LEFT JOIN purchase AS 'p'
        ON p.user_id = h.user_id)
SELECT COUNT(*) AS 'Number of Quizzes Taken',
    SUM(is_home_try_on) AS 'Total Home Try On',
    SUM(is_purchase) AS 'Total Purchased',
    1.0 * SUM(is_home_try_on)/COUNT(user_id) AS '% Home Try On',
    1.0 * SUM(is_purchase)/SUM(is_home_try_on) AS '% Ordered of Home Try On'
FROM funnel;
```

Number of Quizzes Taken	Total Home Try On	Total Purchased	% Home Try On	% Ordered of Home Try On
1,000	750	495	75%	66%

4.2 Home Try-On Funnel Analysis - Of the customers who do take advantage of the Home Try-On Program, are they more likely to make a purchase if they try 3 or 5 pairs of eyeglasses?

Continuing to analyze the *Home Try-On Funnel*, we can try to determine whether the 3-pair or 5-pair trials are more likely to result in a customer making a final purchase.

The query to the right shows us two things:

- 1) Whether customers partook in the 3-pair trial or the 5-pair trial
- 2) Whether the customers who partook in either the 3- or 5-pair trials made an eyeglass purchase

As we can see from the results, it appears that customers who opted in to the 5-pair Home Try-On Program were about 25% more likely to make a final purchase. *Warby Parker* might consider pushing marketing for the 5-Pair Home Try-On Program going forward to enhance potential sales.

SQL Code Used To Compare Home Try-On Purchases:

```
SELECT h.user_id,  
       h.number_of_pairs,  
       p.product_id IS NOT NULL  
  FROM home_try_on AS 'h'  
 LEFT JOIN purchase AS 'p'  
    ON h.user_id = p.user_id  
 GROUP BY h.user_id  
 ORDER BY h.number_of_pairs DESC;
```



Total Home Try On	Number of Customers with 3 or 5 Pairs in Trial	Number of Customers that Purchased After Trial	% of Customers that Made a Purchase
3 Pairs	379	201	53.03%
5 Pairs	371	294	79.25%

5. Consumer Purchase Trends



5.1 Consumer Purchase Trends - What style of eyeglasses are most popular among the purchases made?

SQL Code Used to Count % of Styles Purchased:

```
SELECT
    (p.style) AS 'Style Purchased',
    COUNT(p.style) AS 'Number Purchased',
    COUNT(p.model_name) IS NOT NULL AS 'Model Purchased',
    p.color IS NOT NULL AS 'Color Purchased'
FROM quiz AS 'q'
    LEFT JOIN purchase AS 'p'
        ON q.user_id = p.user_id
GROUP BY p.style;
```

Style Purchased	Number Purchased	% of Purchased
Men's Styles	243	49.09%
Women's Styles	252	50.91%

The provided data source can help us to determine customer trends, particularly with who our customers are and what styles of eyeglasses they have purchased.

The query to the left provides us with a chance to see whether more styles are purchased for men or women. Of the 495 pairs of eyeglasses purchased, ~49% were for the men's style, and ~51% were for the women's style.

We can determine that the split is fairly even between men and women's styles, so we might suggest equal marketing efforts when it comes to targeting men and women's styles.

5.2 Consumer Purchase Trends -

What are the most popular SKUs being purchased by customers?



The data provided can also give us insights into what the most popular model and color combinations are of the 495 eyeglasses purchases.

Using the queries to the right, we can determine the exact percentages of purchases made. We can use this target to forecast demand, retarget marketing strategies, or even SKU performance.

The results can be found on slide 5.3.

SQL Code Used to Count % of Models & Colors Purchased:

```
SELECT purchase.model_name,  
       purchase.color,  
       COUNT (purchase.color)  
  FROM purchase  
 WHERE model_name = 'Dawes'  
 GROUP BY purchase.color;
```

```
SELECT purchase.model_name,  
       purchase.color,  
       COUNT (purchase.color)  
  FROM purchase  
 WHERE model_name = 'Lucy'  
 GROUP BY purchase.color;
```

```
SELECT purchase.model_name,  
       purchase.color,  
       COUNT (purchase.color)  
  FROM purchase  
 WHERE model_name = 'Eugene Narrow'  
 GROUP BY purchase.color;
```

```
SELECT purchase.model_name,  
       purchase.color,  
       COUNT (purchase.color)  
  FROM purchase  
 WHERE model_name = 'Brady'  
 GROUP BY purchase.color;
```

```
SELECT purchase.model_name,  
       purchase.color,  
       COUNT (purchase.color)  
  FROM purchase  
 WHERE model_name = 'Monocle'  
 GROUP BY purchase.color;
```

```
SELECT purchase.model_name,  
       purchase.color,  
       COUNT (purchase.color)  
  FROM purchase  
 WHERE model_name = 'Olive'  
 GROUP BY purchase.color;
```

5.3 Consumer Purchase Trends - What are the most popular SKUs being purchased by customers?

Model Name	Color	Number Purchased	% of Total Purchases
Dawes	Driftwood Fade	63	12.73%
Eugene Narrow	Rosewood Tortoise	62	12.53%
Eugene Narrow	Rose Crystal	54	10.91%
Brady	Layered Tortoise Matte	52	10.51%
Olive	Pearled Tortoise	50	10.10%
Dawes	Jet Black	44	8.89%
Lucy	Elderflower Crystal	44	8.89%
Brady	Sea Glass Gray	43	8.69%
Lucy	Jet Black	42	8.48%
Monocle	Endangered Tortoise	41	8.28%

The chart to the right details the most popular models and colors that make up the 495 data points collected by *Warby Parker* in descending popularity.

The Dawes model in the Driftwood Fade color is the most popular SKU purchased as it makes up 12.73% of the 495 purchases. The most struggling SKU is the Monocle model in the Endangered Tortoise color at 8.28% of the recorded purchases.



5.4 Consumer Purchase Trends - Which model is grossing the most total profit?

The *purchase* table provided by *Warby Parker* can be used to calculate the total profit based on the models offered to customers. The query below details the total profit for all customers who made a purchase, and this is grouped by model.

We can see that sales for Olive and Monocle are the lowest grossing models. With this data, *Warby Parker* can be better informed on what decision to make regarding these models. Should they continue the models? Should they enhance marketing campaigns for these models?

Model Name	Total Profit	% of Total Profit
Dawes	\$16,050	28.77%
Lucy	\$12,900	23.12%
Eugene Narrow	\$11,020	19.75%
Brady	\$9,025	16.18%
Olive	\$4,750	8.51%
Monocle	\$2,050	3.67%

SQL Code Used to Calculate Most Profitable Models:

```
SELECT DISTINCT(model_name) AS 'Model',
SUM(price) AS 'Total Profit'
FROM purchase
GROUP BY model_name
ORDER BY 2 Desc;
```

