



# Usage Funnels

Learn SQL from Scratch

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# 1. Style quiz funnel

# 1.1 Overview of the survey table

The survey table is composed of 3 columns

- question : this column contains the 5 different questions that are asked to the users in Warby Parker's Style Quiz
- user\_id : this columns contains the user id of the user who has answered the question
- response : this columns contains the answer of the user to the specific question.

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

```
-- Query
```

```
SELECT *  
FROM survey  
LIMIT 10;
```

## 1.2 Style Quiz funnel

Amongst the 500 users who have answered the first question,

- 475 have answered the second question
- 380 have answered the 3rd question
- 361 have answered the 4th question
- 270 have answered the 5th question

The 5th question has the lowest completion rate. This might be due to the fact that the users don't remember when was their last eye exam.

The 3rd and 4th question might be too generic explaining the relatively low completion rate compared to the 1st and 2nd questions.

question	count(distinct user_id)	Completion rate
1. What are you looking for?	500	100%
2. What's your fit?	475	95%
3. Which shapes do you like?	380	76%
4. Which colors do you like?	361	72%
5. When was your last eye exam?	270	54%

-- Query

```
SELECT question, count(distinct user_id)
FROM survey
GROUP BY question;
```

## 1.3 Style Quiz funnel : conclusion

The previous analysis has shown that too generic questions can bring to lower conversion rates.

In order to improve the completion rate of the quiz, Warby Parker might consider changing some questions in order to better guide the users. For example more precise questions like « Do you like the red color ? » might get better completion rates.

The question regarding the last exam might also be rephrased in order to get a better completion rate. For example it could be replaced by : « Have you performed a eye exam in the last 2 years ? ». It would require less effort from the customer to recall this information.

## **2. Home try on funnel**

## 2.1 Overview of the quiz table

The quiz table is composed of 5 columns

- User\_id
- Style
- Fit
- Shape
- color

```
-- Query
```

```
SELECT *  
FROM quiz  
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
75122300-0736-4087-b6d8-c0c5373a1a04	Women's Styles	Wide	Rectangular	Two-Tone
75bc6ebd-40cd-4e1d-a301-27ddd93b12e2	Women's Styles	Narrow	Square	Two-Tone



## 2.2 Overview of the home\_try\_on table

The home\_try\_on table is composed of 3 columns

- User\_id
- Number\_of\_pairs
- Address

-- Query

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

user_id	number_of_pairs	address
d8addd87-3217-4429-9a01-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-accb-49a7bb46c586	3 pairs	347 Madison Square N

## 2.3 Overview of the purchase table

The home\_try\_on table is composed of 6 columns

- User\_id
- Product\_id
- Style
- Model\_name
- Color
- price

```
-- Query
```

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

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

## 2.4 Creation of a new table

We have created the requested table combining the 3 tables with LEFT JOIN on the user\_id.

The table below only displays the 5 first results of the query.

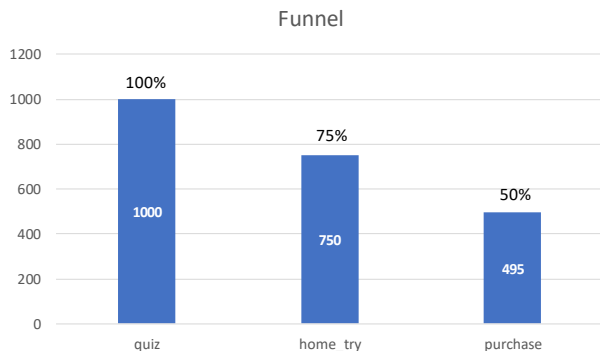
user_id	is_home_try	number_of_pairs	is_purchase
4e8118dc-bb3d-49bf-85fc-cca8d83232ac	True	3 pairs	False
291f1cca-e507-48be-b063-002b14906468	True	3 pairs	True
75122300-0736-4087-b6d8-c0c5373a1a04	False		False
75bc6ebd-40cd-4e1d-a301-27ddd93b12e2	True	5 pairs	False
ce965c4d-7a2b-4db6-9847-601747fa7812	True	3 pairs	True

```
-- Query
SELECT q.user_id,
CASE WHEN h.user_id IS NOT NULL THEN 'True'
ELSE 'False' END AS 'is_home_try',
h.number_of_pairs,
CASE WHEN p.user_id IS NOT NULL THEN 'True'
ELSE 'False' END AS 'is_purchase'
FROM
quiz AS q
LEFT JOIN home_try_on AS h
ON q.user_id = h.user_id
LEFT JOIN purchase AS p
ON h.user_id = p.user_id
LIMIT 10;
```

## 2.5 Funnel general conversion

Amongst all the people who are performing the test, 75% of them are trying pairs of glasses at home, and 50% ends up purchasing.

66% of the people who try glasses at home are purchasing in the end.



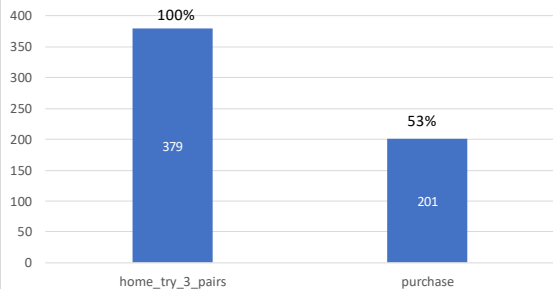
```
-- Query
WITH funnel AS (SELECT q.user_id,
CASE WHEN h.user_id IS NOT NULL THEN 'True'
ELSE 'False' END AS 'is_home_try',
h.number_of_pairs,
CASE WHEN p.user_id IS NOT NULL THEN 'True'
ELSE 'False' END AS 'is_purchase'
FROM
quiz AS q
LEFT JOIN home_try_on AS h
ON q.user_id = h.user_id
LEFT JOIN purchase AS p
ON h.user_id = p.user_id)
SELECT COUNT (distinct user_id) AS 'quiz', SUM
(CASE WHEN is_home_try = 'True' then 1 ELSE 0
END) AS 'home_try', SUM (CASE WHEN is_purchase
= 'True' then 1 ELSE 0 END) AS 'purchase'
FROM funnel;
```

## 2.5 Focus on AB testing results for home trying users

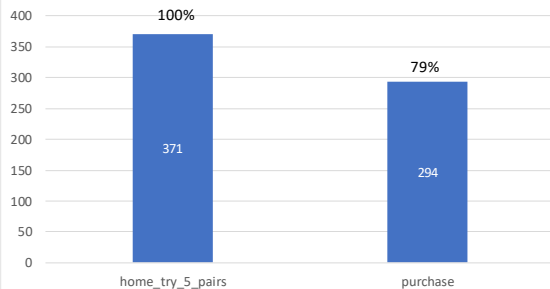
The users who are trying 5 pairs of glasses are much more likely to purchase since 79% of them are purchasing compared to 53% for the users who are trying only 3 pairs.

As a consequence Warby Parker should always send 5 pairs of glasses to the users who want to home-try.

Conversion of people who are trying 3 pairs



Conversion of people who are trying 5 pairs



```
-- Query
WITH funnel AS (SELECT q.user_id,
CASE WHEN h.user_id IS NOT NULL THEN 'True'
ELSE 'False' END AS 'is_home_try',
h.number_of_pairs,
CASE WHEN p.user_id IS NOT NULL THEN 'True'
ELSE 'False' END AS 'is_purchase'
FROM
quiz AS q
LEFT JOIN home_try_on AS h
ON q.user_id = h.user_id
LEFT JOIN purchase AS p
ON h.user_id = p.user_id)
SELECT number_of_pairs, count (*) AS
total_users, 1.0*sum (CASE WHEN is_purchase=
'True' THEN 1 ELSE 0 END) / count(*) AS
conversion_rate
FROM funnel
WHERE number_of_pairs IS NOT NULL
GROUP BY number_of_pairs;
```

# **3. Additional insights**

## 3.1 Most preferred styles

The most common answer to the style question in the quiz is «Women's style ».

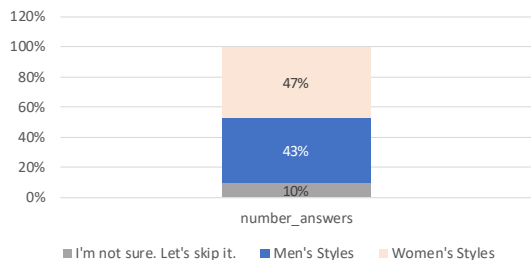
This trend is then confirmed when it comes to purchasing since it is also the most common style amongst all the purchases made.

But considering the slight difference in proportion (51% of the purchases for Women's styles and 49% for Men's style), we can say that the customer base of Warby Parker is rather well balanced.

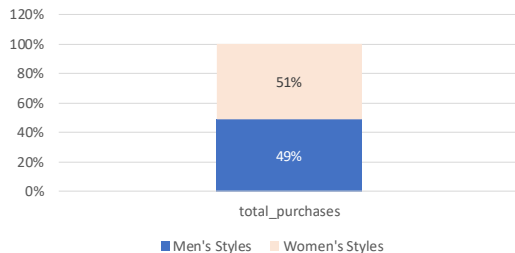
```
-- Query : quiz style answers
SELECT style, count(*) AS total_answers
FROM quiz
GROUP BY style
ORDER BY number_answers DESC;
```

```
-- Query : most common types of purchases
SELECT style, count(*) as total_purchases
FROM purchase
GROUP BY style
ORDER BY total_purchases DESC;
```

Quiz : style answers



Purchases by style



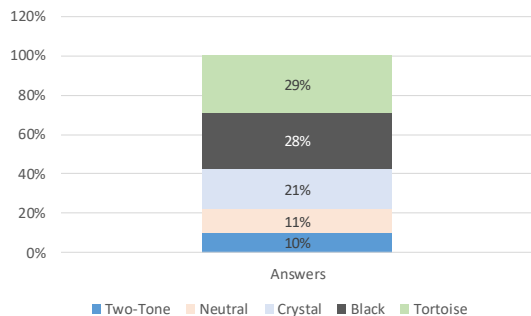
## 3.2 Most preferred colors (1/2)

Tortoise and black are the most mentioned colors in the quiz with respectively 29% and 28% of answers.

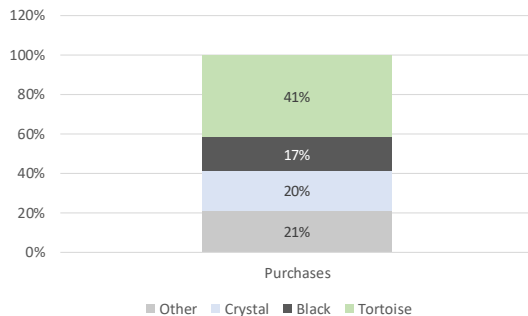
But when it comes to purchasing, only 17% of the customers buy black glasses whereas 41% of them buy tortoise glasses.

Does that mean that the people who prefer the black color didn't find any model that they like in Warby Parker's collection or did they changed their mind when having a look at the collection ?

Quiz : color answers



Purchase by color scale



```
-- Query : quiz style answers
SELECT style, count(*) AS total_answers
FROM quiz
GROUP BY style
ORDER BY number_answers DESC;
```

```
-- Query : most common types of purchases
SELECT style, count(*) as total_purchases
FROM purchase
GROUP BY style
ORDER BY total_purchases DESC;
```



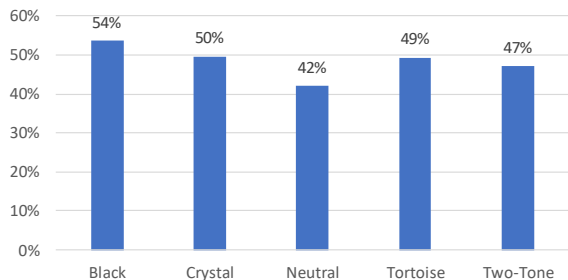
## 3.2 Most preferred colors (2/2)

In order to answer the previous answer we have analyzed the conversion rate of people according to the color they answered during the quiz.

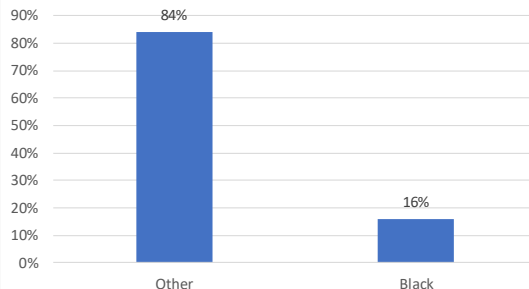
And the people who have answered black have the best conversion rate, meaning that despite the fact that they, initially, seemed to prefer black, they founded other models they liked in Warby Parker's product range.

Indeed, only 16% of the people who answered « Black » to the quiz and who made a purchase, bought a black pair of glasses.

Conversion rate per answer to the color quiz



Color purchased by the people who have answered black to the quiz



```
-- Query : conversion rate per color
WITH conversion AS (SELECT q.user_id, q.color,
CASE WHEN p.user_id IS NOT NULL THEN 'True'
ELSE 'False' END AS 'is_purchase'
FROM
quiz AS q
LEFT JOIN purchase AS p
ON q.user_id = p.user_id)
SELECT color AS quiz_color, count(distinct
user_id) AS 'answered_quiz', sum(case when
is_purchase = 'True' THEN 1 ELSE 0 END) AS
has_purchased
FROM conversion
GROUP BY quiz_color;
```

```
-- Query : color bought in the end
WITH color AS (SELECT q.user_id AS user_id,
q.color AS quiz_color, p.color AS purchase_color
FROM quiz as q
LEFT JOIN purchase as p
on q.user_id = p.user_id
WHERE purchase_color IS NOT NULL)
SELECT count (distinct user_id), quiz_color,
CASE WHEN purchase_color LIKE '%Black' THEN
'Black' ELSE 'Other' END AS purchase_black
FROM color
WHERE quiz_color = 'Black'
GROUP BY quiz_color, purchase_color;
```

## 3.3 Most preferred products

The below list of products ordered from the most purchased to the less purchased shows that :

- The most popular model for men is the Dawes with 44% of the Men's styles purchases
- The most popular model for women is the Eugene Narrow with 46% of the Women's styles purchases.

style	model_name	color	total_purchases
Men's Styles	Dawes	Driftwood Fade	63
Women's Styles	Eugene Narrow	Rosewood Tortoise	62
Women's Styles	Eugene Narrow	Rose Crystal	54
Men's Styles	Brady	Layered Tortoise Matte	52
Women's Styles	Olive	Pearled Tortoise	50
Men's Styles	Dawes	Jet Black	44
Women's Styles	Lucy	Elderflower Crystal	44
Men's Styles	Brady	Sea Glass Gray	43
Women's Styles	Lucy	Jet Black	42
Men's Styles	Monocle	Endangered Tortoise	41

```
-- Query : SELECT product_id, style,  
model_name, color, count(*) as total_purchases  
FROM purchase  
GROUP BY product_id  
ORDER BY total_purchases DESC;
```

## 3.3 Conclusion

The previous analysis shows that :

- Men and women are equally represented in Warby Parkers customer base :
  - ⇒ From a product perspective, the company should continue working on models adapted to both genders
  - ⇒ From a marketing perspective, the company should create commercials dedicated to both genders or representing both genders.
- The most popular models are Dawes for men and Eugene Narrow for women
  - ⇒ From a product perspective, when designing new models, Warby Parker could create variations of those models
  - ⇒ From a marketing perspective, Warby Parker should use those models on their commercials
- Tortoise is the most purchased color scale
  - ⇒ From a product perspective Warby Parker could propose some new colors that would be tortoise variations
  - ⇒ From a marketing perspective, Warby Parker should select tortoise models on their commercials.

THANK YOU FOR YOUR TIME !