



# Usage Funnels with Warby Parker

Learn SQL from Scratch

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1. Get familiar with Warby Parker

# 1.1 Introduction of Warby Parker

- Warby Parker is a transformative lifestyle brand with a lofty objective: to offer designer eyewear at a revolutionary price while leading the way for socially conscious businesses. Founded in 2010 and named after two characters in an early Jack Kerouac journal, Warby Parker believes in creative thinking, smart design, and doing good in the world — for every pair of eyeglasses and sunglasses sold, a pair is distributed to someone in need.
- In this presentation, we will analyze different Warby Parker's marketing funnels in order to calculate conversion rates. Here are the funnels and the tables :

Quiz Funnel:  
survey

Home Try-On Funnel:  
quiz  
home\_try\_on  
purchase

home_try_on	
750 rows	
user_id	TEXT
number_of_pairs	TEXT
address	TEXT
<b>purchase</b>	
495 rows	
user_id	TEXT
product_id	INTEGER
style	TEXT
model_name	TEXT
color	TEXT
price	INTEGER
<b>survey</b>	
1986 rows	
question	TEXT
user_id	TEXT
response	TEXT
<b>quiz</b>	
1000 rows	
user_id	TEXT
style	TEXT
fit	TEXT
shape	TEXT
color	TEXT

## 2. What is the Quiz Funnel

# 2.1 Introduction of Quiz Funnel

Darby Parker has a style quiz at their front page of their website, which contributes to our quiz funnel. Let’s have a look of the quiz table.

- 10 rows has been chosen
- 3 columns in total
- which is question, user\_id ,and 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

## 2.2 Creating the Quiz Funnel

Users will "give up" at different points in the survey. Let's analyze how many users move from Question 1 to Question 2

- create the table with 2 columns
- group by questions
- count the number of each question

Then we could find the answer in below table:

500 ppl has answered Q1, 475 ppl has answered Q2, 380 ppl has answered Q3, 361 ppl has answered Q4, and only 270 has answered Q5.

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

question	COUNT( DISTINCT user_id)
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

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3. Which shapes do you like?	380
4. Which colors do you like?	361
5. When was your last eye exam?	270



## 2.3 Conversion Rates

We are calculating the percentage of people moving from one question to another

- we found that question 5 has the lowest completion rate
- as the question 5 is asking for the last time of eye exam, this could be a very personal question to some people ,therefore this may lead to a lower completion

Question Number	Percent Completing this Question
1	100.00%
2	95.00%
3	81.72%
4	95.00%
5	74.79%

### 3. A/B Testing with Home Try-On Funnel

## 3.1 Introduction of Home-try-on Funnel

All the columns of different tables are shown in below tables:

1. We have selected all the columns of each table
2. we have selected 5 rows of each table to have a better information of each table
3. we have column: user\_id, style, fit, shape, and colour for quiz
4. we have column: user\_id, number\_of\_pairs, address for home\_try\_on
5. we have column: user\_id, product\_id, style, model\_name, color and price for purchase

```
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
75122300-0736-4087-b6d8-c0c5373a1a04	Women's Styles	Wide	Rectangular	Two-Tone
75bc6ebd-40cd-4e1d-a301-27ddd93b12e2	Women's Styles	Narrow	Square	Two-Tone
ce965c4d-7a2b-4db6-9847-601747fa7812	Women's Styles	Wide	Rectangular	Black

user_id	number_of_pairs	address
d8add87-3217-4429-9a01-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-acc-49a7bb46c586	3 pairs	347 Madison Square N
3bc8f97f-2336-4dab-bd86-e391609dab97	5 pairs	182 Cornelia St

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
01fdf106-f73c-4d3f-a036-2f3e2ab1ce06	8	Women's Styles	Lucy	Jet Black	150

## 3.2 Creating the Home Try-on Funnel

We are using the current three tables to create the home try-on funnel

- we chose distinct user\_id as the primary key of the table
- we chose is\_home\_try\_on, number\_of\_pairs, is\_purchase as the columns
- is the user chose to home try on, it will be 1 in the is\_home\_try\_on column, so as is\_purchase column
- we keep quiz as the left table and LEFT JOIN the other two tables
- we choose 10 rows to have a look of the new table

```
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 'h'  
    ON q.user_id = h.user_id  
LEFT JOIN purchase 'p'  
    ON p.user_id = q.user_id  
LIMIT 10;
```

user_id	is_home_try_on	number_of_pairs	is_purchase
4e8118dc-bb3d-49bf-85fc-cca8d83232ac	1	3 pairs	0
291f1cca-e507-48be-b063-002b14906468	1	3 pairs	1
75122300-0736-4087-b6d8-c0c5373a1a04	0		0
75bc6ebd-40cd-4e1d-a301-27ddd93b12e2	1	5 pairs	0
ce965c4d-7a2b-4db6-9847-601747fa7812	1	3 pairs	1
28867d12-27a6-4e6a-a5fb-8bb5440117ae	1	5 pairs	1
5a7a7e13-fbcf-46e4-9093-79799649d6c5	0		0
0143cb8b-bb81-4916-9750-ce956c9f9bd9	0		0
a4ccc1b3-cbb6-449c-b7a5-03af42c97433	1	5 pairs	0
b1dded76-cd60-4222-82cb-f6d464104298	1	3 pairs	0

## 3.3 Analytics

- we name the previous table we just created as 'funnel'
- we count the number of total users as 'num\_browse'
- we calculate the total amount of is\_purchase in order to get the number of people who made the purchase
- we divide the is\_purchase by num\_browse to get the percentage of people proceed to the purchase
- we find that we have 1000 people exploring the website, however only 495 proceed to purchase which only leads a 49.5% completion rates

```
WITH funnels 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 'h'  
        ON q.user_id = h.user_id  
    LEFT JOIN purchase 'p'  
        ON p.user_id = q.user_id  
)  
SELECT COUNT(*) AS 'num_browse',  
    SUM(is_purchase) AS 'num_purchased',  
    1.0* SUM(is_purchase) /COUNT(*) AS 'browse_to_purchase'  
FROM funnels;
```

num_browse	num_purchased	browse_to_purchase
1000	495	0.495

we are still using the funnels to compare the conversion rate:

1. we have the total number of browse and purchase which is 1000 and 495 accordingly
2. now we are getting the number of home try on
3. we divide is\_home\_try\_on by num\_browse, and is\_purchase by is\_home\_try\_on
4. then we get the conversion rate accordingly.
5. we could find that people is more willing to try than buy from the below table

```
WITH funnels 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 'h'  
        ON q.user_id = h.user_id  
    LEFT JOIN purchase 'p'  
        ON p.user_id = q.user_id  
)  
SELECT COUNT(*) AS 'num_browse',  
    SUM(is_home_try_on) AS 'num_tried',  
    SUM(is_purchase) AS 'num_purchased',  
    1.0* SUM(is_home_try_on)/COUNT(*) AS 'browse_to_try',  
    1.0* SUM(is_purchase)/SUM(is_home_try_on) AS 'try_to_buy'
```

num_browse	num_tried	num_purchased	browse_to_try	try_to_buy
1000	750	495	0.75	0.66

we are comparing people who willing to try 3 pairs with those willing to try five pairs:

1. we are still using funnel
2. we make the num\_of\_pair as the primary and group the data by it
3. we calculate the conversion rate from try to by in each group.
4. we find that people who is trying 5 pairs are more willing to buy

```
WITH funnels 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 'h'  
    ON q.user_id = h.user_id  
  LEFT JOIN purchase 'p'  
    ON p.user_id = q.user_id  
)  
SELECT number_of_pairs,  
  ROUND(1.0* SUM(is_purchase)/COUNT(*),2) AS 'try_to_purchase'  
FROM funnels  
WHERE number_of_pairs IS NOT NULL  
GROUP BY 1;
```

number_of_pairs	try_to_purchase
3 pairs	0.53
5 pairs	0.79



product_id	model_name	color	COUNT(*)
3	Dawes	Driftwood Fade	63
10	Eugene Narrow	Rosewood Tortoise	62
9	Eugene Narrow	Rose Crystal	54
1	Brady	Layered Tortoise Matte	52
6	Olive	Pearled Tortoise	50
4	Dawes	Jet Black	44
7	Lucy	Elderflower Crystal	44
2	Brady	Sea Glass Gray	43
8	Lucy	Jet Black	42
5	Monocle	Endangered Tortoise	41

Then we exploring more with the original data;

1. we want to locate what is the most common style.
2. we select style from quiz table and group the data by styles, we find that woman style is the most common style
3. Then we want to find what is the most common type of purchase
4. we use the product\_id from purchase table as the primary and group the data by product
5. we find that product\_id 3 is the most popular products, which has 63 purchases

```
SELECT style,  
       COUNT(*)
```

```
FROM quiz  
GROUP BY 1  
ORDER BY 2 DESC;
```

```
SELECT product_id,  
       model_name,  
       color,  
       COUNT(*)
```

```
FROM purchase  
GROUP BY 1  
ORDER BY 4 DESC;
```

# Conclusion

According to the previous analytics, we sort our below finds:

1. We find that when people conduct a survey, the last question is more likely having a lower completion rates, so does the personal questions.
2. People is willing to try the products at their home, however not everyone prepares to buy after they tried
3. People wants to try more products are having greater willingness of buying the products
4. Woman is more keen on purchasing the products than man
5. Product\_id 3 is the most popular product.