



# Funnels Capstone Project

Learn SQL from Scratch

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# **1. Get familiar with Warby Parker**

# 1.1 Database Schema

- The Warby Parker database schema is comprised of 4 tables
1. Home\_try\_on
  2. Purchase
  3. Survey
  4. Quiz
- Most columns are text format except for product\_id and price in the Purchase table
  - The tables range in the number of rows from 495 – 1986
  - The below code was used to view the data in each table

```
select *  
from home_try_on  
limit 5;
```

```
select *  
from purchase  
limit 5;
```

```
select *  
from survey  
limit 5;
```

```
select *  
from quiz  
limit 5;
```

Database Schema		
home_try_on		750 rows
user_id	TEXT	
number_of_pairs	TEXT	
address	TEXT	
purchase		495 rows
user_id	TEXT	
product_id	INTEGER	
style	TEXT	
model_name	TEXT	
color	TEXT	
price	INTEGER	
survey		1986 rows
question	TEXT	
user_id	TEXT	
response	TEXT	
quiz		1000 rows
user_id	TEXT	
style	TEXT	
fit	TEXT	
shape	TEXT	
color	TEXT	

## 1.2 Survey Table Deep Dive

- To help users find their perfect frame, Warby Parker has a Style Quiz
- A sample of the query results is below
- It has three columns
  1. Question – the question asked on the survey
  2. User\_id – alpha-numeric id assigned to each unique user
  3. Response – the users response to question

```
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

## 2. Quiz Funnel

## 2.1 Quiz Funnel

- A Quiz Funnel is used to determine when users “give up” on a survey
- It is a great way to pinpoint which question prevents users from moving forward, so we can reformat, reword, or change the question to increase completion
- Question: *What is the number of responses for each question?*
- Answer: See table to the bottom right
- Question: *Which question(s) of the quiz have lower completion rates?*
- Answer: Questions 3 and 5 have lower completion
- Question: *What do you think is the reason?*
- Answer(s):
- Question 3 - The survey might not be providing all the choices possible or wanted by the users for the shape. It would also be helpful for Warby Parker to provide a picture of the shape of the glasses to help user visualize their choices.
- Question 5 – Users may not have had an eye exam ever, or don’t remember the date or timing of their last exam. It would be helpful if you gave users multiple choices of date ranges (i.e. < 1 year, 1 – 2 years, greater than 3 years, never, etc.)

```
select question, count(distinct user_id) as user_complete
from survey
group by question;
```

question	user_complete	% Complete
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%

## **3. Home Try-on Funnel**



## 3.1 Creating a New Table

- A new table was created (code and sample outputs below) to track which users had a home try on, the number of pairs they tried, and if they purchase
- Used the Distinct statement in order to track each unique user
- Left joins were used to include all unique user ids from the Quiz table, as not all users home tried and/or purchased
- We can now use this new table to perform further analysis

```
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 q.user_id = h.user_id
left join purchase as p on q.user_id = p.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	0
75bc6ebd-40cd-4e1d-a301-27ddd93b12e2	1	5 pairs	0

## 3.2 Overall Conversion Rates

- The below code was used to generate conversion rates
- Conclusions from rates
  1. 75% of users choose to try on glasses at home
  2. Of the 75% of users which try on glasses at home, only 66% purchase a product from Warby Parker

```
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 as h on q.user_id = h.user_id
left join purchase as p on q.user_id = p.user_id)
select count(*) as 'num_quiz', sum(is_home_try_on) as 'sum_home_try_on', sum(is_purchase) as 'sum_is_purchase', 1.0 * SUM(is_home_try_on) / COUNT(user_id) as 'quiz_home_conversion', 1.0 * SUM(is_purchase) / SUM(is_home_try_on) as 'home_purchase_conversion'
from funnels ;
```

num_quiz	sum_home_try_on	sum_is_purchase	quiz_home_conversion	home_purchase_conversion
1000	750	495	0.75	0.66

## 3.3 A/B Test Number Of Pairs Home Try-On

- The below code was used to generate conversion rates grouped by the number of try-on pairs
- The group by statement at the end was added
- Conclusions from rates
  1. Users are more likely to purchase from Warby Parker if they try on 5 pairs (79%) over 3 pairs (53%)
  2. Warby Parker should allow, and probably insist, that all users try on at least 5 pairs

```
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 as h on q.user_id = h.user_id
 left join purchase as p on q.user_id = p.user_id)
select number_of_pairs, count(*) as 'num_quiz', sum(is_home_try_on) as 'sum_home_try_on', sum(is_purchase) as 'sum_is_purchase', 1.0 * SUM(is_home_try_on) / COUNT(user_id) as 'quiz_home_conversion', 1.0 * SUM(is_purchase) / SUM(is_home_try_on) as 'home_purchase_conversion'
from funnels
group by number_of_pairs;
```

number_of_pairs	num_quiz	sum_home_try_on	sum_is_purchase	quiz_home_conversion	home_purchase_conversion
0	250	0	0	0.0	0
3 pairs	379	379	201	1.0	0.53
5 pairs	371	371	294	1.0	0.79

## 4. Other Insights

## 4.1 Other Insights

- The most common style quiz response was “Women’s Style” with 469, the next highest was “Men’s Style” with 432
- Warby Parker should concentrate on both women and men’s styles as it is both closely demanded
- The most common shape quiz response was “Rectangular” with 379, the next highest was “Square” with 326
- Warby Parker should offer more selections of rectangular and square shaped glasses
- The most common model name purchased was “Eugene Narrow” with 116, the next highest was “Dawes” with 107
- Warby Parker should investigate why these two models are so popular and also develop pricing strategies around the highest demanded models
- The Eugene Narrow model is only priced at \$95, try raising the price higher to see how price sensitive customers are

--Most common style quiz response

```
select style, count(distinct user_id) as user_response
from quiz
group by style
order by user_response desc;
```

--Most common shape quiz response

```
select shape, count(distinct user_id) as user_response
from quiz
group by shape
order by user_response desc;
```

--Most common model name purchased

```
select model_name, count(distinct user_id) as purchases
from purchase
group by model_name
order by purchases desc;
```

--Price associated with model name

```
select model_name, price, count(distinct user_id) as
purchases
from purchase
group by model_name
order by purchases desc;
```