



# Usage Funnels with Warby Parker

Learn SQL from Scratch

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# **Creating the Quiz Funnel**

# Quiz Funnel - Preview Survey Table

To help users find their perfect frame, Warby Parker has a Style Quiz that has the following questions:

- 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 users' responses are stored in a table called `survey`.

Select all columns from the first 10 rows. What columns does the table have?

```
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

# Quiz Funnel - Response Count + Rate per Question

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

- Create a quiz funnel using the `GROUP BY` command.
- *What is the number of responses for each question?*

```
SELECT question, COUNT(response) AS 'Response Count'  
FROM survey  
GROUP BY question;
```

question	Response Count	Response Rate*
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%

\* Calculated in a spreadsheet as directed.

# **Creating the Home Try-On Funnel**

# Home Try-On Funnel - Preview Tables

*Let's find out whether or not users who get more pairs to try on at home will be more likely to make a purchase.*

The data will be distributed across three tables:

- `quiz`
- `home_try_on`
- `purchase`

Examine the first five rows of each table. What are the column names?

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

`quiz` columns

<code>user_id</code>	<code>style</code>	<code>fit</code>	<code>shape</code>	<code>color</code>
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`home_try_on` columns

<code>user_id</code>	<code>number_of_pairs</code>	<code>address</code>
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`purchase` columns

<code>user_id</code>	<code>product_id</code>	<code>style</code>	<code>model_name</code>	<code>color</code>	<code>price</code>
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# New 'Funnel' Table

Each row will represent a single user from the browse table:

- If the user has any entries in `home_try_on`, then `is_home_try_on` will be 'True'.
- `number_of_pairs` comes from `home_try_on` table
- If the user has any entries in `is_purchase`, then `is_purchase` will be 'True'.

Use a `LEFT JOIN` to combine the three tables, starting with the top of the funnel (browse) and ending with the bottom of the funnel (purchase).

Select only the first 10 rows from this table (otherwise, the query will run really slowly).

```
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 p.user_id = q.user_id  
LIMIT 10;
```

user_id	is_home_try_on	number_of_p airs	is_purch ase
4e8118dc-bb3d-49bf-85fc-cca8d83232ac	1	3 pairs	0
291f1cca-e507-48be-b063-002b14906468	1	3 pairs	1
75122300-0736-4087-b6d8-c0c5373a1a04	0	null	0
75bc6ebd-40cd-4e1d-a301-27dd93b12e2	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	null	0
0143cb8b-bb81-4916-9750-ce956c9f9bd9	0	null	0
a4ccc1b3-cbb6-449c-b7a5-03af42c97433	1	5 pairs	0
b1dded76-cd60-4222-82cb-f6d464104298	1	3 pairs	0



# Calculating Conversions Rates from the Home Try-On Funnel

Once we have the data in this format, we can analyze it in several ways:

- We can calculate overall conversion rates by aggregating across all rows.
- We can compare conversion from `quiz`→`home_try_on` and `home_try_on`→`purchase`.

```
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 q.user_id = h.user_id  
  LEFT JOIN purchase AS 'p'  
    ON p.user_id = q.user_id)  
SELECT COUNT(*) AS 'num_quiz',  
  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  
'browse_to_checkout',  
  1.0 * SUM(is_purchase) / SUM(is_home_try_on) AS  
'checkout_to_purchase',  
  1.0 * SUM(is_purchase) / 1000 AS 'overall  
conversion rate'  
FROM funnel;
```

num_quiz	num_try_on	num_purchase	browse_to_checkout	checkout_to_purcha se	overall conversion rate
1000	750	495	0.75	0.66	0.49

# **Insights from the Quiz Funnel**

# Are you asking the right questions?

## About the query:

- By aggregating the response count and dividing each count by that of the previous question, we're able to see the response rate for each question and construct a Quiz Funnel.

## Insights

- Generally as users proceed through any survey there tends to be drop-off along the way and we see this here too.
- Users are finding it difficult to answer questions about glasses shapes as indicated by a drop in response rate, only 80%.
- The lowest response rate can be seen for the last question regarding your last eye exam. Users are likely skipping it because they don't remember when their last eye exam was.

## Recommendations

- The question about 'What shapes do you like?' might be too abstract. Maybe show the different shaped glasses on the head selected in the previous 'What's your fit?' question so that users can visualize how frames and head shapes compliment each other.
- Warby Parker may consider eliminating the 'When was your last eye exam?' question altogether from the quiz since skipping it doesn't appear to change the result and including it seems only to delay the user from getting their results. Perhaps move this question to the checkout flow.

Question	Response Count	Response Rate
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%

# **A/B Testing with the Home Try-On Funnel**

# Customers who try on 5 pairs of glasses have a 26% higher conversion rate!

By joining the `quiz`, `home_try_on`, `purchase` tables I'm able to create a purchase funnel that allows us to see both the total number of users to complete each stage of the funnel as well as the conversation rate from one stage to the next. Also, by grouping the results by the number of pairs of glasses users tried on at home, I'm able to calculate the difference in purchase rates between customers who had 3 vs those who had 5.

- 75% of all users who completed the quiz ultimately ordered glasses to try on at home.
- 66% of all users who tried on glasses at home ultimately purchased a pair.
- Users who were sent 5 pairs of glasses were **26% more likely** to convert than users who were sent only 3 pairs.
- WP might experiment with sending 6 or 7 pairs to see if conversation rate continues to increase or drops off.

	# of user to complete quiz	# of users to try on glasses	# of users to purchase	Quiz to try on conversion rate	Try on to purchase conversion rate
	1000	750	495	75%	66%
Number of pairs	# of user to complete quiz	# of users to try on glasses	# of users to purchase	Quiz to try on conversion rate	Try on to purchase conversion rate
0	250	0	0	0.00%	0
3 pairs	379	379	201	100.00%	53.03%
5 pairs	371	371	294	100.00%	79.25%

# **Gleaning Demand Signal from Quiz and Purchase Data**

# What products are your 'browsers' looking for? (Quiz Data)

## About the query:

- By creating a query grouping user response count by the corresponding glasses features that make up the questions in the quiz, I'm able to identify the most and least popular features at the browse stage of the purchase funnel.

## Insights:

- Based on the query results, most users are looking for glasses that fit a narrow face with rectangular frames in tortoise or black.

## Recommendations:

- Warby Parker would do well to expand their product line to include more mens and womens styles with these features in order to meet the demand.
- Warby Parker could also test out including glasses with these popular features in their display ads as they are likely to garner interest from a wider audience.

Style	User Count
Women's Styles	469
Men's Styles	432
I'm not sure. Let's skip it.	99
Fit	User Count
Narrow	408
Medium	305
Wide	198
I'm not sure. Let's skip it.	89
Shape	User Count
Rectangular	397
Square	326
Round	180
No Preference	97
Color	User Count
Tortoise	292
Black	280
Crystal	210
Neutral	114
Two-Tone	104

# What products do your customers love?

## About the Query:

- By creating a query grouping purchase count by corresponding glasses feature, I'm able to identify the most and least popular features purchased through the website.

## Insights:

- Based on the query results, the mens and womens styles are purchases in close to even proportion, although in absolute numbers women both browse and purchase in slightly higher numbers.
- The Eugene Narrow is the #1 selling model, while the Monocle is the least popular.
- The most popular price point is \$95, while the least popular is \$50.
- Jet Black is the top selling color, followed by Driftwood Fade and Rosewood Tortoise.

## Recommendation:

- Warby Parker should consider featuring the Eugene Narrow in their display ads and multivariate testing it in Jet Black, Driftwood Fade, and Rosewood Tortoise for \$95.
- They might consider skewing their targeting to women as this segment appears to purchase in higher quantities than men.

Style	Purchases
Women's Styles	252
Men's Styles	243
Model Name	Purchases
Eugene Narrow	116
Dawes	107
Brady	95
Lucy	86
Olive	50
Monocle	41
Price	Purchases
95	261
150	193
50	41
Color	Purchases
Jet Black	86
Driftwood Fade	63
Rosewood Tortoise	62
Rose Crystal	54
Layered Tortoise Matte	52
Pearled Tortoise	50
Elderflower Crystal	44
Sea Glass Gray	43
Endangered Tortoise	41





THANKS!