



Capstone Project

Funnels with Warby Parker

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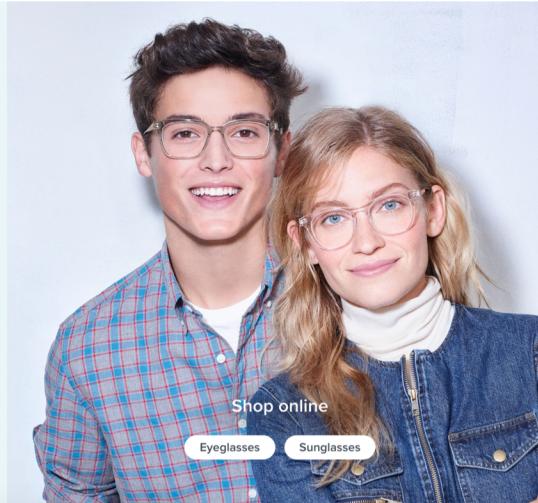
1. Warby Parker



Try frames at home—for free

See quiz results

Browse frames



Warby Parker:

- designer eyewear (sunglasses, eyeglasses) brand
- online quiz for customers to choose style
- try-on frames at home

Find frames to try on at home

Answer a few questions, select 5 frames for your Home Try-On, and we'll send them to you for free!

Take the quiz



CALCULATING YOUR RESULTS...

Pick 5 frames
Our top 5 frames for your Home Try-On
Free trial (shipping both ways is on us)

We've picked these **Try them on at home** and fit preferences.
Pick your 5 favorites and add to your trial box below!
You've got 5 days to test 'em out :-)
[See how Home Try-On works](#)

Find a favorite?

Upload your prescription at checkout and we'll get cracking on your new pair (starting at \$95, including prescription lenses!)

Cool! Show me my results.



Process:

- customer answers 5 questions
- customer chooses 5 frames
- customer tries 5 frames on at home
- customer buys (or does not buy) frame

2. Quiz Funnel

2.1 Sample of Table 'survey'

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

The table 'survey' contains the following columns:

- question
- user_id
- response

Query Results		
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 Quiz Results

What is the number of responses for each question?

question	count	% completing question
1. What are you looking for?	500	100.00%
2. What's your fit?	475	95.00%
3. Which shapes do you like?	380	80.00%
4. Which colors do you like?	361	95.00%
5. When was your last eye exam?	270	74.79%

from dividing the number of people completing each step by the number of people completing the previous step

Which question(s) of the quiz have lower completion rates? Why?

- *Question 3:* customers may have difficulty with this subjective question if they are unsure of the shapes of glasses they want
- *Question 5:* people may not know their last eye exam date and cannot answer this question off the top of their heads.

Query

```
SELECT question,  
COUNT (DISTINCT user_id) AS 'count'  
FROM survey  
GROUP BY 1;
```

3. Home Try-On Funnel

3.1 Funnel Tables

Table 'quiz'

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

Table 'home_try_on'

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

Table 'purchase'

```
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-accc-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 Create New Table (LEFT JOIN)

Used LEFT JOIN query to combine the three tables using **user_id**.

Then created three columns to show **True or False** for customers

1. who tried the glasses at home
2. number of pairs of glasses, if #1 is True (or null, if False)
3. those who purchased them

user_id	is_home_try_on	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	NULL	False
75bc6ebd-40cd-4e1d-a301-27ddd93b12e2	True	5 pairs	False
ce965c4d-7a2b-4db6-9847-601747fa7812	True	3 pairs	True
28867d12-27a6-4e6a-a5fb-8bb5440117ae	True	5 pairs	True
5a7a7e13-fbcf-46e4-9093-79799649d6c5	False	NULL	False
0143cb8b-bb81-4916-9750-ce956c9f9bd9	False	NULL	False
a4ccc1b3-cbb6-449c-b7a5-03af42c97433	True	5 pairs	False
b1dded76-cd60-4222-82cb-f6d464104298	True	3 pairs	False

Query

```
SELECT DISTINCT q.user_id,
CASE
    WHEN h.user_id IS NOT NULL
    THEN 'True'
    ELSE 'False'
END AS 'is_home_try_on',  
  
CASE
    WHEN h.number_of_pairs IS NOT NULL
    THEN h.number_of_pairs
    ELSE 'NULL'
END AS '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;
```

4. Analysis

Query

```
WITH funnels AS(
SELECT DISTINCT q.user_id,
CASE
WHEN h.user_id IS NOT NULL
THEN 'True'
ELSE 'False'
END AS 'is_home_try_on',
CASE
WHEN h.number_of_pairs IS NOT NULL
THEN h.number_of_pairs
ELSE 'NULL'
END AS 'number_of_pairs',
CASE
WHEN p.user_id IS NOT NULL
THEN 'True'
ELSE 'False'
END AS 'is_purchase')

SELECT number_of_pairs,
COUNT (DISTINCT
CASE
WHEN is_purchase = 'True'
THEN user_id
END) AS 'purchased',
COUNT (DISTINCT
CASE
WHEN is_purchase = 'False'
THEN user_id
END) AS 'not_purchased',
COUNT (is_purchase) AS 'total'
FROM funnels
WHERE number_of_pairs IS NOT 'NULL'
GROUP BY 1;
```

4.1 A/B Testing (3 pairs vs 5 pairs)

number_of_pairs	purchased	not_purchased	total
3 pairs	201	178	379
5 pairs	294	77	371

Used WITH query to analyze data using temporary 'funnels' table

Used COUNT to calculate number of people who purchased, depending on number of pairs of glasses tried.

Then to calculate purchase percentage:

- 3 pairs: $\frac{201}{379} \approx 53.03\%$
- 5 pairs: $\frac{294}{371} \approx 79.25\%$

Customers who take 5 pairs home to try are more likely to purchase a pair

4.2 Conversion Rate Analysis

quiz	num_home	num_purchase	quiz_to_home	home_to_purchase
1000	750	495	0.75	0.66

Query

```
WITH funnels AS(
SELECT DISTINCT q.user_id,
    h.user_id IS NOT NULL AS 'is_home_try_on',
    h.number_of_pairs IS NOT NULL AS '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 h.user_id = p.user_id)

SELECT COUNT (*) AS 'quiz',
    SUM(is_home_try_on) AS 'num_home',
    SUM(is_purchase) AS 'num_purchase',
    1.0 * SUM(is_home_try_on) / COUNT(user_id) AS 'quiz_to_home',
    1.0 * SUM(is_purchase) / SUM(is_home_try_on) AS 'home_to_purchase'
FROM funnels;
```

Used WITH query to analyze data using temporary '**funnels**' table

Slightly modified the query to calculate conversion rates:

- From quiz to home_try_on = **75%**
- From home_try_on to purchase = **66%**
- Overall (quiz to purchase) = **49.5%**

4.3 Most Common Results of Quiz

Queries

```
SELECT style AS 'Style', COUNT(*) AS 'Number Answered'  
FROM quiz  
GROUP BY 1;
```

```
SELECT color AS 'Color', COUNT(*) AS 'Number Answered'  
FROM quiz  
GROUP BY 1;
```

```
SELECT shape AS 'Shape', COUNT(*) AS 'Number Answered'  
FROM quiz  
GROUP BY 1;
```

```
SELECT fit AS 'Fit', COUNT(*) AS 'Number Answered'  
FROM quiz  
GROUP BY 1;
```

Results

Style	Number Answered
I'm not sure. Let's skip it.	99
Men's Styles	432
Women's Styles	469

Color	Number Answered
Black	280
Crystal	210
Neutral	114
Tortoise	292
Two-Tone	104

Shape	Number Answered
No Preference	97
Rectangular	397
Round	180
Square	326

Fit	Number Answered
I'm not sure. Let's skip it.	89
Medium	305
Narrow	408
Wide	198

4.4 Most Common Types of Purchase (product)

Query

```
SELECT product_id AS 'Product id',  
       COUNT(*) AS 'Number Purchased'  
FROM purchase  
GROUP BY 1;
```

Product number 3 is getting the most attention by customers with 63 purchases.

Product id	Number Purchased
1	52
2	43
3	63
4	44
5	41
6	50
7	44
8	42
9	54
10	62

4.4 Most Common Types of Purchase (model name)

Query

```
SELECT model_name AS 'Model Name',  
       COUNT(*) AS 'Number Purchased'  
FROM purchase  
GROUP BY 1;
```

Model Name	Number Purchased
Brady	95
Dawes	107
Eugene Narrow	116
Lucy	86
Monocle	41
Olive	50

Eugene Narrow is the most popular model among customers with 116 purchases.

4.4 Most Common Types of Purchase (color)

Query

```
SELECT color AS 'Color',
       COUNT(*) AS 'Number Purchased'
  FROM purchase
 GROUP BY 1;
```

Jet Black is the most popular color among customers with 86 purchases.

Color	Number Purchased
Driftwood Fade	63
Elderflower Crystal	44
Endangered Tortoise	41
Jet Black	86
Layered Tortoise Matte	52
Pearled Tortoise	50
Rose Crystal	54
Rosewood Tortoise	62
Sea Glass Gray	43