

Capstone Project

Warby Parker Purchase Funnels

Codecademy: Learn SQL from Scratch

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Quiz Funnel - Question 1

Question 1: Select all columns from the first 10 rows. What columns does the table have?

Answer:

- question
- user_id
- response

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

Quiz Funnel - Question 1 (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

Quiz Funnel - Question 2

Question 2: What is the number of responses for each question?

Answer:

- Question 1 - What are you looking for? 500
- Question 2 - What's your fit? 475
- Question 3 - Which shapes do you like? 380
- Question 4 - Which colors do you like? 361
- Question 5 - When was your last eye exam? 270

```
SELECT question,  
       COUNT(DISTINCT user_id) AS 'number of users  
answered'  
FROM survey  
GROUP BY question;
```

Quiz Funnel - Question 2 (Query Results)

question	number of users answered
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

Quiz Funnel - Question 3

Question 3: Which question(s) of the quiz have a lower completion rates? What do you think is the reason?

Answer:

- Question 5: “When was your last eye exam?”
- Most people probably do not recall the last date of their eye exam off the top of their head and it is not something they are prepared to answer on the spot. The other 4 questions are more around style and, presumably, if someone is in the market to buy glasses they have some idea of the style they are looking for.

Question Number	Completion %
1	$500/500 * 100 = 100\%$
2	$475/500 * 100 = 95\%$
3	$380/475 * 100 = 80\%$
4	$361/380 * 100 = 95\%$
5	$270/361 * 100 = 75\%$

Home Try-On Funnel - Question 4

Question 4: Examine the first five rows of each table
What are the column names?

Answer:

- quiz table column names
 - user_id, style, fit, shape, color
- home_try_on column names
 - user_id, number_of_pairs, address
- purchase table column names
 - user_id, product_id, style, model_name, color, price

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

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

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


Home Try-On Funnel - Question 4 (Query Results)

quiz table

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

Home Try-On Funnel - Question 4 (Query Results)

home_try_on table

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-acco-49a7bb46c586	3 pairs	347 Madison Square N
3bc8f97f-2336-4dab-bd86-e391609dab97	5 pairs	182 Cornelia St

Home Try-On Funnel - Question 4 (Query Results)

purchase table

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

Home Try-On Funnel - Question 5

Question 5: 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.

Answer:

- *See Next Slide (Query Results)*

```
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;
```

Home Try-On Funnel - Question 5 (Query Results)

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

Actionable Insights - Insight 1: Overall Conversion Rates

Insight 1: Use the select statement from Question 5 to create a temporary table by using a WITH statement. The query to the right will calculate and show overall conversion rates.

Answer:

- Total # of users was 1000, which means 1000 users took the quiz (top of funnel)
- Of those 1000 who took the quiz, 750 participated in the home_try_on (next stage in funnel) = 75%
- Of those 750 who participated in the home_try_on, 495 purchased a pair (bottom of funnel) = 66%

```
WITH PFunnel 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 h.user_id = p.user_id)
SELECT
  COUNT(user_id) AS 'Total Number of Users',
  SUM(is_home_try_on) AS 'Home Try On Total',
  SUM(is_purchase) AS 'Purchase Total',
  100 * SUM(is_home_try_on) / COUNT(user_id)
  AS '% of Users that did Home Try On',
  100 * SUM(is_purchase) /
  SUM(is_home_try_on) AS '% of Home Try On that
  Purchased'
FROM PFunnel;
```

Actionable Insights - Insight 1: Overall Conversion Rates

Total Number of Users	Home Try On Total	Purchase Total	% of Users that did Home Try On	% of Home Try On that Purchased
1000	750	495	75	66

Actionable Insights - Insight 2: Overall Conversion Rates (Broken Down By # of Pairs)

Insight 2: Modified the query from Insight 1 to calculate and show the overall conversion rates broken down by the # of pairs tried on at home (A/B test: 3 pairs or 5 pairs)

Answer:

- Of the 750 who participated in the home_try_on, more people requested 3 pairs vs. 5 pairs
 - 3 pairs (379 users) and 5 pairs (371 users)
- The conversion rate (% of users who purchased a pair) was higher for 5 pairs $(294/371) = 79\%$ vs 3 pairs $(201/379) = 53\%$

```
WITH PFunnel 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 h.user_id = p.user_id)
SELECT
  number_of_pairs,
  COUNT(user_id) as 'Total Number of Users',
  SUM(is_home_try_on) as 'Home Try On Total',
  SUM(is_purchase) as 'Purchase Total',
  100 * SUM(is_purchase) /
  SUM(is_home_try_on) AS '% of Home Try on that
  Purchased'
FROM PFunnel
GROUP BY number_of_pairs;
```


Actionable Insights - Insight 2: Overall Conversion Rates (Broken Down By # of Pairs)

number_of_pairs	Total Number of Users	Home Try On Total	Purchase Total	% of Home Try on that Purchased
∅	250	0	0	∅
3 pairs	379	379	201	53
5 pairs	371	371	294	79

Actionable Insights - Insight 3: Total Count by Style, Total Count by Color (descending order)

Insight 3: Of the 1000 users how many chose to select mens styles, womens styles or skip for style. Also, of the 1000 users how many chose black, crystal, neutral, tortoise or two-tone for color (in descending order)

Answer:

- Style: 99 skipped the question, 432 chose Men and 469 chose Women - indicating the distribution of men and women was slightly leaning towards women
- Color: 292 chose Tortoise and 280 chose Black, which made up more than half with $57\% = \{(292 + 280) / 1000 * 100\}$

```
SELECT style,  
       COUNT (*) AS COUNT  
FROM quiz  
GROUP BY style;
```

```
SELECT color,  
       COUNT (*) AS COUNT  
FROM quiz  
GROUP BY color  
ORDER BY 2 desc;
```

Actionable Insights - Insight 3: Total Count by Style, Total Count by Color (descending order)

style	COUNT
I'm not sure. Let's skip it.	99
Men's Styles	432
Women's Styles	469

color	COUNT
Tortoise	292
Black	280
Crystal	210
Neutral	114
Two-Tone	104

Actionable Insights - Insight 4: Total # of Purchases and Sales for each product_id

Insight 4: Total # of purchases and total sales for each product_id ordered by column 6 (total sales)

Answer:

- product_id 3 brought in the most sales with total sales of \$9450
- Total sales (\$9450) = number of purchases (63) * price (\$150)
- Although the top 2 product_id are Men's Styles, 4 of the top 6 are Women's Styles

```
SELECT product_id,  
       style,  
       model_name,  
       color,  
       COUNT(*) AS 'Number of Purchases',  
       SUM (price) AS 'Total Sales',  
       price  
FROM purchase  
GROUP BY 1,2,3,4  
ORDER BY 6 desc;
```

Actionable Insights - Insight 4: Total # of Purchases and Sales for each product_id

product_id	style	model_name	color	Number of Purchases	Total Sales	price
3	Men's Styles	Dawes	Driftwood Fade	63	9450	150
4	Men's Styles	Dawes	Jet Black	44	6600	150
7	Women's Styles	Lucy	Elderflower Crystal	44	6600	150
8	Women's Styles	Lucy	Jet Black	42	6300	150
10	Women's Styles	Eugene Narrow	Rosewood Tortoise	62	5890	95
9	Women's Styles	Eugene Narrow	Rose Crystal	54	5130	95
1	Men's Styles	Brady	Layered Tortoise Matte	52	4940	95
6	Women's Styles	Olive	Pearled Tortoise	50	4750	95
2	Men's Styles	Brady	Sea Glass Gray	43	4085	95
5	Men's Styles	Monocle	Endangered Tortoise	41	2050	50