codecademy

Warby Parker Funnels

Learn SQL from Scratch

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Section 1:
Quiz Funnel

1: What columns does each table have

- The quiz funnel uses just the survey table
- There are three columns:
  - question
  - user_id
  - response

```sql
-- Find column names and table structure
SELECT *
FROM survey
LIMIT 10;
```

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

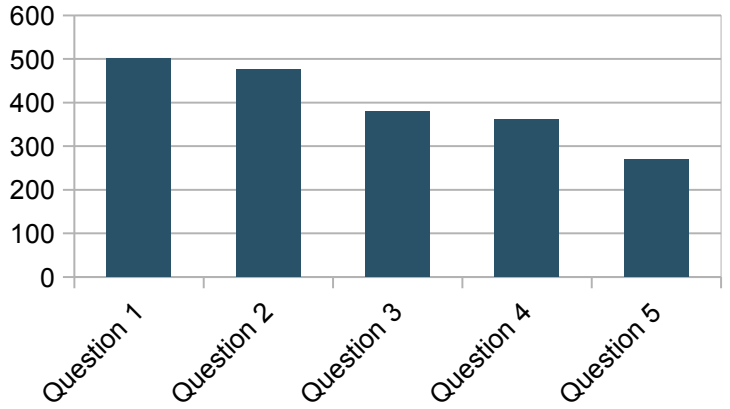
2: How many responses did each question get?

- We find this out by grouping rows based on question and counting the results

```
1  -- Show each question as well as count total lines for each
2  SELECT question,
3    count(*) as 'num_responses'
4  FROM survey
5  GROUP BY 1;
```

Query Results

question	num_responses
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



3: Questions about the quiz

- Which questions have the lowest completion rates?
  - Question 5 has the lowest completion rate at 74.8%
  - Question 3 is next lowest at 80%
- What do you think is the reason?
  - Q5: likely do not have eye exam information handy
  - Q3: uncertain of shapes that will look good on them

	A	B	C
1	Question	Responses	Percent
2	1. What are you looking for?	500	
3	2. Whats your fit?	475	95
4	3. Which shapes do you like?	380	80
5	4. Which colors do you like?	361	95
6	5. When was your last eye exam?	270	74.8

Section 2:
Try-on Funnel

4: What columns does each table have

- The try-on funnel uses 3 tables
  - quiz
    - user_id
    - style
    - fit
    - Shape
    - color
  - home_try_on
    - user_id
    - number_of_pairs
    - address
  - purchase
    - user_id
    - product_id
    - style
    - model_name
    - color
    - price

```sql
--Show structiure of each table
SELECT *
FROM quiz
LIMIT 5;

SELECT *
FROM home_try_on
LIMIT 5;

SELECT *
FROM purchase
LIMIT 5;
```

Query Results

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
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-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

5: Create joined table

- Use LEFT JOIN to combine the data from the three tables together into a single table on the user_id column

```sql
-- Combine user's entries across the 3 tables
SELECT 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;
```

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	Ø	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	Ø	0
0143cb8b-bb81-4916-9750-ce956c9f9bd9	0	Ø	0
a4ccc1b3-cbb6-449c-b7a5-03af42c97433	1	5 pairs	0
b1dded76-cd60-4222-82cb-f6d464104298	1	3 pairs	0

6.1: Calculate overall conversion rates

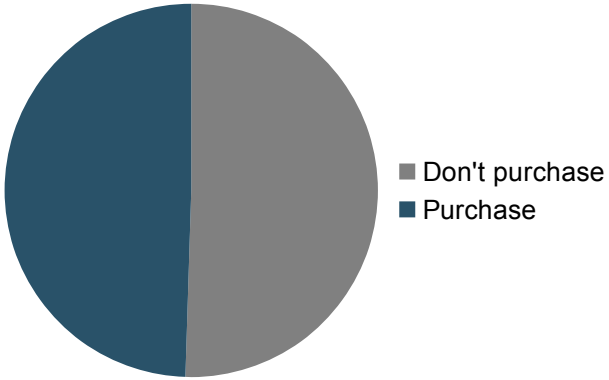
- Using the temporary table to combine user's entries, show total percent of people that purchase after taking the quiz

```sql
-- Combine user's entries across the 3 tables into a funnel
WITH funnel AS(
  SELECT q.user_id,
    h.user_id IS NOT NULL AS 'is_home_try',
    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)

-- Show total percent of people that purchase after taking quiz
SELECT COUNT(*) AS 'total_customers',
  SUM(is_purchase) as 'total_purchase',
  ROUND(100.0 * SUM(is_purchase) / COUNT(user_id),2) as 'percent_purchase'
FROM funnel;
```

Query Results

total_customers	total_purchase	percent_purchase
1000	495	49.5



6.2: Calculate conversion at each step

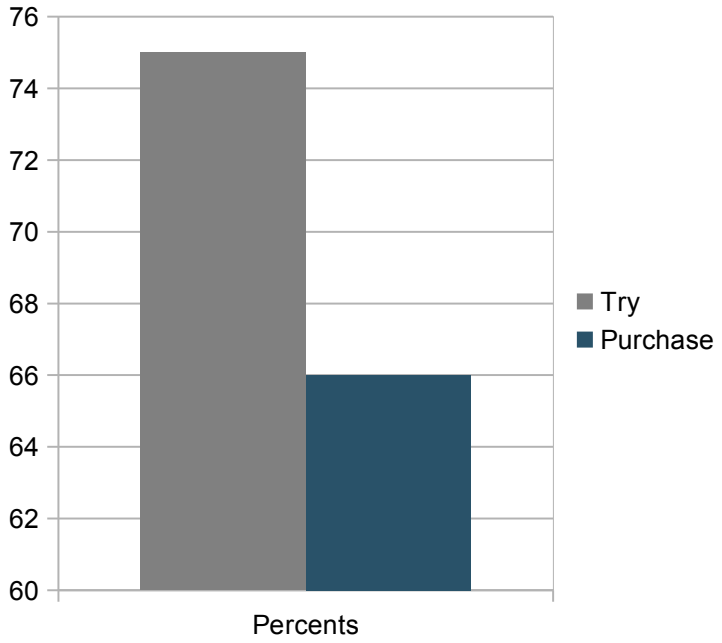
- Using the temporary table again, calculate the total and percent of people who complete each step of the process
  - Of 1000 customers, 750 (or 75%) have glasses sent to their home
  - Of those 750 customers, 495 (or 66%) end up purchasing

```sql
-- Combine user's entries across the 3 tables into a funnel
WITH funnel AS(
  SELECT q.user_id,
    h.user_id IS NOT NULL AS 'is_home_try',
    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)

-- Show total percent of people that purchase after in-home trial
SELECT COUNT(*) AS 'total_customers',
  SUM(is_home_try) as 'total_try',
  SUM(is_purchase) as 'total_purchase',
  ROUND(100.0 * SUM(is_home_try) / COUNT(user_id),2) as 'percent_try',
  ROUND(100.0 * SUM(is_purchase) / SUM(is_home_try),2) as 'percent_purchase'
FROM funnel;
```

Query Results

total_customers	total_try	total_purchase	percent_try	percent_purchase
1000	750	495	75.0	66.0



6.3: Compare 3 vs 5 frames purchase percent

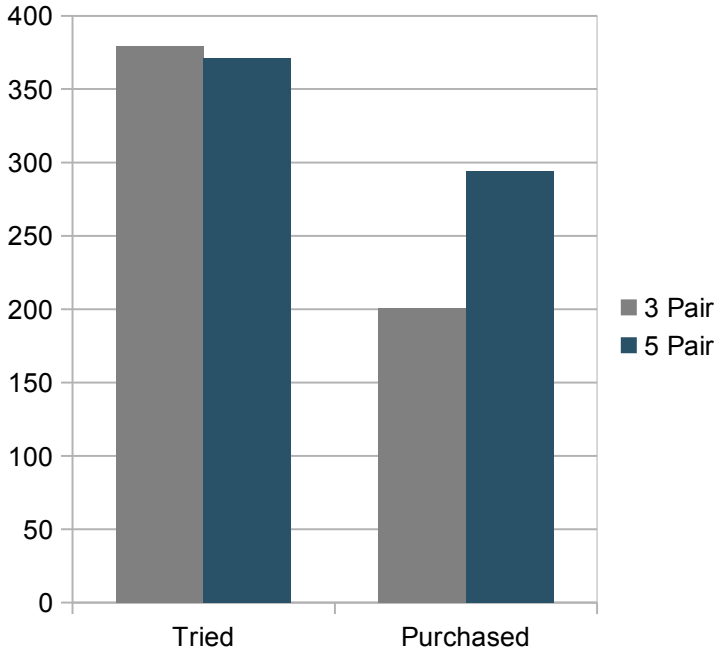
- Compare the number of people that purchased that were given 3 frames to try against those who were given 5 frames to try
  - Given 3 frames
    - 53.03% purchase
  - Given 5 frames
    - 79.25% purchase
- The 5 frames program yields higher percent of customers who purchase

```sql
-- Combine user's entries across the 3 tables into a funnel
WITH funnel AS(
  SELECT q.user_id,
    h.user_id IS NOT NULL AS 'is_home_try',
    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)

--Grab percent of customers that purchase after the in-home trial
SELECT number_of_pairs,
  SUM(is_home_try) as 'num_tried',
  SUM(is_purchase) as 'num_purchased',
  ROUND(100.0 * SUM(is_purchase) / SUM(is_home_try),2) AS 'percent_purchase'
FROM funnel
WHERE number_of_pairs IS NOT NULL
GROUP BY 1;
```

Query Results

number_of_pairs	num_tried	num_purchased	percent_purchase
3 pairs	379	201	53.03
5 pairs	371	294	79.25



6.4: Most popular answers

- What's the most popular answer for each question?
  - Style
    - Women's Styles
  - Fit
    - Narrow
  - Shape
    - Rectangular
  - Color
    - Tortoise

```sql
--Count the total for each style
SELECT style,
  COUNT(*) AS 'total'
FROM quiz
GROUP BY 1;
--Count the total for each fit
SELECT fit,
  COUNT(*) AS 'total'
FROM quiz
GROUP BY 1;
--Count the total for each shape
SELECT shape,
  COUNT(*) AS 'total'
FROM quiz
GROUP BY 1;
--Count the total for each color
SELECT color,
  COUNT(*) AS 'total'
FROM quiz
GROUP BY 1;
```

Query Results

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

fit	total
I'm not sure. Let's skip it.	89
Medium	305
Narrow	408
Wide	198

shape	total
No Preference	97
Rectangular	397
Round	180
Square	326

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

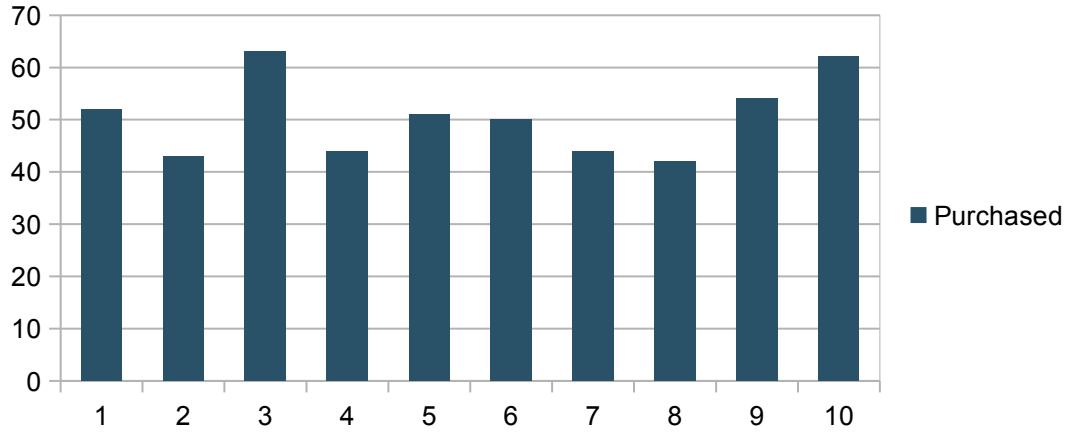
6.5: Total Product Counts

- How many of each individual product were purchased?

```sql
--How many of each product was purchased
SELECT product_id,
  COUNT(*) AS 'total_purchased'
FROM purchase
GROUP BY 1
ORDER BY 1;
```

Query Results

product_id	total_purchased
1	52
2	43
3	63
4	44
5	41
6	50
7	44
8	42
9	54
10	62



6.6: Frame income generated

- How much did each frame model make?
  - Dawes: $16,050
  - Lucy: $12,900
  - Eugene Narrow: $11,020
  - Brady: $9,025
  - Olive: $4,750
  - Monocle: $2,050

```sql
--which frame type brought in the most money
SELECT model_name,
  SUM(price) as 'total_earned'
FROM purchase
GROUP BY 1
ORDER BY 2 DESC;
```

Query Results	
model_name	**total_earned**
Dawes	16050
Lucy	12900
Eugene Narrow	11020
Brady	9025
Olive	4750
Monocle	2050