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CAPSTONE: FUNNELS WITH WARBY PARKER

LEARN SQL FROM SCRATCH

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THE QUIZ FUNNEL:

- In order to help users find the perfect frames for them, Warby Parker has a Style Quiz that asks five questions to help meet the users needs and expectations for their new glasses.
- In order to analyze The Quiz Funnel we must:
  - 1. Explore the columns of the Style Quiz table.
  - 2. Find the number of responses for each individual question of the quiz.
  - 3. Calculate the percentages of users who answer each question and present them in a spreadsheet.
    - Which questions have lower completion rates?
      - What may be the reason behind this?

THE QUIZ FUNNEL: I

- To begin the analysis of the Quiz Funnel we must understand how user responses to the Style Quiz are organized in the table titled 'survey'.
- After running a query we find there are three rows to this particular table:
  - question: which delegates the specified question asked.
  - user_id: this is representative of the specific individual who took the survey. (shown by a unique identifying number/letter combination)
  - response: tells us how the individual answered each question
- *To the right you can see the code used to find the columns of the table (above), and the query results that were produced (below).*

project.sqlite

```
1  SELECT *
2  FROM survey
3  LIMIT 10;
4
5
6
7
8
```

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

THE QUIZ FUNNEL: 2

- The second part of The Quiz Funnel analyzes how many users move from question to question along the quiz (Question 1 to 2 to 3, etc.)
  - To do this analysis I found the number of responses for each question in the survey
- Results:
  - Question 1: 500
  - Question 2: 475
  - Question 3: 380
  - Question 4: 361
  - Question 5: 270
- *Code and query results are to the right.*

project.sqlite

```
1  SELECT question, COUNT(DISTINCT user_id)
2  FROM survey
3  GROUP BY question;
4
5
6
7
8
```

Query Results

question	COUNT(DISTINCT user_id)
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

THE QUIZ FUNNEL: 3

- The third part of the quiz funnel takes a look at which questions have lower completion rates and what the reasoning behind the differing rates may be.
  - After completing part 2 of the quiz funnel, I took the query results and exported them to excel. From there I created a table showing the percentages of users who completed each question. *(this table is shown to the right)*
    - *The percentages were calculated by dividing the number of users who completed the question by the number who had completed the previous question.*

Question	Number of Users who Completed this Question	Percent Completing this Question
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	74.79%

Analysis

- After reviewing the completion percentages it is apparent that question number 5 has the lowest completion rate, with 74.79% of people who gave a response to the previous question answering.
  - One possible reason for this is that some people may not remember the last time they went to the eye doctor. This question is more inclusive than the others where they are all about their opinion on styles, fits, and colors they like.
  - Furthermore, with it being the last question it may be plausible that people may be doing this style quiz just to check out some of the frames they offer, and opt out of the last question because they do not have an intention to buy.

HOME TRY-ON FUNNEL

- After a user takes the Style Quiz they will then move on to the Home Try-On phase of the funnel before moving to the purchasing of their glasses.
- During the Home Try-On Stage we will be conducting an A/B Test:
  - 50% of the users will get 3 pairs to try on
  - 50% of the users will get 5 pairs to try on
- This data will be distributed across three different tables:
  - quiz, home_try_on, and purchase
- In order to analyze this funnel to see if users who get more pairs to try on at home will be more likely to purchase, we must:
  - 1. Examine the columns of each table
  - 2. Create a new table by combining the three tables
  - 3. Analyze the data from the new table and provide actionable insights

HOME TRY-ON FUNNEL: 1

- First we need to examine the information that each table will provide us to better understand how we can combine them.
  - The first table, quiz, provides us with
    - user_id, style, fit, shape, and color
  - The next table, home_try_on, provides us:
    - user_id, number_of_pairs, and address
  - Lastly, the table, purchase, shows us:
    - user_id, product_id, style, model_name, color, and price
  - *Query and query results are shown to the right*

project.sqlite

```sql
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

HOME TRY-ON FUNNEL: 2

- Next we need to combine the tables to better organize the data for other queries to be performed.
  - To do this we will need to LEFT JOIN the home_try_on table with the quiz table, as well as LEFT JOIN the purchase table to home_try_on.
    - We will LEFT JOIN all of these tables on their user_id columns (this way each row will represent a single user)
  - We will SELECT DISTINCT quiz.user_id, and home_try_on.number_of_pairs as well as create two new outputs utilizing the CASE command.
    - The first case is for when home_try_on is not null, which will give an output of True, and if it is null the output will be False. This new column will be named is_home_try_on
    - The second case is the same, however, is for when purchase is not null, True, and False if it is null. This new column will be named is_purchase
  - *Code and query results are displayed to the right*

project.sqlite

```
1  SELECT Distinct quiz.user_id,
2          CASE
3                WHEN home_try_on.user_id IS NOT NULL THEN 'True'
4                WHEN home_try_on.user_id IS NULL THEN 'False'
5                ELSE 'NA'
6          END AS 'is_home_try_on',
7                home_try_on.number_of_pairs,
8          CASE
9                WHEN purchase.user_id IS NOT NULL THEN 'True'
10               WHEN purchase.user_id IS NULL THEN 'False'
11               ELSE 'NA'
12         END AS 'is_purchase'
13 FROM quiz
14 LEFT JOIN home_try_on
15   ON quiz.user_id = home_try_on.user_id
16 LEFT JOIN purchase
17   ON purchase.user_id = quiz.user_id
18 LIMIT 10;
```

Query Results

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

HOME TRY-ON FUNNEL: 3 ANALYSIS

- For my analysis I first wanted to find the difference in the number of people who purchased after receiving 3 pairs to try on and 5 pairs.
  - To find the totals I conducted 2 different queries: one counting the number of purchases after they received 3 pairs and one counting purchases after receiving 5 pairs.
  - After conducting both queries we fond that 201 purchases were made after receiving 3 pairs to try on, and 294 purchases were made after receiving 5 pairs to try on
  - There were a total of 750 people who made it through to the Home Try-On Funnel.
    - Of that 750, 379 received 5 pairs and 379 received 3 pairs.
  - Given those numbers, here are the purchase rates for each scenario:
    - 3 pairs: 53.03%
    - 5 pairs: 79.25%
  - The purchase rate for those who received 5 pairs to try on is significantly higher and if Warby Parker can facilitate making a change to only sending 5 pairs it may increase their overall online sales.

project.sqlite

```
1  WITH funnel_query AS (SELECT DISTINCT quiz.user_id,
2          CASE
3                WHEN home_try_on.user_id IS NOT NULL THEN 'True'
4                WHEN home_try_on.user_id IS NULL THEN 'False'
5                ELSE 'NA'
6          END AS 'is_home_try_on',
7                home_try_on.number_of_pairs,
8          CASE
9                WHEN purchase.user_id IS NOT NULL THEN 'True'
10               WHEN purchase.user_id IS NULL THEN 'False'
11               ELSE 'NA'
12         END AS 'is_purchase'
13 FROM quiz
14 LEFT JOIN home_try_on
15   ON quiz.user_id = home_try_on.user_id
16 LEFT JOIN purchase
17   ON purchase.user_id = quiz.user_id)
18
19 SELECT COUNT(is_purchase) AS '3 pair buy'
20 FROM funnel_query
21 WHERE number_of_pairs = '3 pairs'
22   AND is_purchase = 'True';
```

Query Results

3 pair buy
201

```
19 SELECT COUNT(is_purchase) AS '5 pair buy'
20 FROM funnel_query
21 WHERE number_of_pairs = '5 pairs'
22   AND is_purchase = 'True';
```

Query Results

5 pair buy
294