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Usage Funnels With Warby Parker

Analyze Data with SQL

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1. Analysis of Survey Data

1.1 Survey Completion Analysis

- The Warby Parker survey consisted of five questions
- The questions “What is your fit?” and ‘Which colors do you like?” had the highest conversion rates.
- Question 5 (“When was your last eye exam?”) had the lowest conversion rates:
    - Conversion rate for question 5 is lowest because users may be embarrassed to answer if it has been a long time since their last exam.

Query code:

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

Question	Number of Users	Proportion of Users
1. What are you looking for?	500	
2. What's your fit?	475	0.95
3. Which shapes do you like?	380	0.8
4. Which colors do you like?	361	0.95
5. When was your last eye exam?	270	0.7479224377

2. Response and Purchase Analysis

2.1 Quiz Response Analysis

- Using the code on this slide, I determined the following responses to survey questions to be the most common:
  - “Women’s Styles” was the most popular style option with 469 users.
  - “Narrow” was the most common fit choice with 408 users selecting that option.
  - “Rectangular” was selected 397 times and was the most common choice.
  - “Turquoise” was the most commonly selected color option, it having been the choice of 292 users.

Query code:

```
SELECT <column_name>, COUNT(style) AS 'num_users'
FROM quiz
GROUP BY 1
ORDER BY 2 DESC
LIMIT 1;
```

2.2 Purchase Data Analysis

- Similar SQL code was used to determine the most commonly purchased options:
  - The most commonly purchased style was “Men’s Styles”. Glasses from “Men’s Styles” were purchased 243
  - “Eugene Narrow” was the most commonly ordered frame model. It was purchased 116 times.
  - “Jet Black” glasses were purchased by 86 users, making that the most commonly purchased color.

3. Conversion Rate Analysis

3.1 Funnel Table Code

- The adjacent SQL code was used to create a funnel table from the results in the quiz, home_try_on and purchase data sets.
- The funnel takes all of the data from the quiz data set and performs left joins on home_try_on and purchase.
- The number_of_pairs data from home_try_on is also included for A/B testing at a later date.

Query code:

```
WITH funnel_table AS (
SELECT q.*,
  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
)
```

3.2 Overall Conversion Rate

- The total number of users completing the quiz is 1000.
- Overall, the proportion of those who elected to try on glasses at home is 75% of the total population.
- Of the users who took glasses home, 66% elected to purchase frames.

Query code:

```
SELECT COUNT(user_id) AS 'num_users',
  SUM(is_home_try_on) AS 'num_home_try_on',
  SUM(is_purchase) AS 'num_purchase',
  1.0 * SUM(is_home_try_on) / (1000) AS 'prop_home_try_on',
  1.0 * SUM(is_purchase) / SUM(is_home_try_on) AS 'prop_purchase'
FROM funnel_table;
```

num_users	num_home_try_on	num_purchase	prop_home_try_on	prop_purchase
1000	750	495	0.75	0.66

3.3 Conversion Rate w/ Number of Pairs

- Customers were given the option to take pairs of frames home to try.
- Some were given 3 pairs, others 5.
- Overall, those who received 5 pairs of glasses were much more likely to purchase glasses from Warby Parker.
- There was not a single user who elected out of the home try program to buy glasses.

Query code:

```
SELECT number_of_pairs,
  COUNT(user_id) AS 'num_users',
  SUM(is_home_try_on) AS 'num_home_try_on',
  SUM(is_purchase) AS 'num_purchase',
  1.0 * SUM(is_home_try_on) / (1000) AS 'prop_home_try_on',
  1.0 * SUM(is_purchase) / SUM(is_home_try_on) AS 'prop_purchase'
FROM funnel_table
GROUP BY 1;
```

number_of_pairs	num_users	num_home_try_on	num_purchase	prop_home_try_on	prop_purchase
0	250	0	0	0	0
3 pairs	379	379	201	0.379	0.5303430079
5 pairs	371	371	294	0.371	0.7924528302

3.4 Conversion Rate w/ Frame Shape

- Customers were asked their shape preference in the survey.
- Most customers responded with a preference for “Rectangular” frames will the “No Preference” option was answered the fewest number of times.
- “No Preference” is the most likely response to result in a sale while “Square” is the least likely.

Query code:

```
SELECT shape,
  COUNT(user_id) AS 'num_users',
  SUM(is_home_try_on) AS 'num_home_try_on',
  SUM(is_purchase) AS 'num_purchase',
  1.0 * SUM(is_home_try_on) / COUNT(user_id) AS 'prop_home_try_on',
  1.0 * SUM(is_purchase) / SUM(is_home_try_on) AS 'prop_purchase'
FROM funnel_table
GROUP BY 1;
```

shape	num_users	num_home_try_on	num_purchase	prop_home_try_on	prop_purchase
No Preference	97	71	53	0.7319587629	0.7464788732
Rectangular	397	288	189	0.725440806	0.65625
Round	180	140	95	0.7777777778	0.6785714286
Square	326	251	158	0.7699386503	0.6294820717

3.5 Conversion Rate w/ Style

- Customers were asked to select a style option they were looking for.
- The most common style chosen was “Women’s Styles” while “I’m not sure. Let’s skip it.” was the least common.
- The most likely option to result in a sale was the “Men’s Styles” option.

Query code:

```
SELECT style,
  COUNT(user_id) AS 'num_users',
  SUM(is_home_try_on) AS 'num_home_try_on',
  SUM(is_purchase) AS 'num_purchase',
  1.0 * SUM(is_home_try_on) / COUNT(user_id) AS 'prop_home_try_on',
  1.0 * SUM(is_purchase) / SUM(is_home_try_on) AS 'prop_purchase'
FROM funnel_table
GROUP BY 1;
```

style	num_users	num_home_try_on	num_purchase	prop_home_try_on	prop_purchase
I'm not sure. Let's skip it.	99	69	0	0.696969697	0
Men's Styles	432	320	243	0.7407407407	0.759375
Women's Styles	469	361	252	0.7697228145	0.6980609418

4. Conclusions

4.1 Survey Data

- The conversion rate between individual questions in the survey data varied between 75 - 95%.
- The questions with the highest conversion rates were questions 2 (“What is your fit?”) and 4 (“What colors do you like?”)
- Question 5 (“When was your last eye exam?”) had the lowest conversion rate. This is likely due to users feeling embarrassed for particularly long intervals between checkups.

4.2 Overall Conversion Rates

- Overall, 75% of users took home pairs of glasses to try on. This resulted in an overall purchase rate of 66%.
- The users who took home glasses were split into two groups, those who took home 3 pairs and those with 5 pairs. 79% of the customers who took home 5 pairs bought glass, while 53% of those who brought home 3 pairs made a purchase. I advise making the 5 pair home try on program a mainstay to increase sales.
- I also analyzed conversion rates for style and shape of the frames.
    - Men's Styles performed slightly better than Women's Styles
    - While users with "No Preference" in frame shape purchased frames at the highest rates, they were also the smallest sample group by a large margin. I would instead focus on advertising rectangular frames, as they are the most popular choice with a moderate purchase rate.