codecademy

Warby Parker: A Lense into the Data

Learn SQL from Scratch

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1.1 Quiz Funnel

Users will "give up" at different points in the survey. Let's analyze how many users move from Question 1 to Question 2, etc.

We can use the query to the right to determine how many users we lose with each question. Specifically we're able to answer the question: *What is the number of responses for each question?* This produces the resultant table below:

question	num_of_users
“What are you looking for?”	500
“What’s your fit?”	475
"Which shapes do you like?"	380
"Which colors do you like?"	361
"When was your last eye exam?"	270

```
SELECT
  question,
  COUNT(user_id) AS 'num_of_users'
FROM survey
GROUP BY question
ORDER BY question ASC;
```

1.2 Quiz Funnel: Results

From the results below, we can make several inferences from this sample of users:

1) The second largest loss (15%) is from question 2 to question 3 – a number of users do NOT know their fit. It may help for Warby Parker to begin an add campaign around educating users on various fits.
2) The largest loss (20%) is from question 4 to question 5 – a number of users aren't sure of their preferred color. Again, it may help for Warby Parker to have a similar add campaign, albeit focused on color choices and options, perhaps a tie-in with Warby Parker clothing.

Question	Num. of users	Dropoff from previous question	Percent of total*	Completion rate
"What are you looking for?"	500	-	-	100%
"What's your fit?"	475	5%	95%	95% (loss of 5% from prev. question)
"Which shapes do you like?"	380	20%	76%	80% (loss of 15%)
"Which colors do you like?"	361	5%	72%	95%
"When was your last eye exam?"	270	25%	54%	75% (loss of 20%)

*out of 500 users

2 Home Try-On Funnel: A/B Test

2.1 Home Try-On Funnel: A/B Test

During the Home Try-On stage, we will be conducting an A/B Test:

- 50% of the users will get 3 pairs
- 50% of the users will get 5 pairs

To find out whether or not users who get more pairs to try on at home will be more likely to make a purchase, we first need to join our three tables:

- quiz
- home_try_on
- purchase

```
SELECT
  q.user_id,
  CASE
    WHEN h.user_id IS NULL THEN 'False'
    ELSE 'True'
  END AS 'is_home_try_on',
  h.number_of_pairs,
  CASE
    WHEN p.user_id IS NULL THEN 'False'
    ELSE 'True'
  END AS 'is_purchase'
FROM quiz 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
WHERE is_home_try_on = 'True';
```

2.2 Home Try-On Funnel: A/B Test (cont'd)

Using this query, we're able to create the following temporary table "Funnel", giving us the fields we need to conduct an A/B test: "user_id", "is_home_try_on", "number_of_pairs", and "is_purchase". We'll then be able to count the total number of users who participated in the home try-on, grouped by the number of pairs they had.

User ID	Home try-on participant	Number of pairs	Purchase made
4e8118dc-bb3d-49bf-85fc-cca8d83232ac	True	3 pairs	False
291f1cca-e507-48be-b063-002b14906468	True	3 pairs	True
75bc6ebd-40cd-4e1d-a301-27ddd93b12e2	True	5 pairs	False
ce965c4d-7a2b-4db6-9847-601747fa7812	True	3 pairs	True

2.3 Home Try-On Funnel: A/B Test (cont'd)

This query to the right allows us to count the total number of users who participated in the home try-on and made a purchase, grouped by the number of pairs they had. We turn the previous query into a table – this allows us to aggregate the data. We can count the number of purchases for each number of pairs.

```
WITH funnel AS (
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 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
)
SELECT
  number_of_pairs,
  COUNT(*) is_purchase
FROM funnel
GROUP BY number_of_pairs
ORDER BY 2 DESC;
```

2.4 Home Try-On Funnel: A/B Test Results

The results show that of the 1,000 users, 379 users made purchases after receiving 3 pairs to try on, 371 users made purchases after receiving 5 pairs to try on. This equates to roughly 38%, 37%, and 25% respectively. We can conclude that providing users with additional pairs to try on at home does not lead to more purchases.

The data proves that providing users with few pairs results in more purchases (albeit a very small increase). It would be the most beneficial for Warby Parker to continue to provide no more than 3 pairs for home-try-ons, and potentially consider offering fewer pairs for users to try.

Number of pairs	Users who purchased
3 pairs	379
5 pairs	371

3 Home Try-On Funnel: Conversion Rates

3.1 Home Try-On Funnel: Comparing Conversion

Modifying the previous query further, we can determine some actionable insights. The query to the left compares conversion between steps:

- quiz to home_try_on
- home_try_on to purchase

```
WITH funnel AS (
  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 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
)
SELECT
  COUNT(*) AS 'num_browse',
  SUM(is_home_try_on),
  SUM(is_purchase),
  1.0 * SUM(is_home_try_on) / COUNT(user_id) AS
'quiz_to_home_try_on',
  1.0 * SUM(is_purchase) / SUM(is_home_try_on) AS
'home_try_on_to_purchase'
FROM funnel;
```

3.2 Home Try-On Funnel: Comparing Conversion Results

Using this query, we can see the results displayed below. Of the initial 1000 users, 750 (or 75%) make it to home try-on. Additionally, 495 of the 700 users (or 66%) make a purchase after participating in the home try-on. There are a few actionable insights we might suggest:

Quiz to Home Try-On: Three out of four users who participate in the quiz participate the home try-on – this is a good result. Reviewing the results of the quiz funnel suggests making changes to questions 2 and 4 (or introducing add campaigns directly related to these questions) would help to increase the number of users participating in the home try-on program.

Home Try-On to Purchase: Reviewing the A/B test results, we can determine that promoting the 3 pairs of glasses (and potentially fewer pairs) for home try-on will yield potentially better results converting users from home try-on to purchase. We can conclude that giving users more free pairs to try on does NOT equate to more purchases as users may be overwhelmed with too many pairs. Instead, focus should be spent on better determining WHICH 3 pairs to offer as options for users to try-on based on their quiz responses.

num_browse	total_home_try_on	total_purchase	quiz_to_home_try_on	home_try_on_to_purchase
1000	750	495	75%	66%