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Warby Parker's Marketing Funnels

Learn SQL from Scratch

Jeremy Sikkens | January 2018

Quiz funnel

Using a spreadsheet program like Excel or Google Sheets, calculate the percentage of users who answer each question:

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

```
SELECT question,
       COUNT(*)
FROM survey
GROUP BY question;
```

Question	Amount of users	Completion rate
1	500	100%
2	475	95%
3	380	80%
4	361	95%
5	270	75%

Reasons:

- Question 5 has the lowest completion rate out of all quiz questions after which it is followed by questions 3, then 2 & 5. Optimization of the quiz funnel would be most beneficial at the final question (question 5).
- Question #5 asks about a date when an eye exam has been had. It could very well be that this information needs to be looked up, which draws away attention from the quiz. The other questions are more personal questions, where information is an opinion (and at hand).

Purchase funnel – Funnel performance

What are some actionable insights for Warby Parker?

```
SELECT DISTINCT COUNT(q.user_id),
        COUNT(h.user_id),
        COUNT(p.user_id),
        1.0 * COUNT(h.user_id) / COUNT(q.user_id) AS 'Quiz to Try On',
        1.0 * COUNT(p.user_id) / COUNT(h.user_id) AS 'Try On to Purchase',
        1.0 * COUNT(p.user_id) / COUNT(q.user_id) AS 'Avg. completion rate'
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;
```

Output:

# of Quiz users	# of Try On users	# of Purchases	Quiz to Try On	Try On to Purchase	Avg. completion rate
1000	750	495	0.75	0.66	0.495

Generic funnel performance

- 1000 users did the quiz
- 750 users proceeded to a Try On
- 495 users performed a purchase
- Funnel performance:
  - Quiz > Try On: 75%
  - Try On > Purchase: 66%
  - Avg. completion rate: 49,5%

Purchase funnel – Funnel performance (alternative method using a WITH statement)

What are some actionable insights for Warby Parker?

```
WITH funnels AS
(SELECT DISTINCT q.user_id,
        t.user_id IS NOT NULL AS 'is_home_try_on',
        p.user_id IS NOT NULL AS 'is_purchase'
FROM quiz as 'q'
LEFT JOIN home_try_on AS 't'
        ON q.user_id = t.user_id
LEFT JOIN purchase AS 'p'
        ON q.user_id = p.user_id)
SELECT COUNT(*) AS 'dist_num_quiz',
        SUM(is_home_try_on) AS 'dist_num_try_on',
        SUM(is_purchase) AS 'dist_num_purchase',
         1.0 * SUM(is_home_try_on) / COUNT(*) AS 'quiz_to_try_on',
         1.0 * SUM(is_purchase) / SUM(is_home_try_on) AS 'try_on_to_purchase'
FROM funnels;
```

Output:

dist_num_quiz	dist_num_try_on	dist_num_purchase	quiz_to_try_on	try_on_to_purchase
1000	750	495	0.75	0.66

Generic funnel performance

- 1000 users did the quiz
- 750 users proceeded to a Try On
- 495 users performed a purchase
- Funnel performance:
  - Quiz > Try On: 75%
  - Try On > Purchase: 66%
  - Avg. completion rate: 49,5%

Purchase funnel – A/B test results

What are some actionable insights for Warby Parker?

```
SELECT   COUNT(h.user_id) AS 'Home Try On Users',
         COUNT(DISTINCT CASE
                  WHEN h.number_of_pairs = '3 pairs' THEN h.user_id
                  END) AS '3 pairs',
         COUNT(DISTINCT CASE
                  WHEN h.number_of_pairs = '5 pairs' THEN h.user_id
                  END) AS '5 pairs'
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;
```

Output:

Home Try On Users	3 Pairs	5 Pairs
750	379	371

A/B test performance

- A 750 total of Home Try On Users
- Of which 379 received 3 pairs
- And 371 received 5 pairs

This equals to a fair distribution between users that received 3 or 5 number of pairs:

- 50,53% of users received 3 pairs
- 49,47% of users received 5 pairs

Purchase funnel – A/B test results

What are some actionable insights for Warby Parker?

```
SELECT
  COUNT(DISTINCT CASE
    WHEN h.number_of_pairs = '3 pairs' THEN h.user_id
    END) AS 'Purchase after 3 pairs',
  COUNT(DISTINCT CASE
    WHEN h.number_of_pairs = '5 pairs' THEN h.user_id
    END) AS 'Purchase after 5 pairs'
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
WHERE p.user_id IS NOT NULL
GROUP BY h.number_of_pairs
LIMIT 10;
```

Output:

Purchase after 3 pairs	Purchase after 5 pairs
201	294

A/B test performance

However, when looking at purchase distribution between amount of pairs, a different distribution ensues:

- Total sales: 495 (100%)
- Receiving 3 pairs: 201 (40.6%)
- Receiving 5 pairs: 294 (59.4%)

In general, receiving 5 pairs leads to more purchases than receiving 3 pairs. Hence, 5 pairs is the better result.

Purchase funnel – A/B test results

What are some actionable insights for Warby Parker?

```
SELECT
  COUNT(DISTINCT CASE
    WHEN h.number_of_pairs = '3 pairs' THEN h.user_id
    END) AS 'Purchase after 3 pairs',
  COUNT(DISTINCT CASE
    WHEN h.number_of_pairs = '5 pairs' THEN h.user_id
    END) AS 'Purchase after 5 pairs'
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
WHERE p.user_id IS NOT NULL
          AND q.style LIKE 'Women%s Styles'
GROUP BY h.number_of_pairs;
```

Output:

Purchase after 3 pairs	Purchase after 5 pairs
98	154

A/B test performance – Quiz > Style

When looking at purchases that follow after a '**Women's style**' quiz submit, the following numbers become evident:

- Total: 252 (100%)
- 3 Pairs: 98 (38.9%)
- 5 Pairs: 154 (61.1%)

The distribution of purchases follow a similar pattern as the general purchase distribution, meaning there's no big difference, hence no acute need for optimization this specific audience.

Purchase funnel – A/B test results

What are some actionable insights for Warby Parker?

```
SELECT
  COUNT(DISTINCT CASE
    WHEN h.number_of_pairs = '3 pairs' THEN h.user_id
    END) AS 'Purchase after 3 pairs',
  COUNT(DISTINCT CASE
    WHEN h.number_of_pairs = '5 pairs' THEN h.user_id
    END) AS 'Purchase after 5 pairs'
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
WHERE p.user_id IS NOT NULL
          AND q.style LIKE 'Men%s Styles'
GROUP BY h.number_of_pairs;
```

Output:

Purchase after 3 pairs	Purchase after 5 pairs
103	140

A/B test performance – Quiz > Style

When looking at purchases that follow after a **'Men's style'** quiz submit, the following numbers become evident:

- Total: 243 (100%)
- 3 Pairs: 103 (42.4%)
- 5 Pairs: 140 (57.6%)

This quiz submit performance differs slightly from the generic rhythm, but the difference in performance is still big enough to clearly validate '5 Pairs' as the winner here.

Purchase funnel – A/B test results

What are some actionable insights for Warby Parker?

```
SELECT
  COUNT(DISTINCT CASE
    WHEN h.number_of_pairs = '3 pairs' THEN h.user_id
    END) AS 'Purchase after 3 pairs',
  COUNT(DISTINCT CASE
    WHEN h.number_of_pairs = '5 pairs' THEN h.user_id
    END) AS 'Purchase after 5 pairs'
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
WHERE p.user_id IS NOT NULL
            AND q.style LIKE '%skip%'
GROUP BY h.number_of_pairs;
```

Output:

-	-
none	none

A/B test performance – Quiz > Style

When looking at purchases that follow a **'I'm not sure. Let's skip it'** quiz submit, however, there's no purchases to report on!!

(continued on the following slide!)

Purchase funnel – A/B test results (cont'd)

What are some actionable insights for Warby Parker?

```
SELECT COUNT(user_id) AS '# of Users',
            style AS 'Style'
FROM quiz
WHERE style LIKE 'I%m not sure. Let%s skip it.'
GROUP BY style;
```

Output:

# of Users	Style
99	I'm not sure. Let's skip it.

A/B test performance – Quiz > Style

There's 99 users who filled in **'I'm not sure. Let's skip it.'**, which is roughly 10% of all quiz users (1000).

However, this audience does not convert at all. No purchases can be assigned to this audience when they submit this entry.

Therefore, we can safely assume that filling in Women's style or Men's style is a prerequisite for making a purchase. We should optimize the quiz accordingly.

Purchase funnel - A/B test results & Color

```
SELECT q.color AS 'Quiz color',
       COUNT(p.user_id) AS '# of Purchases',
  COUNT(DISTINCT CASE
    WHEN h.number_of_pairs = '3 pairs' THEN h.user_id
    END) AS '3 Pairs',
  COUNT(DISTINCT CASE
    WHEN h.number_of_pairs = '5 pairs' THEN h.user_id
    END) AS '5 Pairs'
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
WHERE p.user_id IS NOT NULL
GROUP BY q.color
ORDER BY COUNT(p.user_id) DESC;
```

Quiz color	# of Purchases	3 Pairs	5 Pairs
Black	150	59	91
Tortoise	144	62	82
Crystal	104	39	65
Two-Tone	49	22	27
Neutral	48	19	29

A/B test performance - Quiz & Color

When looking at what color was submitted in the quiz and actual purchases, the following becomes evident:

- **Black** is most popular with **150** purchases **(30.3%)**, followed by **Tortoise** with 144 purchases **(29.1%)**
- Crystal scores 104 purchases **(21.0%)**
- Neutral and Two-Tone are lagging with 49 & 48 purchases **(9.9% and 9.7%)**

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Purchase funnel – A/B test results & Color (cont'd)

```
SELECT q.color AS 'Quiz color',
       COUNT(p.user_id) AS '# of Purchases',
  COUNT(DISTINCT CASE
    WHEN h.number_of_pairs = '3 pairs' THEN h.user_id
    END) AS '3 Pairs',
  COUNT(DISTINCT CASE
    WHEN h.number_of_pairs = '5 pairs' THEN h.user_id
    END) AS '5 Pairs'
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
WHERE p.user_id IS NOT NULL
GROUP BY q.color
ORDER BY COUNT(p.user_id) DESC;
```

Quiz color	# of Purchases	3 Pairs	5 Pairs
Black	150	59	91
Tortoise	144	62	82
Crystal	104	39	65
Two-Tone	49	22	27
Neutral	48	19	29

A/B test performance - Quiz & Color

- In all cases, 5 pairs has scored highest in number of purchases.
- Sum of purchases = 495, so colors are always filled in when a purchase is done
- Follow-up research should validate whether the actual purchase involved the same color as is submitted during quiz. If so, Two-Tone and Neutral should be swapped for different colors to optimize for more purchases.

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The End

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Thank you for reviewing

It's been a very interesting course and I learned so much! Thank you for all the effort!!