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Marketing Funnel Analysis with SQL

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Introduction

In this Project we will analyze a fictional Marketing Funnel by Warby Parker. Warby Parker is a lifestyle brand specializing in eyewear.

The project consists of analyzing conversion rates of two funnels, as well as checking the results of a split test we conducted.

- Funnel 1 (Quiz Funnel) consists of the table `survey`
- Funnel 2 (Home Try-On Funnel) consists of the tables `quiz`, `home_try_on` and `purchase`.

2.1 Survey Response Rates

2.1 Survey Response Rate

Warby Parker has a quiz to help find customers their favorite pair of glasses. We analyze the completion rate of each question from a sample of 500 customers. Then we calculate with Excel the respective Response Rate, one column in regard to the next question, one colum with regard to the overall completion rate.

```
SELECT COUNT(DISTINCT user_id) AS "num_responses",
  question AS "Question"
FROM survey
GROUP BY 2
ORDER BY 2 ASC;
```

Number of Responses	Question	Completion Rate from previous question	Overall Completion Rate
500	1. What are you looking for?	-	100%
475	2. What's your fit?	95%	95%
380	3. Which shapes do you like?	80%	76%
361	4. Which colors do you like?	95%	72.2%
270	5. When was your last eye exam?	74.8%	54%

Take aways:

Question 3 and especially 5 see a drop off in completion rates.
Reason for this could be that customers a) have trouble describing their favorite shapes and b) have trouble remembering their last eye exam, if they even had one.
For question 3 we could change the approach to a more visual comparison (as opposed to a purely text based answer). For question 5 we probably need to investigate the relevancy of the respective question.

2.2 A/B Testing

2.2 A/B Completion Rate Analysis

We have a funnel starting with a quiz, going to the home try-on, and ideally resulting in a purchase. 50% of customers get 3 pairs, the other half gets 5 pairs. We want to test if the number of pairs they get during their home try-on affects purchase rates. First we check for overall completion rate.

Number of Customers	Home Try-On Completionrate	Home Try-On to Purchase	Overall Completion Rate
1000	75%	66%	49.5%

Take aways:

75% will "try out at home". We can investigate if we can make the quiz more interesting or relevant. Since the A/B testing might affect and skew the purchase rates, we will look at it in more detail before we formulate further take aways.

```
WITH funnels AS (
  SELECT DISTINCT q.user_id,
    h.number_of_pairs,
    h.user_id IS NOT NULL AS "is_home_try_on",
    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(DISTINCT user_id) as num_customers,
  100.0 * SUM(is_home_try_on) / COUNT(*) AS hto_completionrate,
  100.0 * SUM(is_purchase) / SUM(is_home_try_on) AS hto_to_purchase
,
  100.0 * SUM(is_purchase) / COUNT(*) AS overall_purchase
FROM funnels;
```

2.2 A/B Completion Rate Analysis (cont.)

Now we look at the purchase rates individually for the split test. 50% of Home Try-On customers got 3 pairs of try-on glasses, the other half got 5 pairs. Does this affect the purchase rate?

Number of Pairs	Number of Customers	Home Try-On to Purchaserate
3 pairs	379	53.03%
5 pairs	371	79.25%

Take away:

It is apparent that having 5 pairs for the home try-on is more effective than the 3 pairs variant. This seems to be a strategy worth continuing.

```
WITH funnels AS (
  SELECT DISTINCT q.user_id,
    h.number_of_pairs,
    h.user_id IS NOT NULL AS "is_home_try_on",
    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(DISTINCT user_id) as num_customers,
  ROUND((100.0 * SUM(is_purchase) / COUNT(*)), 2) AS purchase_rate
FROM funnels
WHERE number_of_pairs IS NOT NULL
GROUP BY 1;
```

2.3 Top Products

2.3. Top Products

Model Name	Style	Color	Sales	Purchase Rate
Dawes	Men's Styles	Driftwood Fade	63	12.73
Eugene Narrow	Women's Styles	Rosewood Tortoise	62	12.53
Eugene Narrow	Women's Styles	Rose Crystal	54	10.91
Brady	Men's Styles	Layered Tortoise Matte	52	10.51
Olive	Women's Styles	Pearled Tortoise	50	10.1
Dawes	Men's Styles	Jet Black	44	8.89
Lucy	Women's Styles	Elderflower Crystal	44	8.89
Brady	Men's Styles	Sea Glass Gray	43	8.69
Lucy	Women's Styles	Jet Black	42	8.48
Monocle	Men's Styles	Endangered Tortoise	41	8.28

Let's see what the top sellers are, defined by style, model and color.

```
SELECT model_name,
  style,
  color,
  COUNT(product_id) as Sales,
  ROUND((100.0 * COUNT(product_id) / 495.0), 2) as "Purchase Rate
"
FROM purchase
GROUP BY 1, 2, 3
ORDER BY 4 DESC;
```

Take away:

We can establish clear winner combinations with this table. That being said, the individual differences in purchase rates are relatively small and should be taken with a grain of salt. Further information, like since when respective models are being sold, needs to be taken into account.