codecademy

Funnels with “Warby Parker”

Learn SQL from Scratch

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***throughout this presentation I'll be answering the capstone questions*

1.About Warby Parker

1.1 ABOUT WARBY PARKER

- Lifestyle brand whose objective is to offer trendy eyewear at a reasonable price point
- Founded in 2010
- Named after 2 characters from a Jack Kerouac journal
- Company keeps a socially conscious business mindset, for every pair of eyewear sold, a pair is distributed to someone in need

1.2 ABOUT WARBY PARKER

- A funnel is a marketing model that explains a customer's experience towards purchasing a product or service.
- This Capstone Project covers 2 Warby Parker marketing funnels and involves data from 4 tables
- Data insights will be discovered from analyzing this information

Quiz Funnel:

- `survey`

Home Try-On Funnel:

- `quiz`
- `home_try_on`
- `purchase`

2. STYLE QUIZ FUNNEL

2.1 STYLE QUIZ FUNNEL

- WP provides a style quiz to assist customers in finding the perfect pair of glasses
- The quiz answers 5 questions
- The answers to the Style Quiz are in the '**survey**' table

1. "What are you looking for?"
2. "What's your fit?"
3. "Which shapes do you like?"
4. "Which colors do you like?"
5. "When was your last eye exam?"

2.2 STYLE QUIZ FUNNEL

project.sqlite

```
1   --users' responses
    are stored in a
    table called survey
2
3   SELECT *
4   FROM survey
5   LIMIT 10 ;
```

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

*Q1-The '**survey**' table contains 3 columns:*

- *question*
- *user_id*
- *response*

2.3 STYLE QUIZ FUNNEL

- *Q2 - The results from the query show the number of distinct user responses for each question*
- *There are a total of 500 distinct users in the data*

project.sqlite

```sql
SELECT question, COUNT(DISTINCT user_id)
AS 'Responses Per Question'
FROM survey
GROUP BY 1;

SELECT COUNT(DISTINCT user_id)
AS 'Total User Count'
FROM survey;
```

Query Results

question	Responses Per Question
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

Total User Count
500

2.4 STYLE QUIZ FUNNEL

- *Q3 – Question 5 has the lowest response.*
  - *270/500 users (54%) answered all 5 of the questions in the quiz*
  - *The table trends down. As a user gets further into the quiz their likelihood of answering all 5 questions decreases*
  - *This could be due to laziness, distractions in their surroundings or uncertainty of what to answer.*

Question	Responses Per Question	% Answered this Question
1. What are you looking for?	500	100%
2. What's your fit?	475	95%
3. Which shapes do you like?	380	76%
4. Which colors do you like?	361	72%
5. When was your last eye exam?	270	54%

2.5 STYLE QUIZ FUNNEL

- Common Results from style Quiz:
- 3."Which shapes do you like?"
  - Rectangle is the most common shape people chose in the Style Quiz
- 4. "Which colors do you like?“
  - Two Tone and Neutral are least common color responses in the Style Quiz
- 5. "When was your last eye exam?“
  - More than half of users that responded to this question got an exam every year

Query Results	
Q3 Responses	**Shape**
Rectangular	141
Square	119
Round	91
No Preference	29
Q4 Responses	**Color**
Tortoise	117
Black	112
Crystal	69
Neutral	36
Two-Tone	27
Q5 Responses	**LastExam**
<1 Year	141
1-3 Years	56
3+ Years	37
Not Sure. Let's Skip It	36

```sql
--Q3
WITH Q3 AS(
SELECT *
FROM survey
WHERE question LIKE '3%' )
SELECT DISTINCT response
AS 'Q3 Responses', COUNT(*)
AS 'Shape'
FROM Q3
GROUP BY 1
ORDER BY 2 DESC ;
```

```sql
--Q4
WITH Q4 AS(
SELECT *
FROM survey
WHERE question LIKE '4%' )
SELECT DISTINCT response
AS 'Q4 Responses', COUNT(*)
AS 'Color'
FROM Q4
GROUP BY 1
ORDER BY 2 DESC ;
```

```sql
--Q5
WITH Q5 AS(
SELECT *
FROM survey
WHERE question LIKE '5%' )
SELECT DISTINCT response
AS 'Q5 Responses', COUNT(*)
AS 'LastExam'
FROM Q5
GROUP BY 1
ORDER BY 2 DESC ;
```

3. HOME TRY-ON FUNNEL & A/B TESTING

3.1 HOME TRY-ON FUNNEL& A/B TESTING

- Data is distributed across three tables, I will discuss finding in each of them:
  - quiz
  - home_try_on
  - purchase
- Warby Parker's purchase funnel:
  - Take the Style Quiz → Home Try-On → Purchase the Perfect Pair of Glasses
- In the Home Try-On stage, I'll 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 test will answer whether or not users who get more pairs to try on at home are more likely to make a purchase

3.2 HOME TRY-ON FUNNEL & A/B TESTING

- *Q4a. - The '**quiz**' table contains the following columns:*
  - *user_id*
  - *style*
  - *fit*
  - *shape*

project.sqlite

```
1  SELECT *
2  FROM quiz
3  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

3.21 HOME TRY-ON FUNNEL & A/B TESTING

- '**quiz**' table finding:
  - Most users know if they are choosing Women's or Men's style
  - A Narrow fit is most popular
  - Two-Tone options are least desired

```sql
SELECT style,
COUNT(user_id) AS 'style_count'
FROM quiz
GROUP BY 1
ORDER BY 2 DESC;

SELECT fit,
COUNT(user_id) AS 'fit_count'
FROM quiz
GROUP BY 1
ORDER BY 2 DESC;

SELECT color,
COUNT(user_id) AS 'color_count'
FROM quiz
GROUP BY 1
ORDER BY 2 DESC;
```

Query Results

style	style_count
Women's Styles	469
Men's Styles	432
I'm not sure. Let's skip it.	99

fit	fit_count
Narrow	408
Medium	305
Wide	198
I'm not sure. Let's skip it.	89

color	color_count
Tortoise	292
Black	280
Crystal	210
Neutral	114
Two-Tone	104

3.3 HOME TRY-ON FUNNEL & A/B TESTING

- *Q4b. - The '**home_try_on**' table contains the following columns:*
  - *user_id*
  - *number_of_pairs*
  - *address*

project.sqlite

```
1  SELECT *
2  FROM home_try_on
3  LIMIT 5 ;
```

Query Results

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

3.31 HOME TRY-ON FUNNEL & A/B TESTING

- '**home_try_on**' table finding:
  - It is about a 50/50 split between users who choose 3 pairs & 5 pairs during a home try on

project.sqlite

```
1  SELECT number_of_pairs,
2  COUNT(user_id) AS 'user_count'
3  FROM home_try_on
4  GROUP BY 1
5  ORDER BY 2 DESC;
```

Query Results

number_of_pairs	user_count
3 pairs	379
5 pairs	371

3.4 HOME TRY-ON FUNNEL& A/B TESTING

- *Q4c. - The '**purchase**' table contains the following columns:*
  - *user_id*
  - *product_id*
  - *style*
  - *model_name*
  - *color*
  - *price*

project.sqlite

```
1  SELECT *
2  FROM purchase
3  LIMIT 5 ;
```

Query Results

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

3.41 HOME TRY-ON FUNNEL & A/B TESTING

- '**purchase**' table finding:
  - Eugene Narrow is the model most bought
  - Dawes and Lucy are the most expensive glasses
  - 3 of 6 models cost $95
  - The average price of a pair of WP glasses is $105.83

```sql
SELECT model_name,
COUNT(user_id) AS 'model_count'
FROM purchase
GROUP BY 1
ORDER BY 2 DESC;

SELECT DISTINCT model_name, price
FROM purchase
GROUP BY 1
ORDER BY 2 DESC;
```

Query Results

model_name	model_count
Eugene Narrow	116
Dawes	107
Brady	95
Lucy	86
Olive	50
Monocle	41

model_name	price
Dawes	150
Lucy	150
Brady	95
Eugene Narrow	95
Olive	95
Monocle	50

```sql
WITH model AS (
SELECT DISTINCT model_name, price
FROM purchase)

SELECT ROUND(AVG(price),2) AS 'AVG PRICE'
FROM model;
```

Query Results

AVG PRICE
105.83

3.5 HOME TRY-ON FUNNEL& A/B TESTING

Q5- new table left joining columns from:

- *quiz*
- *home_try_on*
- *purchase*

project.sqlite

```
1  SELECT DISTINCT Q.user_id ,
2  H.user_id IS NOT NULL AS
   'is_home_try_on',
3  H.number_of_pairs ,
4  P.user_id IS NOT NULL AS
   'is_purchase'
5  FROM quiz AS 'Q'
6  LEFT JOIN home_try_on AS 'H'
7    ON Q.user_id = H.user_id
8  LEFT JOIN purchase AS 'P'
9  ON P.user_id = Q.user_id
10 LIMIT 10;
```

Query Results

user_id	is_home_try_on	number_of_pairs	is_purchase
4e8118dc-bb3d-49bf-85fc-cca8d83232ac	1	3 pairs	0
291f1cca-e507-48be-b063-002b14906468	1	3 pairs	1
75122300-0736-4087-b6d8-c0c5373a1a04	0	Ø	0
75bc6ebd-40cd-4e1d-a301-27ddd93b12e2	1	5 pairs	0
ce965c4d-7a2b-4db6-9847-601747fa7812	1	3 pairs	1
28867d12-27a6-4e6a-a5fb-8bb5440117ae	1	5 pairs	1
5a7a7e13-fbcf-46e4-9093-79799649d6c5	0	Ø	0
0143cb8b-bb81-4916-9750-ce956c9f9bd9	0	Ø	0
a4ccc1b3-cbb6-449c-b7a5-03af42c97433	1	5 pairs	0
b1dded76-cd60-4222-82cb-f6d464104298	1	3 pairs	0

3.6 HOME TRY-ON FUNNEL & A/B TESTING

- *The 1st query provides:*
  - *Total Quizzes*
  - *Total Home Try On*
  - *Total Purchased*
- *The 2nd query provides:*
  - *quiz→home_try_on*
  - *home_try_on→purchase*
  - *quiz→purchase*

1.

```sql
--1
WITH HTO_FUNNEL AS (
SELECT DISTINCT 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 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)

SELECT COUNT(*) AS 'TOTAL_QUIZZES',
SUM(is_home_try_on) AS
'TOTAL_HOMETRYON',
SUM(is_purchase) AS
'TOTAL_PURCHASED'
FROM HTO_FUNNEL;
```

2.

```sql
--2
WITH HTO_FUNNEL AS (
SELECT DISTINCT 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 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)

SELECT 1.0 *SUM(is_home_try_on) /
COUNT(user_id) AS
'%_QUIZ_TO_HOMETRYON',
1.0 *SUM(is_purchase) /
SUM(is_home_try_on) AS
'%_HTO_TO_PURCHASE',
1.0 *SUM(is_purchase) / COUNT(*) AS
'%_QUIZ_TO_PURCHASE'
FROM HTO_FUNNEL;
```

Query Results

TOTAL_QUIZZES	TOTAL_HOMETRYON	TOTAL_PURCHASED
1000	750	495

%_QUIZ_TO_HOMETRYON	%_HTO_TO_PURCHASE	%_QUIZ_TO_PURCHASE
0.75	0.66	0.495

3.61 HOME TRY-ON FUNNEL & A/B TESTING

- The total **home_try_on**'s was 750. 379 users selected '3 pairs' and 371 users selected '5 pairs'
- The query results tell us:
  - Of the users who tried on '5 pairs' , 79% of them purchased a pair of WP
  - Of the users who tried on '3 pairs', 53% of them purchased a pair of WP
- Although only 8 more users from the data chose '3 pairs', we can assume that users who receive '5 pairs' are more likely to make a purchase than those who choose '3 pairs'

```sql
--3
WITH HTO_FUNNEL AS (
SELECT DISTINCT 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 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)

SELECT SUM(is_home_try_on) AS 'TOTAL_HOMETRYON_3',
SUM(is_purchase) AS 'TOTAL_PURCHASED',
ROUND(1.0 *SUM(is_purchase) /
SUM(is_home_try_on),2) AS '%_CHECKOUT_TO_PURCHASE'
FROM HTO_FUNNEL
WHERE number_of_pairs LIKE '%3%';
```

```sql
--4
WITH HTO_FUNNEL AS (
SELECT DISTINCT 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 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)

SELECT SUM(is_home_try_on) AS 'TOTAL_HOMETRYON_5',
SUM(is_purchase) AS 'TOTAL_PURCHASED',
ROUND(1.0 *SUM(is_purchase) /
SUM(is_home_try_on),2) AS '%_CHECKOUT_TO_PURCHASE'
FROM HTO_FUNNEL
WHERE number_of_pairs LIKE '%5%';
```

Query Results		
TOTAL_HOMETRYON_3	TOTAL_PURCHASED	%_CHECKOUT_TO_PURCHASE
379	201	0.53
TOTAL_HOMETRYON_5	TOTAL_PURCHASED	%_CHECKOUT_TO_PURCHASE
371	294	0.79

3.7 HOME TRY-ON FUNNEL & A/B TESTING

- *Q6 -Actionable insights for Warby Parker*
  - *The more options you have to choose from the higher the likelihood of a purchase being made*
  - *Not everyone who takes the quiz will do a home_try_on and not everyone who home_try_on will make a purchase*
  - Style Quiz responses can help determine what the customer will potentially purchase

END