Table of Contents

1. Getting familiar with Warby Parker
2. The Style Quiz
   a. The Quiz Funnel
   b. Where are people dropping off from the survey
3. Home Try-On Funnel
   a. A/B Test to optimize purchase based on sample size

Getting familiar with WARBY PARKER

Warby Parker is a lifestyle brand, committed to helping users find the perfect set of frames for a reasonable price. They're also dedicated to making an impact in the world by matching each sale with an equal donation to someone in need.

We are evaluating their marketing funnels looking at ways to better optimize their Home Try-On campaign, where they send you various frames for you to try over a five-day period.

The Style Quiz

The first bottleneck of the Home Try-On campaign is Warby Parker's 5-question survey to help narrow down frame options:

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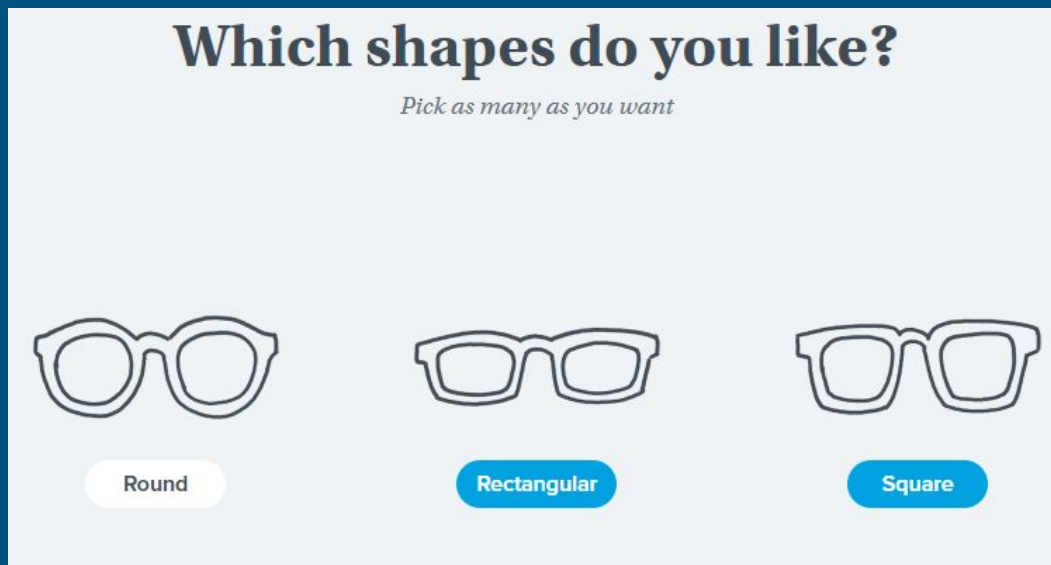
The Style Quiz

The data collected from the style quiz is collated into a table called survey, each row is a response, while the records show the question, user id attributed to the response, and their answer to that question.

```
     -- 1.1 Survey the Survey Database
1
2    SELECT *
3    FROM survey
4    LIMIT 10;
5
6
```

project.sqlite

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

The Style Quiz   The Quiz Funnel

Ideally, everyone who starts the quiz will answer every question, but realistically people drop off at different points during the process. If output responses are grouped by question and then we count the distinct user ids we can visualize the drop-offs.

```
-- 1.2 Group by Question
SELECT COUNT(DISTINCT user_id) AS
'Responses', question
FROM survey
GROUP BY 2;
```

Query Results	
Responses	question
500	1. What are you looking for?
475	2. What's your fit?
380	3. Which shapes do you like?
361	4. Which colors do you like?
270	5. When was your last eye exam?

Note: We count distinct users to limit users which may be credited with multiple responses to the same question from inflating our results.

The Style Quiz

The Quiz Funnel

Query Results	
Responses	**question**
500	1. What are you looking for?
475	2. What's your fit?
380	3. Which shapes do you like?
361	4. Which colors do you like?
270	5. When was your last eye exam?

From our output, we can run additional analyses to compare completion rates, or to see how many people have left the survey at a given point.

Question	% Loss since Last Question	% Completed Overall
What are you looking for?	-	-
What's your fit?	5	95
Which shapes do you like?	20	76
Which colors do you like?	5	72.2
When was your last eye exam?	25.20	54

The Style Quiz

The Quiz Funnel

Query Results	
Responses	question
500	1. What are you looking for?
475	2. What's your fit?
380	3. Which shapes do you like?
361	4. Which colors do you like?
270	5. When was your last eye exam?

In the example, the largest drop-offs are with questions asking about eye exams and preferred frame shapes. This is perhaps due to the sensitive nature of medical histories and inability to limit/distinguish a choice in shape. It could also be a result from frustrations in the immediate previous questions; there are too many options for colors (before 5) and a hard determination point in deciding your 'fit' (before 3).

Question	% Loss since Last Question	% Completed Overall
What are you looking for?	-	-
What's your fit?	5	95
Which shapes do you like?	20	76
Which colors do you like?	5	72.2
When was your last eye exam?	25.20	54

The Home Try-On Funnel

Additional information about the campaign is divided among three databases; quiz (which aggregates a user's survey answers for marketing), home_try_on (which contains the address and how many sample pairs are provided to a particular user), and purchase (which collects model id, style, make, color, and cost for a particular user's purchase.

Not everyone who completes the survey will engage in the Home Try-On. Not everyone who participates in the Try-On will make a purchase.

```
1    -- 1.4 Home Try-On Funnel
2    SELECT *
3    FROM quiz
4    LIMIT 5;
5    SELECT *
6    FROM home_try_on
7    LIMIT 5;
8    SELECT *
9    FROM purchase
10   LIMIT 5;
11
```

The Home Try-On Funnel   Database Sample

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

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

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

The Home Try-On Funnel

With the data split amongst three databases, it would be complicated to pull information and to compare the available data from a given user.

To simplify our analyses, we'll collate the data, using the survey data as the backbone, and we'll left join the home try on and purchase databases. The user_id record appears in all the databases and should be consistent throughout for a unique user, so this should be our key.

```
WITH wp AS (
    SELECT *
    FROM quiz q
    LEFT JOIN home_try_on h
        ON q.user_id = h.user_id
    LEFT JOIN purchase p
        ON q.user_id = p.user_id)
```

The Home Try-On Funnel

With the data joined together we can call up information between any of the three databases. This could be useful for determining if a user stopped participating (via null values in columns associated with joined databases) or recalling specific records.

```sql
SELECT user_id,
  CASE
      WHEN number_of_pairs IS NULL THEN 'False'
      ELSE 'True'
      END AS is_home_try_on,
  number_of_pairs,
  CASE
      WHEN product_id IS NULL THEN "False"
      ELSE 'True'
      END AS is_purchase
FROM wp
GROUP BY user_id
```

The Home Try-On Funnel   A/B Test

In this campaign data, 50% of Home Try-On candidates received 3 pairs while the rest were provided 5 pairs. Warby Parker is performing a social experiment on the effect of less/more hands-on options and the likelihood of making a purchase.

This sort of manipulation is an A/B test; where a diversion is introduced in the funnel in order to research how it changes participation as a whole.

The Home Try-On Funnel   A/B Test

With our data collated, we can confirm that we did have a mutual number of subjects in each test group, and look at statistics such as how many made a purchase based on their sample size.

This data shows, Warby Parker were able to get more purchases out of users who sampled five pairs rather than three. So they should continue sending out five or more sample frames to users.

Pairs Sampled by User	Users	Purchases	% Sold
3 pairs	379	201	53
5 pairs	371	294	79

```
WITH wp AS (
    SELECT *
    FROM quiz q
    LEFT JOIN home_try_on h
        ON q.user_id = h.user_id
    LEFT JOIN purchase p
        ON q.user_id = p.user_id)
SELECT number_of_pairs AS 'Pairs Sampled by
User', COUNT(*) AS 'Users', COUNT(product_id)
AS 'Purchases', (100*(COUNT(product_id)) /
COUNT(*)) AS '% Sold'
FROM wp
WHERE number_of_pairs IS NOT NULL
GROUP BY number_of_pairs;
```