SNEAKERS
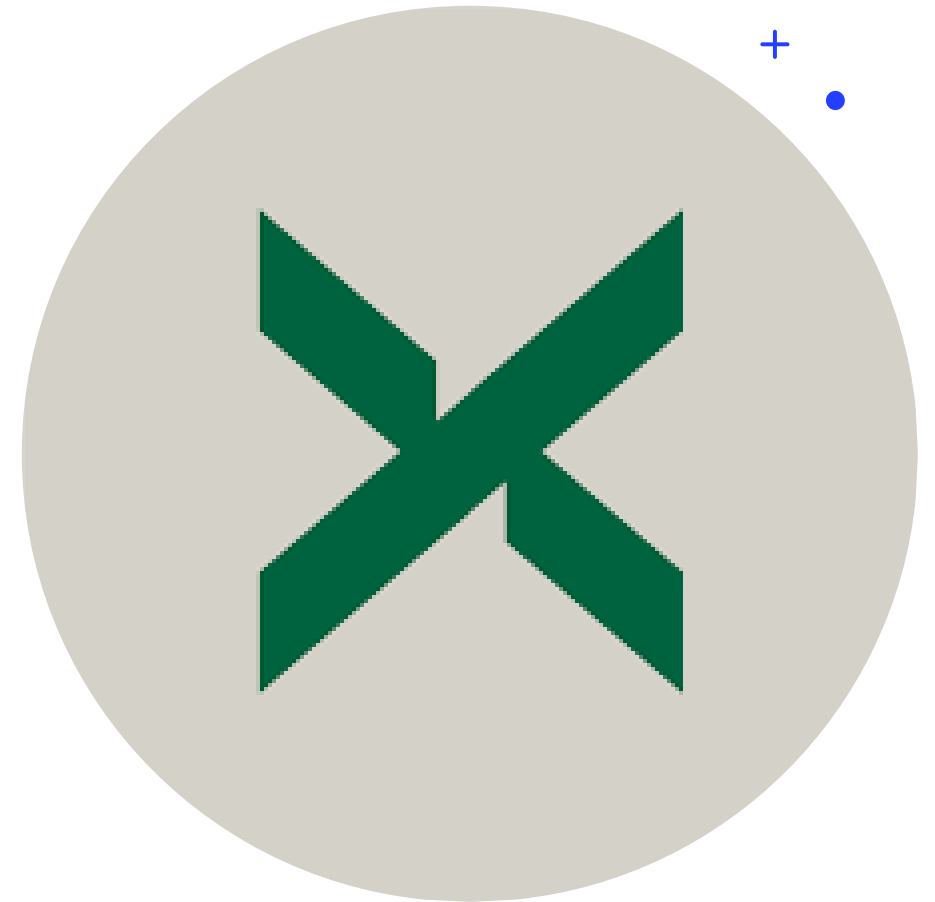
Kaili Hamilton

February 7, 2023

About the Data

- Source: StockX (marketplace to sell and buy sneakers and other cool stuff), Kaggle

- Time frame: 2015 – 2019

- Only two brands/collaborators/design labels:
  - Yeezy (Kanye "Ye" West)
  - Off-White x Nike (Virgil Abloh)

- 50 different kinds of sneakers
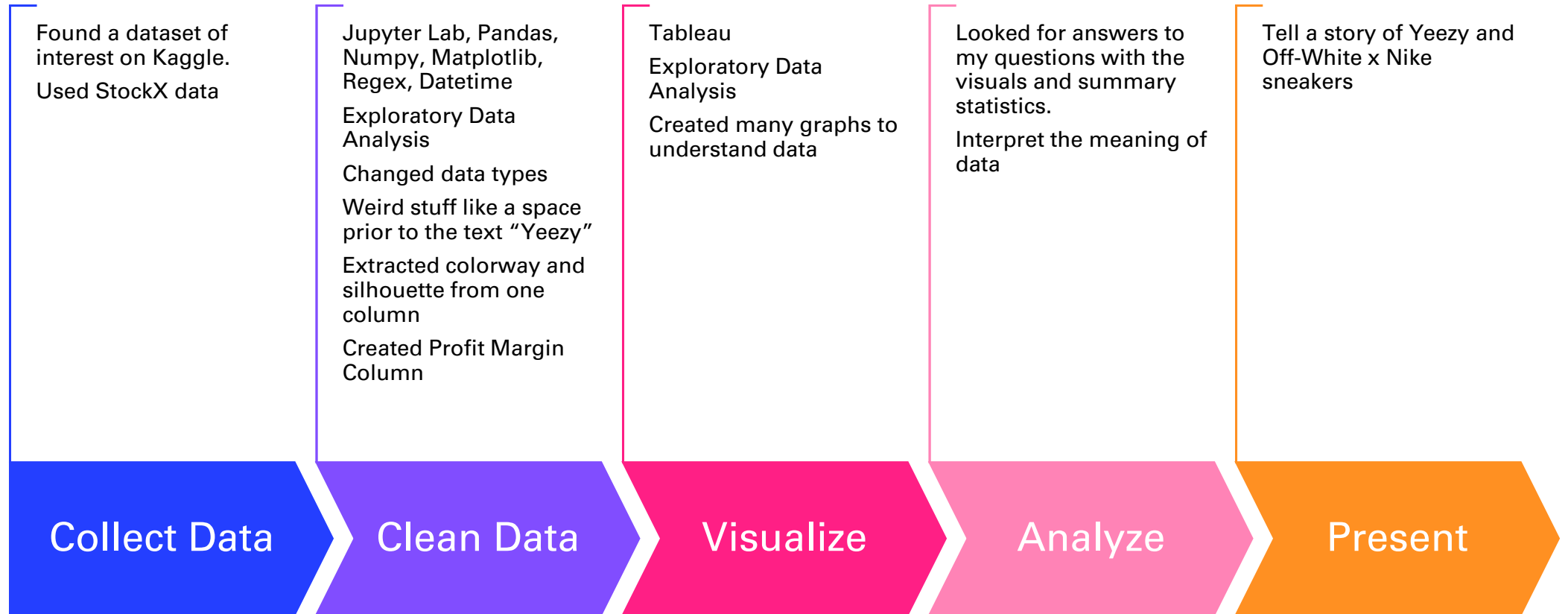
- 99,956 sneakers sold in dataset

SNEAKERS

MY QUESTIONS

Which sneaker is the most popular?

Which sneaker is most profitable on the secondary market?

Can I predict when the best time to resale a sneaker?

Data Cycle

Collect Data
- Found a dataset of interest on Kaggle.
- Used StockX data

Clean Data
- Jupyter Lab, Pandas, Numpy, Matplotlib, Regex, Datetime
- Exploratory Data Analysis
- Changed data types
- Weird stuff like a space prior to the text "Yeezy"
- Extracted colorway and silhouette from one column
- Created Profit Margin Column

Visualize
- Tableau
- Exploratory Data Analysis
- Created many graphs to understand data

Analyze
- Looked for answers to my questions with the visuals and summary statistics.
- Interpret the meaning of data

Present
- Tell a story of Yeezy and Off-White x Nike sneakers

Code Snippets

```
[30]: df.loc[filt, 'Sneaker Name'].value_counts()
      #.value_counts() on the filter to see what all the Yeezys "Sneaker Names"
```

```
[30]: adidas-Yeezy-Boost-350-V2-Butter              11423
      Adidas-Yeezy-Boost-350-V2-Beluga-2pt0         10395
      Adidas-Yeezy-Boost-350-V2-Zebra               10110
      Adidas-Yeezy-Boost-350-V2-Blue-Tint            9297
      Adidas-Yeezy-Boost-350-V2-Cream-White          9097
      Adidas-Yeezy-Boost-350-V2-Sesame               5553
      adidas-Yeezy-Boosts-350-V2-Static              4983
      Adidas-Yeezy-Boost-350-V2-Semi-Frozen-Yellow   4854
      adidas-Yeezy-Boost-350-V2-Static-Reflective    3184
      Adidas-Yeezy-Boost-350-V2-Core-Black-Red-2017   969
      Adidas-Yeezy-Boost-350-V2-Core-Black-White      621
      Adidas-Yeezy-Boost-350-Low-V2-Beluga            498
      Adidas-Yeezy-Boost-350-V2-Core-Black-Red        302
      Adidas-Yeezy-Boost-350-V2-Core-Black-Copper     225
      Adidas-Yeezy-Boost-350-V2-Core-Black-Green      196
      Adidas-Yeezy-Boost-350-Low-Pirate-Black-2016    122
      Adidas-Yeezy-Boost-350-Low-Moonrock             100
      Adidas-Yeezy-Boost-350-Low-Pira
      Adidas-Yeezy-Boost-350-Low-Oxfo
      Adidas-Yeezy-Boost-350-Low-Turtl
      Name: Sneaker Name, dtype: int64
```

How many unique "Sneaker Names"

- 20 different colorways

Used a lot of filters to do some exploration

```
[28]: '''
      filt = df['Brand'] == 'Yeezy'
      df.loc[filt]

      #not returning anything...
      '''
```

```
[28]: "\nfilt = df['Brand'] == 'Yeezy'\ndf.loc[filt]\n\n#not returning anything...\n"
```

```
[29]: filt = df['Brand'].str.contains('Yeezy')
      df.loc[filt]
      #turns out there is a space in front of " Yeezy", so using .str.contains('Yeezy')
```

	Order Date	Brand	Sneaker Name	Sale Price	Retail Price	Release Date
0	2017-09-01	Yeezy	Adidas-Yeezy-Boost-350-Low-V2-Beluga	1097	220	2016-09-24
1	2017-09-01	Yeezy	Adidas-Yeezy-Boost-350-V2-Core-Black-Copper	685	220	2016-11-23

Space character in front of " Yeezy" so I couldn't filter

```
[52]: offcolor_df = off_df['Sneaker Name'].str.extract('(.*)-?(?:-Off-White)-?(.*)')
      offcolor_df

      #removed the "-" with new regex
```

```
[52]:
```

	0	1
128	Nike-Air-Max-90	
129	Nike-Air-Max-90	
130	Nike-Air-Presto	
131	Nike-Air-Presto	
132	Nike-Air-VaporMax	
...	...	...
	Nike-Zoom-Fly	Pink
	Nike-Zoom-Fly	Pink
	Nike-Zoom-Fly	Pink
	Nike-Zoom-Fly	Pink
	Nike-Zoom-Fly	Pink

Regular Expressions to extract and create two columns for silhouette and colorway from one column of df

EXPLORATORY DATA ANALYSIS

Summary Statistics

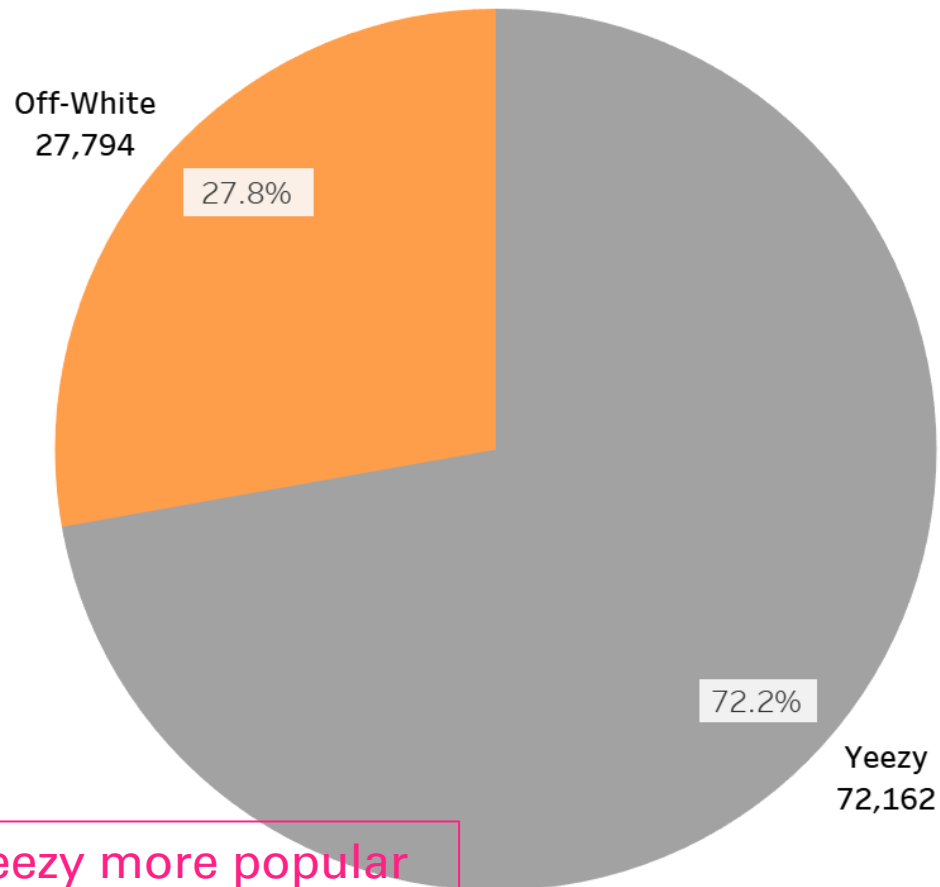|	Sale Price	Retail Price	Shoe Size	Profit Margin	Elapsed Time Days
count	99956.000000	99956.00000	99956.000000	99956.000000	99956.000000
mean	446.634719	208.61359	9.344181	238.021129	183.708722
std	255.982969	25.20001	2.329588	266.133179	232.354142
min	186.000000	130.00000	3.500000	-34.000000	-69.000000
25%	275.000000	220.00000	8.000000	58.000000	10.000000
50%	370.000000	220.00000	9.500000	154.000000	56.000000
75%	540.000000	220.00000	11.000000	342.000000	345.000000
max	4050.000000	250.00000	17.000000	3860.000000	1321.000000

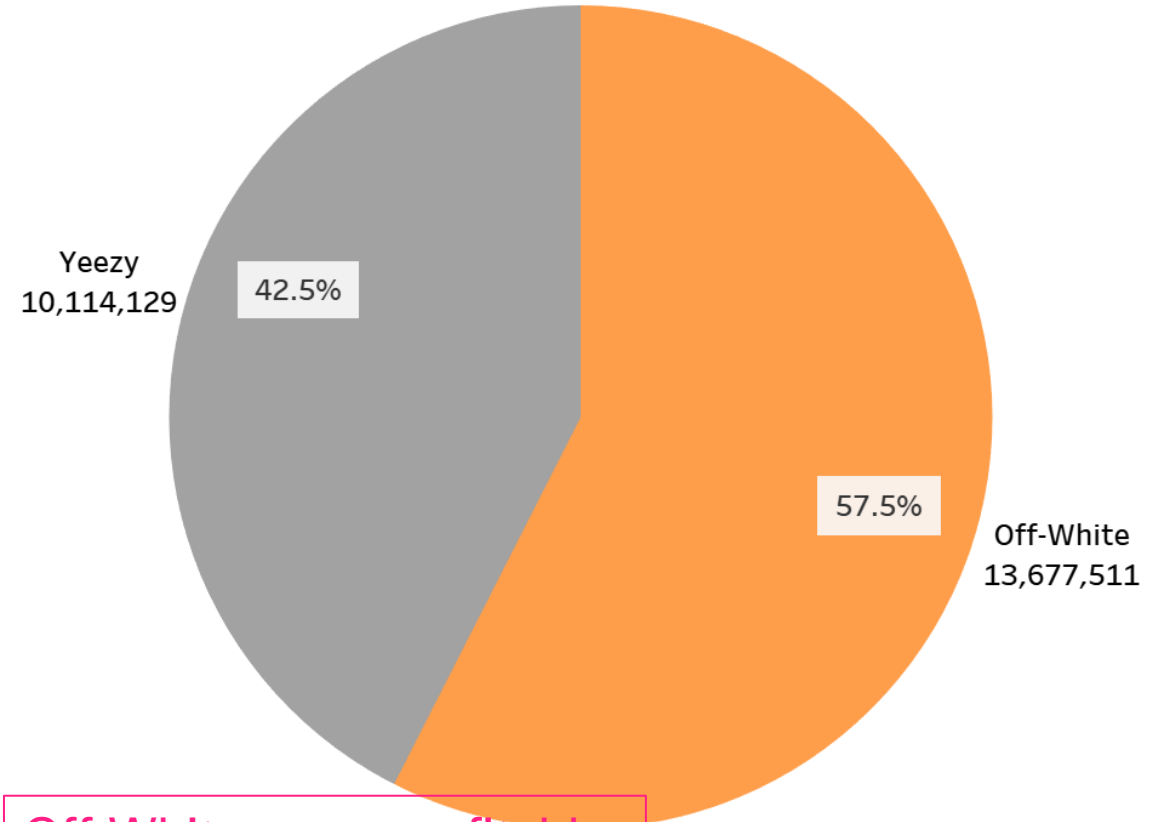# Comparing Brands

Total Number of Sneakers Sold by Brand
StockX | Yeezy & Off-White x Nike
2015-2019

Off-White
27,794

27.8%

72.2%

Yeezy
72,162

Yeezy more popular

Total Profit Margin of Sneakers Sold by Brand
Profit Margin = Sale Price - Retail Price
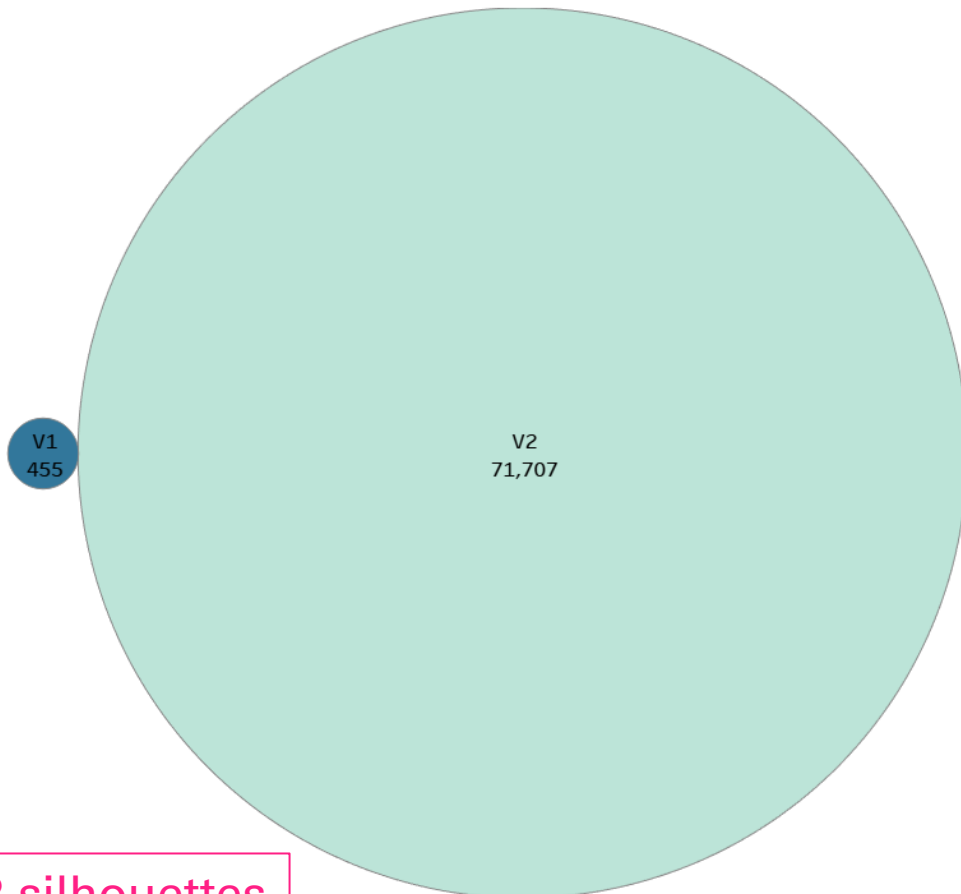StockX | Yeezy & Off-White x Nike
2015-2019

Yeezy
10,114,129

42.5%

57.5%

Off-White
13,677,511

Off-White more profitable

8

Comparing Silhouettes

Yeezy Silhouttes
StockX | Yeezy & Off-White x Nike
2015-2019

V1
455

Nike-Air-Force-1-Low

V2
71,707

2 silhouettes

Off-White Silhouettes
StockX | Yeezy & Off-White x Nike
2015-2019

Nike-Air-VaporMax

Nike-Zoom-Fly

Air-Jordan-1-Retro-High

Nike-Air-Presto

Nike-Air-Force-1-Low

Nike-Air-Force-1-Low-Virgil-Abloh

Nike-React-Hyperdunk-2017-Flyknit

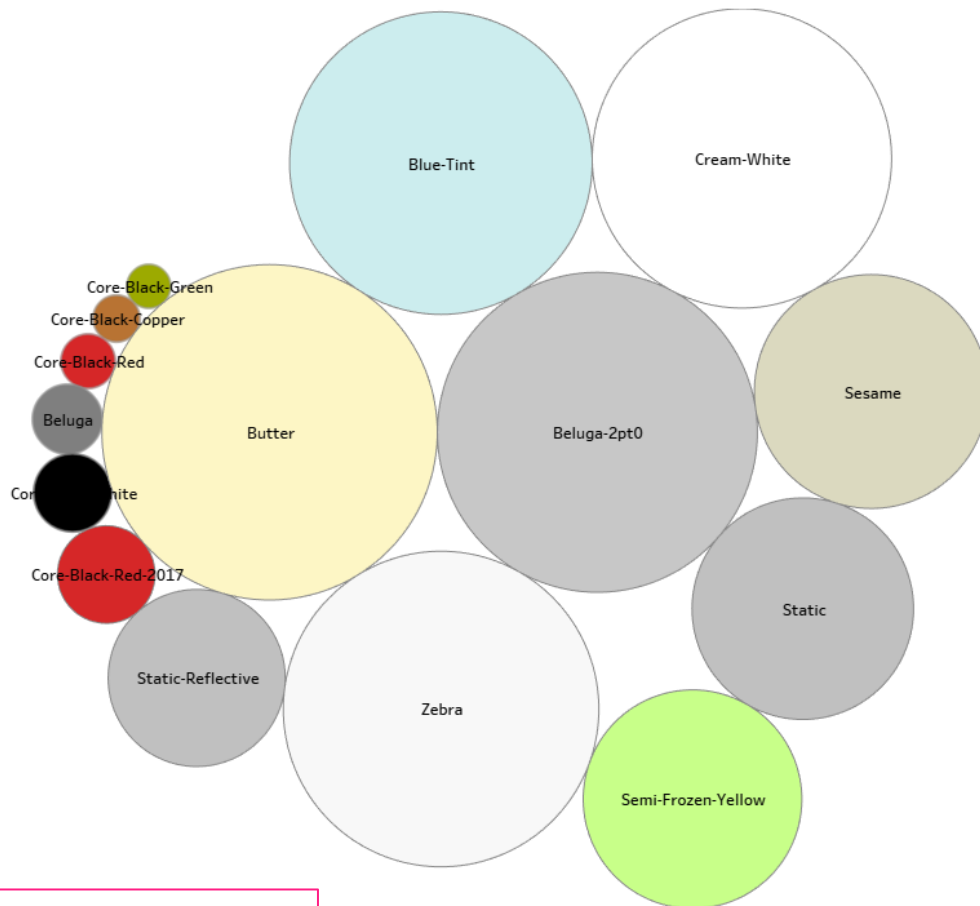Nike-Air-Max-90

Nike-Zoom-Fly-Mercurial

Nike-Blazer-Mid

Nike-Air-Max-97
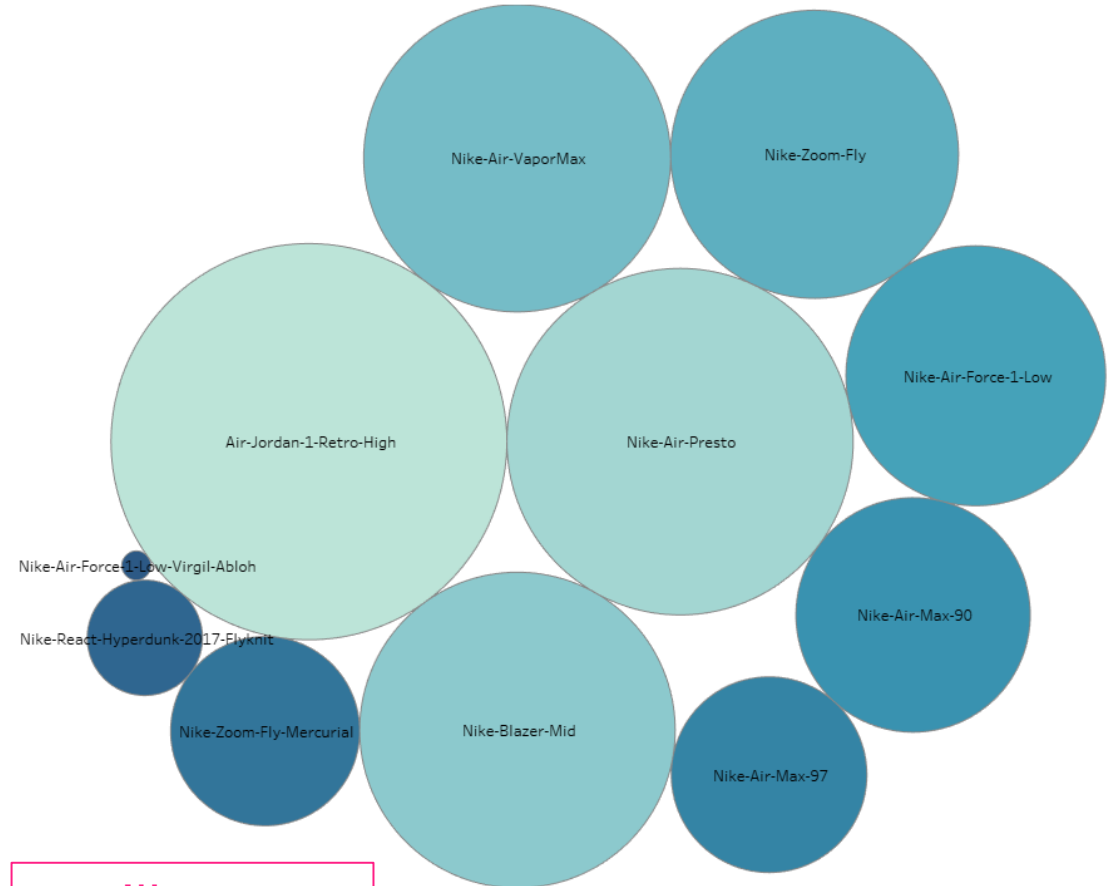
11 silhouettes

Comparing Colorways

Yeezy 350 V2 Colorways
StockX | Yeezy & Off-White x Nike
2015-2019

Blue-Tint

Cream-White

Core-Black-Green

Core-Black-Copper

Core-Black-Red

Beluga

Co... ...hite

Core-Black-Red-2017

Butter

Beluga-2pt0

Sesame

Static

Static-Reflective

Zebra

Semi-Frozen-Yellow

15 colorways

Off-White Colorways
StockX | Yeezy & Off-White x Nike
2015-2019

Elemental-Rose-Queen

AF100

Wolf-Grey

Menta

White

White-2018

All-Hallows-Eve

Desert-Ore

Grim-Reaper

Total-Orange

University-Blue

Black

Chicago

Pink

Black-White

Volt

Black-2018

Black-Silver
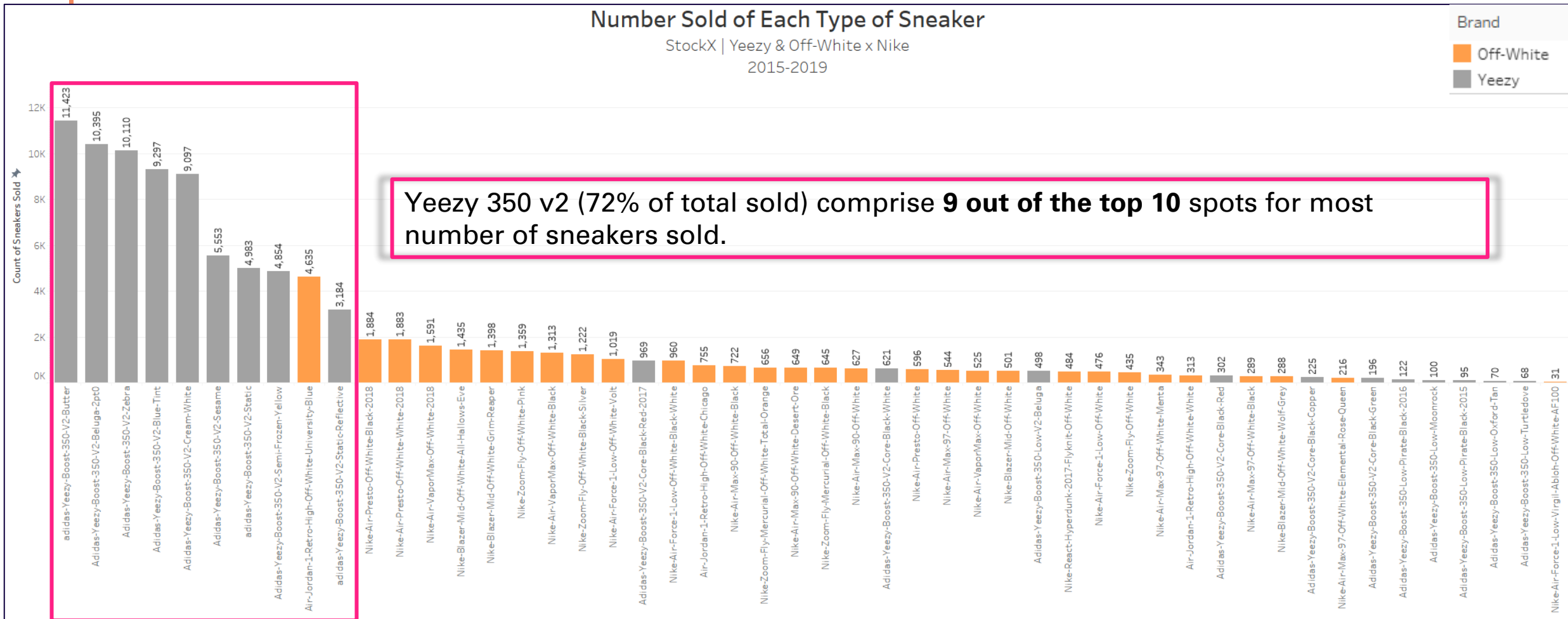
18 colorways

10
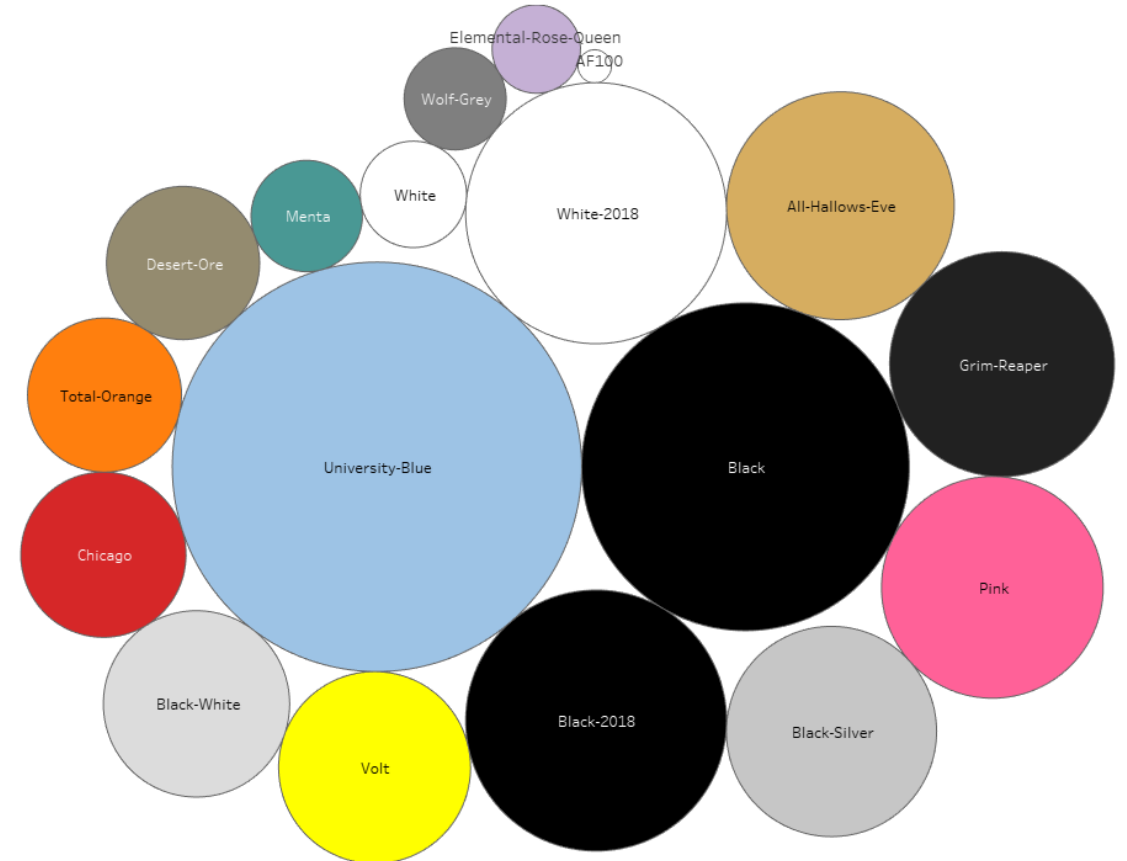
WHICH SNEAKER IS MOST POPULAR?

Most Popular Sneakers: Yeezy 350 v2

Number of Sneakers Sold by Silhouette & Brand
StockX | Yeezy & Off-White x Nike
2015-2019

Most Popular Sneakers: Yeezy 350 v2 Butter

Number Sold of Each Type of Sneaker
StockX | Yeezy & Off-White x Nike
2015-2019

Yeezy 350 v2 (72% of total sold) comprise **9 out of the top 10** spots for most number of sneakers sold.

Most Popular Sneaker Overall: **11,423 sold** (11.4% of all total sold)
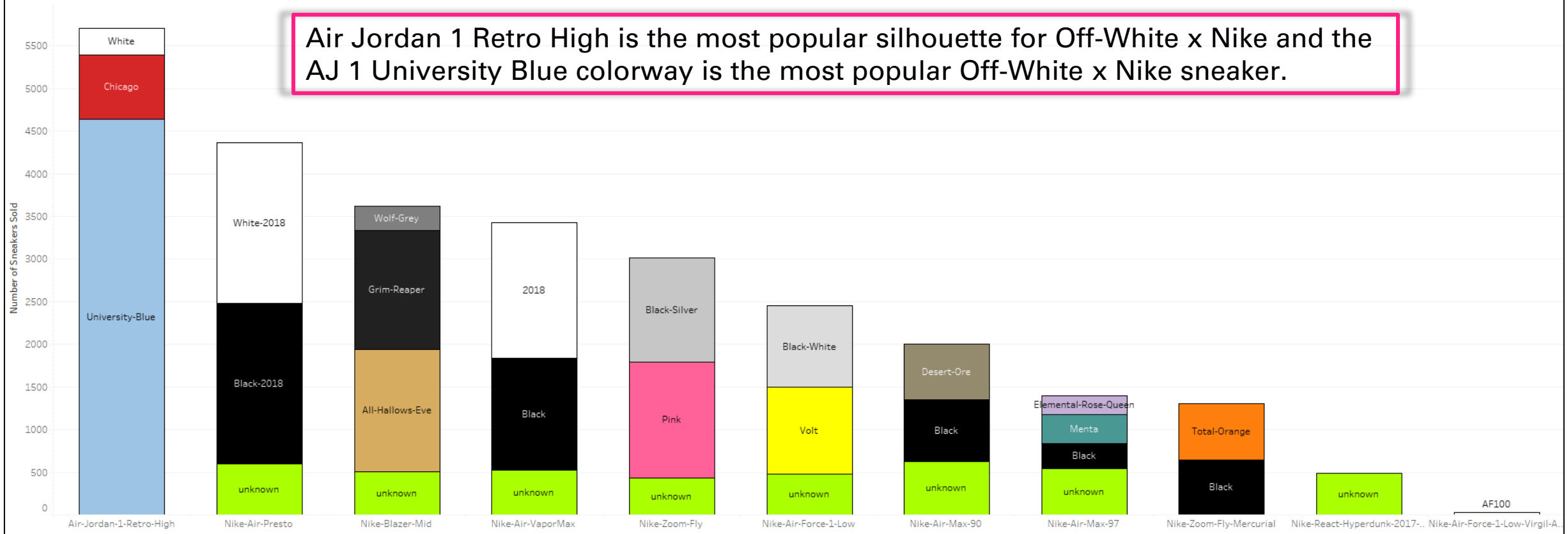
Yeezy 350 V2 Butter

Off-White

Number of Sneakers Sold by Colorway for Off-White Silhouettes
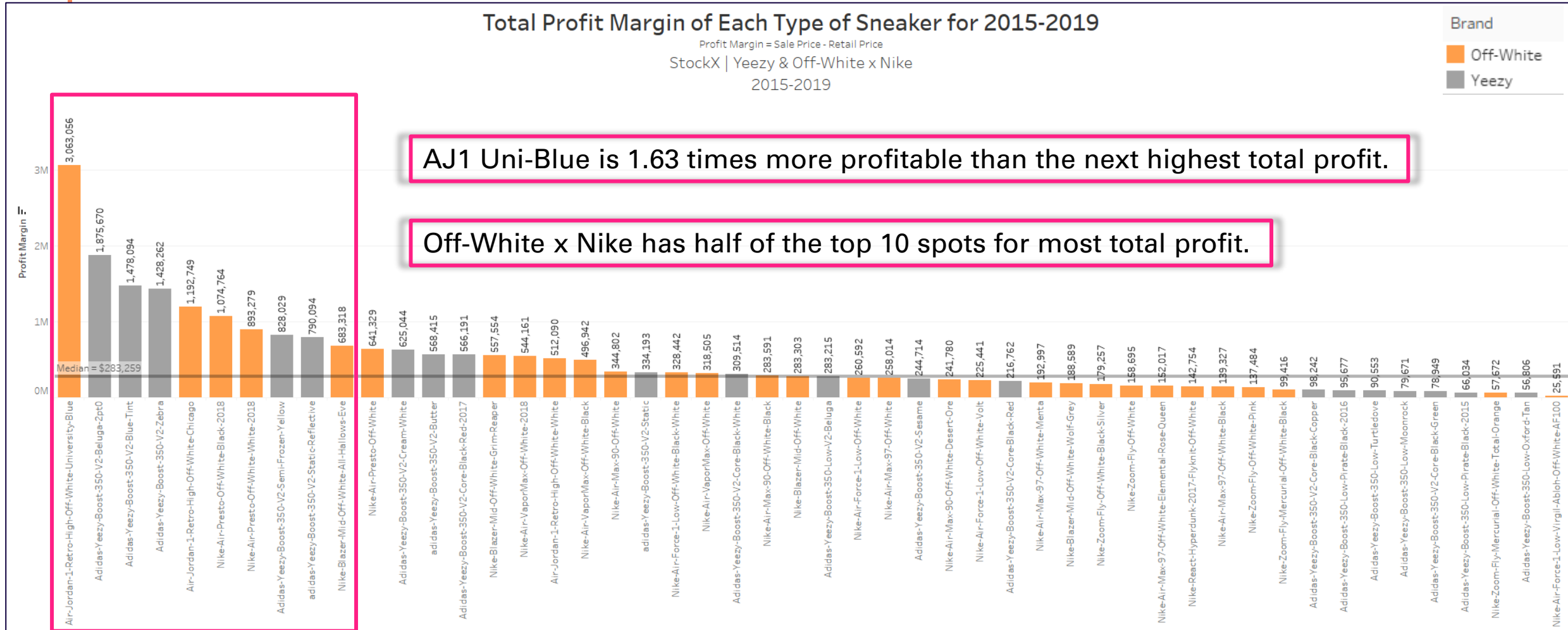StockX | Yeezy & Off-White x Nike
2015-2019

Air Jordan 1 Retro High is the most popular silhouette for Off-White x Nike and the AJ 1 University Blue colorway is the most popular Off-White x Nike sneaker.

WHICH SNEAKER IS MOST PROFITABLE?

Most Profitable Sneaker: Air Jordan 1 Retro High University Blue

Total Profit Margin of Each Type of Sneaker for 2015-2019
Profit Margin = Sale Price - Retail Price
StockX | Yeezy & Off-White x Nike
2015-2019

Brand
Off-White
Yeezy

AJ1 Uni-Blue is 1.63 times more profitable than the next highest total profit.

Off-White x Nike has half of the top 10 spots for most total profit.

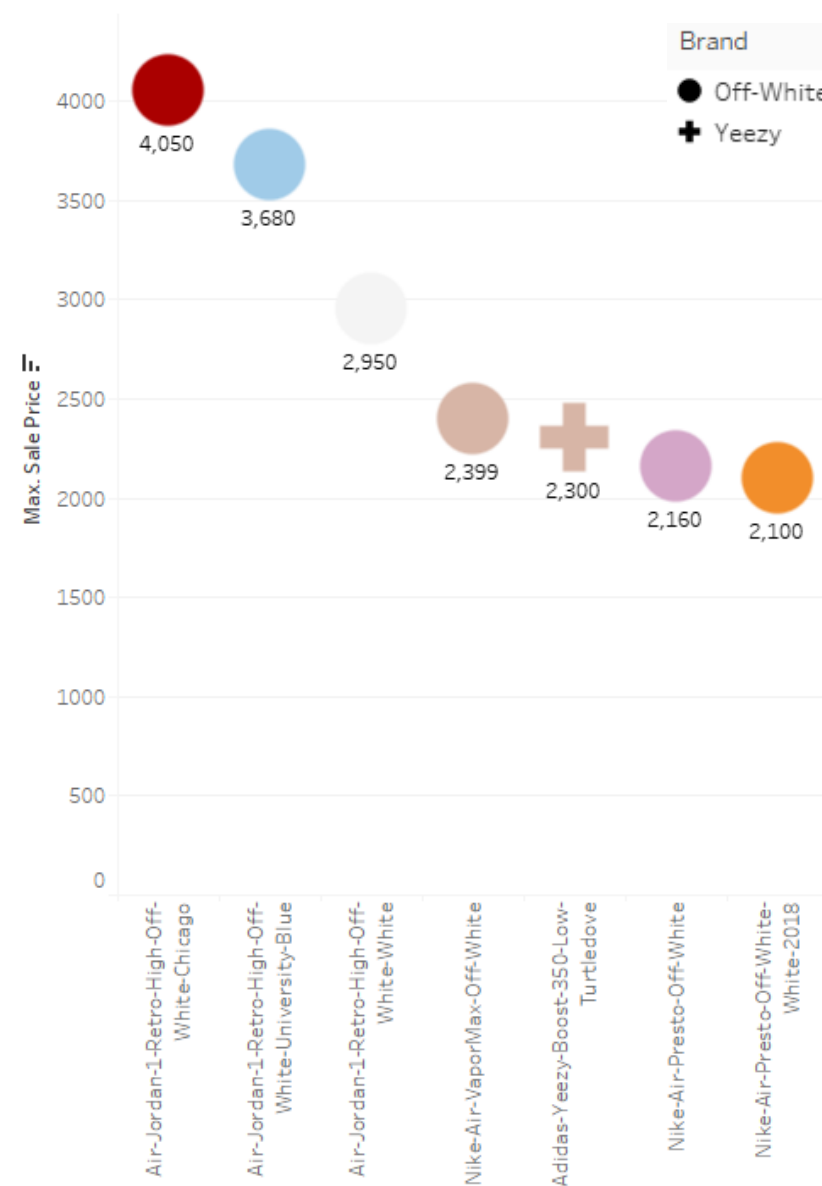Sneaker With Highest Total Profit Margin: **$3,063,056**

12.9% of profit margin of all sneakers for only **4.6%** of sneakers sold

Off-White Air Jordan 1 Retro High University Blue

Max Sale Price

Single Sale Price Greater Than $2,000 by Brand
StockX | Yeezy & Off-White x Nike
2015-2019

Sneaker With Single Highest Resale Price: **$4,050**

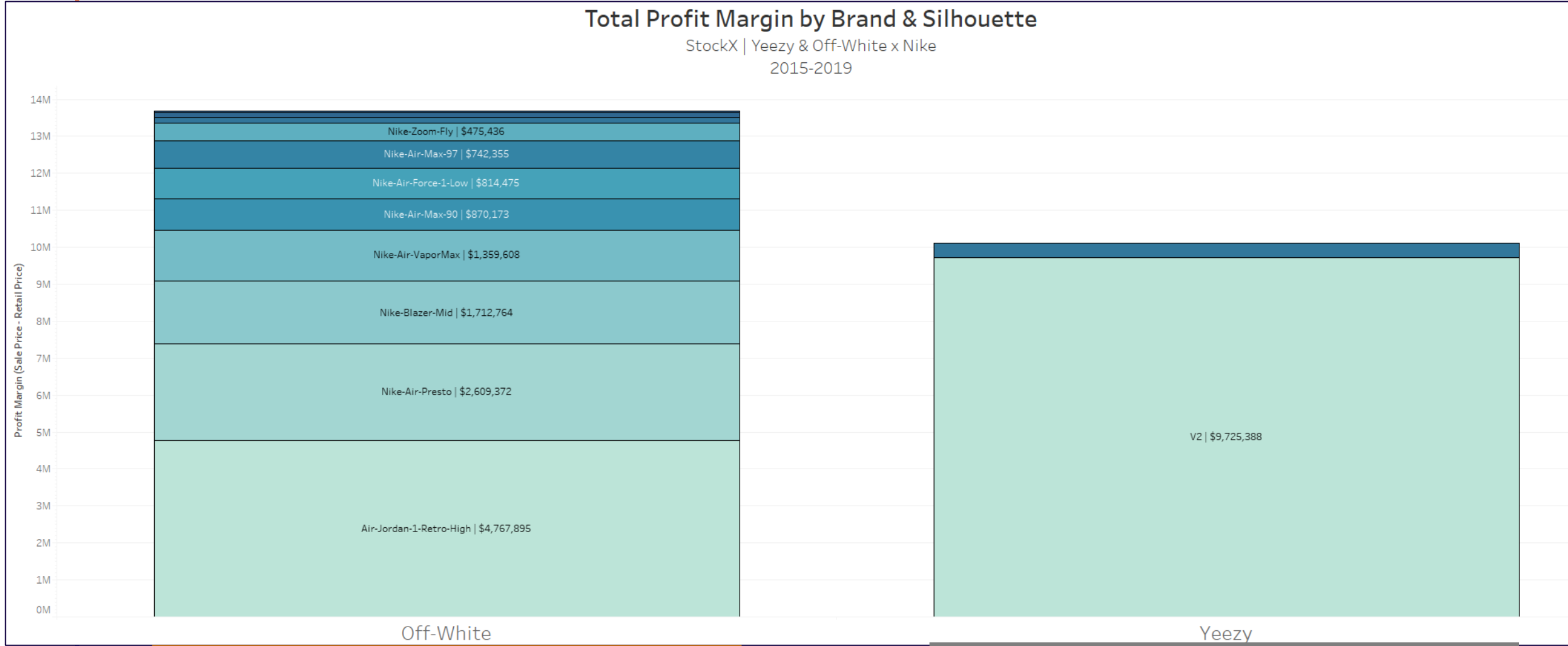Retailed for $190

Men's size 6 (Women's 7.5)

Off-White
Air Jordan 1 Retro High Chicago

Most Profitable Silhouette: 350 v2

Total Profit Margin by Brand & Silhouette
StockX | Yeezy & Off-White x Nike
2015-2019

Y-axis: Profit Margin (Sale Price - Retail Price)

Off-White:
- Nike-Zoom-Fly | $475,436
- Nike-Air-Max-97 | $742,355
- Nike-Air-Force-1-Low | $814,475
- Nike-Air-Max-90 | $870,173
- Nike-Air-VaporMax | $1,359,608
- Nike-Blazer-Mid | $1,712,764
- Nike-Air-Presto | $2,609,372
- Air-Jordan-1-Retro-High | $4,767,895

Yeezy:
- V2 | $9,725,388

BEST TIME TO RESELL SNEAKERS?

NOTES

Couldn't quite answer this question all the way – need to learn somethings about machine learning first.

But here is what I do know...

# Time between release date and order date with sale price

- Two clear clusters

- Yeezys stayed on the market far longer than Off-White Nikes

- Cluster of Off-Whites that have a higher sale price than Yeezys

Time (in days) Between Release Date and Order Date vs. Sale Price of Sneaker on Order Date
StockX | Yeezy & Off-White x Nike
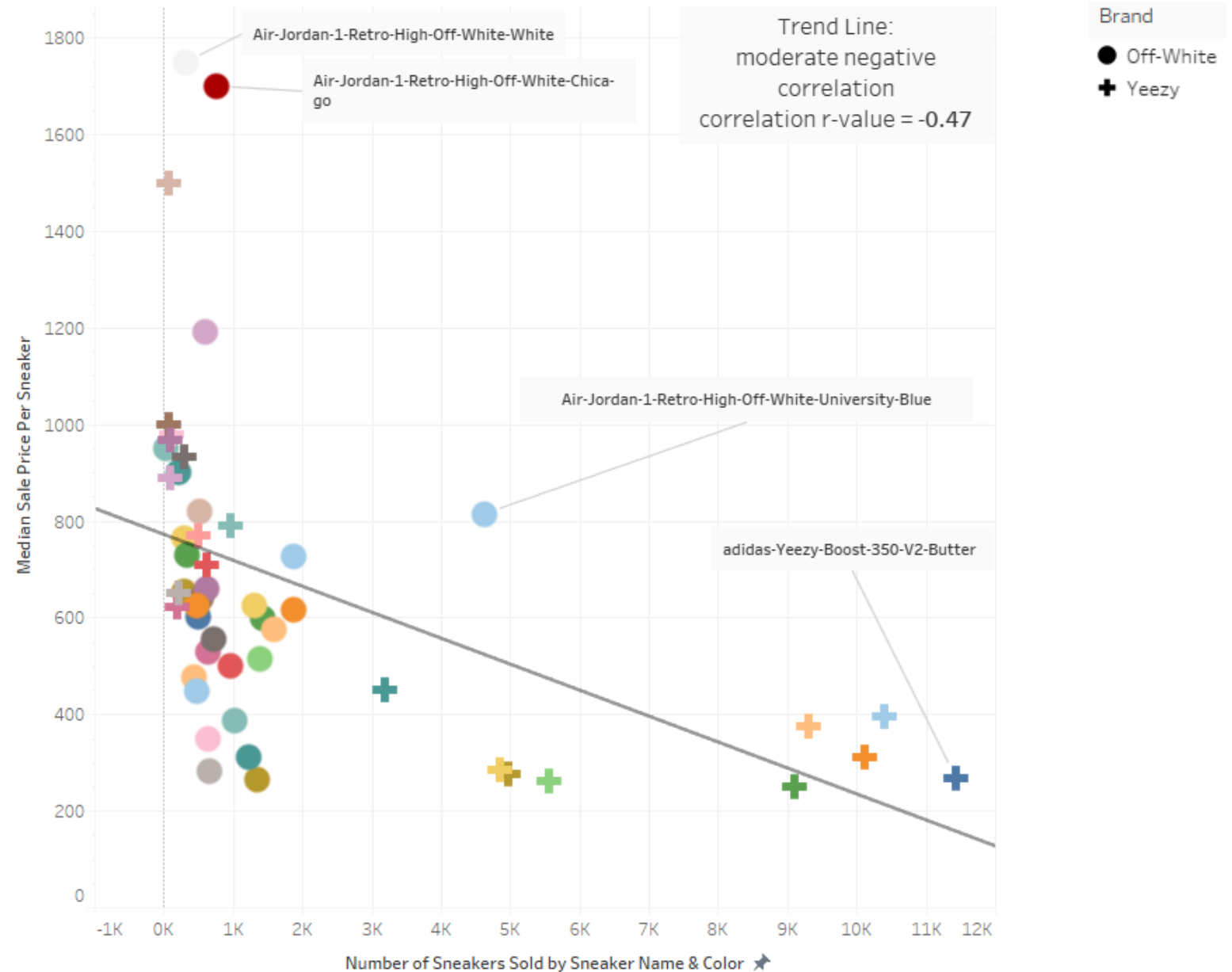2015-2019
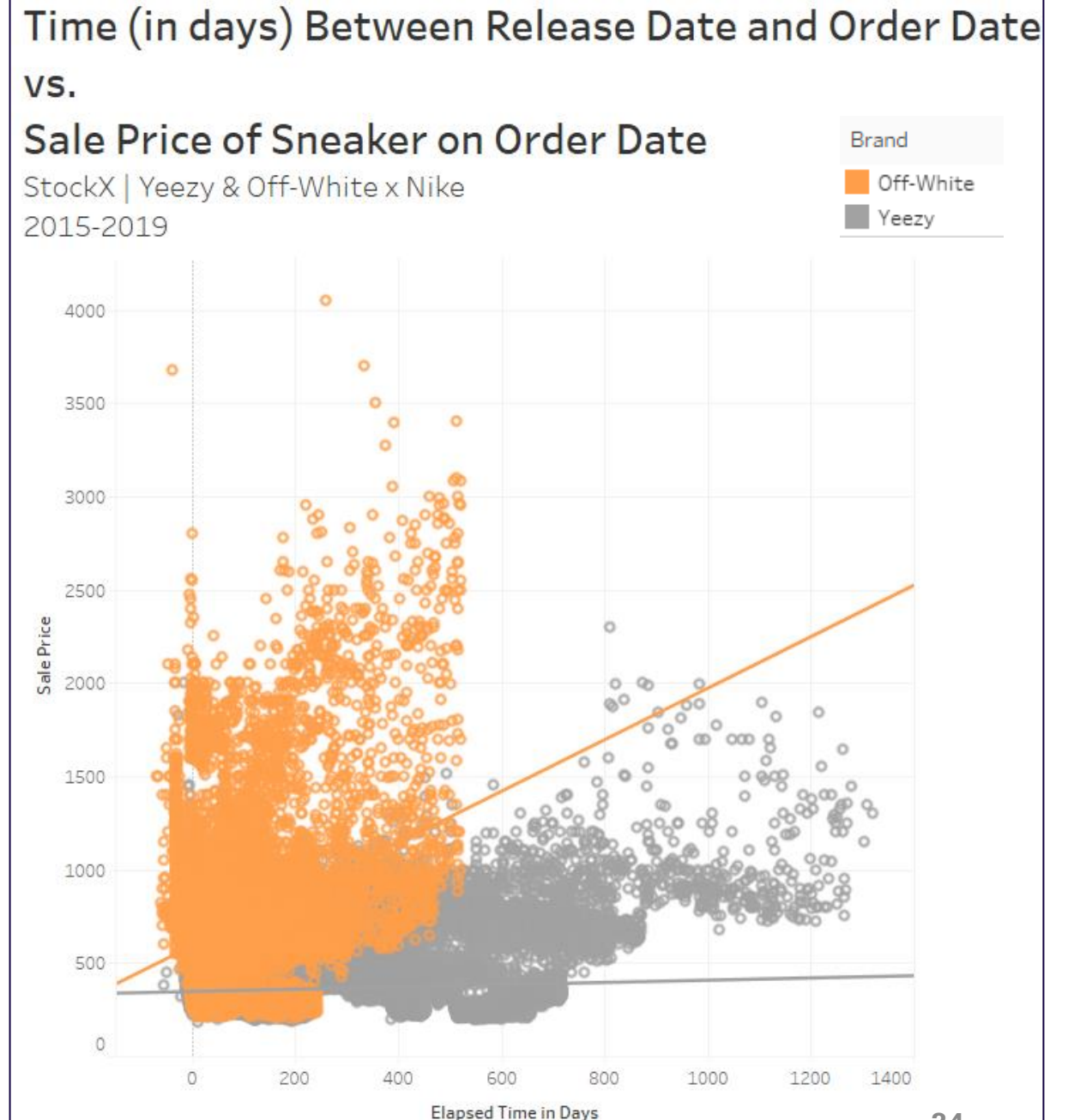
Sneakers and Sale price

- The more sneakers for sale, the smaller the profit margin, especially for the Yeezys

- 4 possible outliers for Off-White x Nike

- Overall, there are less Off-White x Nike sneakers made, which makes them more exclusive, hence the high median profit.

Number of Sales Per Sneaker vs. Median Profit Margin
StockX | Yeezy & Off-White x Nike
2015-2019
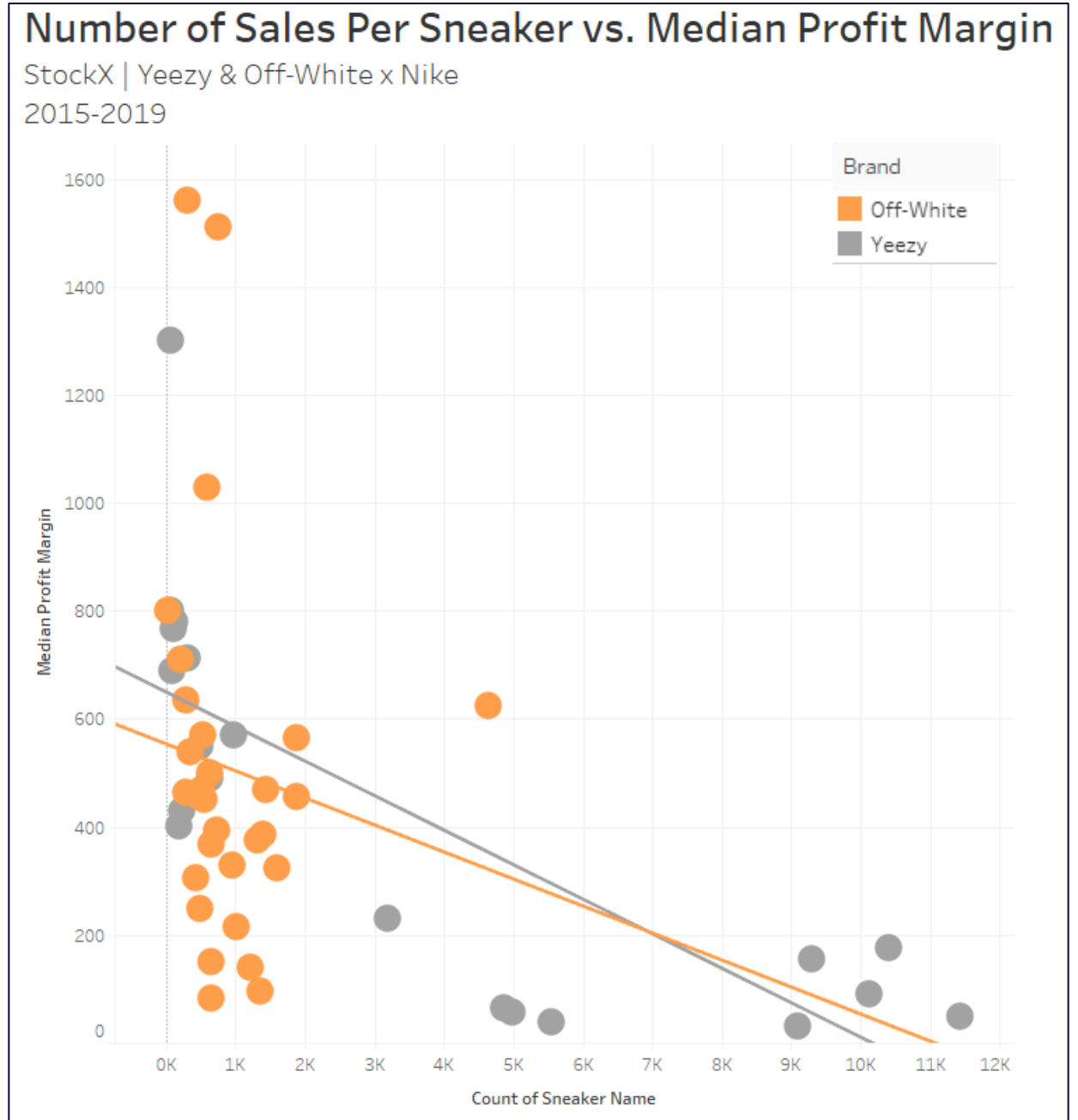
Sneakers and Sale price

Number of Sneakers Sold by Sneaker Name vs. Median Sale Price

StockX | Yeezy & Off-White x Nike
2015-2019

Air-Jordan-1-Retro-High-Off-White-White

Air-Jordan-1-Retro-High-Off-White-Chicago

Air-Jordan-1-Retro-High-Off-White-University-Blue

adidas-Yeezy-Boost-350-V2-Butter

Trend Line:
moderate negative
correlation
correlation r-value = -0.47

Brand
● Off-White
✚ Yeezy

Median Sale Price Per Sneaker

Number of Sneakers Sold by Sneaker Name & Color

STAKEHOLDERS

StockX

- Off-White x Nike generated 57.5% of total profit and only accounted for 27.8% of sneakers sold.
- Yeezy 350 v2 is most profitable silhouette over the four years.

Collectors

- Air Jordan 1 Retro High Chicago is the GOAT. Collect that shoe.
- Also collect the AJ1 in University Blue and White to get the full Off-White AJ1 Retro High collection

Enthusiasts

- Try to get a sneaker when it is released to pay less.
- 350 v2 are the most popular and widely available

Average Joe

- The median retail price of these sneakers is $220 and the median resale is $370.
- Sneakers without the designer label are far less expensive.

Any questions?

My questions:

- How many of each sneaker was originally released?

- How will sales of Yeezy 350s do now that Adidas cut ties with Ye?

- How will Off-White x Nike sneaker sales do since Virgil Abloh's passing?

- What if more brands were included, such as New Balance? What would the most popular sneaker be?

SNEAKERS

THANK YOU

Kaili