

Udacity

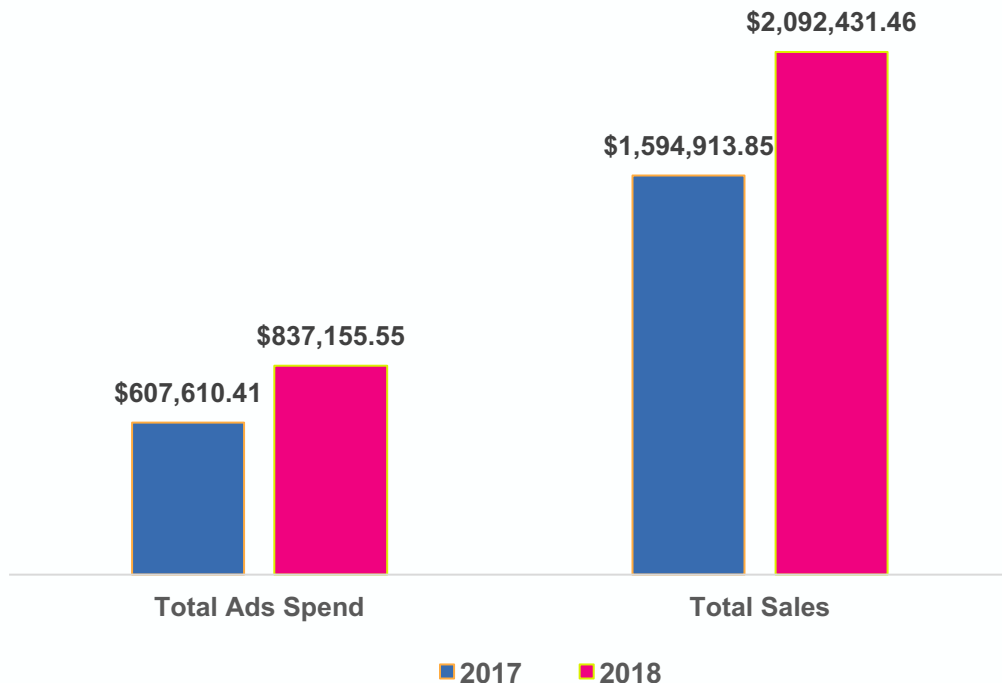
Marketing Analytics

Nanodegree Program
Project 8: Craft a Report

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11/19/19

Objective Results

Ads Spend and Sales Trend 2017 vs 2018



Year	Total Ads Spend	Total Sales
2017	607,610.41	1,594,913.85
2018	837,155.55	2,092,431.46
Growth	37.78%	31.19%
	$=(B3/B2)-1$	$=(C3/C2)-1$

Objective:

Increase total sales by 30% on Black Friday 2018 vs. Black Friday 2017.

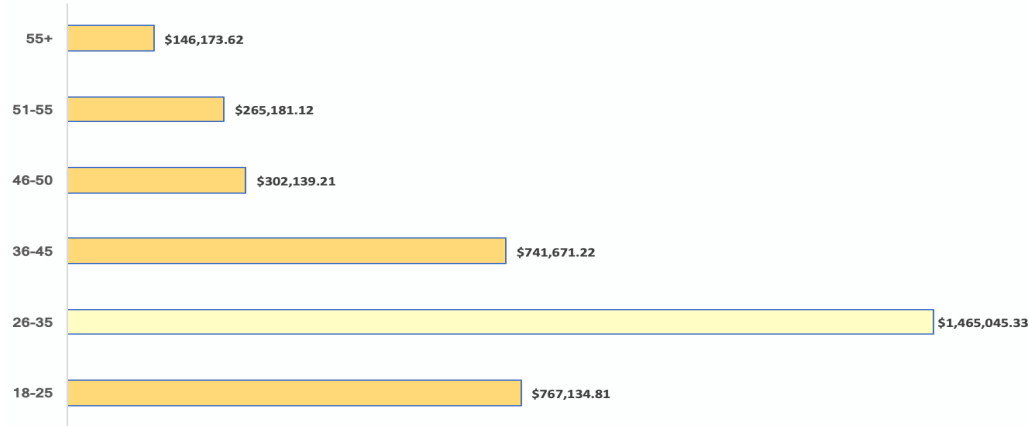
Sales increased by \$497,517.61 in 2018, this represents an increase of 31.19%. **The goal was met.**

Decrease total ad spend by 30% from Black Friday 2017 to Black Friday 2018.

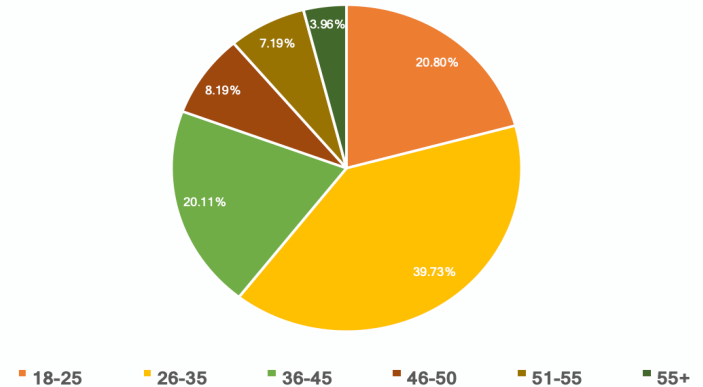
Ad Spend increased by \$229,545.14 in 2018, this represents an increase of 37.78%. **The goal was not met.**

Evaluate the Audience

Sales Amount by Age Range 2017-18



Sales Proportion by Age Range 2017-2018



Question: Which Age-Range generated the most sales?

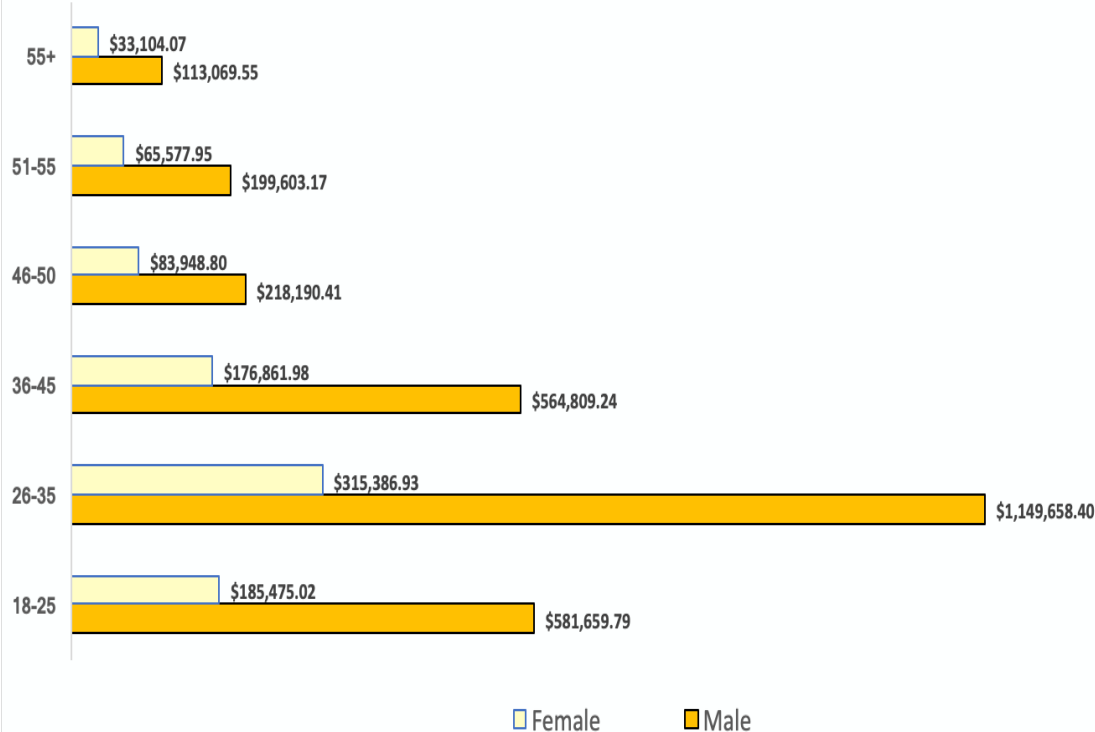
Age range 26-35 generated the most sales, pulling in \$1,465,045.03, representing 39.73% of the total Black Friday sales in the 2 years.

The next best performing age range is 18-25, grossing \$767,134.81 or 20.80%, followed closely by the 36-45 age range, with \$741,671.22 or 20.11% of the total sales in that period.

At the bottom of the chart is the the 55+ age range, with \$146,173.62 in sales or 3.96% of the total sales.

Evaluate the Audience

Sales by Age Group and Gender



Question: *Who spent more, men or women?*

Men spent more than women, and the same trend persisted down the age ranges.

Age range 26-35 topped the chart with men spent \$1,149,658.40 and women, \$315,386.93.

Both 18-25 and 36-45 age ranges are next best performing groups, with men spent well over 50% more than women.

Even in the least spending 55+ age range, men spent significantly more than women.

Evaluate the Marketing

Total Sale (paid channel)	Total CPA	ROI (paid channel)	Formula
1,549,620.54	1,444,765.96	7.26%	=(A2-B2)/B2

Question: Was the ROI on our Paid Channel positive or negative? What was it? Which age-range had the best CPA?

The ROI on paid channel = $(\$1,549,620.54 - \$1,444,765.96) / \$1,444,765.96 * 100 = 7.26\%$.

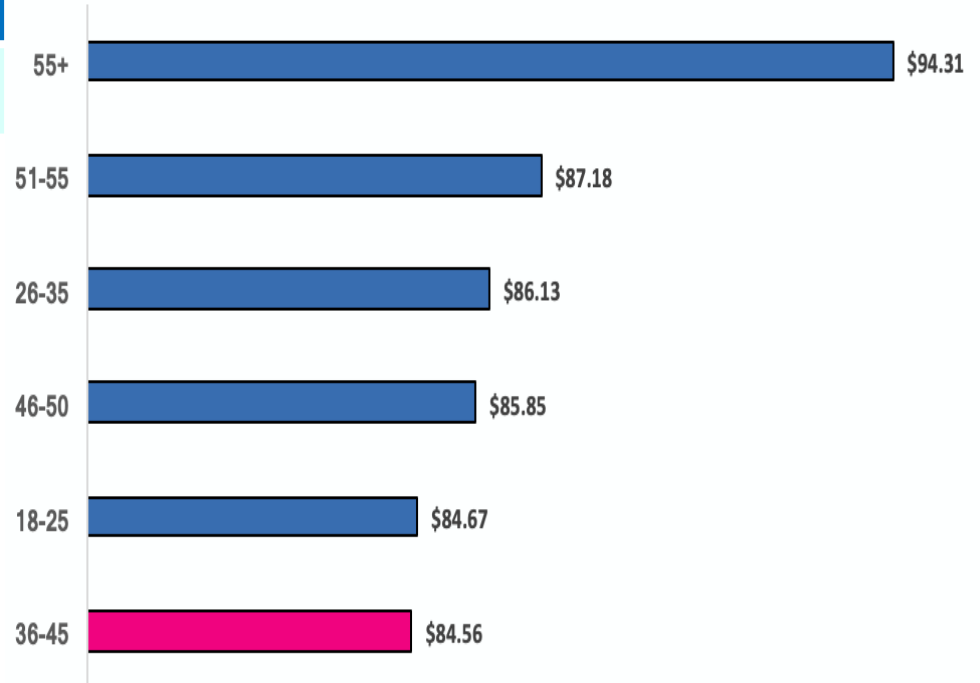
The ROI is positive at 7.26%.

Age range 36-45 had the best CPA at \$84.56.

The next best age range is the 18-25 which is marginally more at \$84.67.

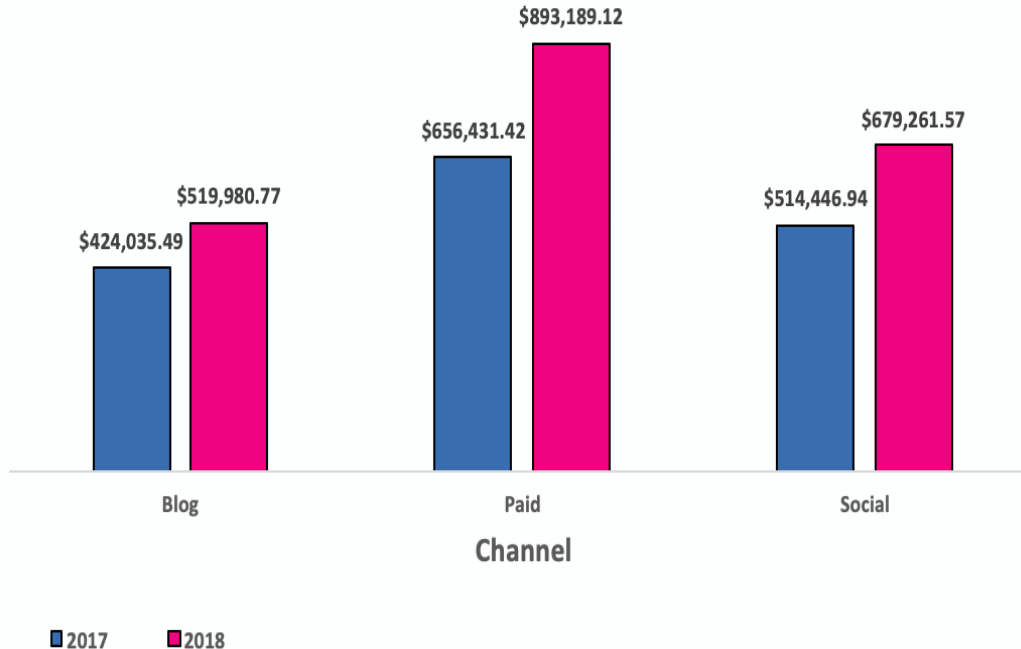
Age range 55+ had the highest CPA at \$94.31.

Average CPA by Age Group (2017-18)



Evaluate the Marketing

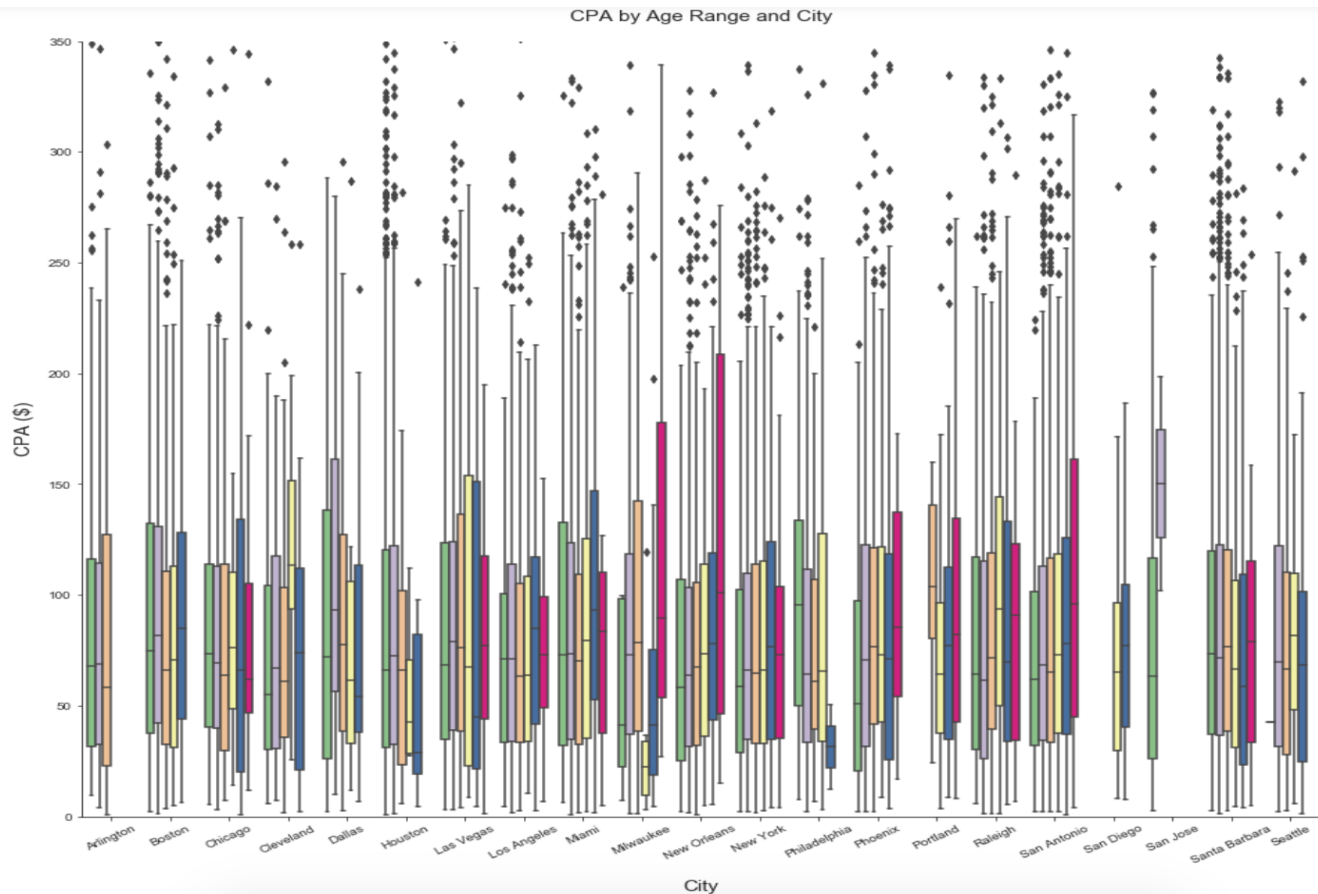
Sales by Channel Trend 2017 vs 2018



Question: Which channel was the biggest driver in sales for 2017? For 2018?

Paid channel was the biggest driver in sales for both 2017 and 2018, pulling in \$656,431.42 and \$893,189.12 worth of sales respectively.

Evaluate the Marketing



Question:

Demonstrate CPA by Demographic (Age & City)

The chart shows

CPA by age range and city.

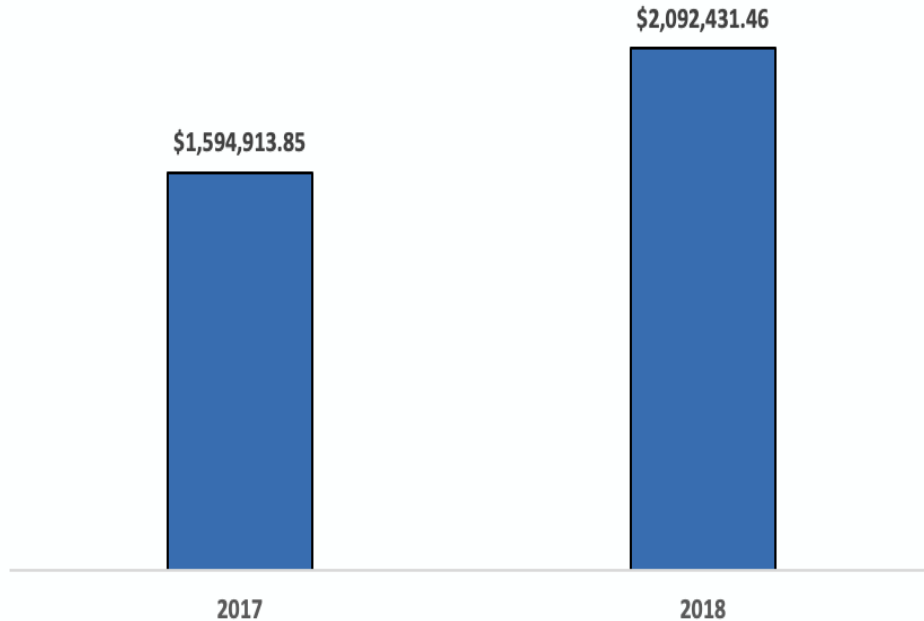
The 51-55 & 46-50 age ranges in Philadelphia and Milwaukee had the lowest CPA.

The 55+ age range in Milwaukee and New Orleans had the highest CPA.

Notice San Diego and San Jose had only 2 age ranges present.

Evaluate the Sales

Total Revenue 2017 vs 2018

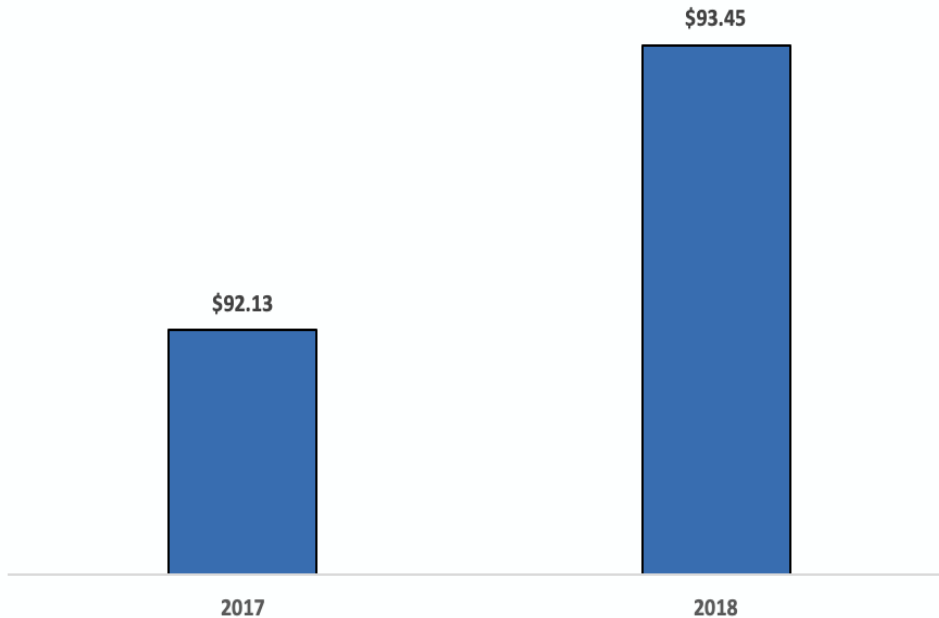


Question: *How much revenue did we generate in 2017? In 2018?*

A total revenue of **\$1,594,913.85** and **\$2,092,431.46** were generated in 2017 and 2018 respectively.

Evaluate the Sales

Average Order Amount 2017 vs 2018

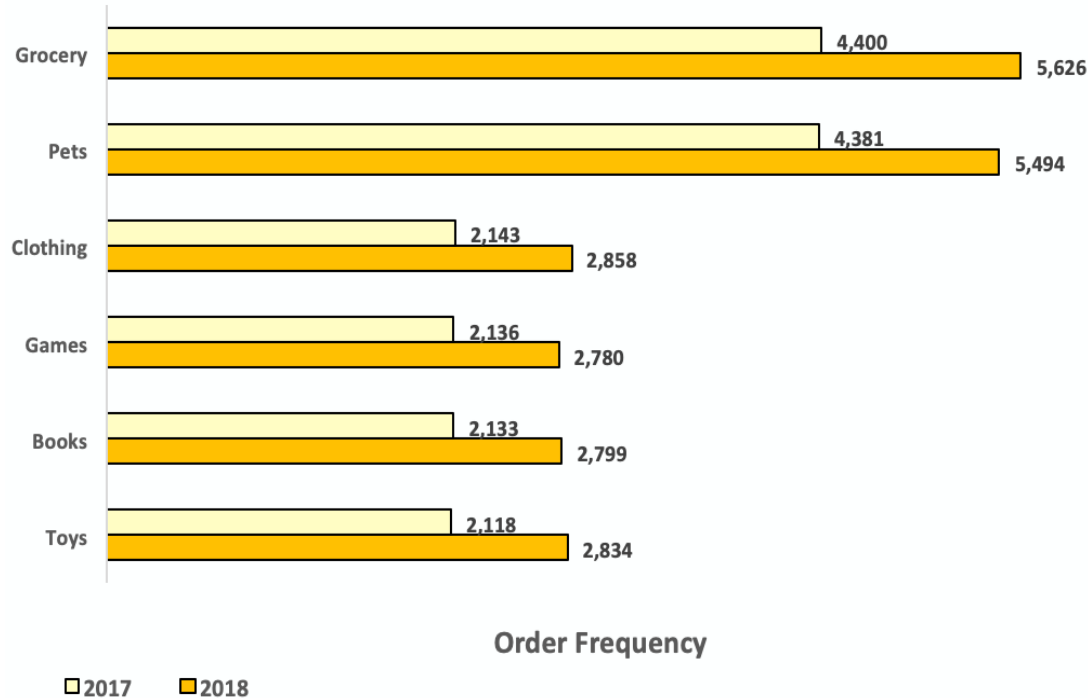


Question: *What was our average order amount in 2017 vs 2018?*

The average order amount was **\$92.13** in 2017, and **\$93.45** in 2018.

Evaluate the Product Categories

Product Category Popularity Trend 2017 vs 2018

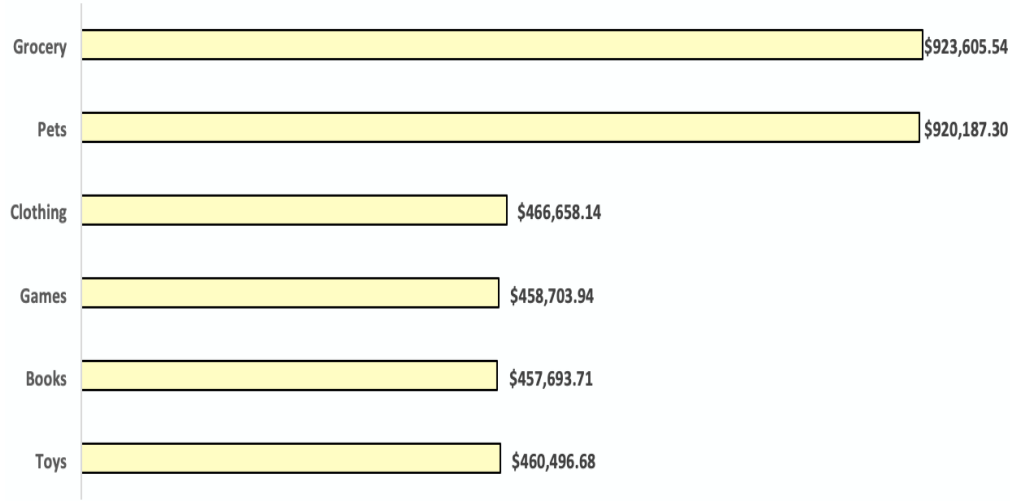


Question: Which product category was most popular in 2017 & 2018?

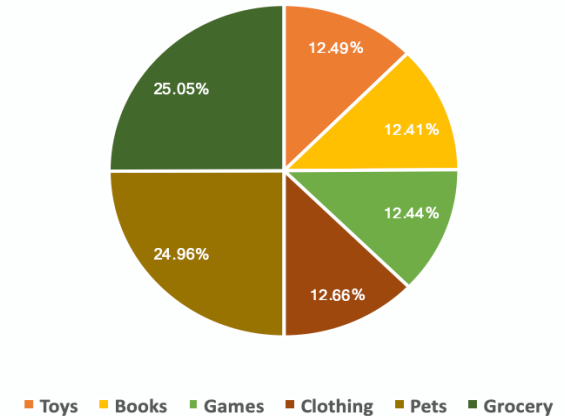
Grocery was most popular in 2017 and 2018, receiving 4,400 and 5,626 orders respectively.

Evaluate the Product Categories

Product Category Total Sales Trend (2017-18)



Product Category Total Sales Proportion (2017-18)



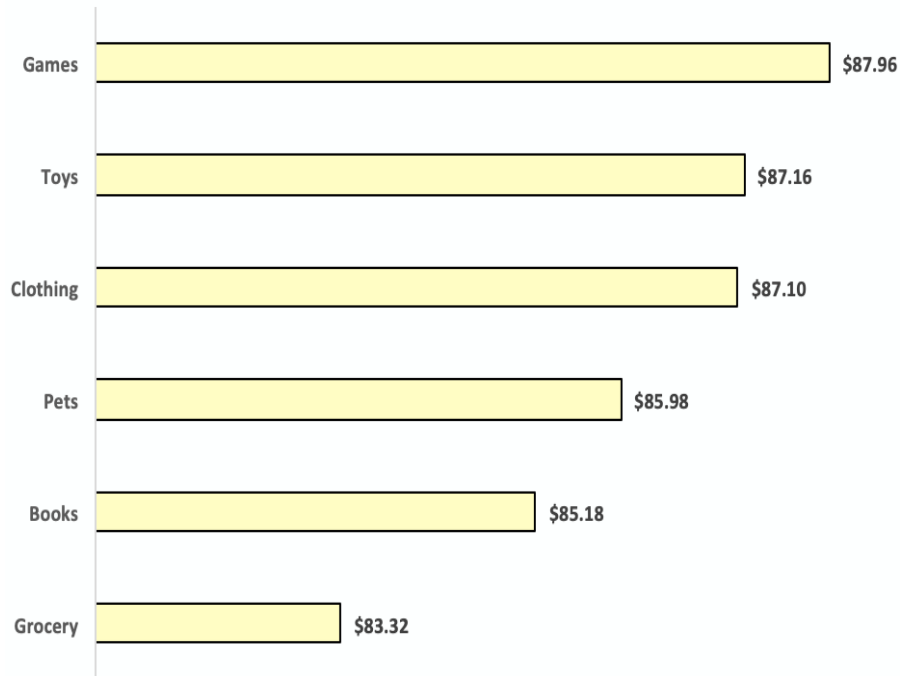
Question: *Demonstrate sales by product category*

Grocery was the largest driver in sales, pulling in \$923,605.54 or 25.05% of the total Black Friday sales in the two years.

Pets was the second best selling category with \$920,187.30 or 24.96% of the total sales in that period. **The remaining 4 categories Games, Toys and Books had similar sales values** ranging between \$466,658.14 (12.49%) and \$457,693.71 (12.41%).

Evaluate the Product Categories

Product Category Average CPA (2017-18)



Question: *Demonstrate CPA by product category*

During the two year period, **Grocery had the lowest average CPA** among the categories at \$83.32, followed by Books and Pets at \$85.18 and \$85.98 respectively.

Games had the highest average CPA at \$87.96, closely trailed by Toys at \$87.16, and Clothing at \$87.10.

Everything Else

- The dataset used for crafting this report can be downloaded from [here](#).
- Not all Microsoft Excel versions have boxplot functionality, I used Seaborn (a Python data visualization library based on [matplotlib](#)) [boxplot](#) function to produce the clustered boxplot on CPA by age range and city.