

# Udacity

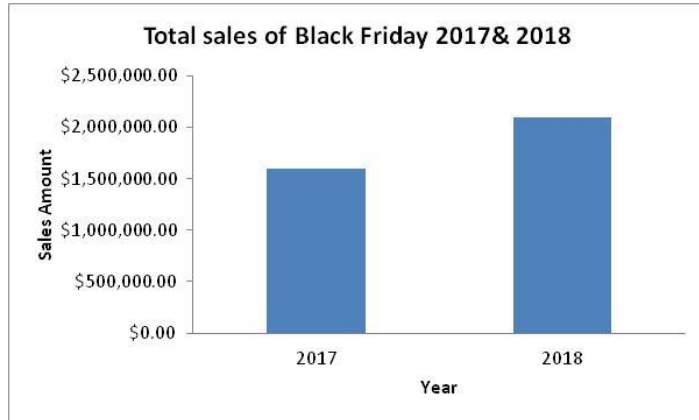
# Marketing Analytics

Nanodegree Program  
Project: Craft a Report

# Objective Results

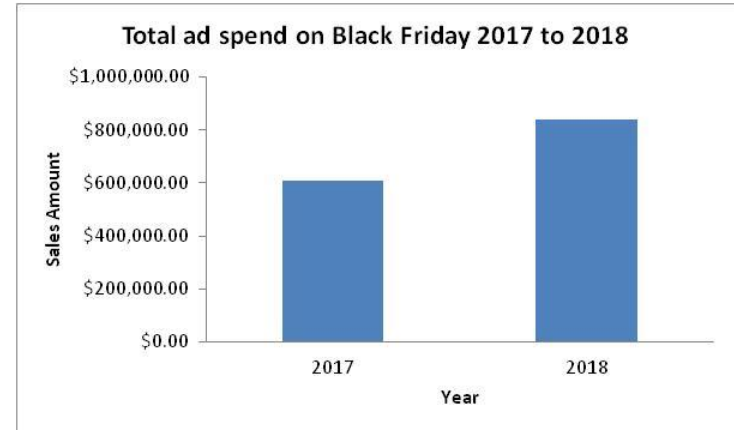
1. For the Objectives goal of Increase total sales by 30% on Black Friday 2018 vs. Black Friday 2017.

The bar chart below compares the total sales between Black Friday 2017 & 2018. It shows that Black Friday 2018 sales increased by 31.19%, which reached the 30% increase goal.

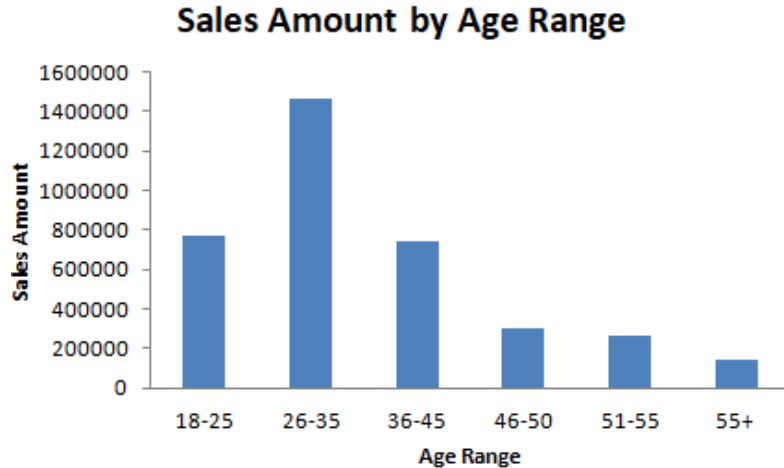


2. For the goal of decrease total ad spend by 30% from Black Friday 2017 to Black Friday 2018.

The bar chart below shows that the ad spent in 2018 increased 37.78% from 2017. It indicates that the goal of decrease 30% is not reached.



# Evaluate the Audience



Here is a bar chart for sales amount by age range. The bar chart is used to compare the sales amount for different age categories. By the chart we can see that the age group 26-35 has the most sales amount that is more than 1400k. It means our product is very popular for age range 26-35.

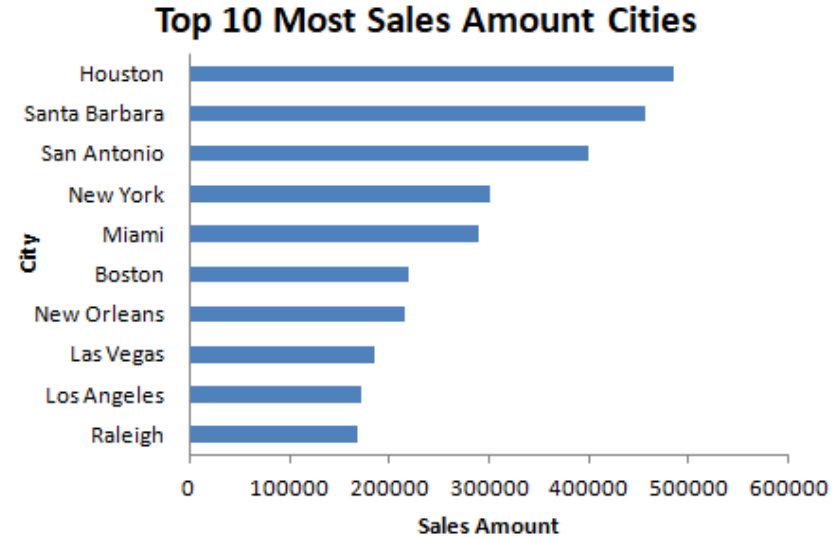
The age group 55+ has the lowest sales amount, which means that age group less likely buy our products.

# Evaluate the Audience

For the question which city generated the most sales in two years, the sales amount was filtered by city. The sales of top 10 cities are arranged from highest to lowest and plotted in the horizontal bar chart on the right sorted in sequence.

It indicates that Huston has the highest sales amount of \$485220.74.

To find question how many repeat customers did we have, I filtered user ID for customers who appeared more than once. Then count how many are those customers. I found out there are 4497 users shop repeatedly.



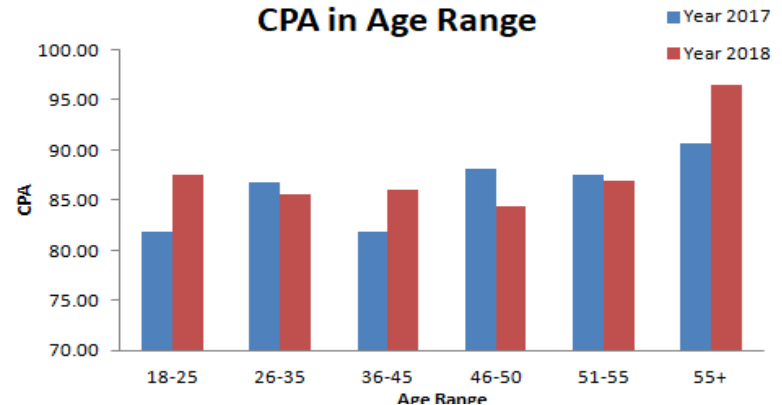
# Evaluate the Marketing

To find out if ROI on our Paid Channel is positive or negative, I filtered the revenue by paid channel, then used the table to calculate the Gross profit and ROI. The table indicates that the ROI of both years are positive: 0.08 for 2017 and 0.08 for 2018.

Return on Investment (ROI) on Paid Channel		
	2017	2018
<b>Paid channel Revenue</b>	\$656,416.50	\$892,958.62
cost of goods sold	607,610.41	837,155.55
<b>Gross profit</b>	48,806.09	55,803.07
ROI	0.08	0.07

To indicate which age range had the best CPA, I calculated 2017 and 2018's CPA by age range, and plotted in the bar chart below to compare the CPA for different age ranges.

It shows that for 2017 age group of 18-25 and 36-45 have the best CPA: 81.87 and 81.91, respectively. For 2018 the age range 46-50 has the best CPA of 84.42.

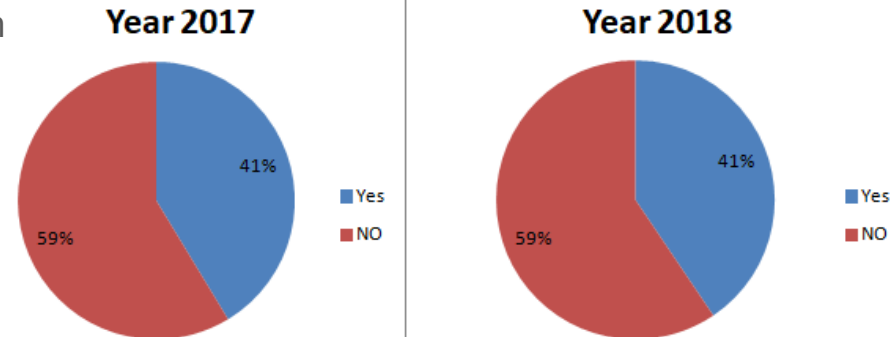
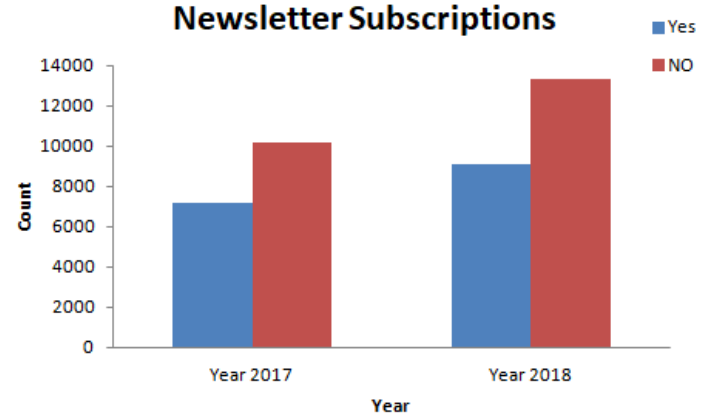


# Evaluate the Marketing

So how did our newsletter subscriptions change between the two years?

The bar chart on the top compares the count of newsletter subscription users and non-subscription users. It shows that both increased in 2018.

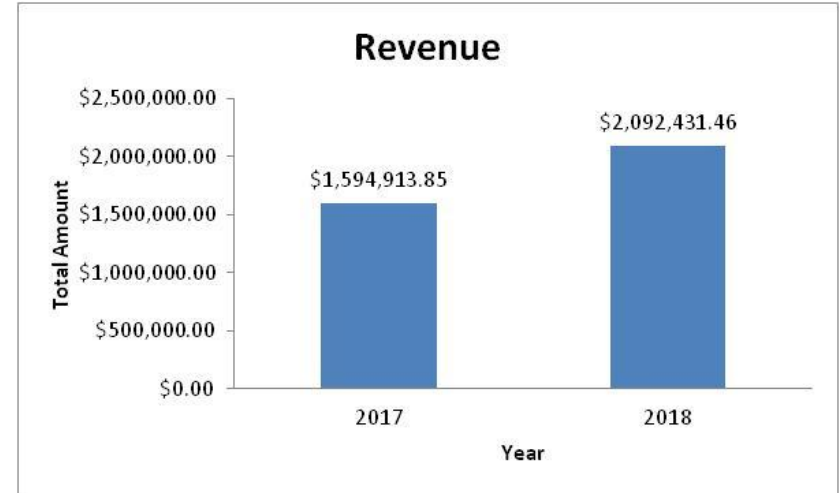
The two pie charts below are how newsletter subscriptions and non-subscriptions distributed in 2017 and 2018. It shows there are no change between those two years.



# Evaluate the Sales

The bar chart on the right shows how much revenue did we generate in 2017 and 2018.

It indicate the revenue in 2017 is \$1,594,913.85, and \$2,092,431.46 in 2018.



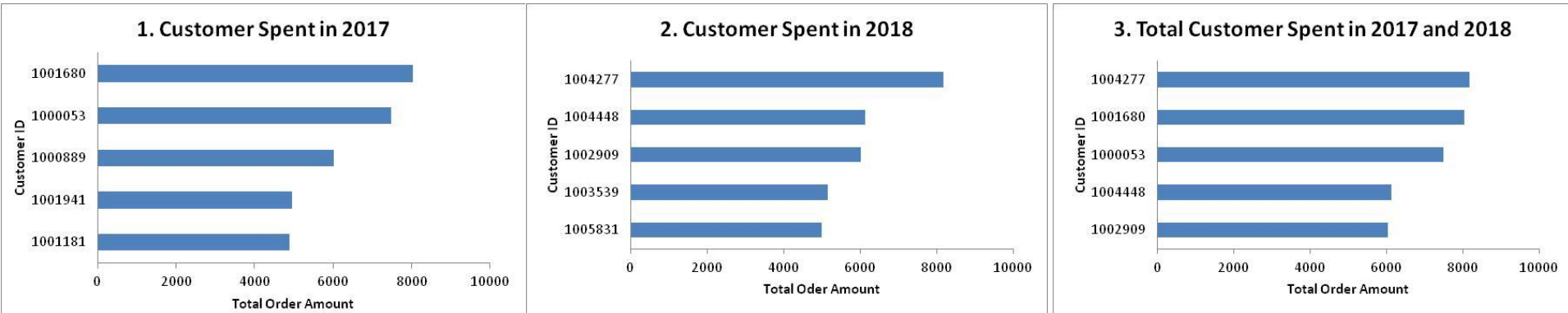
# Evaluate the Sales

To find out which customer spent the most money, I filtered customers with their order amount in 2017 and 2018, and the result are the shown in the bar charts to find the customers with top 5 spending amount sorted in sequence.

Chart 1 shows that customer ID 1001680 spent the most with \$8043 in 2017.

Chart 2 shows that customer ID 1004277 spent the most with \$8179 in 2018.

Chart 3 shows that customer ID 1004277 spent the most money in 2017 and 2018: \$8179.



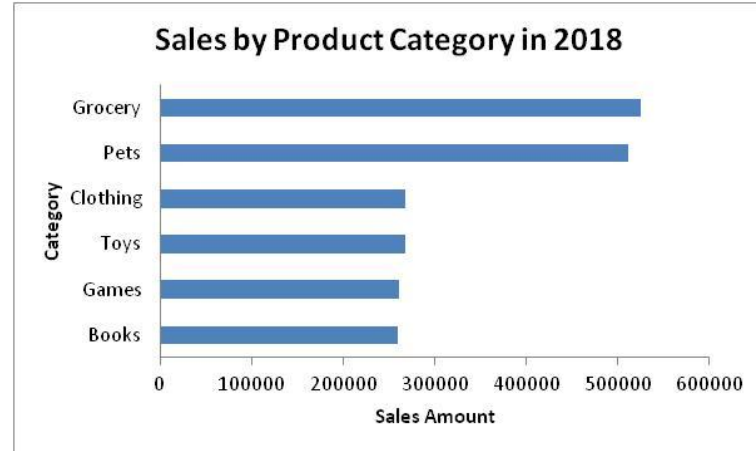
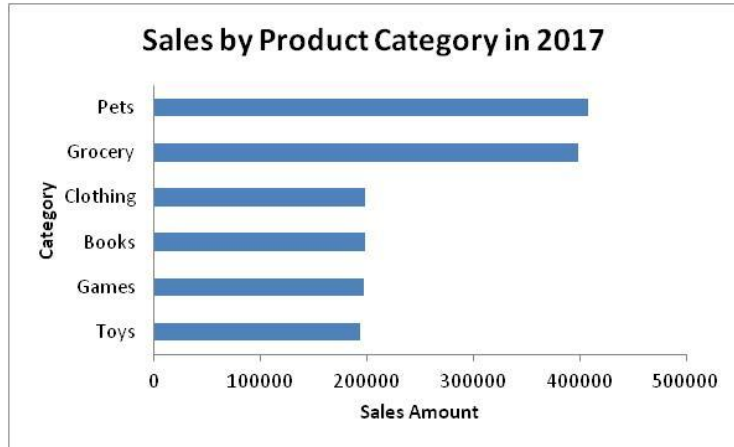


# Evaluate the Product Categories

For question which product category was most popular in 2017 & 2018, I filtered the sales amount by product category. The bar charts below show categories in sales amount sequence.

The category of pets has the most popular sales in 2017, and the total sales amount is \$408474.

The category of grocery has the most popular sales in 2018, and the total sales amount is \$525438.



# Evaluate the Product Categories

To demonstrate CPA by product category in 2017 & 2018, I filtered the total CPA amount by product category. The bar charts show the categories with CPA sorted in sequence.

The category of pets has the most CPA \$152319 in 2017 and \$ 206236 in 2018. That shows the category of pets spent most money in marketing and sales cost in both years.

