

# App project

Google vs Apple



Did Apple Store  
apps receive  
better reviews  
than Google  
Play apps?



# Stages of the project

1. Cleaning/Transforming Summary
2. Analytical Summary
3. Visual Summary
4. Modeling
5. Evaluating and concluding

# Cleaning/Transforming Summary

1. Checked the data types and fixed them
2. Added a platform column to both the Apple and the Google dataframes
3. Changed the column names to prepare for a join
4. Joined the two data sets
5. Eliminated the NaN values
6. Filtered only those apps that have been reviewed at least once

# The Two datasets combined into a single data frame

	Category	Rating	Reviews	Price
0	ART_AND_DESIGN	4.1	159	0
1	ART_AND_DESIGN	3.9	967	0
2	ART_AND_DESIGN	4.7	87510	0

	prime_genre	user_rating	rating_count_tot	price
0	Games	4.0	21292	3.99
1	Productivity	4.0	161065	0.00
2	Weather	3.5	188583	0.00



	Category	Rating	Reviews	Price	platform
682	DATING	3.5	35	0.00	google
1317	HEALTH_AND_FITNESS	3.9	249855	0.00	google
1899	GAME	4.5	592504	0.00	google
14096	Sports	3.0	131	0.00	apple
11062	Travel	4.0	248	0.00	apple
9496	FAMILY	5.0	90	0.00	google
6481	PRODUCTIVITY	NaN	2	0.00	google
4782	FAMILY	3.8	44636	0.00	google
17281	Games	5.0	18	0.99	apple
12892	Photo & Video	2.5	689	0.00	apple
4711	FAMILY	4.7	1667	14.99	google
14780	Photo & Video	2.5	134	0.00	apple

# Analytical Summary

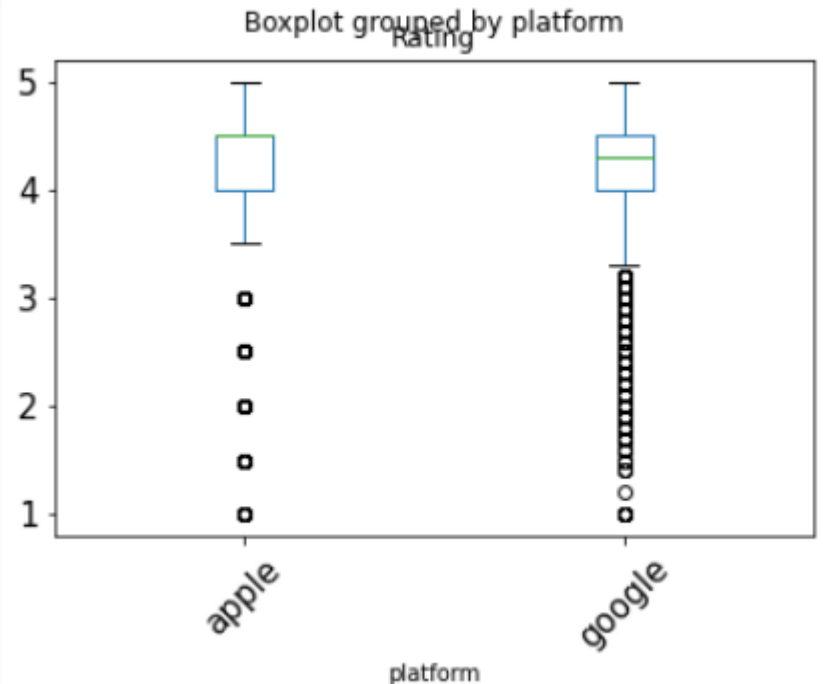
Summary of the Rating column, but separated by the different platforms;  
There's no significant difference between Google Play app reviews and Apple Store app reviews.

	count	mean	std	min	25%	50%	75%	max
platform								
apple	6268.0	4.049697	0.726943	1.0	4.0	4.5	4.5	5.0
google	9366.0	4.191757	0.515219	1.0	4.0	4.3	4.5	5.0

# Visual Summary

Visual summary of the Rating column, separated by the different platforms.

Here we see the same information as in the analytical summary, but with a boxplot.

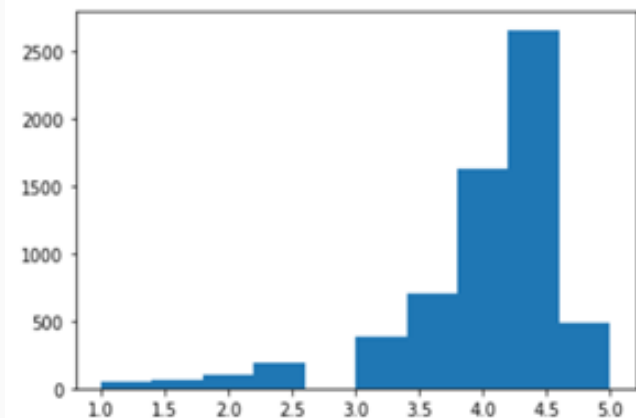


# Modeling

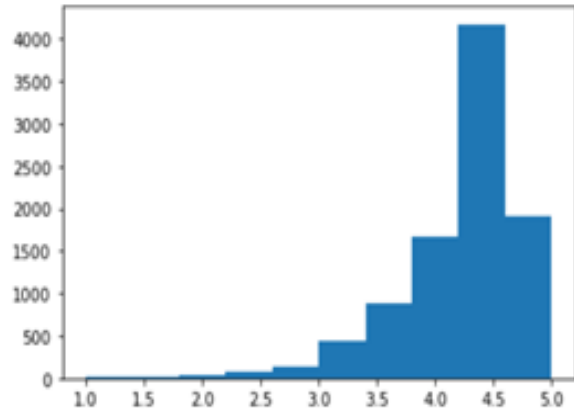


# Histograms of the Apple and Google reviews distribution

Apple



Google



Since the data aren't normally distributed, we're using a non-parametric test .

# Statistical test: Permutation

We Compared the two  
analytical summary: before  
and after test

The difference in the means  
after test is (0.001103) now  
looks hugely different to our  
observed difference of  
0.14206.

After test analytical summary

	count	mean	std	min	25%	50%	75%	max
platform								
apple	6268.0	4.131908	0.619851	1.0	4.0	4.3	4.5	5.0
google	9366.0	4.136739	0.608318	1.0	4.0	4.3	4.5	5.0

Before test analytical summary

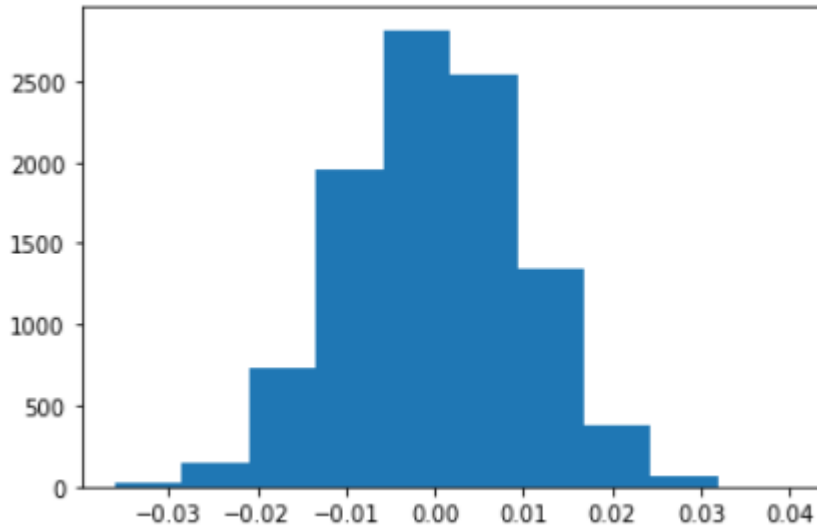
	count	mean	std	min	25%	50%	75%	max
platform								
apple	6268.0	4.049697	0.726943	1.0	4.0	4.5	4.5	5.0
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# Histogram of the difference

created 10,000 permutations, calculated the difference in the mean ratings for Google and Apple apps and the difference between these for each one, and then take the average of all of these differences.

The difference in the mean rating for apple and the mean rating for google is :

0.14206054745123442



Evaluating And conducting

# What is our conclusion?

The p-value of our observed data is just the proportion of the data given the null that's at least as extreme as that observed data.

As a result, we're going to count how many of the differences in our difference list are at least as extreme as our observed difference.

If less than or equal to 5% of them are, then we will reject the Null.

# What is our decision?



zero differences are at least as extreme as our observed difference!

So the p-value of our observed data is 0.

It doesn't matter which significance level we pick; our observed data is statistically significant, and we reject the Null.

We conclude that platform does impact on ratings. Specifically, we should advise our client to integrate **only Google Play** into their operating system interface.