

Analysing Data and Relationship between New Mobile Devices based on Experts and Public Ratings

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ABSTRACT

In this time of modern world, new technologies is introduced all the time to the consumers, also in the field of mobile devices which is a very competitive market, there are new devices launched every other month and sales are very important for each device to determine whether there is much profitable or has been successful after its launch. Hence with this project the success of each device which has been in the market for the past year which has gained a lot of popularity is determined based on different factors such as how important cameras, performance and usage is and its correlation to the price of the device and how popular the device is across the social media.

RESEARCH OBJECTIVES

The objectives are :1)What are different resources needed to be considered for comparing mobile device specification? 2) Which factors are correlated and mainly consider by the market? 3) Which factors are the most important when it comes to success of the device? 4) Social Media reaction of each devices based on facts as well as their opinions on social media ?

The aim is to understand the correlation of devices success and also sentiment analysis of the devices on the social media .

DATA SOURCE

This Project will have Reddit as data source for Social Media sentiment analysis and also since we need experts rating as well, antutu.com and DXOmark.com would be used as a data source for its performance, graphical and camera ranking of each device since this data set is reliable for accurate results. The price, CPU and GPU rankings from antutu is very accurate since this website has been working on these data since a long time. For the camera ranking data was collected from DXO mark since this website only focuses on camera performance. This data set would contain rating of CPU, GPU and DXO in single csv file and another csv file would contains posts from each subreddit of each individual mobile device. Both datasets were collected using BeautifulSoup4 library under python3.

Name	DXO	CPU	GPU	MEM	UX	Total	Price
Xiaomi Redmi K20 Pro	102	140217	183068	60120	68349	451761	400
Xiaomi Mi 9	110	136311	180695	63725	64828	445567	445
Honor 20 pro	113	127930	125978	74776	62718	391410	500
Samsung Galaxy S10	116	121378	166060	59383	64365	411193	590
OnePlus 7T Pro	114	144011	197877	78107	74703	494705	600
OnePlus 7 Pro	113	142000	178641	78724	74619	473991	670
Apple iPhone 11	109	155235	211480	75370	82044	524137	700
Huawei p30	116	129216	131850	67960	65166	394199	750
LG G7 ThinQ	85	97120	103076	44170	53175	297546	760
Apple iPhone 11 Pro	115	167055	213503	83000	83365	546930	1000
Samsung Galaxy Note 10+ 5G	117	128071	171608	89136	65118	453939	1100
Apple iPhone 11 Pro Max	118	166509	215130	82035	83267	546948	1200

Fig.1 Snapshot of Expert Ratings and Price rankings.

The above figure shows a snapshot of one of the datasets which was used and shows all the devices which were taken into consideration, to include devices from all the operating systems as well as different markets. Some of these devices were much more popular in a particular country yet the performance of the devices remains the same hence it creates much more equal comparison between each devices.

clean
iPhone vs iPhone 11
I turned 33 years old two days ago and got this from my parents as a gift
iPhone 11 LRM. Laguna beach delivered last night.
Newport Beach sunsets with iPhone 11.
8 years of android came to an end six months ago. The tables have turned.
6 Months In. Still a great device
Just beautiful
Same expressions.
Finally upgraded from my 6s!
And it s here!
11 gang! After long frustrations with my iPhone X.
Finally got my iPhone 11

Fig.2 Snapshot of Subreddit Posts after cleaning

The above figure is the snapshot of how the csv file for the subreddit posts would look like after cleaning after which the keywords are picked up from the texts to determine whether the comments are positive or a negative opinion. For each of the subreddit of devices around 1500-2000 posts of consumers data was collected from reddit since the more number of posts are

Fig.7 Graph with benchmark and price

This fig.7 was plotted using adding up all the different factors which were DXO, CPU, MEM,UX to add up for a total value and then comparing it to the price of the models available at the market and it is observed that even with low selling prices performance is still up to the mark of the more expensive devices present in the market.

The next section of the project was conducted on the social media, where reddit data was collected from subreddit of each the mobile devices where consumers provide opinions on how they feel about each device hence analysis of this is a very important part of this project.

Data collected in csv files as seen in Fig.2 and sentiment analysis was performed on each of the csv files using TextBlob. TextBlob is a library for processing textual data providing easy API used to Natural Processing Language (NLP). Using sentiment analysis, we were able to plot polarity of the text ranging from positive to negative and also facts to opinions from each of the posts of the subreddits.

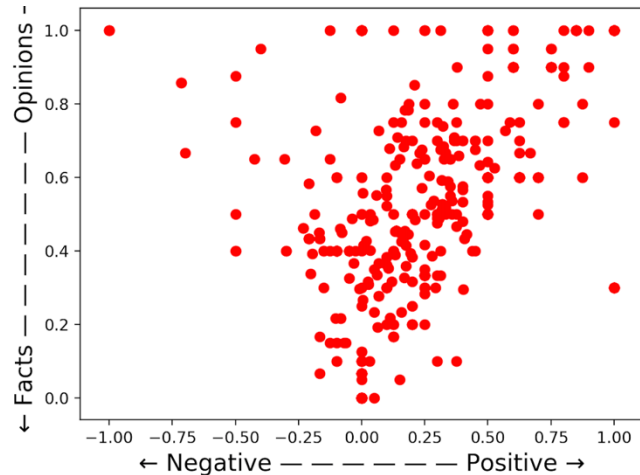


Fig.8 Sentiment Analysis of Iphone11 subreddit

Fig.8 is the result of the sentiment analysis of Iphone11 subreddit where we can see this device was very popular among the consumers and all the dots on this scatter plot represents each post from the subreddit. The majority of these posts are positive when it comes to facts as well as opinions which shows how successful this device was among the audience.

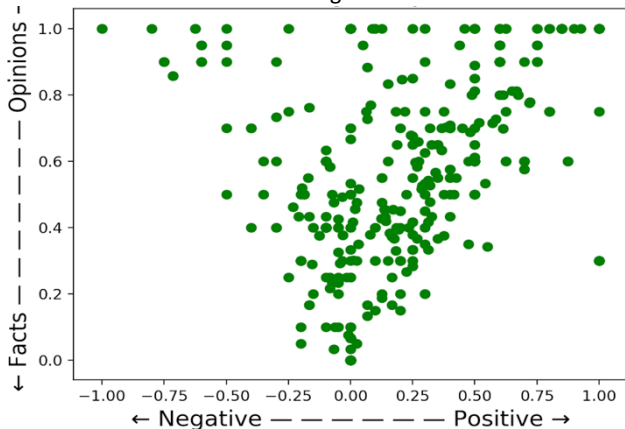


Fig.9 Sentiment Analysis of Iphone 11 pro subreddit

From fig.9 We could see that the subreddit for iPhone 11 pro wasn't as positive as compared to fig.8. Even though it was very popular among audience as we could see the positive opinions yet there were considerable number of negative opinions as well which deduces that there were good sales and success but with a room of improvement for a more better success rate of device.

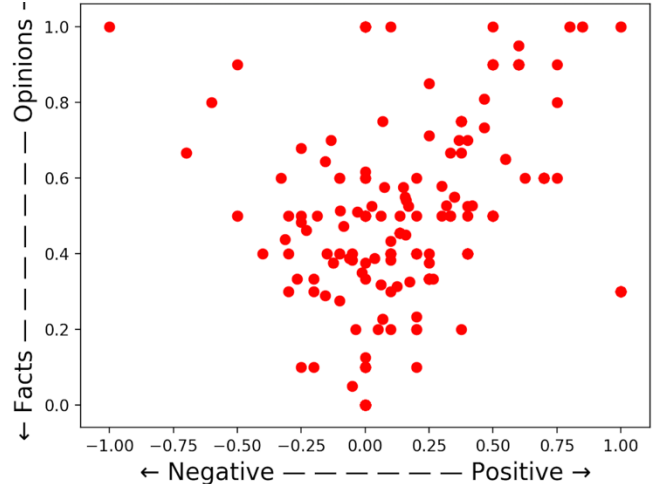


Fig.10 Sentiment Analysis of Oneplus 7t pro

This is one more example of the sentiment analysis of the device Oneplus 7t pro where it is observed that the devices had a lot of neutral reaction being it opinions or even facts which shows there is still a good market for this device yet it isn't a very successful device for the audience only because there are much better price to performance devices available in the market which the audience end up buying compared to this device.

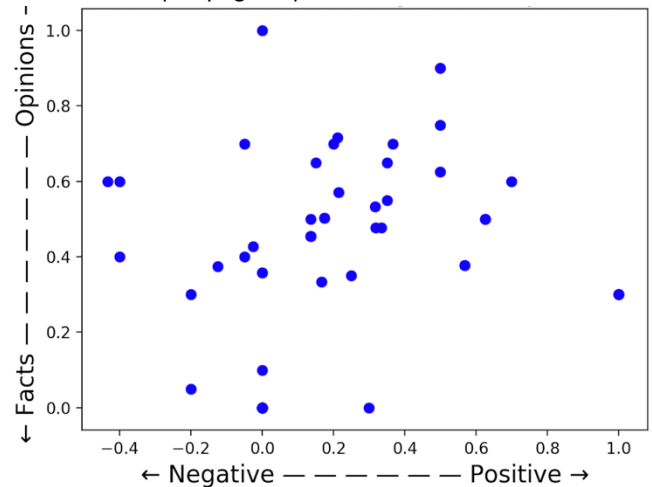


Fig.11 Sentiment Analysis of redmi K20 pro

This results for sentiment analysis of K20 pro displayed in Fig.11 shows us an interesting result where this device benchmark ranking was at the top of the chart competing with all the expensive devices present in the market and still this device doesn't seem to be very popular among the audience. This shows how important the popularity of the device is so that there is comparatively much more success rate of the device, here with all the best specification and performance yet the sentiment analysis

studies show that there is negative approach towards the facts as well as the opinion of the device.

The result of all the other devices were similar from one of these results which brought a few important observations where most of the expensive devices were amongst the most popular around the social media and being also successful as well, but a few improvements needed. The cheaper devices had very good benchmark performance but yet wasn't very popular among the audience. The mid-range devices had average benchmark performance had positive impact on the market but not with big numbers of sales.

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