



Social Media Analysis on Fast Food Using Machine Learning Algorithms

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Abstract

This paper is design to knowing the usage of social media in fast food industry. The data were collected using a survey instrument which was contained a questioner paper. It contains fast food frequency and meal option that mostly people like to eat. It was mostly collecting from the people called themselves as 'Foodies'. The collected data was analysis and structured through different methods. The finding indicates that the social media advertisement put positive impact on the product or on the industry.

The results show that the social media advertisement is playing important role in the success of the any industry. It also important that the manger of the company or a brand to give importance to the marketing on social media platforms. It can also build a strong relationship between the customer and the service or product in easy and cost effective manners. Such these activities would help them to establish a successful relationship with the customer in order to knowing their needs and response to their issues on the time. In this research we will see which age people mostly connected with fast food industry through the social media networks.

Introduction

In these days, the social media is very popular and no signs for stopping. Now, social media is become the important part of our daily life, especially in the young generations. The can connected with each other's through social media. They are in touch with their families, friends and collogue. There is equal number of males and females are using social networks to communicate with each others. People of all ages using the social media networks but mostly the young generation use it. They spend a lot of time on these social networks.

In these days most of the companies of different type are using social networks to interact their customers. They are using these social networks for his product advertisements. Because most of the people are interact with social media in daily life and consuming their time on these networks.

These days advertisements on the social media playing very important role in any business. These social networks platform gives the opportunities to the companies to post their advertisements on these networks easily. Face book is mostly used social network world wide. The social Network face book is giving two types of advertisements. One is the Paid advertisements, and the second is the free advertisement.

In face book page the user can advertise their product through the page. Customer can see their products on their face book page. He can put daily updates of his product, discount, promotions etc. With the paid advertisement they can customize his target market their face book page.

Face book allows the advertiser to target the customer by age, gender, location or even their interest. It becomes more effective for the advertiser to get more effective results. The Second form of the advertisement is free where the companies make a page for his customer on face book and post their products on it and customer can instruct with these products and service for the customers.

His fan or customer can engage with the post and got the newly updates and offers they give. In this research we will want to know that which ages of peoples are mostly connected with the fast food companies on the social media. For this purpose we have collect the information of the different peoples of

different interests make a data set for this purpose.

In this research we will use the orange data mining tool for obtaining our results. In this we will find all the people who can interact through social media with the fast food company, their ages and their genders etc. The role of social media is very important. That why the managers of the companies spends a lot of beget on the Advertisement on the social media and their advertisement of social media giving him good results.

LITERATURE REVIEW

Social Media

Social media is refer to means the attractions of among the people where they will share, exchange their ideas, information with each other's via online networks. It includes the websites, applications etc will allow the user to communicate with each others. On social media the user can communicates, share messages, pictures, audio, video, documents etc. In these days it will use for the business purposes also. A lot of companies now interacts their customer through social media.

Consumer Attitude of Advertising

Advertising behavior has been a major topic of interest for researchers. Behavior can be defined as acquired threat to respond positively or negatively to advertising in general. The tendency attitudes toward advertising brand attitudes and decisions to purchase advertised products and services (Mackenzie & Lotz, 1989). Consumer attitudes toward advertising play an important role in determining add effective because consumers care more about it and satisfy it (Mehta, 2000)

Because the most the ads form of advertisement is TV ads. People can avoid them in many ways by ignoring them, leaving the room or changing channels (Speck and Elliott, 1997).

In addition, users can avoid advertising in other media, such as ignoring print ads and ignoring the notification and cancel the ads on

the Internet (Kelly et al, 2010).It appears consumers attitude towards about the different advertisement channels. For example in a research the response of the Customer is more positive on the internet rather than on the other channels like TV etc. (Schlosser et al., 1999). Consumer reported that they find the informative posts and like them. It also help to purchasing decision easily (Shavitt et al., 1998).

Social Media Advertisement & Consumer Response

Companies started to recognize the importance of social media in the marketing in the early. Marketing started sharing their budget in social media advertising. Social media marketing is using the social technologies, software, channels to communicate with the customer and delivering their products. Social media also enable the customers to have more of the products and service that fulfill the customer needs (Tuten & Solomon, 2013).

Social media is creating new opportunities and challenges for the companies. It becomes an important channel that allows conversation between the customers and the companies. Social media marketing transformed the communication process to be more value of the brands products services is now created interaction between different stakeholders on social media.)Hutter et al.,2013).

With this aim of understanding customers mind towards advertisement in Face book which is becomes the most widely used social media network in the world(Chu& Kim (2011). All the company's naturally What Now effective there campaigns on social media reporting the results and tracing what and where the improvement is required the most important condition is favorable outcome is social media all the platform blow off management tools to allow all available chart table only monthly and weekly basis (Kapferer, J.-N 2012). strong brand pay more attention on the social media advertising and recognize it forward to establishment ending relationship with the customer road market

environment that which high interactive marketing (M. Bulearca and S. Bulearca, 2010.)

Popular brand using social marketing building its become vital for several organization it provide them a number of competitive advantages. There are customer reality ability premium charges is here extension effective communication marketing (D. A. Aaker, 1991).

Research Questions

This research will provide useful insights into the attitudes of young consumers towards fast food advertising on social media that were not previously explored. The purpose of the research is to answer the following questions:

Research Question 1: What is the attitude of young customer towards fast food ads on Face book?

Research Question 2: What are the factors that influence the attitudes of young customer about fast food ads on Face book?

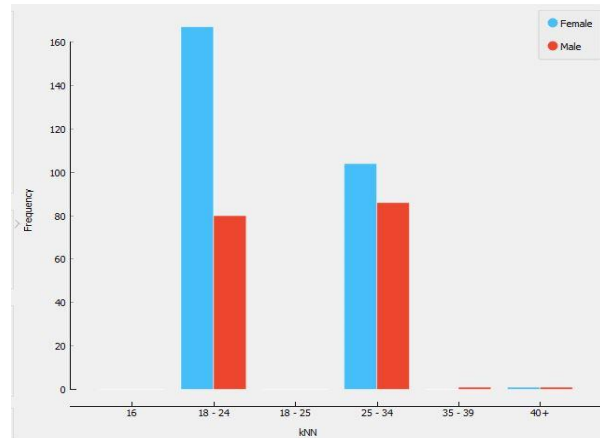
Research Question 3: What is the relationship between the content of Face book fast food ads and the interaction of young customer with these users?

Methodology

We have used the most popular data mining open source tool orange 3.25.0. We used one dataset for this purpose and apply different algorithm of machine learning. The work has been performed on a Windows 10 operating system with Intel® Core™ i5 CPU, 2.6 GHz Processor and 4.00 GB RAM. The chosen datasets differ in size, mainly in terms of the number of attributes. We applied different algorithms in orange.

KNN

The k-nearest neighbors (KNN) algorithm is a simple monitoring machine learning algorithm that can be used to solve both sequence and regression problems. It's easy to follow and understand, but as the amount of data increases, there is a huge disadvantage in using it to slow it down carefully.



In this figure KNN Distributions figures show us the young generation is more using then others. Age group of 18 to 24 are using mostly. And the age group 25 to 34 is at second highest consumers. Females are more consumers then males.

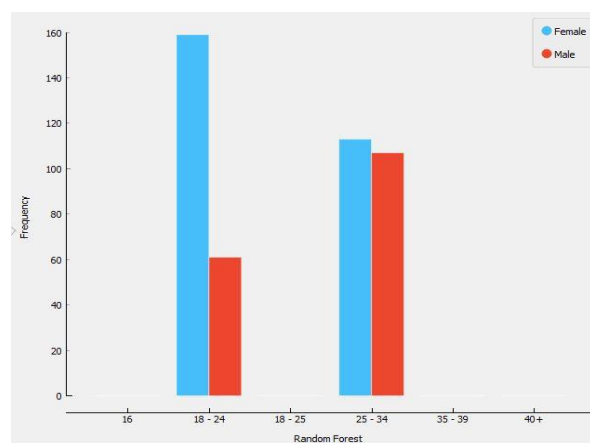
Actual	Predicted						Σ
	16	18 - 24	18 - 25	25 - 34	35 - 39	40+	
16	0	1	0	0	0	0	1
18 - 24	0	119	0	79	0	1	199
18 - 25	0	4	0	3	0	0	7
25 - 34	0	106	0	91	0	1	198
35 - 39	0	13	0	9	0	0	22
40+	0	4	0	8	1	0	13
Σ	0	247	0	190	1	2	440

KNN Confusion Matrix

In this figure shows the result of KNN confusion Matrix. Age group of 18 to 24 are 247 consumers, 25 to 34 age group 190 consumers are predicted. 35 to 39 are 1 consumer and 40+ age group have 2 consumers.

Random Forest

Random Forest is a supervised learning algorithm used for both taxonomy and regression. Likewise, a random forest algorithm generates a crucial tree on data samples, then expects each and ultimately chooses the best voting solution.



In this finger Random Forest Distributions the blue line shows the females and red line mans. The age groups of 18 to 24 are using a lot of social networks for fast food whereas 25 to 34 age group are second place. Others are not using at all.

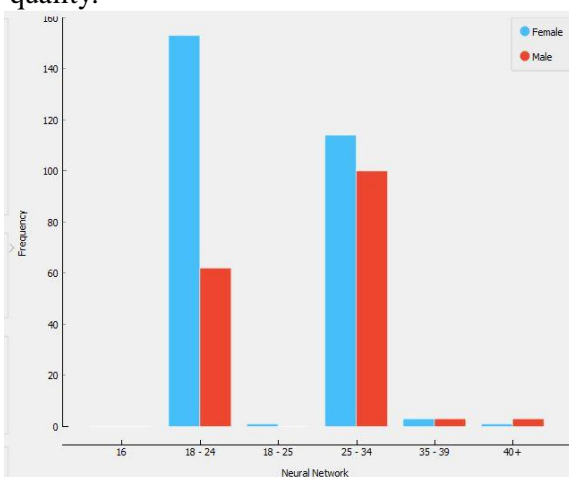
		Predicted						
		16	18 - 24	18 - 25	25 - 34	35 - 39	40+	Σ
Actual	16	0	0	0	1	0	0	1
	18 - 24	0	103	0	96	0	0	199
	18 - 25	0	5	0	2	0	0	7
	25 - 34	0	97	0	101	0	0	198
	35 - 39	0	11	0	11	0	0	22
	40+	0	4	0	9	0	0	13
	Σ	0	220	0	220	0	0	440

Random forest Confusion Matrix

This figure is showing the Predicted result of Random forest Confusion Matrix where 220 are belongs to age group of 18 to 24 and same as 220 of 25 to 34.

Neural network

The neural network is a series of algorithms that attempt to identify the fundamental relationships in a set of data through processes that mimic the way the human brain works. Neural networks can adapt to changing inputs. Therefore, the grid produces the best possible result without the need to redesign the output quality.



Neural network distributions

In this Neural network distributions figure the blue line shows the numbers of females and the red line indicates the Mans. Most number

of the females using social networks and instruct with fast food products in the age group of 18 to 24. The Mans in this age group are half of the females. In other age group of 25 to 34 the number of females is more than mans.

		Predicted						
		16	18 - 24	18 - 25	25 - 34	35 - 39	40+	Σ
Actual	16	0	1	0	0	0	0	1
	18 - 24	0	99	0	97	2	1	199
	18 - 25	0	3	0	4	0	0	7
	25 - 34	0	100	1	92	2	3	198
	35 - 39	0	9	0	12	1	0	22
	40+	0	3	0	9	1	0	13
	Σ	0	215	1	214	6	4	440

Neural network Confusion Matrix

This figure is showing the Predicted result of Neural network Confusion Matrix where 99 215 people are in the age group of 18 to 24 and 214 are in 25 to 34.

Results and Discussion

To investigate the performance on the selected classification methods or algorithms namely KNN, Random Forest and Neural network we use the same experiments as suggested by Orange. The 80 percent of data is using for the testing and reaming 20 percent of data is using for training purpose.

The predicted results are shown as blow.

Model	AUC	CA	F1	Precision	Recall
kNN	0.523	0.477	0.452	0.433	0.477
Random Forest	0.541	0.464	0.440	0.418	0.464
Neural Network	0.506	0.436	0.421	0.410	0.436

Test and Score

The Result of KNN algorithm are AUC 0.523, CA 0.477, F1 0.452, Precision 0.433 and Recall 0.477. Results of Random Forest algorithm are AUC 0.541, CA 0.464, F1 0.440, Precision 0.418 and Recall 0.464. And the result of Neural network are AUC 0.506, CA 0.436, F1 0.421, Precision 0.410 and Recall 0.436.

Focus groups are organized to investigate young customer's attitudes toward Face book fast food ads. The group discussion was

focused on two topics. In the first topic, researchers sought to investigate the awareness of young users, their acceptance of these ads, and their intention to interact with and interact with the pages of fast food lovers. On another topic, researchers aim to understand the factors that drive their interaction with ads and fast food fans.

Conclusion

To summarize the outcomes, the most of the social media user are interact with the fast food product. They decided easily to consume the product. Also they are aware of the new products of the companies. They also consume his beget easily. All the companies of the fast food are using the social media networks for their product advertisements. They know the importance of the social network importance. They spends their most of beget of advertisements on the social media networks. Face book is the most popular social media network for worldwide. It also used by most of the companies for the advertisements. In contrast, the number of followers is not equal to the high participation rate. The company should focus on its core audience and loyal fans that can not only create content themselves but also act as brand advocates. Females are more using the social networks instead of Mans to interact with the fast food industries.

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