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Mohammad Aziz is currently pursuing his MSc degree in Data Science from Cardiff Metropolitan University in Cardiff, UK. Prior he has done his other master degree in computer science and engineering from NIT Hamirpur, India. One paper named *"Light Source Authentication in ADAS/Autonomous Vehicles"* has been published in SAE International journal and other papers are in queue. Morover, He got an job experience as an Data Scientist in *"dig data"* UK. He is mainly interested in "Machine Learning" and "Artificial Intelligence".

ABSTRACT

This research study is mainly going to focus on the satisfaction of KFC consumers in the UK and India. The main aim of any restaurants in this competitive world is to serve the best quality of food with flavourful taste, reasonable cost and fastest order services. 1/6th population of the world live in India and the UK and a huge number of consumers respond daily to KFC for its food and services. Both countries have different ethnicity, thoughts, race, color, culture, and their own food taste and this makes more challenges in its products quality and services for KFC businesses. The Data is scrapped from different sources for both countries. By analysis of 45 sample data, it is found that 97.78% of Indian consumers are satisfied with price, 95.56% with quality, 64.44% with fast services and 77.78% with taste of the food. However, 57.78% of British consumers are satisfied with its price, 22.22%, 13.33% and 26.67% with food quality, fast services and taste respectively. The limitation of this research is the number of data that are used for this study.

1. INTRODUCTION

The earliest fast food restaurants in the United Kingdom was in 1860 where there was only fried and crunchy fish and was served with chips. Fish and chips is a British traditional dish. Later, in 1965 KFC (Kentucky Fried Chicken), an american company came with the first global fast food restaurants and put its popularity all over Britain within a few months. However, It entered India on june, 1995 with the aim to serve 1.5 billion people with its delicious and spicy recipes and kept its first office at bangalore. Almost 900 KFC restaurants in the UK and 480 in India. There are over 300 different recipes KFC serves its fast food all over the world according to regional taste and that makes people attracted towards it.

Quality, price, taste and services are the main factors that make any restaurant run longer in this competitive world and these were always being first preference by KFC restaurants to make the world satisfied in every way.

Fast and junk food restaurants produce $600 billion globally and that's an enormous amount for any country's revenues in terms of economy; however, A huge amount of revenue (around 125 billion indian rupees) is generated every year alone by KFC India and around 208 million pound turnover by KFC UK in 2018.

Many complaints have been registered against KFC India about services that take longer than usual and sometimes serve wrong food items. Several consumers have had bad experiences about the behavior of KFC employees in the UK. And this can create big issues for the future businesses of the company and it's brand name. That is why the main reason of this research is to give alertness towards KFC in both India as well as in the UK by showing how many consumers are satisfied or unsatisfied with its food and services.

Thus, the main intention of this study is to concentrate on the consumer satisfaction based on the price of the food, quality, taste and services of Kentucky Fried Chicken. A fast service, quality with reasonable price shows how good restaurants are and how much consumers are satisfied because keeping a good image of any restaurant is very important to stay alive in this busy world.

2. RESEARCH TOOLS AND METHOD

Research method is the method of using tools in order to research properly on a particular subject. It can also be defined as strategies, tools and techniques for the use of data collection and analysis. Two methods are used for this research given in the following.

1. Quantitative Method
2. Qualitative Method

Quantitative methods are used to collect the numerical data from social media for analysis of data using tools like pandas, matplotlib, seaborn, plotly, nltk, wordcloud and these tools are used to complete this research paper. The given tools are statistical tools that are used to analyse and visualise the data. There is one column of numerical data ("Ratings") used in this paper in order to examine. Columns "Ratings" are float data types that have 45 rows and the numbers are distributed only between 1.0 to 5.0 in each row.

Qualitative methods are those methods which are used for collection of non numerical data such as text, voice, image, video data, etc in such a way that data can be analyzed or investigated, important findings insight the data and can be easily able to solve the problem. Two columns that have string data types ("Emotion" and "Comments") are used as a qualitative method. "Emotion" is one of the column names of the dataset that contains sentiments of an individual towards KFC in two countries, the UK and in India. It is object data types. Comments is another column that includes all the information that an individual wants to say. It is also an object data type. A research model is used shown in the figure. According to the model quantitative and qualitative data has been used for analysing the datasets for this research. Results and finding is done in the "visualisation and results" section by providing each and every graph and table and all are explained in detail. Then finally, comes the "conclusion and recommendation" part to wrap up in a summary of all the things and recommend to the other interested researchers to look at further on this research.

Pandas: Pandas is a python library that uses python as a language and gives output very beautifully. Pandas is majorly used for whole analysis and visualisation in this research. Many pandas data structures are utilized for generating attractive tables, importing raw data into pandas dataframe easily in one line of code. It is also used for getting information about each data type of columns and converted to appropriate data types accordingly.
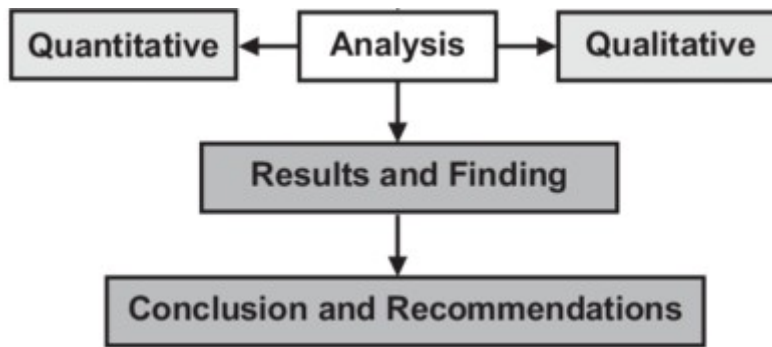
Figure

Matplotlib: It is the statistical library which is used for generating interactive graphs, charts, histograms, etc. This library uses advanced levels of mathematics. Most of the bar graphs and histograms are created for this paper using matplotlib.

Seaborn: Seaborn is another highly used library in python that is used here to count and plot the bar graph accordingly. It uses matplotlib internally.

Plotly: It is one of the powerful libraries in python that generates interactive and flexible graphs, charts, etc. It allows an option to download the graph in one click. Other features such as zoom in, zoom out, pan, box select, lasso select, autoscale and reset axes.

NLTK: It is the most powerful and huge library for natural language processing that includes text in english. Word count, sentence count, phrase count, positive and negative words, etc are easily identified by nltk. It is used to analyze the text sentiments in both the columns i.e "Emotion" and "Comments' '.

Wordcloud: It is also one of the visualisation techniques to see the frequency of each word in a beautiful manner. Those words that appeared less in the datasets will appear small in size and those with high frequency text will appear in large font size. Wordcloud makes it easy to find positive and negative sentiments in text data.

Scrapy: It is a 3rd party software tool which is used to scrape data from various web pages and it comes with chrome extension to be easy to use without installation on the system. 10 numbers of data samples scrapped by using scrapy and remaining from a pure python program.

3. VISUALISATION AND RESULTS

In this part, the data visualisation will be occured on the basis of primary scrapped social media data i.e Kentucky fried chicken data for both countries UK as well as India. The main purpose of this part is to describe each and every graph and charts in order to understand clearly.

Total 45 samples of data from consumers are scrapped that are part of KFC india and UK in separate csv files where consumers have put their comments on the basis of quality of the food, taste, price and services.

3.1 KFC OVERALL RATINGS IN INDIA

Kentucky fried chicken ratings are visualized by bar graphs and a table mentioned in the following. In the table, there are two columns named "Ratings", "Count" and "Percentage". The numbers shown in the rating columns are from 1.0 to 5.0, the "Count" column counts the particular number of ratings popped up in the whole data. For example rating 3.0 is given seven times in the whole data. However, Percentage denotes how much percentage is given for individual ratings. For example 15.56 percent of people who rated 3.0 for KFC in India.

	Ratings	Count	Percentage
0	4.0	17	37.78%
1	5.0	15	33.33%
2	3.0	7	15.56%
3	1.0	5	11.11%
4	2.0	1	2.22%

Table

KFC INDIA RATINGS
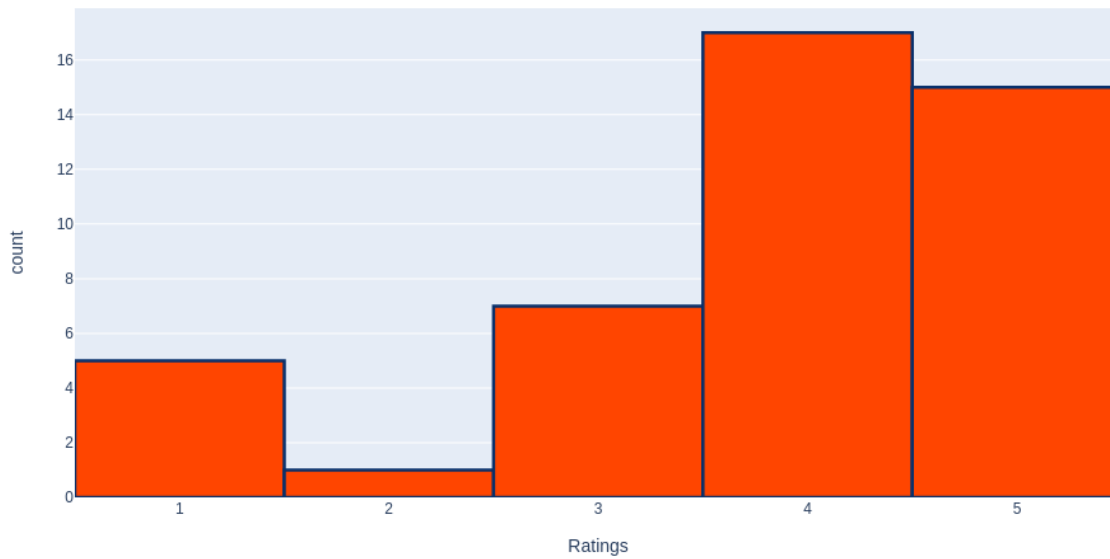
figure

According to the above bar graph, it can be easily observed that rating 4.0 and 5.0 are given more times than ratings 1.0, 2.0 and 3.0. It means majorly consumers rated overall good however, few are rated poor. This indicated that overall Indian consumers are very satisfied with the KFC food and services.

Ratings are the primary key for business perspective in order to improve certain things to get more reach. It helps the requirement of a customer and overall satisfaction. By looking at the above rating graph, Indian people are more engaged with KFC food and they love it. Rating 4.0 and 5.0 shows the good reputation of KFC in India and these ratings will boost its revenue.
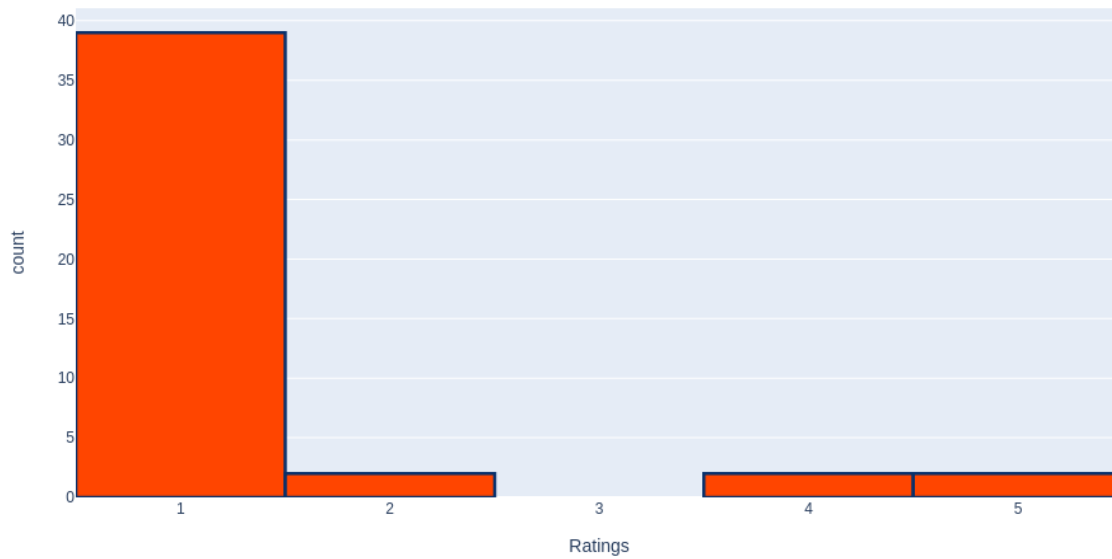
3.2 KFC OVERALL RATINGS IN THE UK

The overall ratings of KFC in the UK based on 45 numbers of data is visualized and can be seen in the following table and figure.

	Ratings	Count	Percentage
0	1.0	39	86.67%
1	2.0	2	4.44%
2	4.0	2	4.44%
3	5.0	2	4.44%

Table

KFC UK RATINGS

Fi

gure

By looking at both above table and bar graph, it is very easy to understand that ratings that consumers rated for Kentucky fried chicken is very low and a total 39 (86.67 percentage) number of consumers out of 45 have given 1.0. Other ratings such as 2.0, 4.0 and 5.0 are given by 4.44 percent of consumers each. However no one rated 3.0 for KFC. And overall KFC consumers are not satisfied with the food and services in the United Kingdom.

This will impact very badly on business for KFC. If ratings are low, people will stop buying food from KFC, brand will be valueless, graph of growth will convert to graph of shrink and overall revenue generated by KFC will be very very low.

Figure: Positive reviews word cloud

As It can be seen in the above figure that word cloud is filled with positive words such as "Good", "Best", "Lovers", "delicious", etc and these words show positiveness towards review.
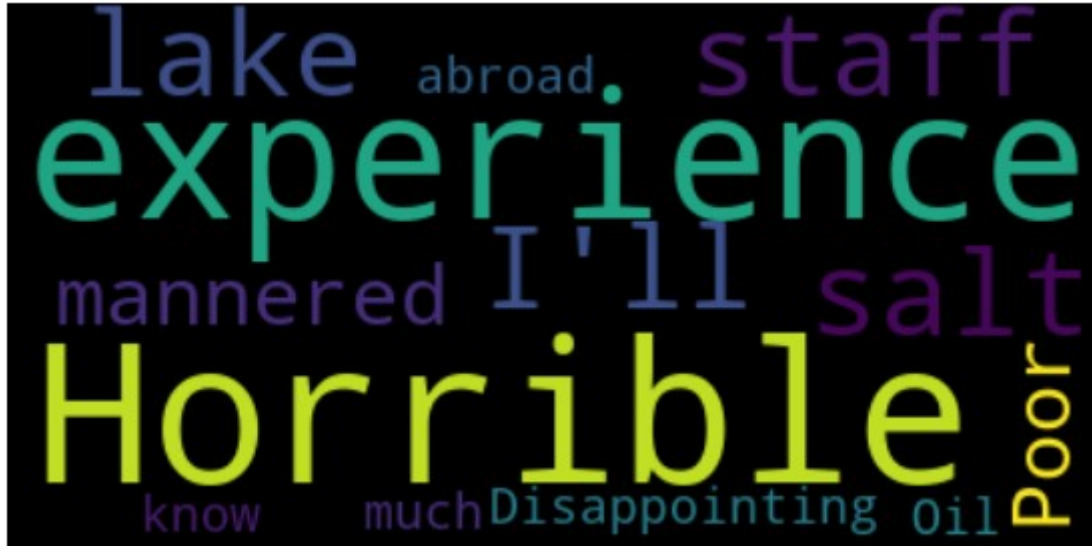

Figure: Negative reviews word cloud

Negative words can be seen in the above figure such as "Horrible", "Expreeice", "staff", "mannered", "disappointed", etc. "Horrible" is used many times by the people in their reviews. That's why it comes with a big size in the figure and so on for other words.

3.3 COMPARISON OF CONSUMER'S SENTIMENTS IN UK AND INDIA

In this section, sentiments of the consumers or customers are compared for both the countries. Sentiments are grouped into categories. One is positive which shows happy emotion and second is negative sentiments which indicates sad emotion or anger.
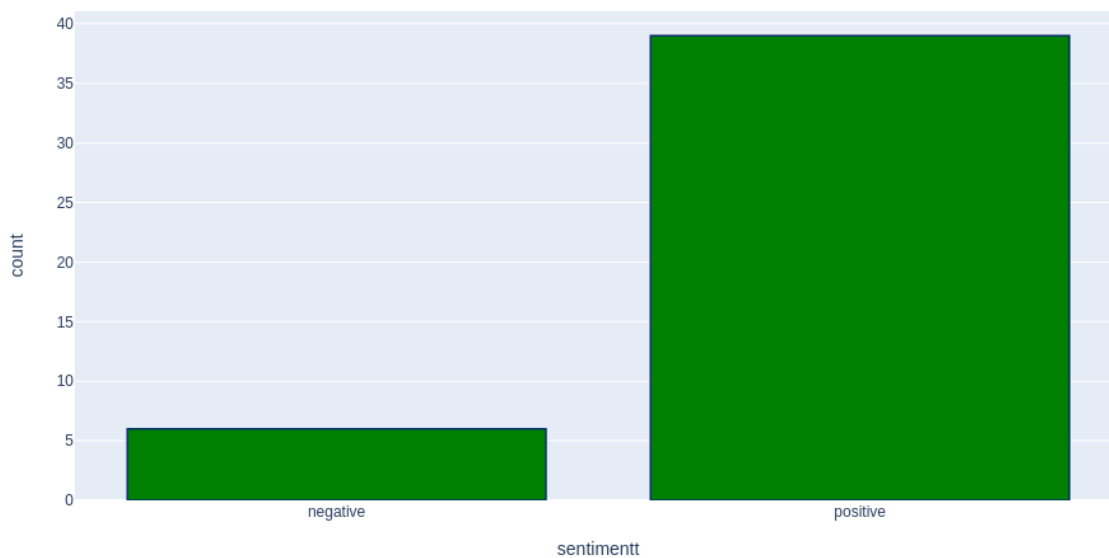
	Count	Sentiments	Percentage
KFC_UK	4	Positive	8.89%
KFC_UK	41	Negative	91.11%
KFC_INDIA	39	Positive	86.67%
KFC_INDIA	6	Negative	13.33%

Table

KFC UK SENTIMENTS
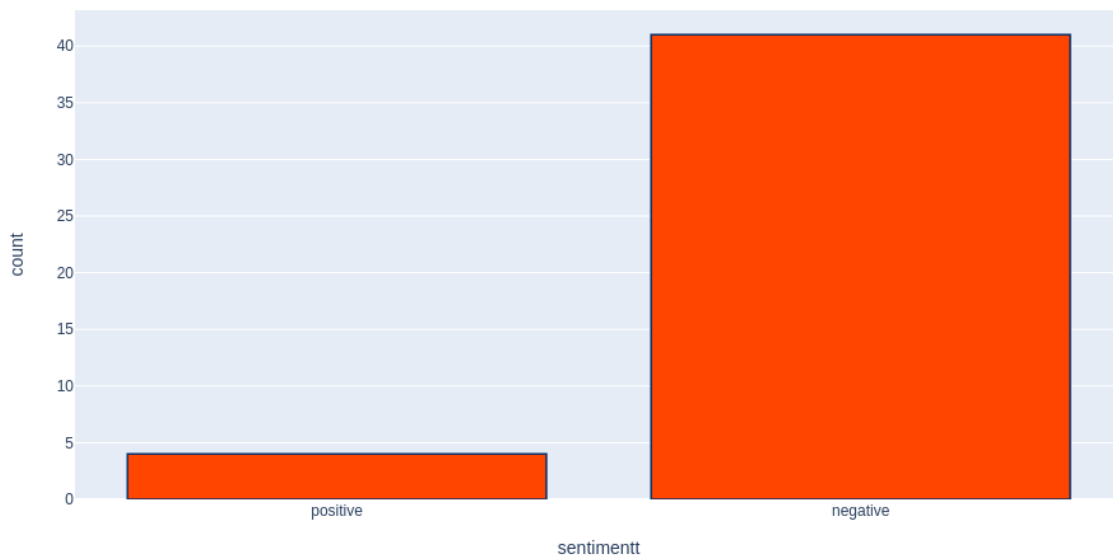
KFC INDIA SENTIMENTS

fig
ure

Sentiments are visualised for UK and India in the above figure that people have given their different reviews in both countries and it looks totally opposite because 91.11% of the UK customers shows their sad feeling however only 8.89% are happy with the KFC while 86.67% Indian customers are

satisfied with the KFC food in India. Only a few customers, around 13.33%, are not happy with KFC.

People's sentiments are highly negative in the United Kingdom. It means they are not showing their interest toward KFC food and other services. However, Indian people showed highly positive reactions towards the KFC. It seems, KFC is losing consumers in the UK and gaining consumers in India.

3.4 PRICE COMPARISON

The figure mentioned below represents the price comparison of Kentucky Fried Chicken's food in both countries and this shows the level of people's satisfaction on the basis of price. 57.78% of people think that food prices are reasonable while 42.22% feel that prices are high in the United Kingdom. Almost half of the respondents are happy with the price and the remaining half are not happy. In India, most of the customers are satisfied with the price of food and a very few are not satisfied.

	Count	Price
KFC_UK	26	Reasonable
KFC_UK	19	Non-reasonable
KFC_INDIA	44	Reasonable
KFC_INDIA	3	Non-reasonable

Table

97.78% of Indians believe that food that is sold by KFC is cheap and can be affordable while at the same time the rest of the percentage of people (around 6.67%) does not show their agreement on a cheap price. Indians are more satisfied than britishers in terms of price of Kentucky Fried Chicken's food.

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Figure

Money value for KFC food does not look fair for 42.22% people in the UK. 42.22% People get more costly fast food than what they expect. However, 57.78% are fine with the price. Nearly half of the people will likely go to some other fast food restaurants rather than coming to KFC in the UK. On the other hand, 97.78% (out of 45 samples) or almost all Indian people get their food at a reasonable price in India.

If prices are reasonable, people tend to come multiple times rather than coming one time and this also shows how much the company created trust in people and this makes a boost in the company's businesses and revenues.

3.5 QUALITY COMPRISON

Quality of food represents how good or bad foods are and this factor impacts an excessive amount of business for any restaurants.

The below table based on quality of food for the United Kingdom and India tells that 35 (out of 45 sample) number of British consumers that take fast food usually from KFC states that the quality of food is bad and it's not on that mark and the rest of them show their interest in quality. However, most of the Indian consumers (43 people out of 45) agreed on the good quality of food sold by KFC India and very few (2 out of 45) showed their disagreement on quality.

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	Count	Food_Quality
KFC_UK	10	Good
KFC_UK	35	Bad
KFC_INDIA	43	Good
KFC_INDIA	2	Bad

Table

Figure

The percentage comparison graph based on quality of food for the UK shows that 77.78% of the respondents do not like food quality at all however 22.22% of them think that quality is good. 95.56% and 8.89% are those people from India who accept good quality and bad quality of food respectively.

Quality of food is the main factor of business for any food industry. And KFC in the UK shows very bad quality food through the graph. This will make the productivity of food decrease because people stop eating these foods and business growth will automatically come down.

3.6 TASTE COMPARISON

Every restaurant gives their first preferences to the taste because this is the main factor that one can rely on in business. It is amazed by looking at the below table that 33 number of individuals out of 45 observe that fast food from KFC in the United Kingdom does not have taste while 12 number of

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individuals agrees on the fast food to be tasty. However, people in India have different opinions from the UK towards KFC fast food. Major part of the sample of individuals (35 out of 45) think that KFC food is delicious or tasty and the remaining of them do not have agreement on tasty food.

	Count	Taste
KFC_UK	12	Tasty
KFC_UK	33	Not tasty
KFC_INDIA	35	Tasty
KFC_INDIA	10	Not tasty

Table
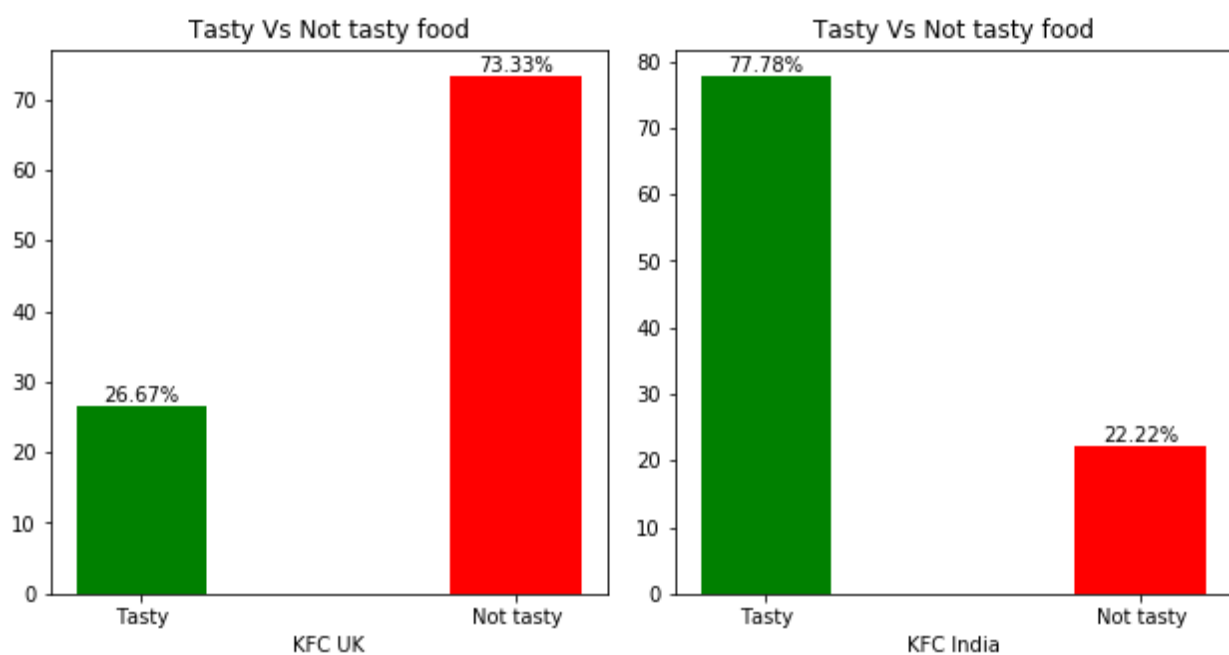
Figure

A huge percentage (73.33% in total) of the britishers does not like the taste of the food by KFC and there are very little percentage (26.67% in total) that mention taste. The South asian region is mainly known for delicious food and India is one of them that is the main reason KFC focuses more on taste for the Indian people. And it is clearly seen in the above comparison graph that 77.78% show their agreement on taste and 22.22% do not.

Taste is the only one factor that attracts individuals forcefully towards the food. KFC in the UK do not have taste in their food according to 77.33% (out of 45 samples) while according to 77.78% Indians get their tasty KFC food in India and this will definitely increase the demand in the market. Once demand will increase, productivity will increase and then finally brand value and business will go up.

3.7 SERVICES COMPARISON

KFC that provides its services in the UK and India are reviewed and seen in the following table. There are very few (6 out of 45) individuals in the UK that love the services listed by KFC but a major part (39 out of 45) of the Britishers actually hates and gave Bad in their reviews for KFC services. However it is not the same case in India, 29 people out of 45 samples gave good reviews for food services and 16 people feel bad about services in KFC.

	Number of reviews	Services
KFC_UK	6	Good
KFC_UK	39	Bad
KFC_INDIA	29	Good
KFC_INDIA	16	Bad

Table
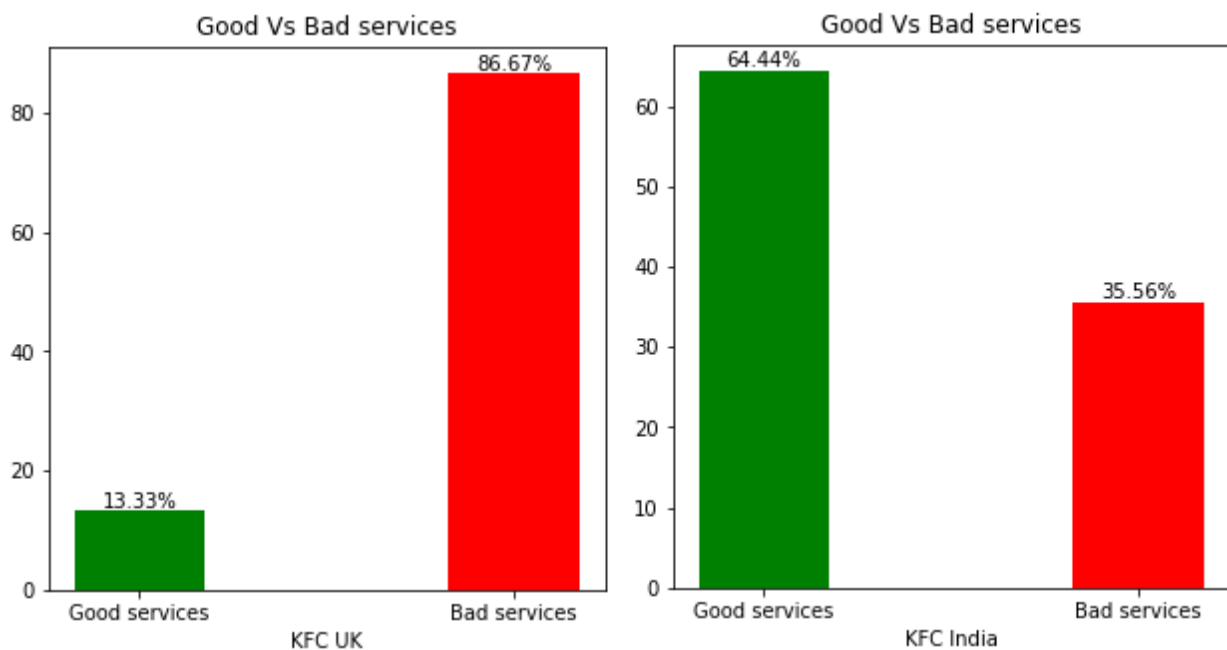
Figure

The above figure indicates bad and good services provided by Kentucky Fried Chicken in both the countries United Kingdom as well as India. Bar graph is touching heaven for bad Services and it is 86.67% of people who prefer to say bad rather than good in terms of services but there are 13.33% of people who show their positive (or good) towards services in the KFC UK. Indian people have a

good number of positive responses (64.44% in total) toward its services however 35.56% show their negative reviews on services.

Services depend on the staff of the KFC such as how fast the food comes on your table or in your home and what is the behaviour of staff working in KFC. KFC staff do not seem to be as good as they need to be because according to the above figure around 86.67% of customers feel bad service in the UK. However, in India most of the customers feel nice service from the KFC.

Staff's bad behavior can lead to downfall for the businesses because people have reputation, self respect, value that needs to give them respect. Fast service saves time and increases productivity and demand at the same time.

4. LIMITATIONS AND IMPLICATIONS

4.1 LIMITATIONS

Studies have gotten some limitations based on the findings and analysis of data. There are few limitations listed below:

1. In this research, only a limited number of data has been used (45 samples) and because of this the accuracy of the research is not on that level which it should be.
2. All the research is dependent on the three variable ratings, emotion and comments from the customers.

4.2 RECOMMENDATION

This study recommends other interested researchers to explore further on this topic. This research is only based on only 3 variables and tries to find out whether a consumer is satisfied or not on the basis of food in the UK. It suggests others to use more variables and data in order to get more insight.

4.3 IMPLICATION

There are various implications based on the study of research. The British consumers are overall not satisfied with the price, quality, taste and services because consumers did not find fast food with the reasonable price, good quality food, tasteless, and worst services. However, Indian consumers are happy with all the food products and it's services.

Based on the research, KFC in India has earned trust and safety while KFC in the UK ruined it's good relationship with customers.

5. CONCLUSION AND APPENDICES

Since KFC has been globalised, more fast food companies have started opening in this competitive world. KFC has spread its franchise all over the world with it's tasty, delicious and oderfull food. People are mad about KFC's fast food. KFC generates its revenue around $28 billion annually over 150 countries.

The main aim of this research was to provide detailed information about KFC's consumer (for the United Kingdom and India) satisfaction or dissatisfaction on the basis of price, quality, taste and services. By analysing all the facts and data, it is concluded that 42.22% of individuals form the United Kingdom states that they got a miserable experience on the price of fast food in KFC however, 57.78% experienced a reasonable price of food. On the other hand, 97.78% (a huge percentage) have a positive response for food prices and just a few percent of Indian people have problems with price. Most of the Indians (almost 95.56%) have shown their positiveness towards the quality of food however, a huge percentage (77.78% in total) of British people gave their negative feedback. Taste and services are the two more factors that impact more on the KFC businesses. Most of the time, the taste and service for British people in KFC is horrible and people experience tasteless food however many consumers experienced very bad behavior of staff towards them. Indians have gotten overall a good taste of the food and services but very few have problems with staff behavior.

45 samples of data have been scrapped for social media research using scrapy and small pieces of python code. All the analysis and visualisation part is done by using python programming.

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