Restaurant Recommender System

- **Proposal:**

Restaurant Recommender System can help customer to find restaurants from which they can purchase according to their taste and ease. Customers can also compare price of similar restaurants using the recommender system. Data Science can help to make restaurant recommender system by using mathematical and encoding techniques. The customer can type the restaurant name and recommender system will return Top 10 similar restaurants with rating and cost.

- **Exploratory Data Analysis:**

We have two datasets; one is Restaurant Review which contains information about customer reviews on restaurants. It contains columns including Restaurant, Reviewer, Review, Rating, Metadata, Time and Pictures. Average Rating on all restaurants is 3.60 Other dataset is Restaurant name and related info which contains information about restaurants. It contains columns including Restaurant Name, Links, Cost, Collections, Cuisines and Timings. Most of the restaurants cost 500.

- **Data Wrangling / Pre-Processing:**

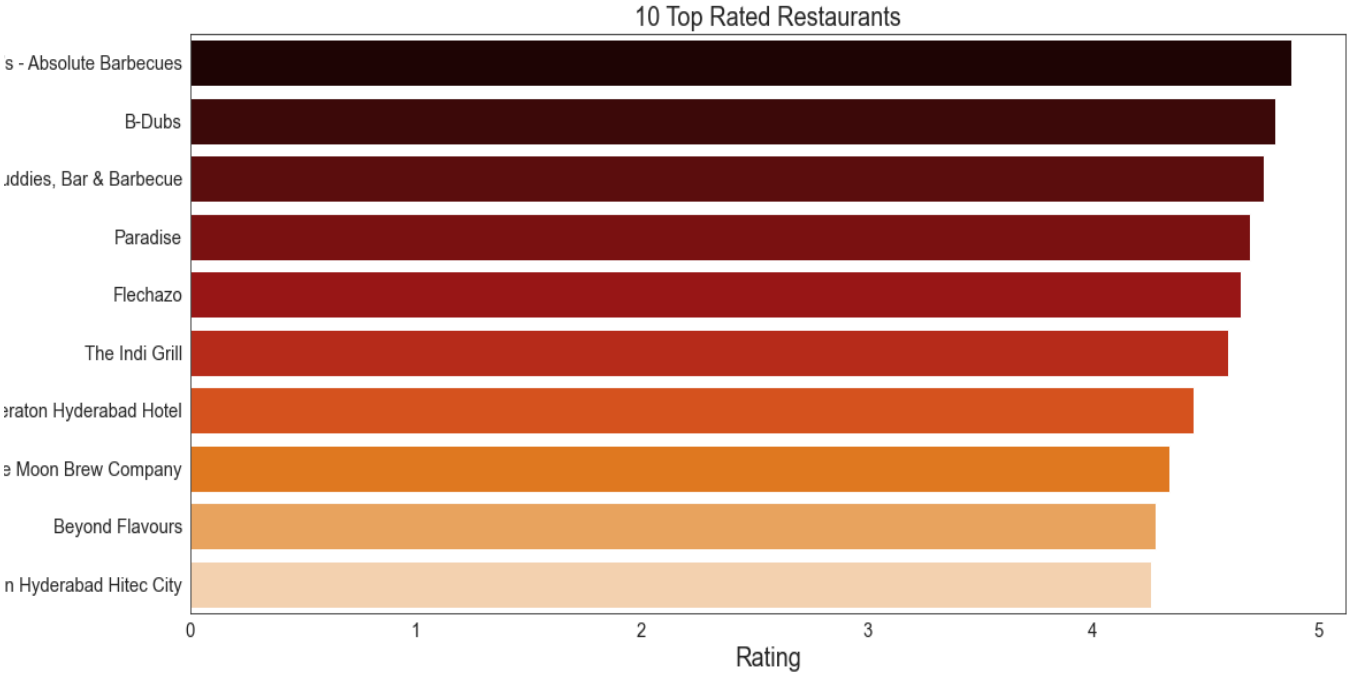
Remove Like value of Rating column so that all the values becomes numeric. Make Rating column datatype to float. Replace null values of Followers column with 0 and make the datatype integer. Drop all the null values of Restaurant Review data. In Reviews Column, clear the stopwards, remove punctuations and remove repeating characters

- **Feature Engineering:**

Separate No_of_Reviews and No_of_Followers from metadata column in Restaurant Review dataset to calculate number of reviews and number of followers by restaurants. From Restaurant name and related info data, make cuisines values as columns through one hot encoding technique.

- **Top Rated Restaurants:**

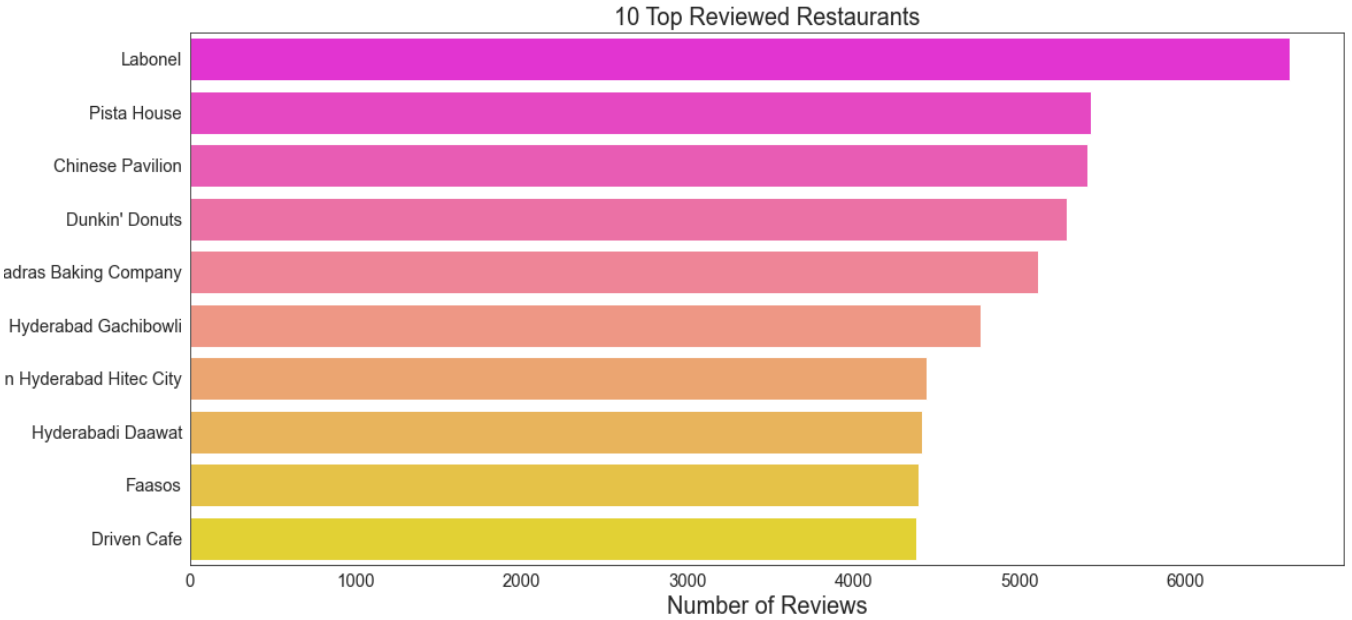
The following are the 10 Top Rated Restaurants:



According to the above bar chart, **AB's - Absolute Barbecues** is the top rated restaurant and its rating is 4.88

- **Top Reviewed Restaurants:**

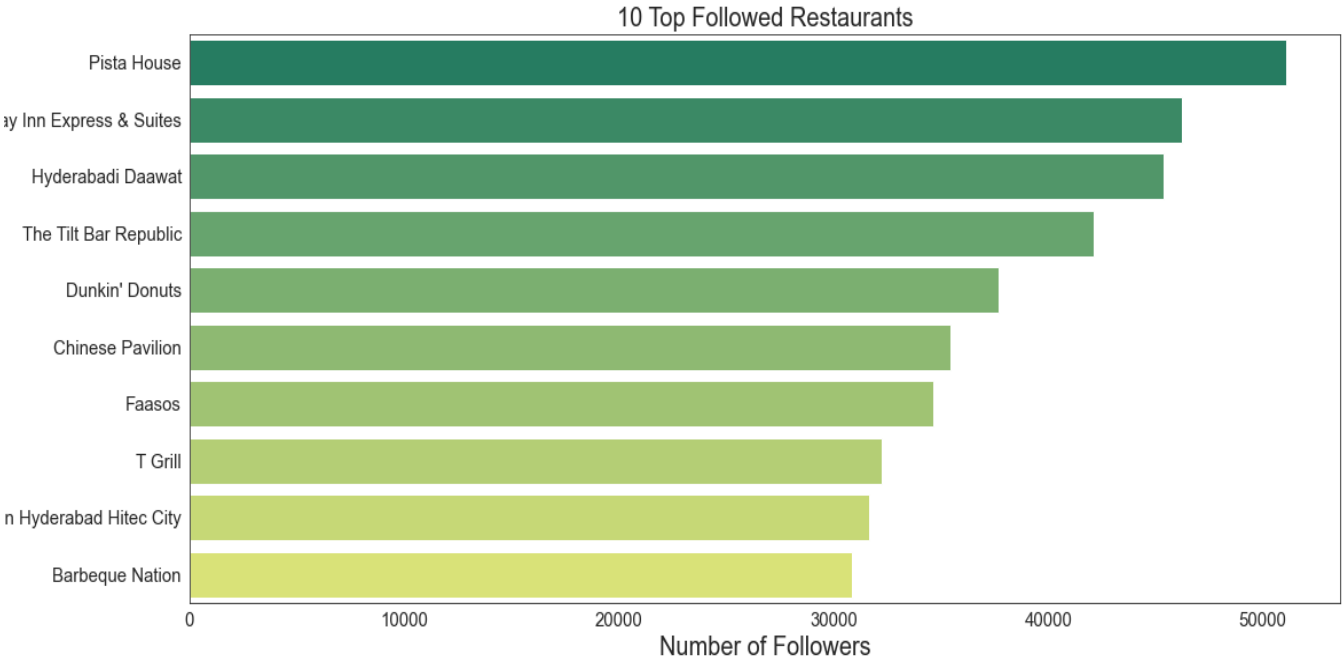
The following are the top 10 Reviewed Restaurants:



According to the above bar chart, **Labonel** received 6628 reviews by customers.

- **Top Followed Restaurants:**

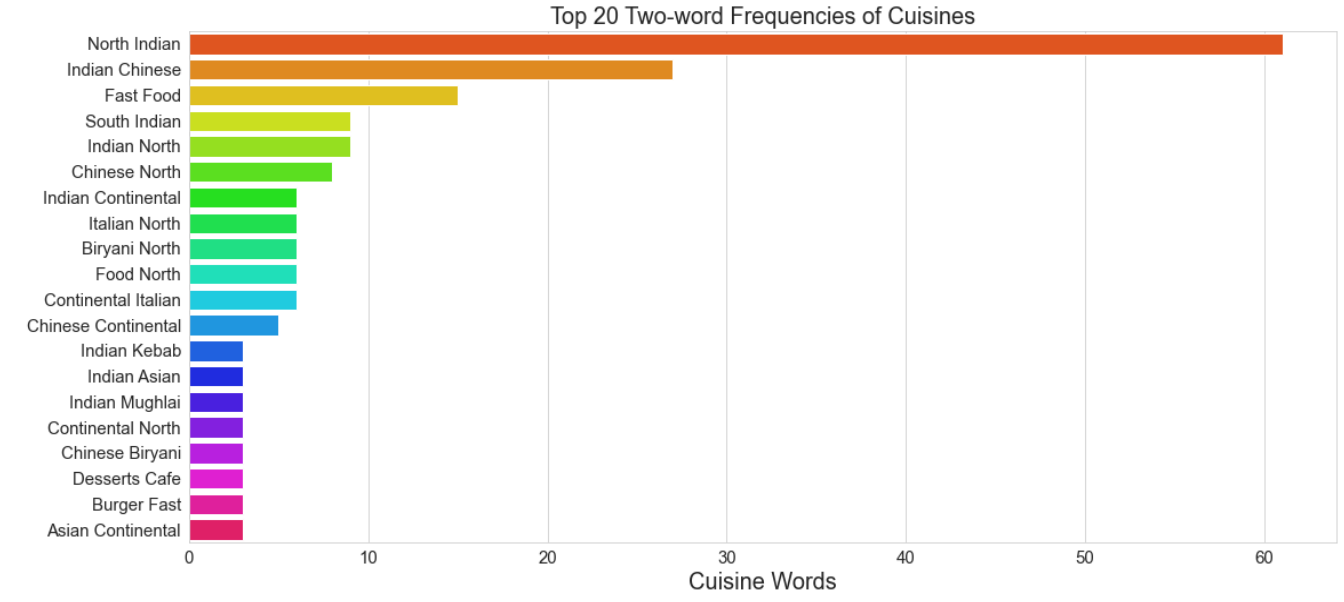
The following are the top 10 Followed Restaurants:



According to the above graph, **Pista House** has 51068 Followers.

- **Top 20 two-word frequencies for Cuisines:**

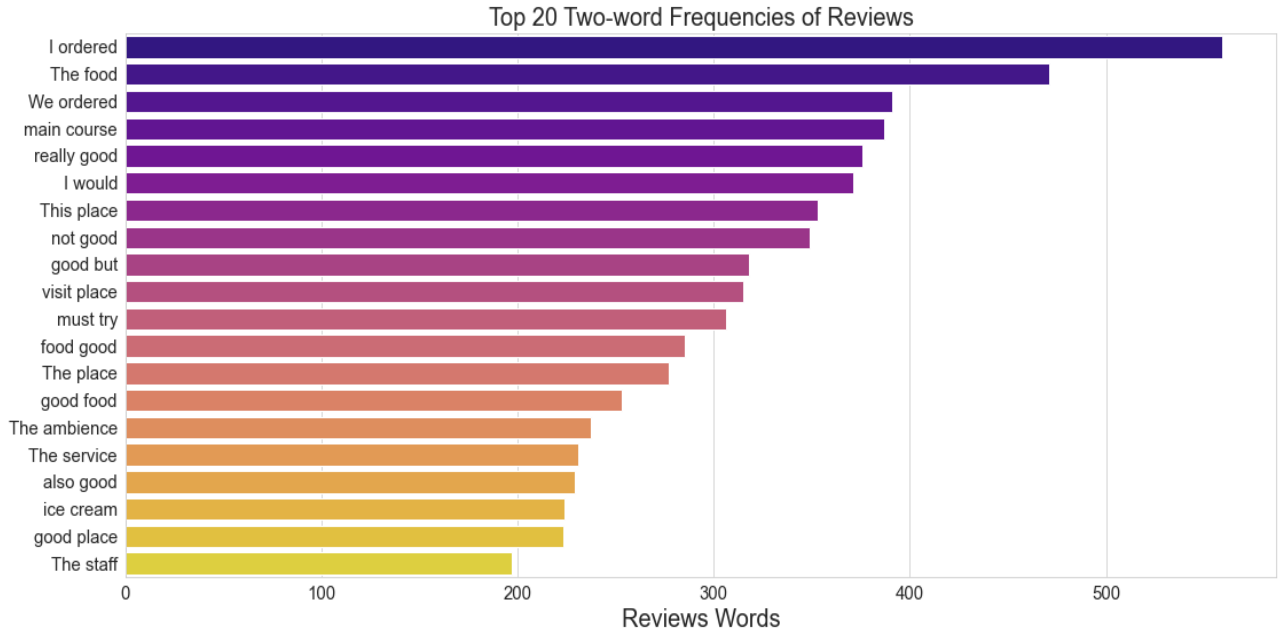
The following are the Top 20 two-word frequencies for cuisines



According to the above graph, **North Indian** has 61 Two-word Frequencies of Cuisines

- **Top 20 two-word frequencies for Reviews:**

The following are the Top 20 two-word frequencies for Reviews:



According to the above graph, **I ordered** has 559 Two-word Frequencies of Reviews.

- **Content Based Recommendation:**

We have input some restaurants & rating and our recommender system suggested 10 similar restaurants which are as follow

Input Restaurants and Ratings

Restaurant	Rating
Pakwaan Grand	5
Club Rogue	3.5
Flechazo	2
Green Bawarchi Restaurant	5
Dunkin' Donuts	4.5

Recommendations

Restaurant	Cuisines	Cost
Flechazo	[Asian, Mediterranean, North Indian, Desserts]	1,300
Over The Moon Brew Company	[Asian, Continental, North Indian, Chinese,...	1,200
10 Downing Street	[North Indian, Chinese, Continental]	1,900
Pakwaan Grand	[North Indian, Chinese, Biryani]	400
SKYHY	[North Indian, Chinese, Continental]	1,400
Green Bawarchi Restaurant	[North Indian, Chinese, Biryani]	700
Biryanis And More	[North Indian, Biryani, Chinese]	500
Being Hungry	[North Indian, Chinese]	450
PourHouse7	[North Indian, Continental, Chinese, Italian]	1,200
Shree Santosh Dhaba Family Restaurant	[North Indian, Chinese, Fast Food]	500
Hyderabad Chefs	[North Indian, Chinese]	600
Komatose - Holiday Inn Express & Suites	[North Indian, Chinese, Japanese, Sushi]	1,500
Aromas@11SIX	[North Indian, Chinese, Mughlai, Biryani]	750
Olive Garden	[North Indian, Chinese, Continental, Biryani]	700
Delhi-39	[North Indian, Chinese]	600
Al Saba Restaurant	[North Indian, Chinese, Seafood, Biryani, ...	750
T Grill	[North Indian, Andhra, Biryani, Chinese]	700
Dunkin' Donuts	[Desserts, Cafe, Beverages, Burger, Fast F...	550
Desi Bytes	[North Indian, Chinese]	400
Angaara Counts 3	[North Indian, Biryani, Chinese]	500

- **Conclusion:**

Data Science helps us to achieve our target to made Restaurant Recommender System. As we have made the Restaurant Recommender System, the system suggested restaurants, cuisines and cost according to the customer input. The customers can see the suggestions and select the restaurants which are according to their taste and their budget. Customers can also pick nearby restaurants for faster delivery or purchasing. Thus Restaurant Recommender System can give competitive advantage to the company and their fame will be increased by this unique idea.