



SkyHack 2023

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Executive Summary

In the following report, the data has been extensively studied and analyzed to **create key drive points, extract major themes in customer reviews and make recommendations** to increase the review score of future customers.

Different technologies such as **Python, Jupyter, WordCloud, and NLP techniques** have been utilized to reach the goals and with the focus of increasing not only the review score but also the general satisfaction of the customer.

Although, the data suffices to discover plenty of key points, **more data regarding exact demography of flights, nationalities** of passengers could be used to determine food and beverage preferences, directly impacting the review scores. Some of the key findings are given on the right which have been generated from **Sentiment Analysis, Keyphrase generation** and other fancy Machine Learning techniques.

Shorter Flights=Better Review

It was noticed that the shorter the flights, the better was their review regarding food and beverages.

Hand Out Some Snacks

Passengers seemed to love the snack basket options, so it might be a better option to pass it multiple times to them.

Try to keep the Chicken Alive

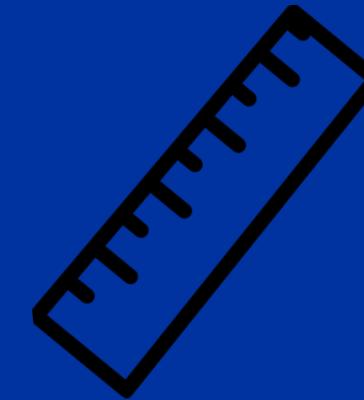
In general, Chicken Items tended to have lower food rating compared to others and kept filling the inventory.

Pretzels with a tug-o-war

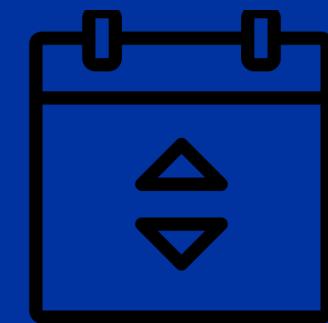
Pretzels seemed to be liked and disliked by a lot customers and surprisingly same could be said about the quantity of water. This must be look into!

Key Driving Points

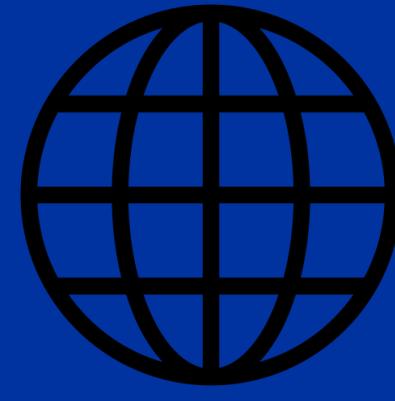
The Dataset consists of a lot of information about the passengers but with Correlation and exploratory data analysis (EDA) we are able to induce certain key driving points for the final score provided by a passenger. These points can be considered for both promoting and demeaning the final score.



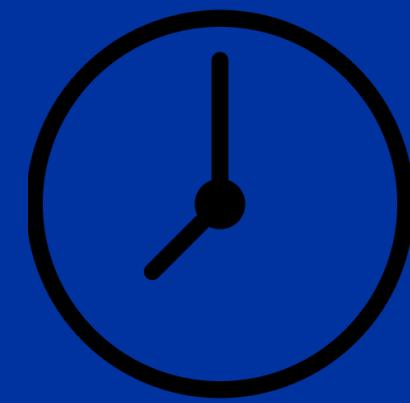
Length of Flight



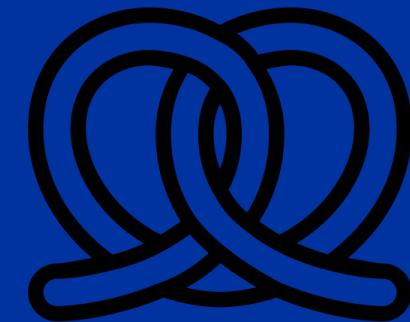
Age of Passenger



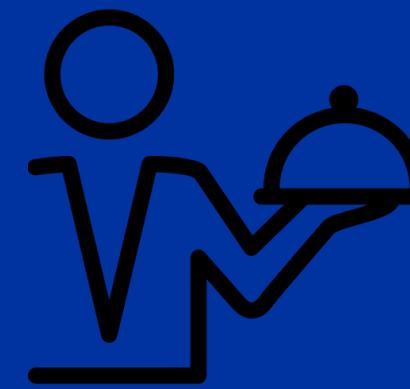
International/ National Flight



Delay in Arrival



Type of Food



Amount of Times Food Served

Major Themes in Reviews

Across the reviews provided by the passengers some themes stood out more than others. Not only do they support the takeaways from the initial root cause analysis but also help to consider better solutions for an increase in the review score.



The above WordCloud has been generated from the reviews provided by the passengers with negative reviews in focus.

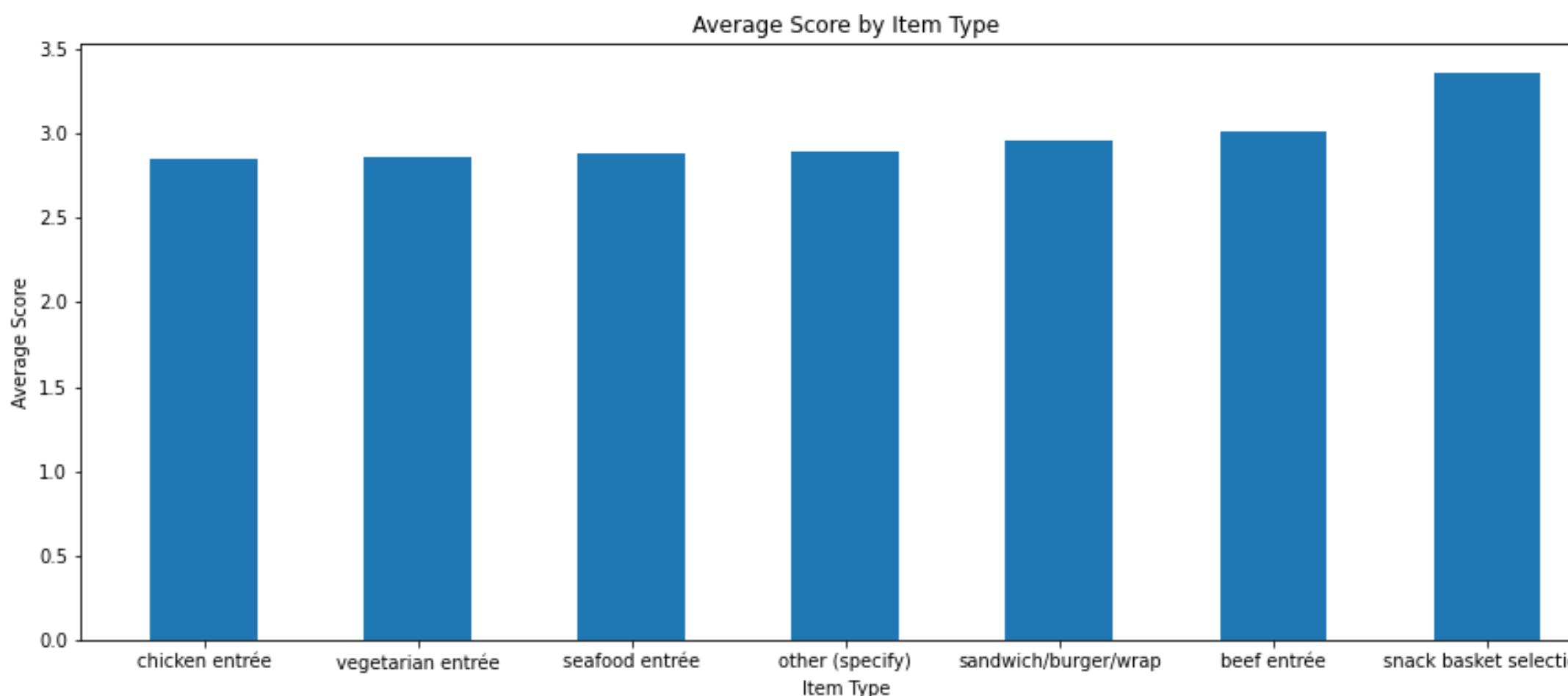
From them we can extract the following :-

- Meals containing chicken and pretzels seem to have issue with quality of quantity.
 - The amount of times the water is served.
 - Amount of options with the beverages and the meals in general.
 - The amount of time taken for the services also seems to be an issue.

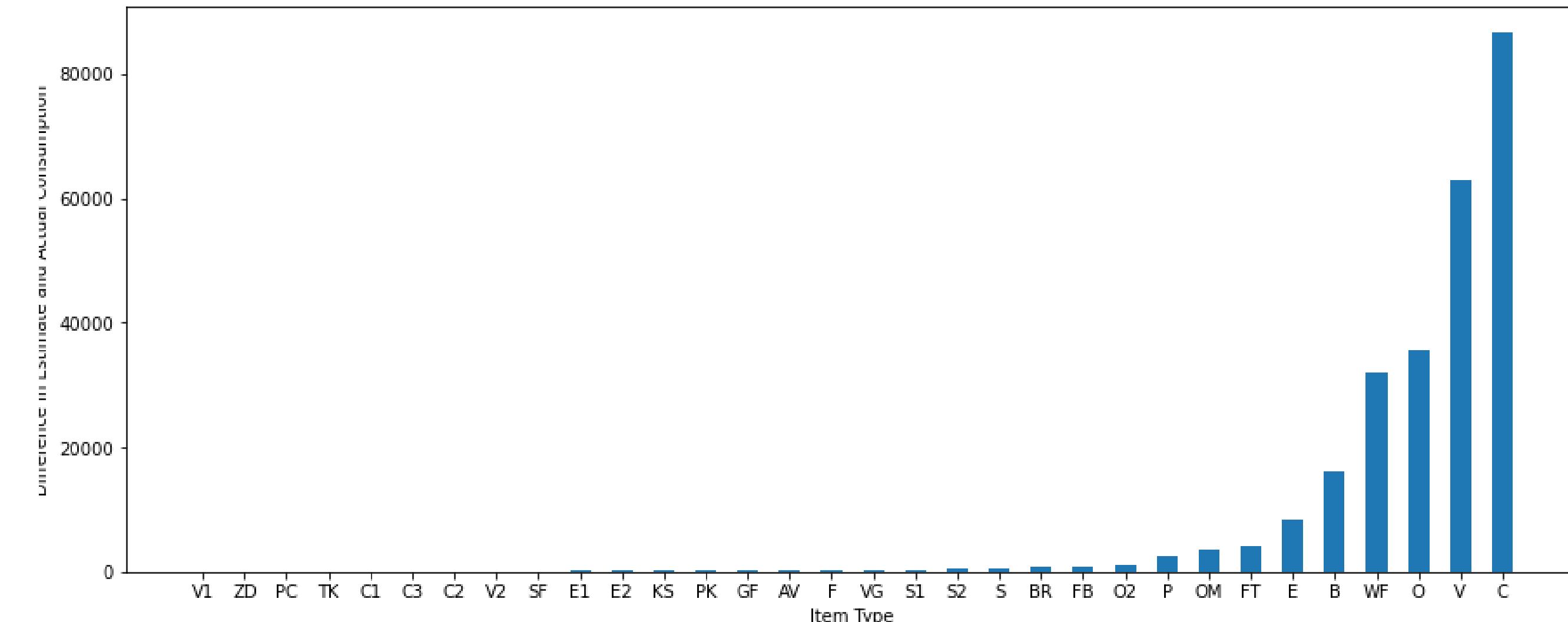
Data Deep Dive

With the previous points and analysis in focus we can perform a deep dive into data and make induce some specific results and build recommendations.

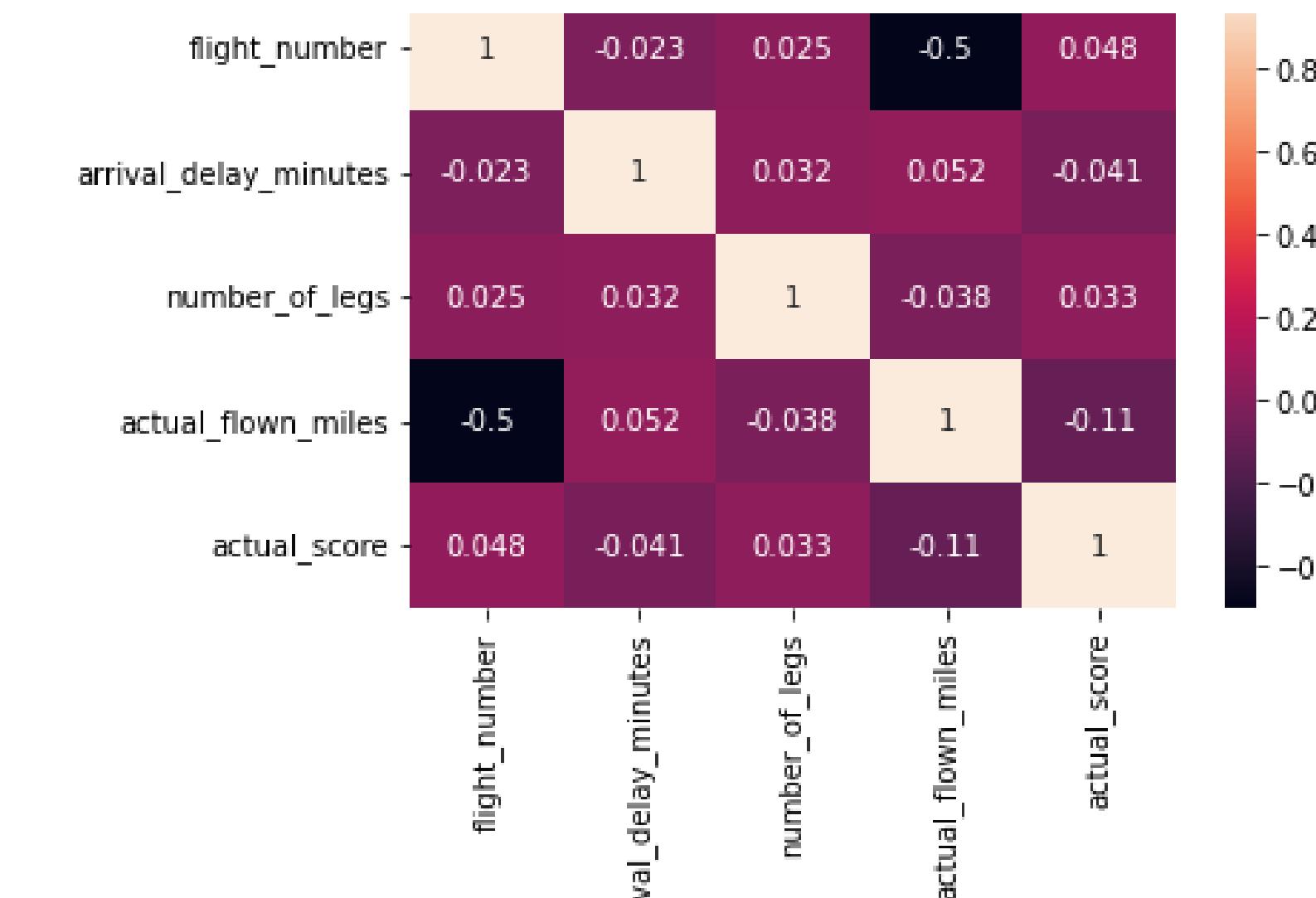
The mentioned points and graphs are generated through data analysis of the datasets and by using libraries like **matplotlib**, **pandas**, **pytextrank** and **gensim** with techniques like **EDA**, **NLP** and **Keyphrase extraction**. The code along with these graphs can be viewed here:- < [Click](#) >



1. The varieties and their respective scores can be analyzed with their mean scores.



2. The above graph contains the various codes of food types in the inventory and the difference between actual and estimated consumption. As we can see food codes C and V have much less actual consumption than estimated which might be affecting their freshness in the inventory.



3. The heatmap on the left shows the correlation between the various numerical values present in the dataset. As we can notice there is a peculiar negative correlation between the actual_score (the review score provided by the passenger) and the actual_flown_miles showing the length of the flight and the arrival_delay_minutes .

Recommendations

“Upwards and Onwards....”

From the fore mentioned key points and analysis, we can conclude that certain steps taken can help to increase the F&B review score of passengers and the overall satisfaction of the customers. They have been discussed below.



Positive Topics in passenger Reviews

- ✓ Improving the overall punctual nature of the flights
 - ✓ Keeping Technology simple and effective to incorporate multiple age groups
 - ✓ Remove quantity of foods like Zatar Chicken which are not consumed enough and stay in the inventory

 - ✓ Improve and advertise more choices in meals and beverages
 - ✓ Serve meals multiple times with at least one serving of snack basket collection
 - ✓ Increase the International menu to please more International Customers while taking into account the destination and arrival Airport locations