



Japanese Restaurants' Story

EXPLORATORY DATA ANALYSIS REPORT

Prashant Pathak
MT19051
DMG
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Introduction

This report is exploratory data analysis of “[Recruit Restaurant Visitor Forecasting](#)” assignment question using Tableau BI tool.

The aim of this assignment is to get fair amount of experience in analyzing the data and how they are related. Getting the relation between data can help us to predict better as we will know on what all feature(attribute) our data depend. Besides, we also want to get a hands-on Tableau software.

The data we are given for analysis, was collected form some Japanese restaurants. Data was collected from two separate sites :

- Hot Pepper Gourmet (hpg)
- AirREGI / Restaurant Board (air)

In total we are given 7 csv files mentioned below¹:

- **air_visit_data.csv**: Historical visit data for the *air* restaurants. Essentially the main training data set.
- **air_reserve.csv** / **hpg_reserve.csv**: reservations made through the *air* / *hpg* systems.
- **air_store_info.csv** / **hpg_store_info.csv**: details about *air* / *hpg* restaurants including genre & location.
- **store_id_relation.csv**: connects the *air* and *hpg* ids.
- **date_info.csv**: essentially flags the Japanese holidays.

Lets start data exploration...

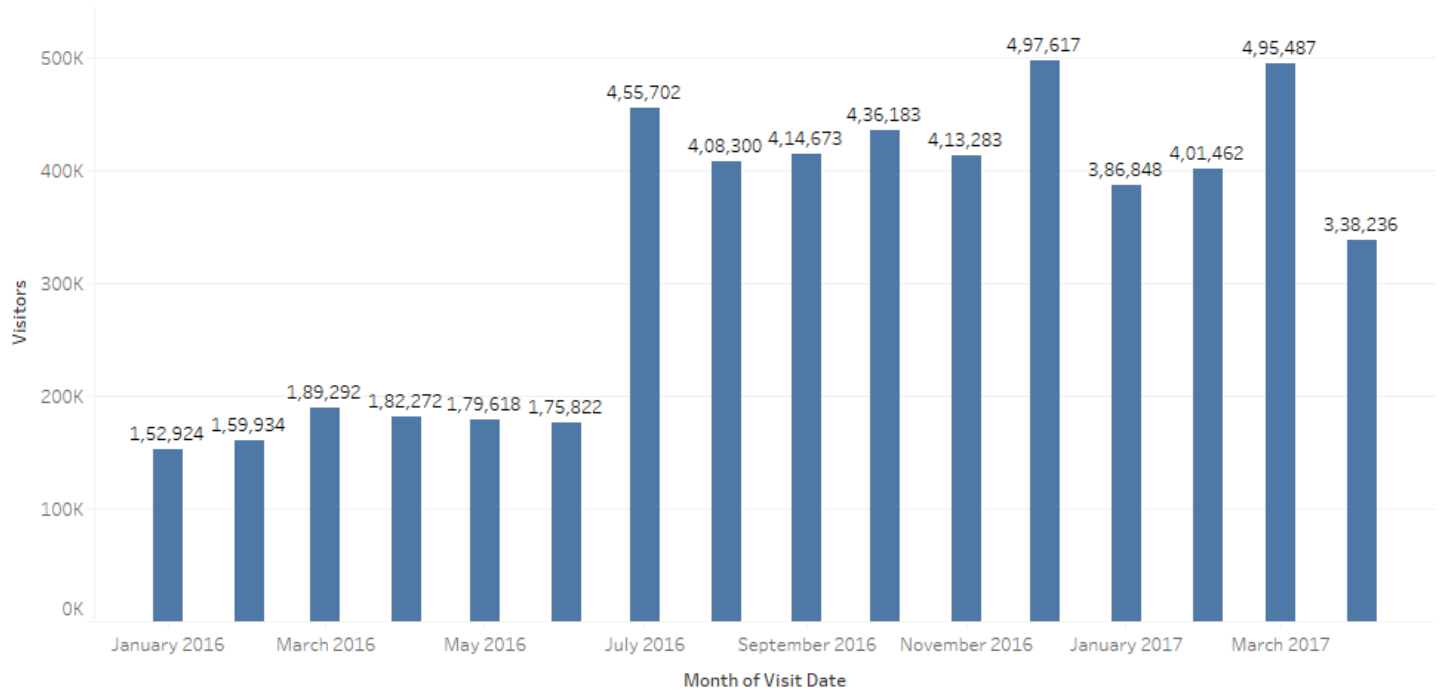
¹ For more info on data visit “<https://www.kaggle.com/c/recruit-restaurant-visitor-forecasting/data>”

Individual data

Lets initially examine the data file individually and see what we can infer.

AIR VISITS

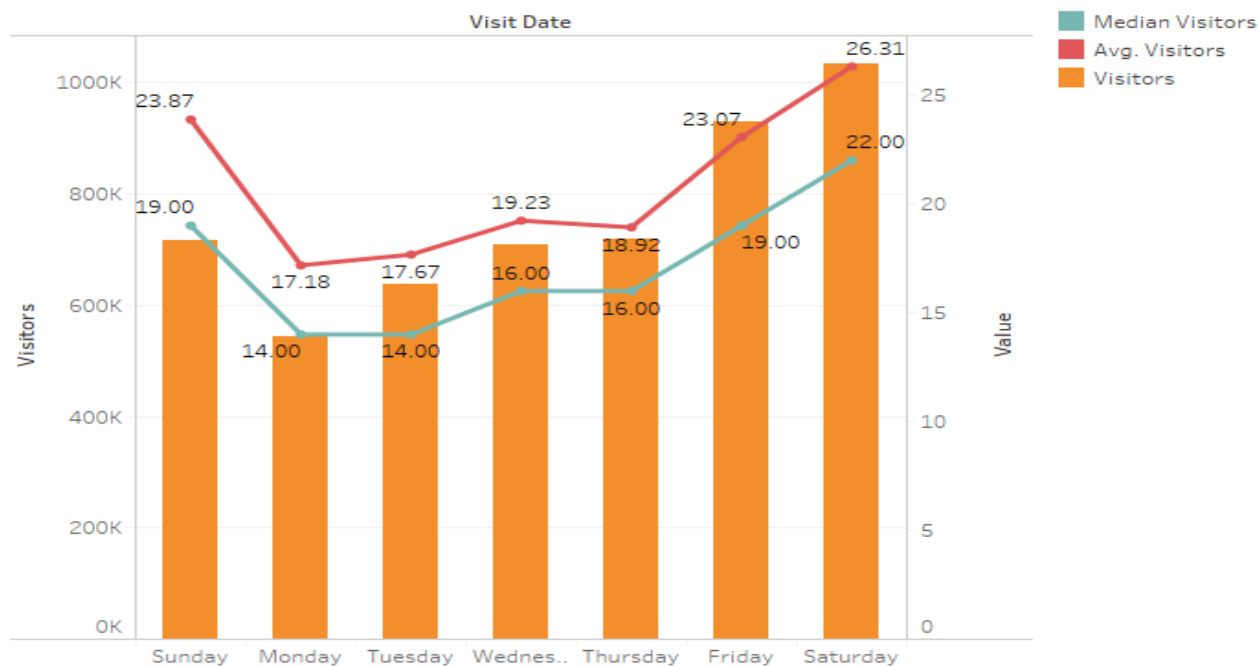
Visitor to air restaurants



The plot of sum of Visitors for Visit Date Month.

The above graph shows month wise visit to air restraint over the span for 2016 and 2017. Initially in January the count of consumer was less. We could see hike in three-months July, November, March. Might be initially less restaurants were register with the air reservation and then in July month more restaurants were added so count increased.

Visitor distribution week wise and their average

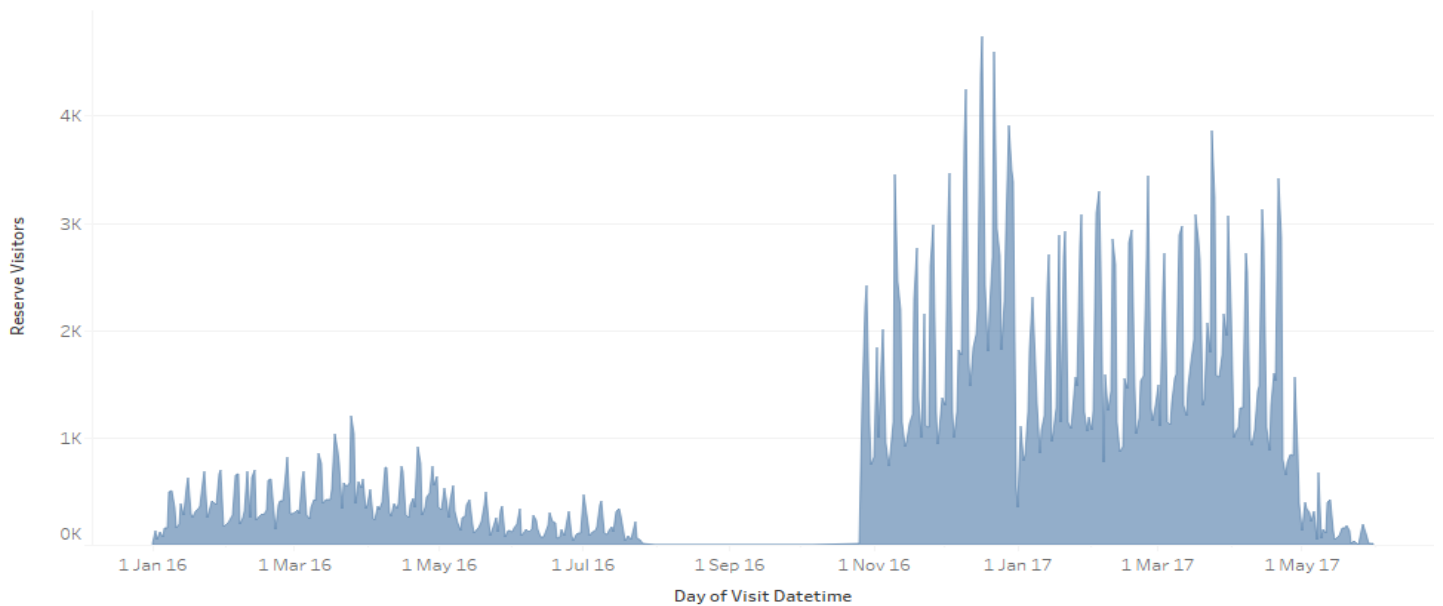


The trends of Visitors, Visitors, Median Visitors and Avg. Visitors for Visit Date Weekday. Color shows details about Visitors, Median Visitors and Avg. Visitors.

This graph shows on which week day maximum number of consumers visits the restaurant. We can see a nice pattern here that is on Friday and Saturday we can more consumers.

AIR RESERVATION

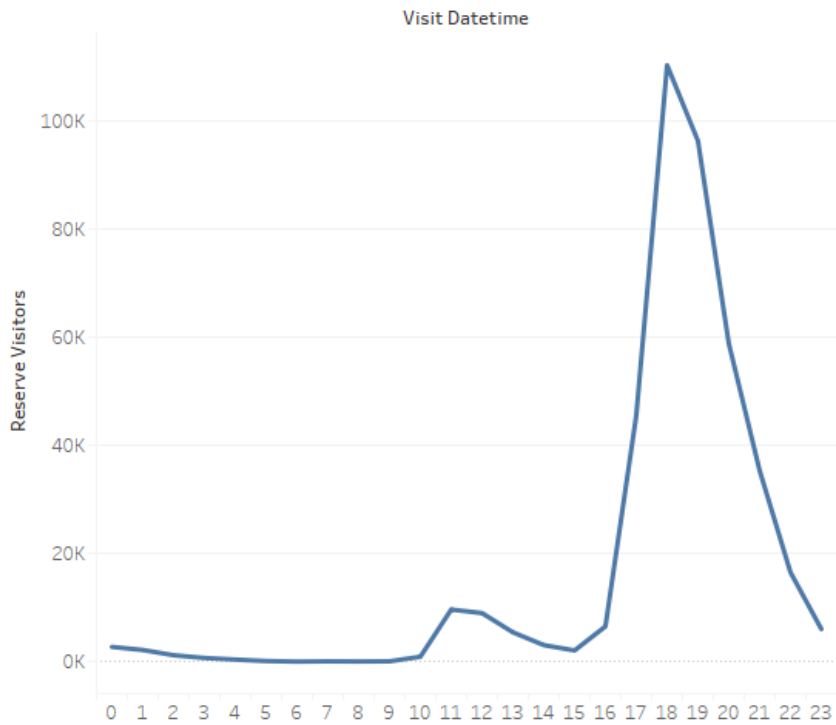
Consumer visit the restaurant through air reservation



The plot of sum of Reserve Visitors for Visit Datetime Day.

This graph shows the number of consumers that actually visited the restaurant from air reservation were actually quite less in year 2016 and it gradually increased in 2017.

air -Reservation time of day plot

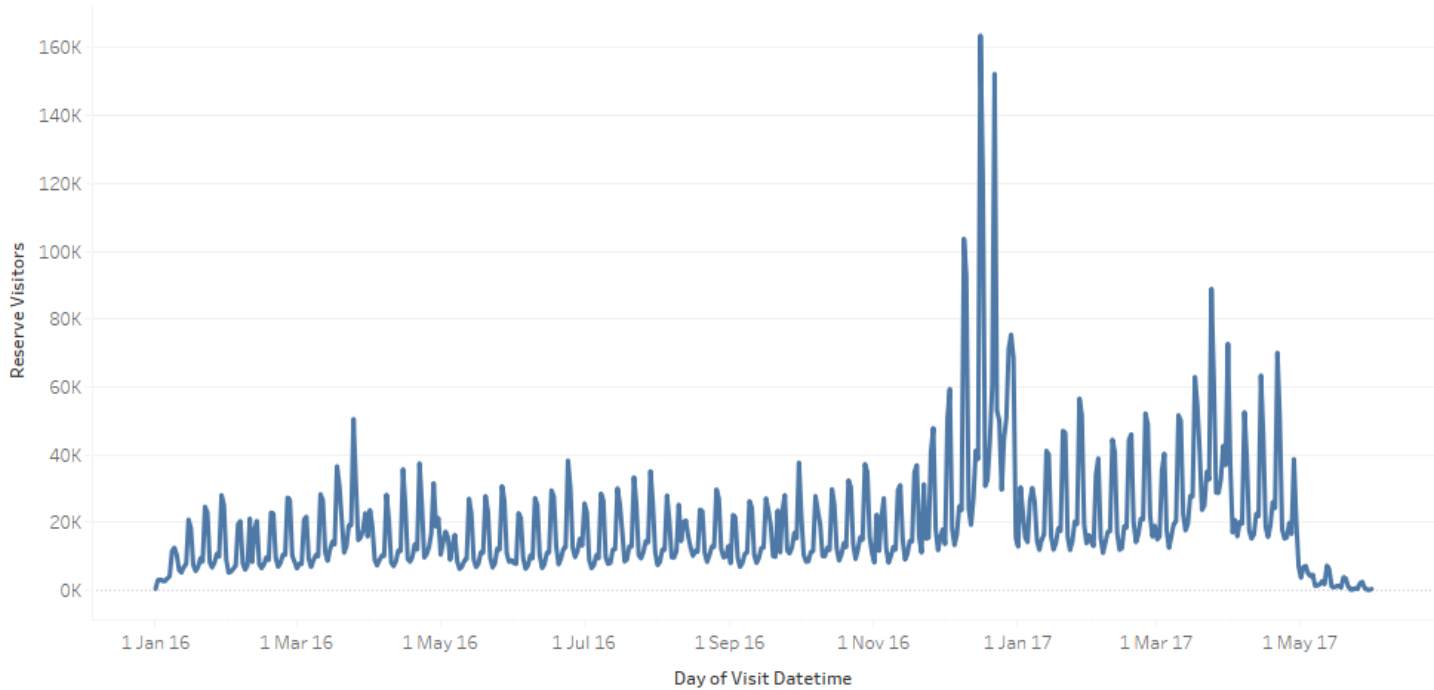


The trend of sum of Reserve Visitors for Visit Datetime Hour.

This graph shows that the preferred reservation time of consumer are 18:00 hour and 19:00 hour i.e dinner time.

HPG RESERVATION

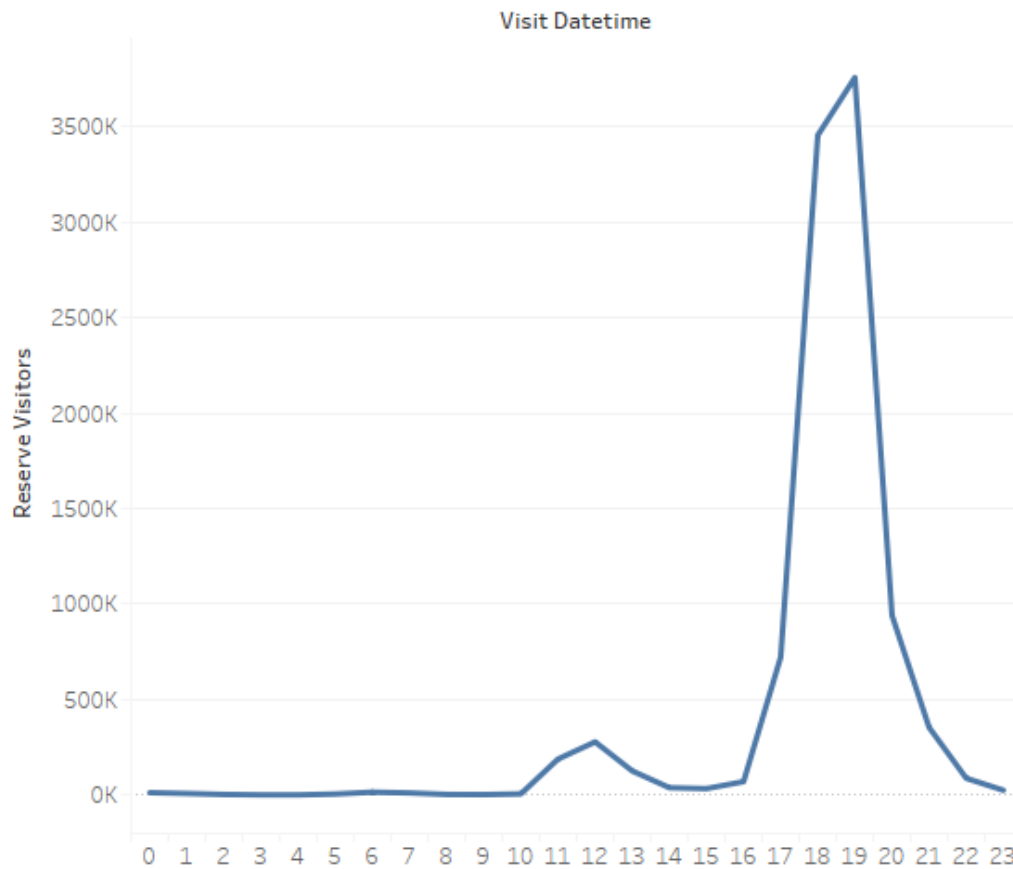
Day wise reservation count of hpg restaurant



The trend of sum of Reserve Visitors for Visit Datetime Day.

In this graph we can see much more uniform pattern. In December we can see spikes.

hgp-Reservation time of the plot

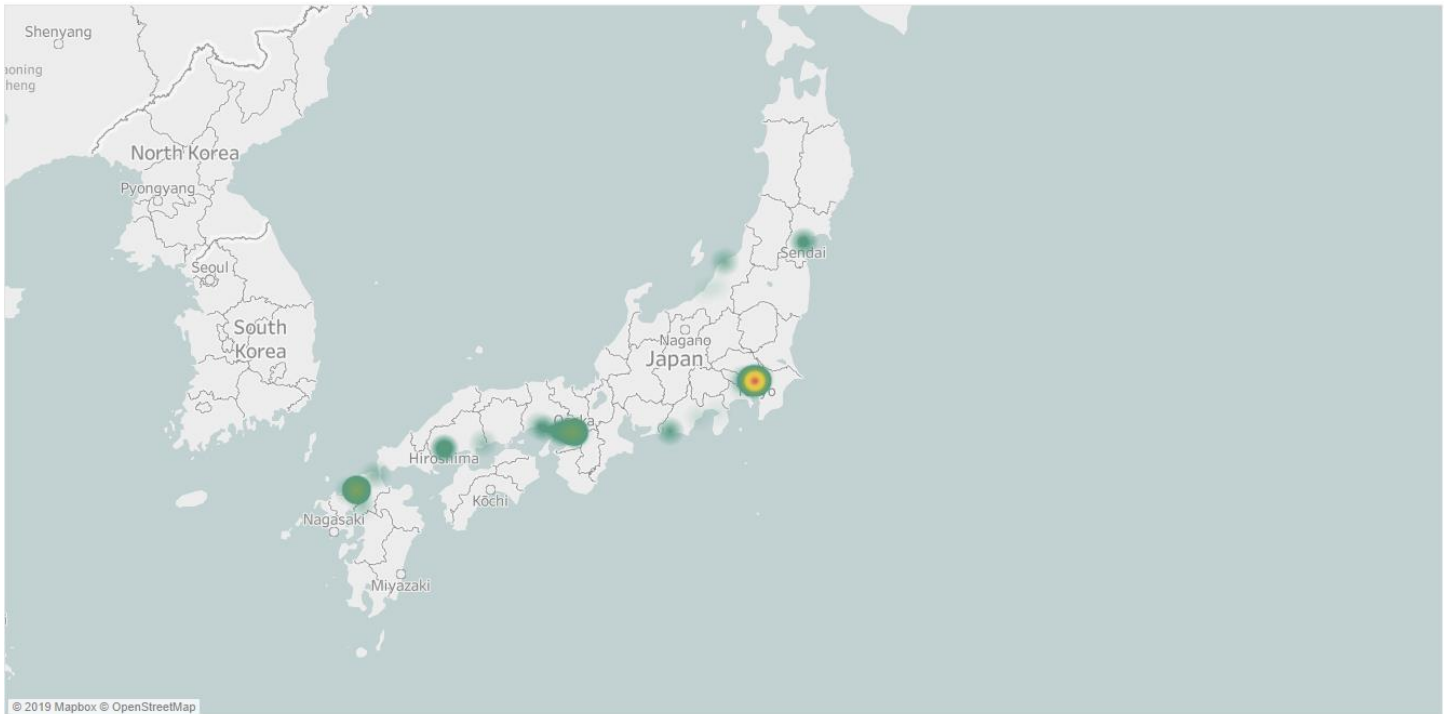


The trend of sum of Reserve Visitors for Visit Datetime Hour.

By seeing the reservation pattern of hpg , we could also see the similar pattern as air reservation. Consumer also prefer the 18:00 hour and 19:00 hour(i.e for dinner).

AIR STORE

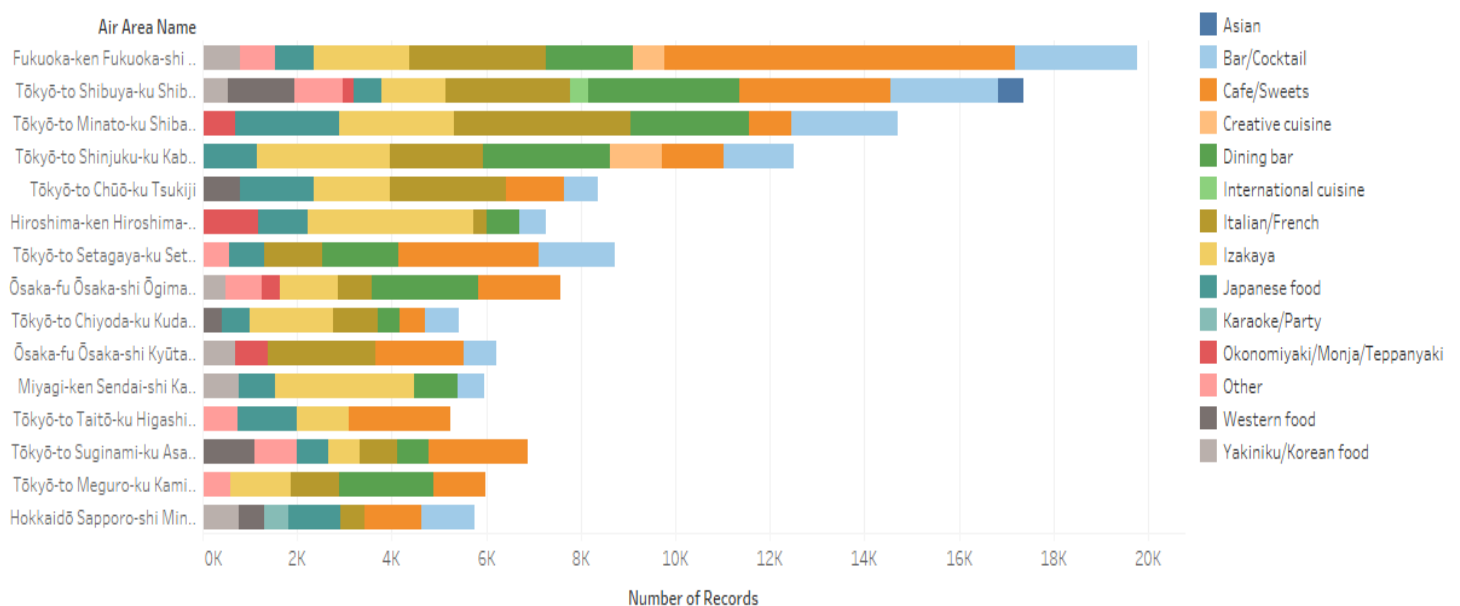
air: geographical spread



Map based on average of Longitude and average of Latitude. Details are shown for Air Store Id.

In the above graph we could see the density. That where are the restaurant situated in Japan. Major restaurant are situated in Tokyo, Hiroshima and Nagasaki.

air: place vs genre vs count of restaurant graph

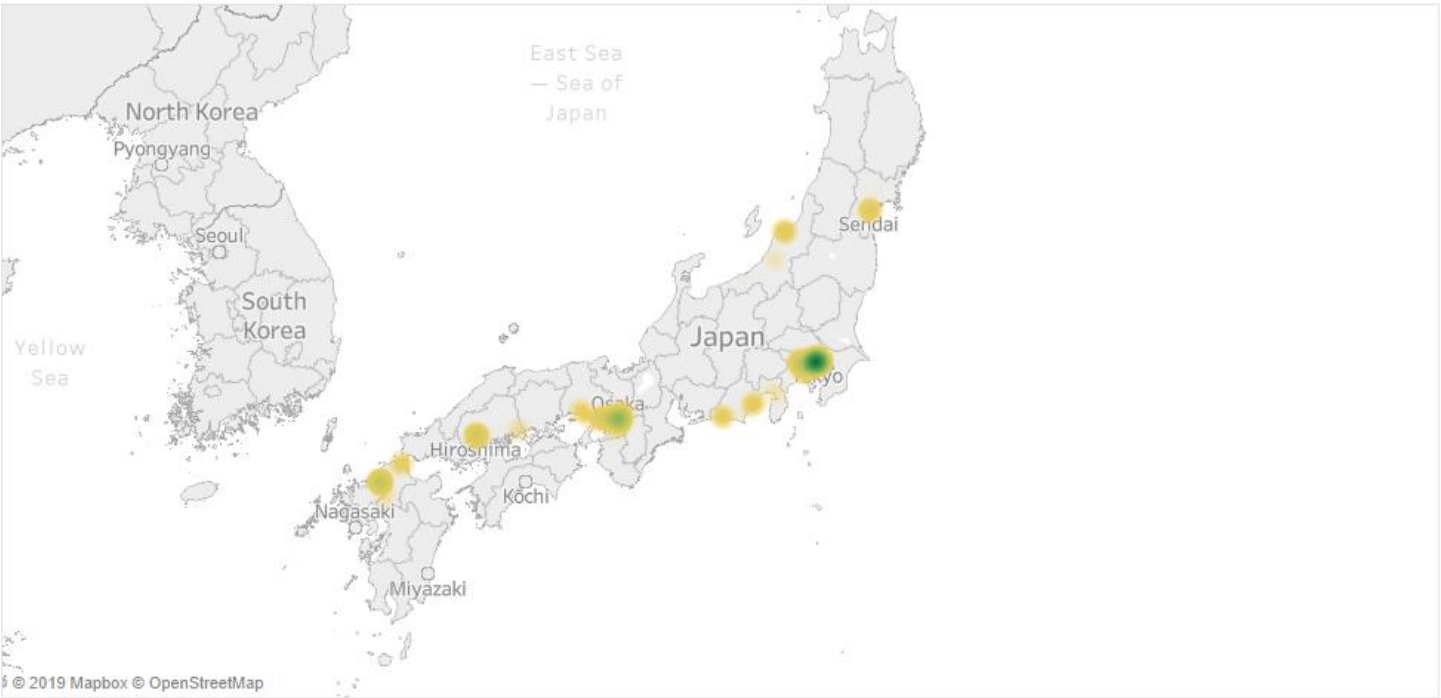


Sum of Number of Records for each Air Area Name. Color shows details about Air Genre Name. The view is filtered on Air Area Name, which keeps 15 of 103 members.

The above graph shows in which region major of restaurant are situated. and what are the genre of restaurant.

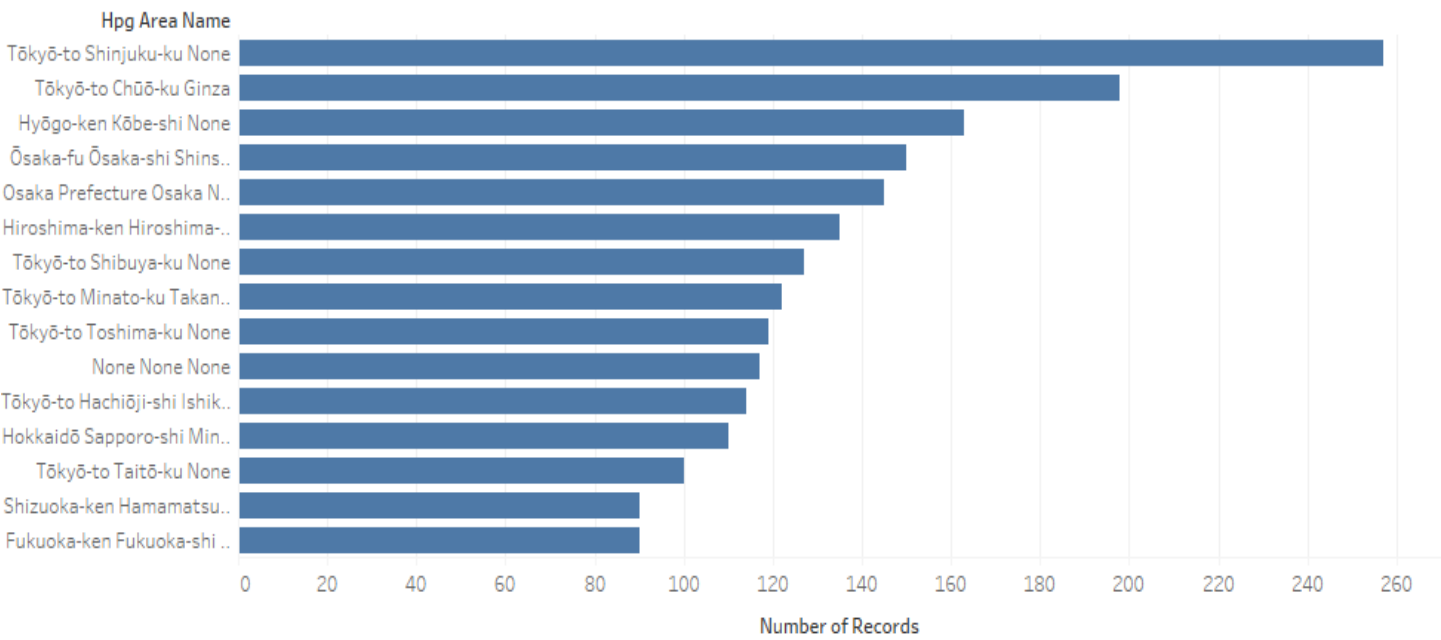
HPG STORE

hpg: geographical spread



This graph shows the location where the Hpg restaurant are situated. These are also situated in Tokyo, Osaka.

Top 10 restaurant location

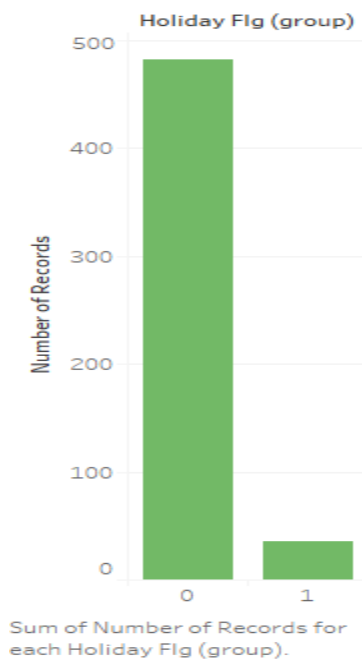


Sum of Number of Records for each Hpg Area Name. The view is filtered on Hpg Area Name, which has multiple members selected.

This graph shows top 10 area name where restaurant are situated .

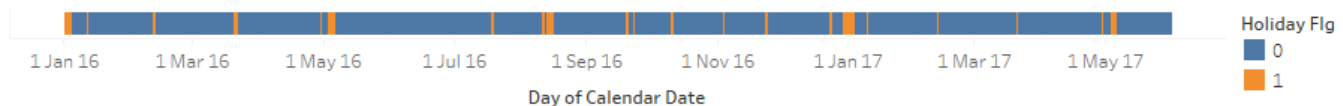
HOLIDAY

Holiday count



this graph shows that count of day restaurant are open /close day. Given in the data set.

Holiday distribution



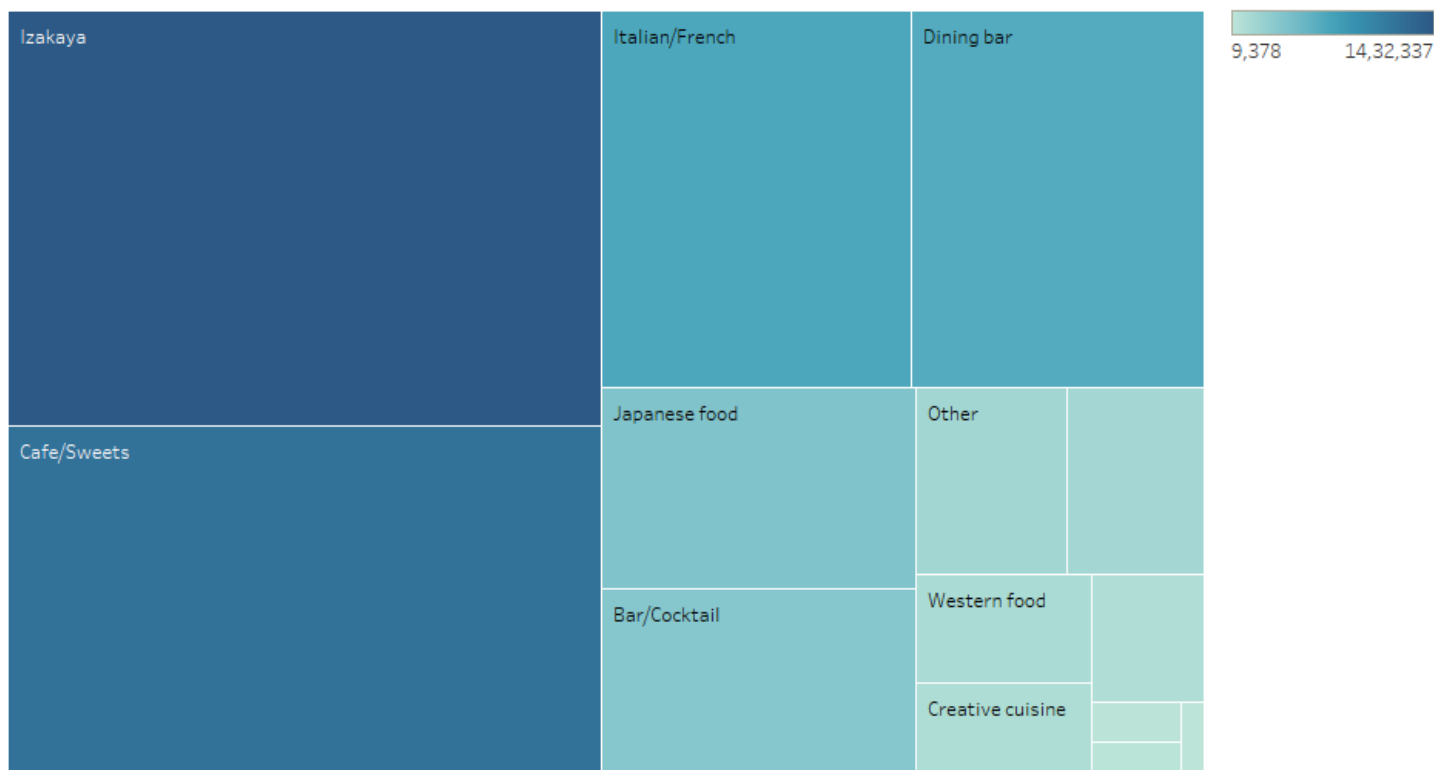
Calendar Date Day. Color shows details about sum of Holiday Flag.

In the above graph we can see holiday distribution throughout the year. In the month of January, we can see lots of continuous holidays. This might be due to golden week in Japan and thus the count of consumer increased.

Relation between attribute on various table

POPULAR GENRE WITH AIR COSTOMERS

Highly Popular Air genre restaurants

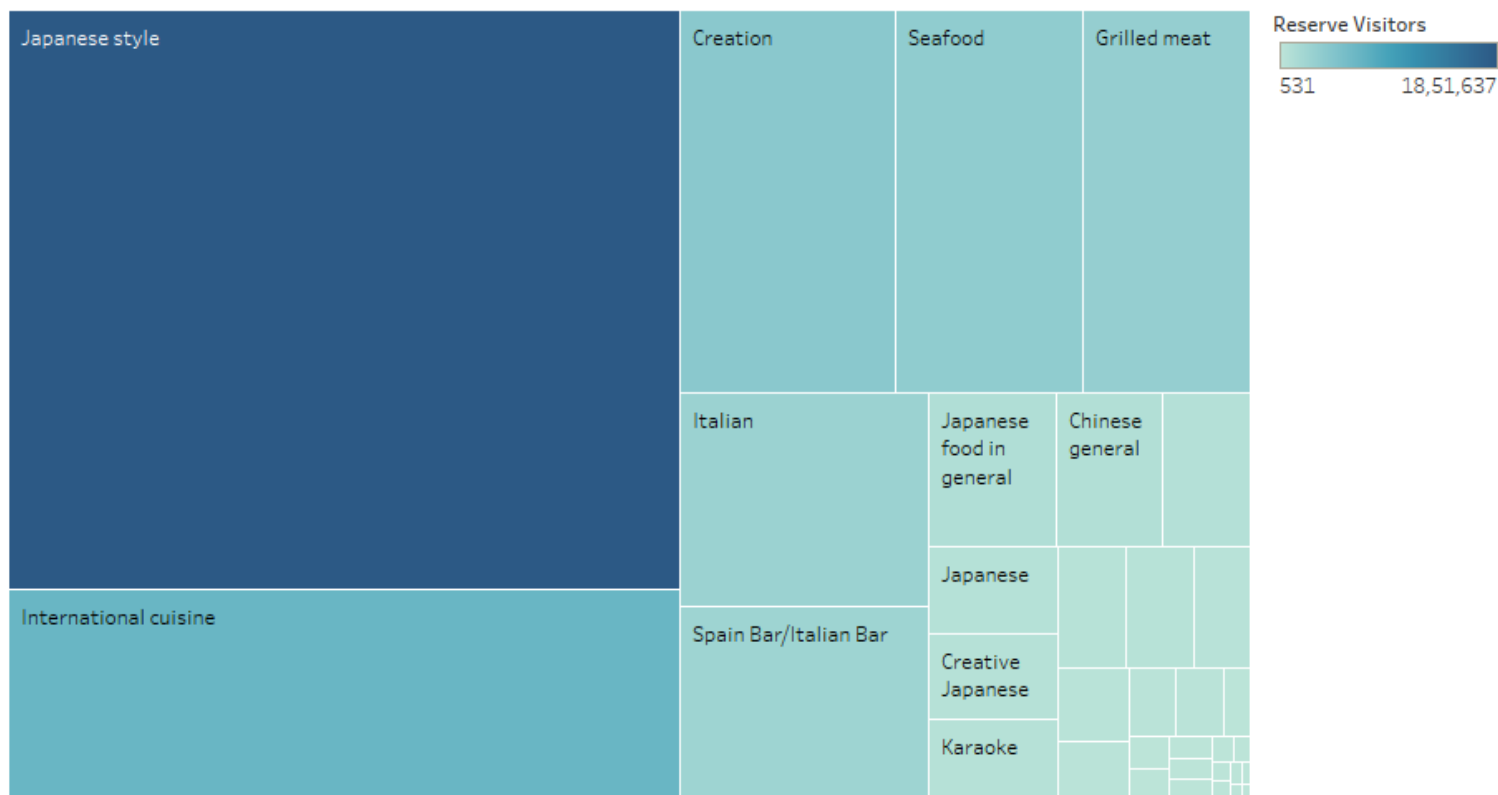


Air Genre Name. Color shows sum of Visitors. Size shows sum of Visitors. The marks are labeled by Air Genre Name.

The above graph shows which genre are popular with people as more people visited these restaurants. We could see that more as air has more number Izakaya restaurant so it is trivial that more people reserve to go there only.

POPULAR GENRE WITH HPG CONSUMER

Sheet 12

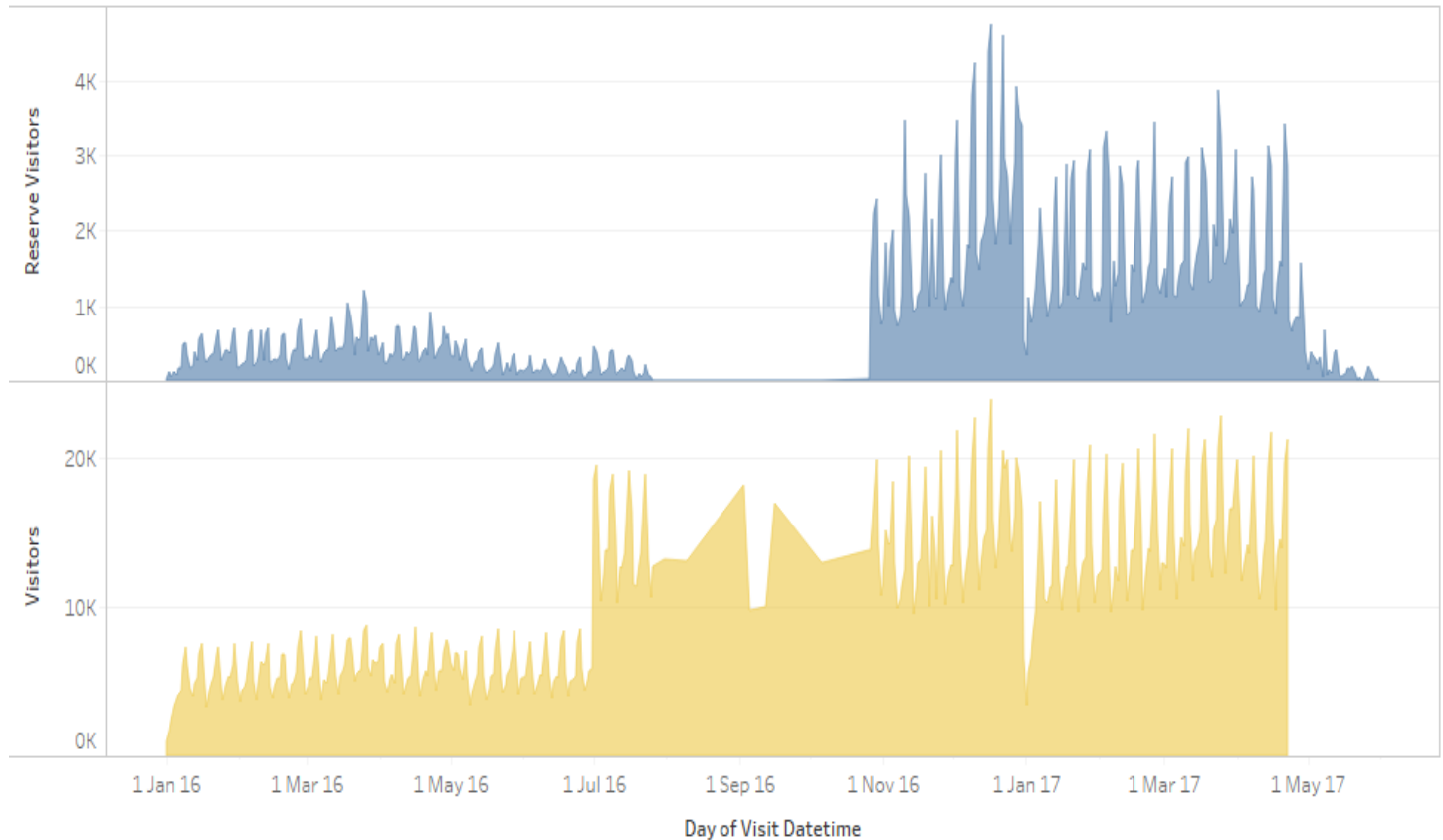


Hpg Genre Name. Color shows sum of Reserve Visitors (hpg_reserve). Size shows sum of Reserve Visitors (hpg_reserve). The marks are labeled by Hpg Genre Name.

With hpg consumer Japanese's style genre but in air this is not so. This could be because of location. hpg restaurant are situated in Osaka . this could be because of location preference.

RESERVED VS ACTUAL CONSUMR GRAPH

Reserved vs Actual visitor

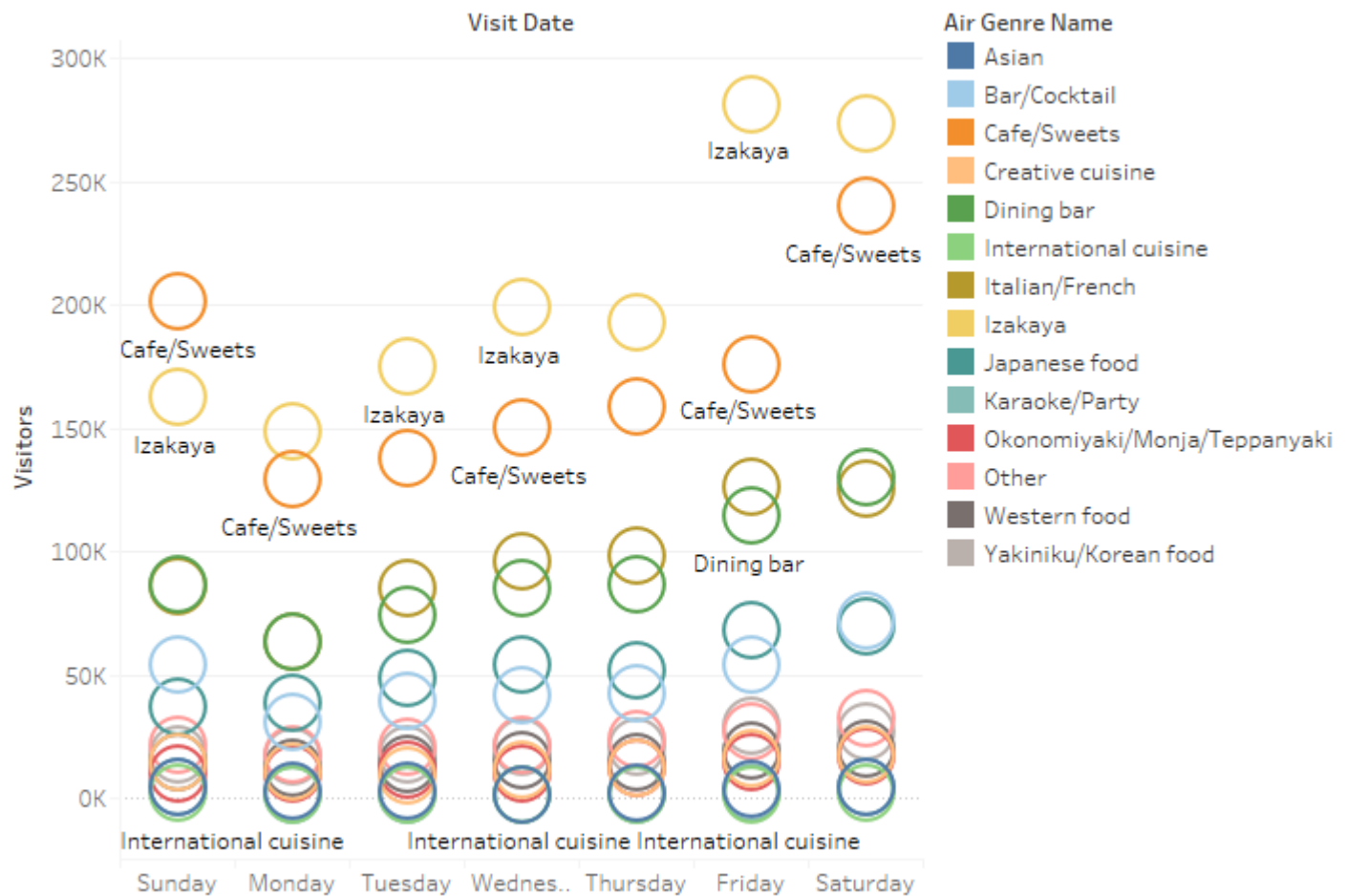


The plots of sum of Reserve Visitors and sum of Visitors (air_visit) for Visit Datetime Day.

This graph shows the difference between reserved consumer and visited consumer. Between that September and November, we could see that very less consumer reserved but the visitor graph did not reduce. This could be because of some technical error with the system.

WEEK DAY GENRE COUNT

Week day genre count

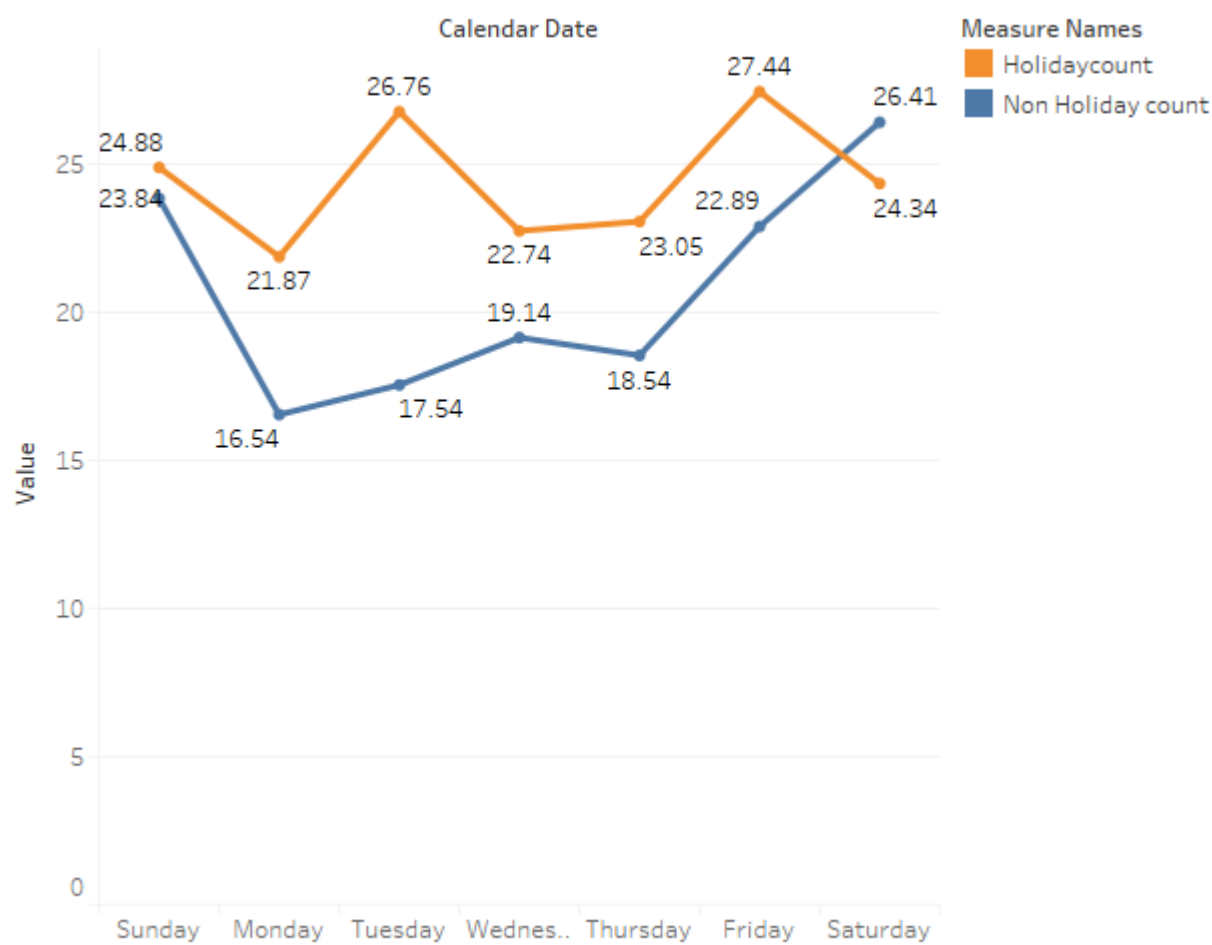


Sum of Visitors for each Visit Date Weekday. Color shows details about Air Genre Name. The marks are labeled by Air Genre Name.

This graph shows that on which day people go to which genre restaurant. On Monday people prefer to go to café/sweets and on Friday people prefer to go to Izakaya. This could be because Izakaya are when the weekend start people usually prefer to go to pubs to chill. International cuisine genre restaurant has lot people visits.

AVG PEOPLE IN HOLIDAY AND NORMALLY DAY

Average people in holiday and normal day



The trends of Non Holiday count and Holidaycount for Calendar Date Weekday. Color shows details about Non Holiday count and Holidaycount.

In this graph we can see that the average number of customers coming on Holidays are more than coming in non-holiday date.