An Agile Way to Select Places to Visit for Vacation

Introduction

- Vacation involves spending time away from home. It may involve local or international travel.
- Highlights of vacation include places visited and recreational activities performed.
- Deciding on activities for vacation would require a review of the intended location to identify exciting places to visit.
- Conducting the review will help identify places of interest, venues rating, most common places, the distance between venues, and discover trending places.

Problem

How to review multiple venues simultaneously

How to shortlist venues based on multiple preferences

How to discover recent and independent reviews of venue users

How to get distances between venues for route planning

Objective

To create a simplified method of selecting places to visit for vacation that supplies

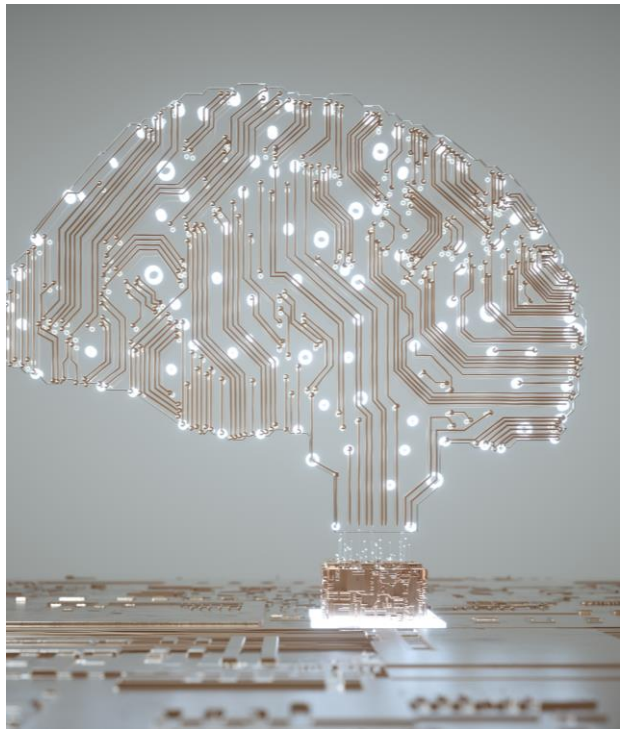
- real-time venue data
- independently supplied venue ratings and tips
- absolute distance between different venues
- most common venues
- trending venues

Target Audience

- Alumni Executives
- Clubs and Association Executives
- Government Agencies Executives
- Human Resource Executives
- Individuals, Families and Friends
- School Administrators
- Travel Agents
- Welfare executives

Application

- Plan family outings when required
- Arrange reunion getaway activities for friends and school alumni
- Organise corporate team building/team bonding activities for company staff
- Create itineraries for excursions organised for students
- Design general and specialised tour packages for travel agencies' clients



Data Source

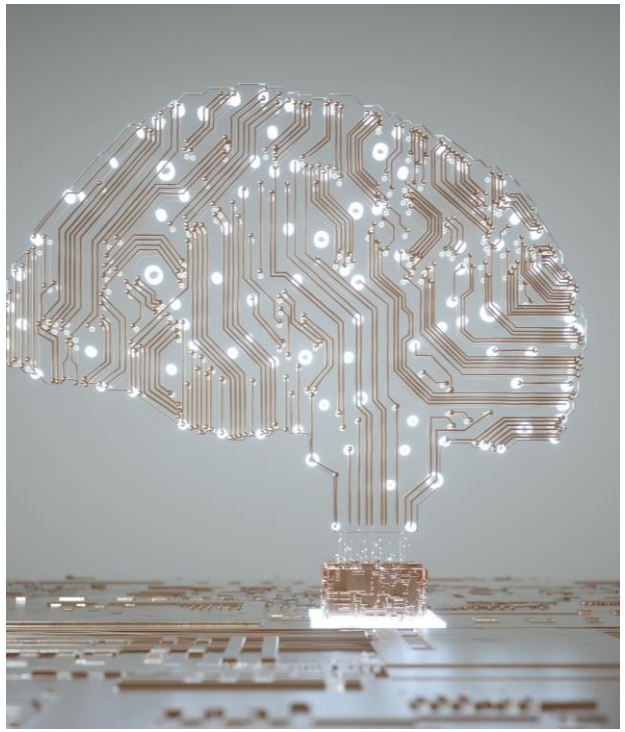
- The data sourced from Foursquare.

https://developer.foursquare.com/

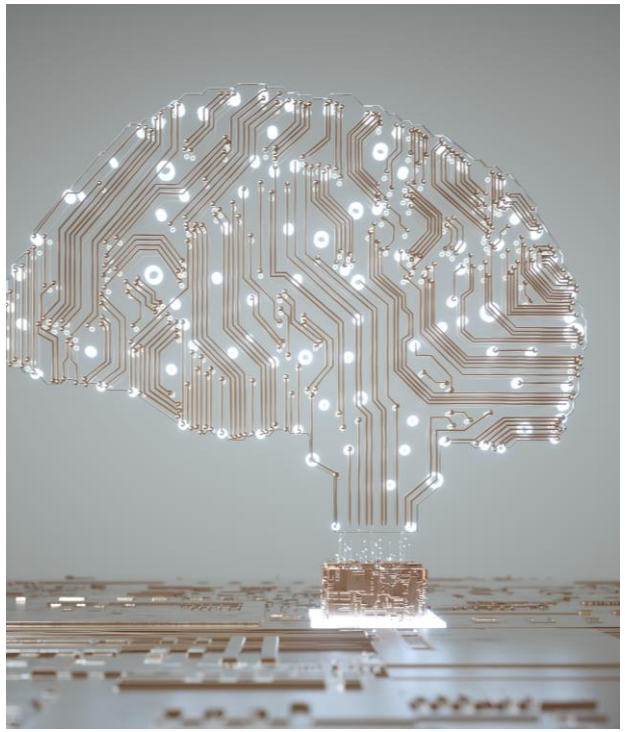
Data Skills

- Programming in Python
- Working with Foursquare API
- Data Wrangling
- Machine Learning
- Mathematical Operations
- Map Visualisation

Data Tools



- Python - Programming language
- Python Notebook - to create and execute the code
- Foursquare API - to get real-time location data from the Foursquare server
- Github – Repository for programmers
- Geopy – To get coordinates of an address or location
- Nominatim - Convert any address to latitude and longitude values
- Haversine – To calculate the great-circle distance between two points on a sphere
- Math - For mathematical calculations
- JSON – To handle JSON files



Data Tools (continued)

- Requests – To send HTPP requests
- KMeans – To form clusters
- IPython – An Interactive command line used to display images
- Matplotlib – To create static, animated and interactive visualisations
- Folium - To visualise data on an interactive leaflet map
- Numpy – For scientific computing
- Pandas – For data analysis and manipulation
- Scipy – For numerical computation
- Scikit-learn – For predictive data analysis
- Imbalanced-learn – For resampling techniques used in balancing datasets

Methodology

Brief

- Create a developer account in Foursquare, noting that each type of account has pre-defined features.
- Obtain Foursquare application credentials (Client ID and Client Secret)
- In a Python notebook, use python language to install and import the required libraries
- Obtain venue’s data, distances, rating, tips, common venues, and trending venues

Methodology (continues)

Venue Data

- Foursquare API will be used to retrieve real-time data of venues near a specified location
- The data will be filtered and sorted, and visualised using Folium
- Venue clusters will be created based on the category each venue belongs
- The venues will be displayed along with its specific parameters

Methodology (continues)

Distance between Venues

- Haversine function will be used to perform a mathematical operation on the dataframe that contains the venues data
- The absolute distance from each nearby venue to a specific location will be calculated
- The result will be sorted, saved as a new variable and displayed on a map using Folium

Methodology (continues)

Venue Rating

- Each venue's Foursquare ID would be got from the venue data's dataframe
- The venue ID will be passed in the venue URL defined for a particular venue
- A request will be made to the defined URL of the venue, along with a JSON function
- The result will be a display of the venue rating for each venue investigated

Methodology (continues)

Venue Tips

- The number of tips for a venue will be got.
- The number of tips (or a higher number) will be passed in the venue's URL.
- JSON function will act on the result to produce the tips of the venue as a dataframe
- The number of tips displayed will be dependent on the kind of developer account used

Methodology (continues)

Places of Interest

- A list of places of interest will be created
- This list will act as filter for venues dataframe
- Only venues whose categories correspond to the venue categories in the list will be generated
- The result will be sorted and displayed as a dataframe containing only venues that are “places of interest”

Methodology (continues)

Most Commonly Visited Venues

- The venues data will be grouped by postal code
- One-Hot encoding will prepare the data for analysis
- KMeans will cluster the most common venues
- The most common places will be visualised
- An analysis of each cluster will specify the venues that have the most visits

Methodology (continues)

Trending Venues

- The URL for trending venues within a locality will be defined
- A request will be made to the defined URL
- The result will be a dataframe containing trending venues in that locality
- The trending venues will then be displayed using Folium

Summary

This programme allows multiple venues to be be simultaneously reviewed

Any set of multiple venue preferences will be used to create venues of personal interest

Venues reviews obtained from Foursquare are independently supplied by users, who have visited the venue.

Haversine formula applied Foursquare’s venue data will calculate distances from one venue to another, which aids route planning

Conclusion

This programme will provide a streamlined way to review and shortlist places to visit for vacation that supplies

- ✓real-time venue data
- ✓independently supplied venue ratings and tips
- ✓absolute distance between different venues
- ✓most common venues
- ✓the trending venues in a locality