Introduction:

Background:

Melbourne is a multi-cultural city with almost 140 cultures represented. People from countries like China, Vietnam, Italy and Greek migrated in early years and contributed significantly to the city's culture. Whereas, recent migrants are the large numbers of international students and IT industry employees from countries like India, Thailand, Malaysia and African countries.

This diversity reflects in many aspects of everyday life and activities. According to City of Melbourne resident and ethnicity profiles, "56% of people who live in inner city suburbs are overseas born and 48% of people speak a language other than English at home". These statistics show that Inner Melbourne is a multi-cultural city. To validate this statement further food scene can also be analysed.

Problem statement:

To examine Melbourne's food choices, distribution of restaurants with cuisines of different countries. To explore which suburbs are similar in terms of food offerings by segmenting them into clusters. To validate whether availability of cuisines coincide with migrant patterns. Finally decide if Melbourne is truly a multicultural food city.

Stakeholders:

This analysis can be used for business purposes and general understanding as well. Stakeholders for this analysis:

1. Companies who are in food business/individual or group of people who want to open a restaurant with a particular cuisine: They can learn about various food related factors about an area like for which cuisine the area is famous for, what other cuisines are available in the area, what are other areas similar to this area etc. This enables them to know if an area is over saturated with a type of cuisine or if there is still scope for new restaurants and choose an area.
2. Migrants/General public: This analysis provides the overall food scene of the city. They'll understand which suburb has which kind of restaurants. It can help them to make few decisions related to where they want to live or simply where they should go if they want to taste a cuisine.

Data Acquisition and cleaning:

Data Sources and Data Extraction:

- Initial Dataset: An open source dataset which had Australian cities data has been used to filter for Inner Melbourne data. Inner Melbourne has 3 cities, City of Melbourne, City of Port Phillip and City of Yarra. These 3 cities are extracted with their suburbs and postal codes. After filtering, the initial dataset to start the analysis has 3 columns. The data frame has 3 cities and 35 suburbs.

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(35, 3)
```

	Postcode	City	Suburb
0	3000	Melbourne	CBD
1	3002	Melbourne	East Melbourne

- Location Coordinates extraction: To get location coordinates for the above-mentioned file and suburbs, Google Geocoding API has been used. After processing for coordinates, postcode is no more required so removed it. Data set has 4 columns as mentioned below:

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(35, 4)
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	City	Suburb	Latitude	Longitude
0	Melbourne	CBD	-37.81110	144.97021
1	Melbourne	East Melbourne	-37.81132	144.97799

- Venues extraction: To get restaurant venues for each of the coordinates in the above file, Foursquare Places API has been used. After extracting venues, the final dataset has 7 columns as mentioned below:

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(1720, 7)
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	Suburb	Suburb Latitude	Suburb Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	CBD	-37.812245	144.962164	Xing Fu Tang	-37.812206	144.962066	Bubble Tea Shop
1	CBD	-37.812245	144.962164	Brother Baba Budan	-37.813445	144.962137	Coffee Shop
2	CBD	-37.812245	144.962164	Emporium Café Court	-37.811925	144.963785	Food Court
3	CBD	-37.812245	144.962164	Calia	-37.812724	144.963930	Japanese Restaurant

Data Selection:

As the area of interest is to see the availability and distribution of various cuisines across suburbs, few venues that are irrelevant to the analysis are removed from the final dataset. For example:

- Common venues as Ice Cream Shop, Café, Coffee Shop, Juice Bar
- Pub, Bar, Brewery