Melbourne Parking Analysis: Informing Urban Development

By: Fynn Burgess (mock case study)

Table of Contents

Introduction

Title:	Melbourne Parking Analysis: Informing Urban Development
Industry Focus:	Real Estate and Urban Development
Problem Statement:	The City of Melbourne aims to understand parking space utilization in properties across diverse areas to assess the relationship between property features, location, and parking availability. This initiative seeks to enhance urban planning and address potential parking challenges.
Business Use Case (What are you solving for?):	To offer the City of Melbourne valuable insights into parking space distribution throughout the city, enabling informed decisions for urban development and future city planning strategies.
Goals/Metrics:	**Parking Space Utilization:** Analyse the distribution and utilization of parking spaces in different properties to identify the prevalence of various parking types. **Property Attributes Analysis:** Understand how property features such as size (number of spaces), and location relate to the property type. **Geospatial Insights:** Map property locations and parking spaces to pinpoint hotspots and areas with potential parking concerns.
Deliverables:	**Analysis Report:** A report presenting insights derived from the dataset, providing an understanding of parking space distribution and property attributes. **Visual Representations:** Use charts, graphs, and maps to illustrate the relationship between property details and parking spaces, aiding in visual comprehension and decision-making. **Presentation Report:** A Presentation demonstrating insights derived from the dataset, providing an understanding of parking space distribution and property attributes to stakeholders.
Datasets Available:	You will use a publicly available dataset from the city of Melbourne.
Sample Dataset Sources:	https://data.gov.au/dataset/ds-vic-0e64fcd5-a5c8-41f6-bea3-5d0ac063c55d/distribution/dist-vic-b8d07872-85c8-439f-a674-a971f01f132b/details?q=car%20usage
Additional Information:	This plan outlines a focused strategy to address the challenges associated with parking space analysis in Melbourne, aiming to support the City of Melbourne in making informed decisions regarding urban development and city planning strategies.

Solution highlights

1. Parking space **density starts to drop steeply** once you're outside the CBD.
2. Both West Melbourne clue small areas, Melbourne (Remainder) & port Melbourne seem to be **areas of protentional concern.**

Data

This section is about the dataset itself & the cleaning process.

Definitions

census_year = Year that the data was surveyed.
building_address = individual parking space address.
clue_small_area = area that groups the parking spaces roughly by suburb.
area_type = The population density type (i.e. suburb or urban).
parking_type = The type of parking that the space is used for (i.e private, commercial).
parking_spaces = number of spaces at an address.
longitude & latitude = The coordinates of an address.

Abnormalities & Steps taken

Missing longitude & latitude items:

1. Conditional formatting to isolate the empty cells.
2. Copy the building_address to a separate sheet.
3. Sorted the longitude column from high to low.
4. Use a geocoding add-on to generate the missing values.
5. Used AI to randomly select 30 cells & I manually checked the longitude & latitude of those cells.
6. Used conditional formatting to check the building_address with the longitude & latitude to the same ones without. I did this to ensure that the building_address was still in the same order.
7. Then I copied & pasted the new longitude & latitude into the "working sheet".

Adding the area_type column:

1. The categorization of areas in Melbourne into Urban, Suburban, or Mixed classifications was based on general knowledge & details of these areas. Melbourne's regions or neighborhoods often have typical features that can broadly align with these categories based on factors such as population density, predominant land use, infrastructure, and urban development.
2. Using AI, I categized the clue areas (I could apply these loosely due to the nature of the use only being for filters & because I didn't use it to affect my analysis.
3. I made a list of the building_address using the unique formula & Put the area type in the cell next to it.
4. Using an if formular I checked the building address of the row against the newly made building_address list & if it was the same it pasted the corresponding area type.

Removing the "Vic" in the building_address:

I did this because the majority of the building_address's didn't have "Vic" & I needed to standardise them.

1. =SUBSTITUTE(C2, " VIC", "").

Analysis

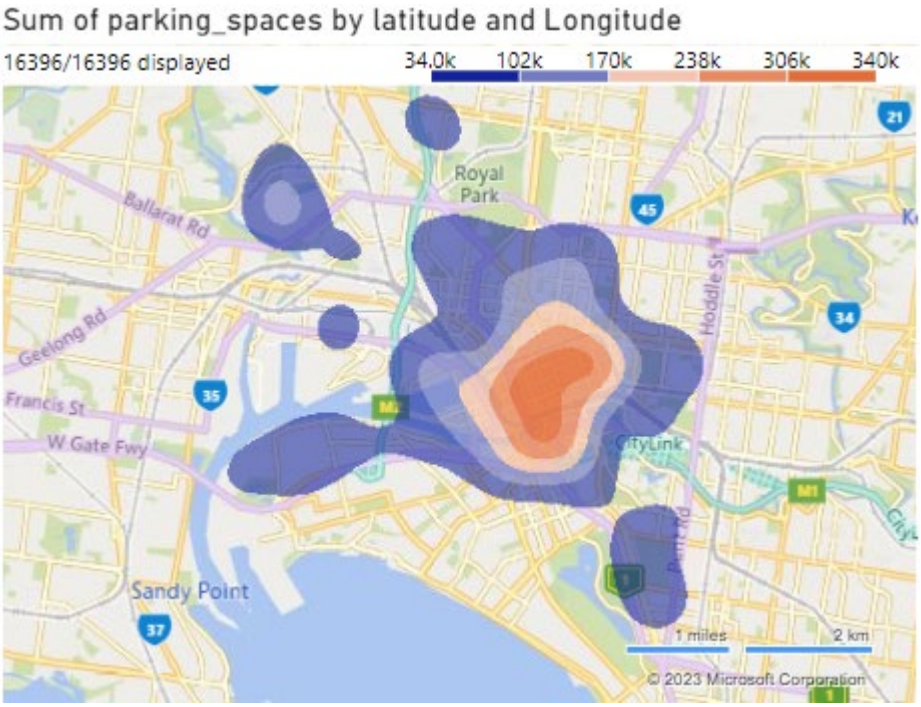
This section is about the data findings & Methods used to get there.

Methods used to analysis

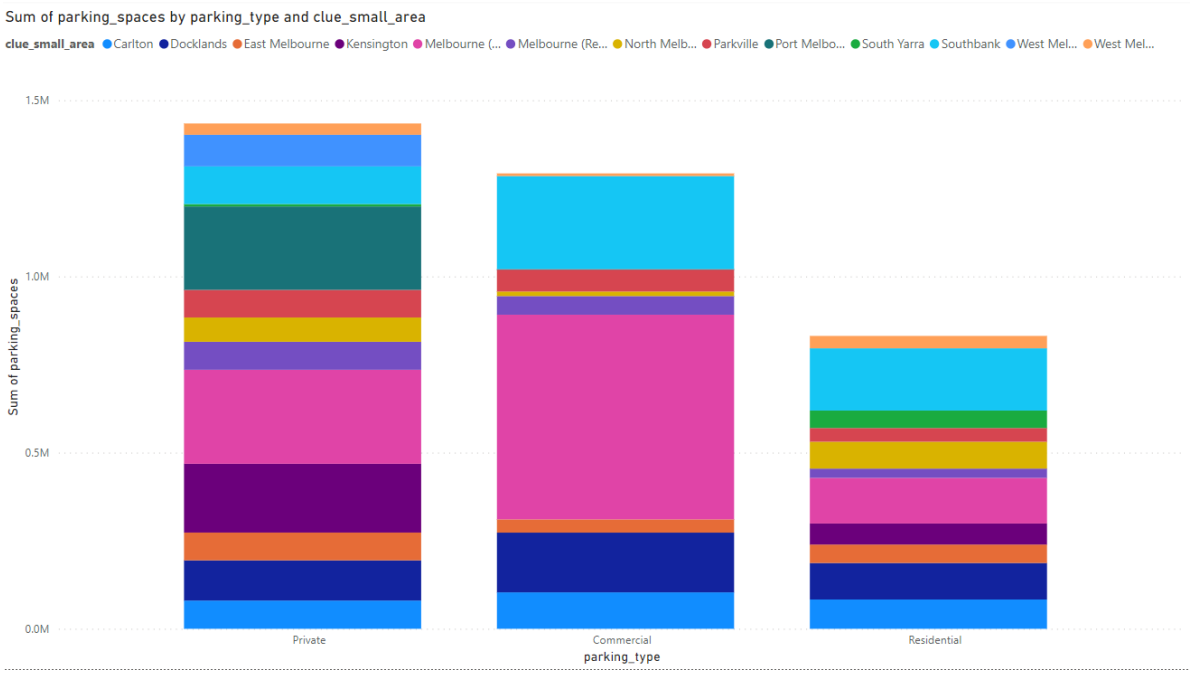
1. Use pivot table to do a final check over the data (mostly looking for outliers & data points that catch the eye.
2. Then I brought the data into a separate to export as a separate excel file.
3. Brought that excel file into power bi. The reason I use power bi being because it has better mapping tools that allow to look at street & therefor understand or display very close data points easier. This is because they make use of maps whilst tableau uses a grayscale filled outline of Australia to display it data.
4. After generating visuals relating to the project metrics or goals, I made predictions about the data.
5. Using filters I confirmed or denied my predictions.

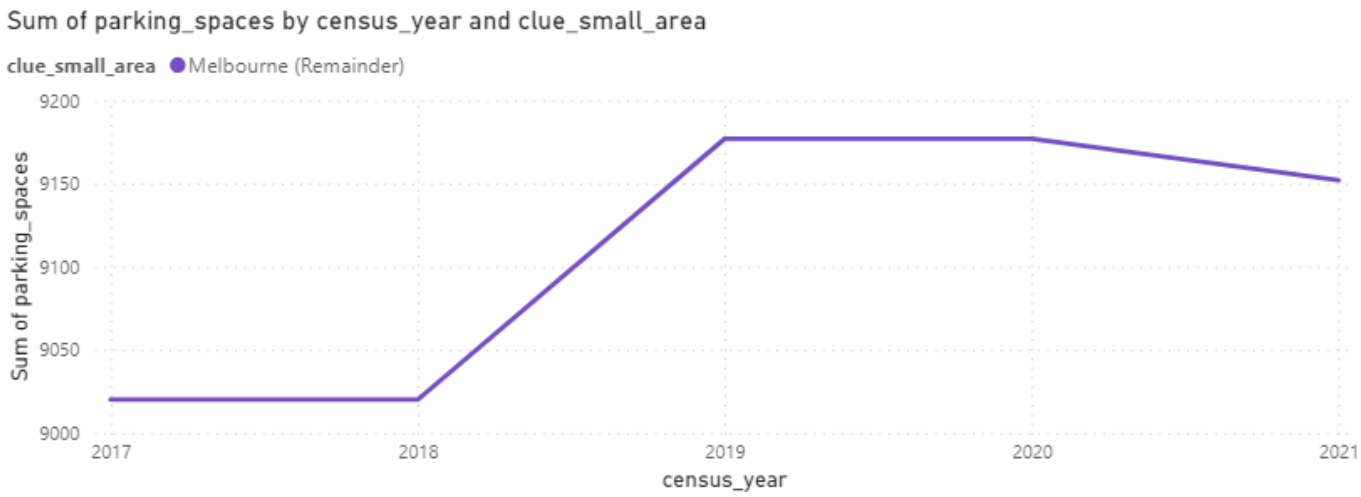
Significant findings

1. Parking space **density starts to drop steeply** once you're outside the CBD.



2. Both West Melbourne clue small areas, Melbourne (Remainder) & port Melbourne seem to be **areas of protentional concern.**





Recommendation for action

1. **<u>Further analysis of the parking space occupancy rate in areas of concern</u>** would be advantageous to planning further development & strategies.