

# Life in Melbourne as depicted by Pedestrians

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# Introduction

## Motivation

- Essential part of a city and depicts life it.
- Can help in deciding the place to open new business.
- Gives idea about the night life of people in the city.

Also, one can combine pedestrian data with other datasets to obtain useful information

- Weather data to study whether people go out on a rainy day
- Restaurant data to investigate the number of pedestrian vs popularity of restaurants

# Data

- Obtained from automated pedestrian counting sensors located across the city.
- Sensors provide pedestrian counts for the previous hour at the given location.

**Rows - 2.51M**

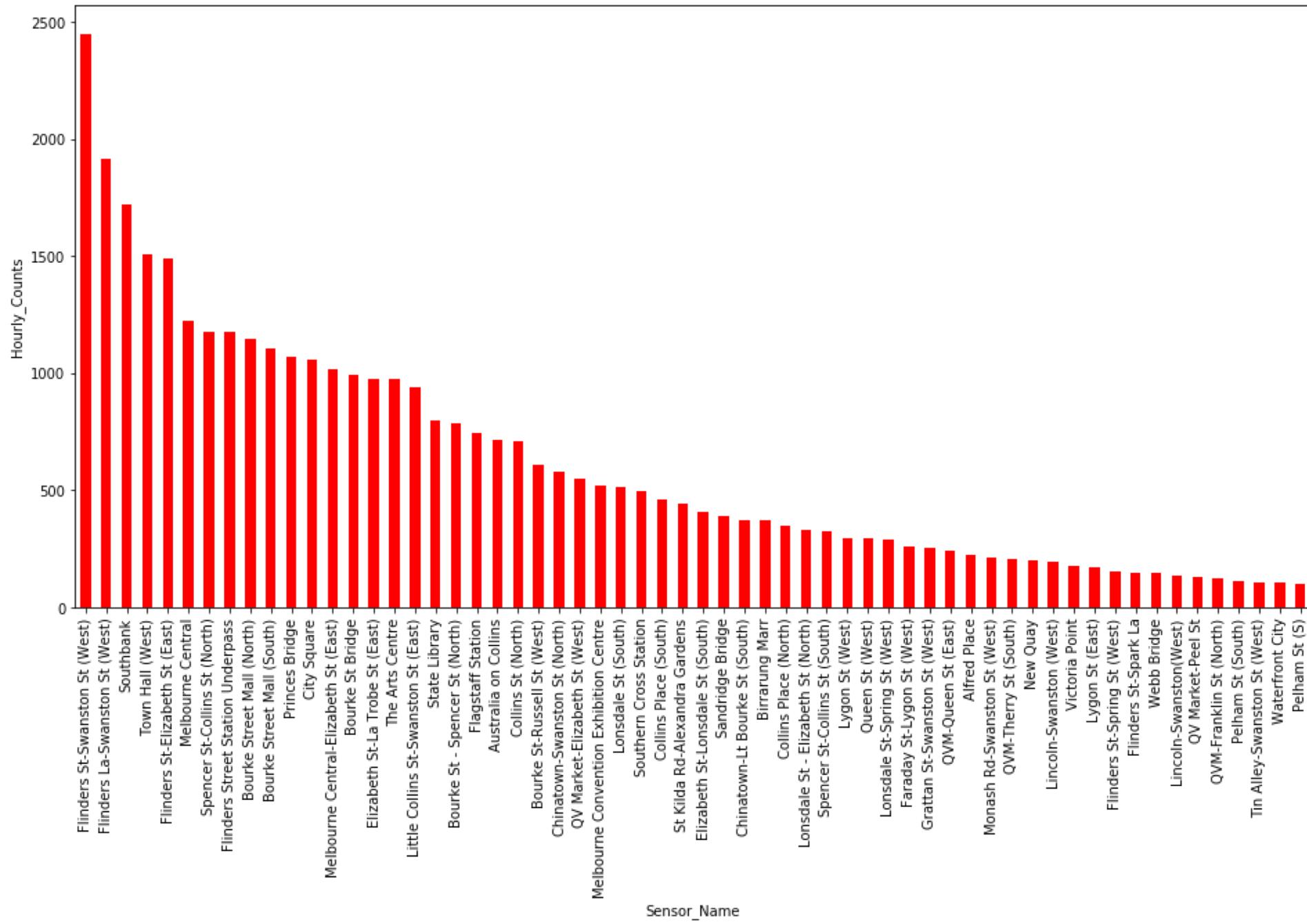
**Columns - 10**

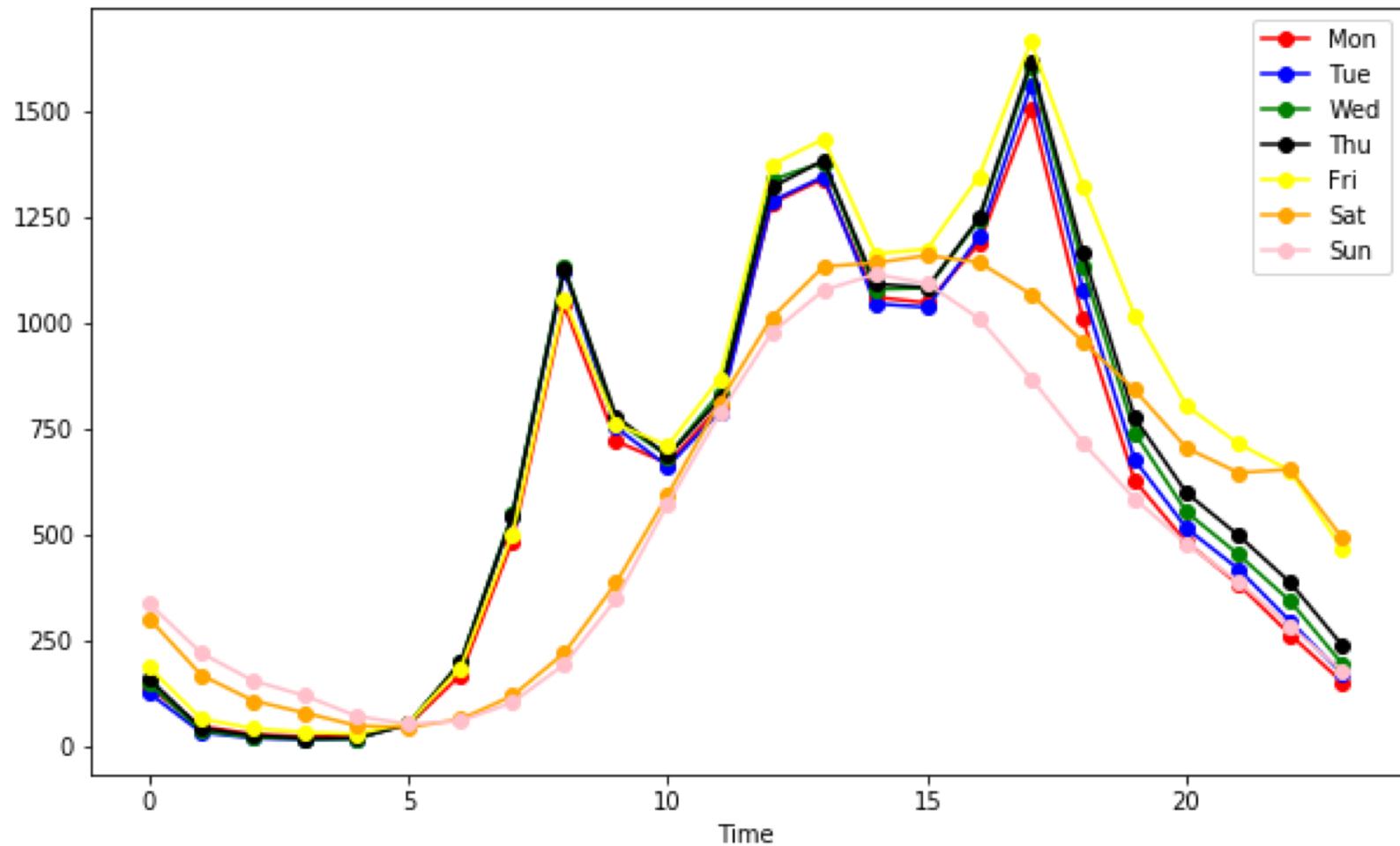
Date_Time	Year	Month	Mdate	Day	Time	Sensor_ID	Sensor_Name	Hourly_Counts
5/1/09	2009	May		1 Friday	0	1	Bourke Street Mall 1(North)	53
5/1/09	2009	May		1 Friday	0	2	Bourke Street Mall 2(South)	52
5/1/09	2009	May		1 Friday	0	4	Town Hall (West)	209
5/1/09	2009	May		1 Friday	0	5	Princes Bridge	157
						6	Flinders Street Station Underpass	139
5/1/09	2009	May		1 Friday	0	6	Underpass	139

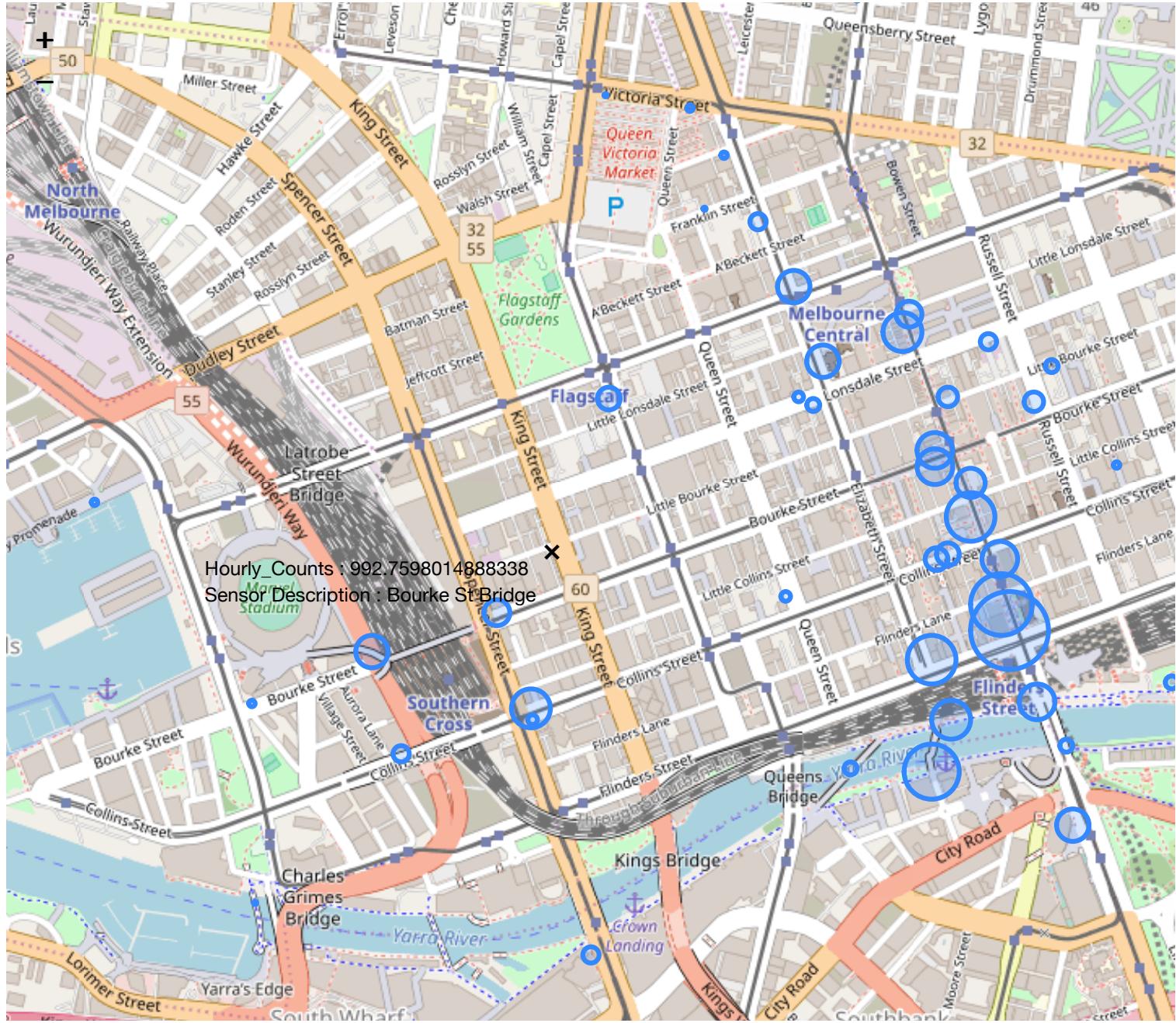
## After merging with geographical data

Date_Time	Year	Month	Mdate	Day	Time	Sensor_ID	Sensor_Name	Hourly_Counts	Year Installed	Latitude	Longitude
5/1/09	2009	May		1 Friday	0	1	Bourke Street Mall 1 (North)	53	2009	-37.813494	144.965153
5/1/09	2009	May		1 Friday	1	1	Bourke Street Mall 1 (North)	43	2009	-37.813494	144.965153
5/1/09	2009	May		1 Friday	2	1	Bourke Street Mall 1 (North)	10	2009	-37.813494	144.965153
5/1/09	2009	May		1 Friday	3	1	Bourke Street Mall 1 (North)	5	2009	-37.813494	144.965153
5/1/09	2009	May		1 Friday	4	1	Bourke Street Mall 1 (North)	25	2009	-37.813494	144.965153

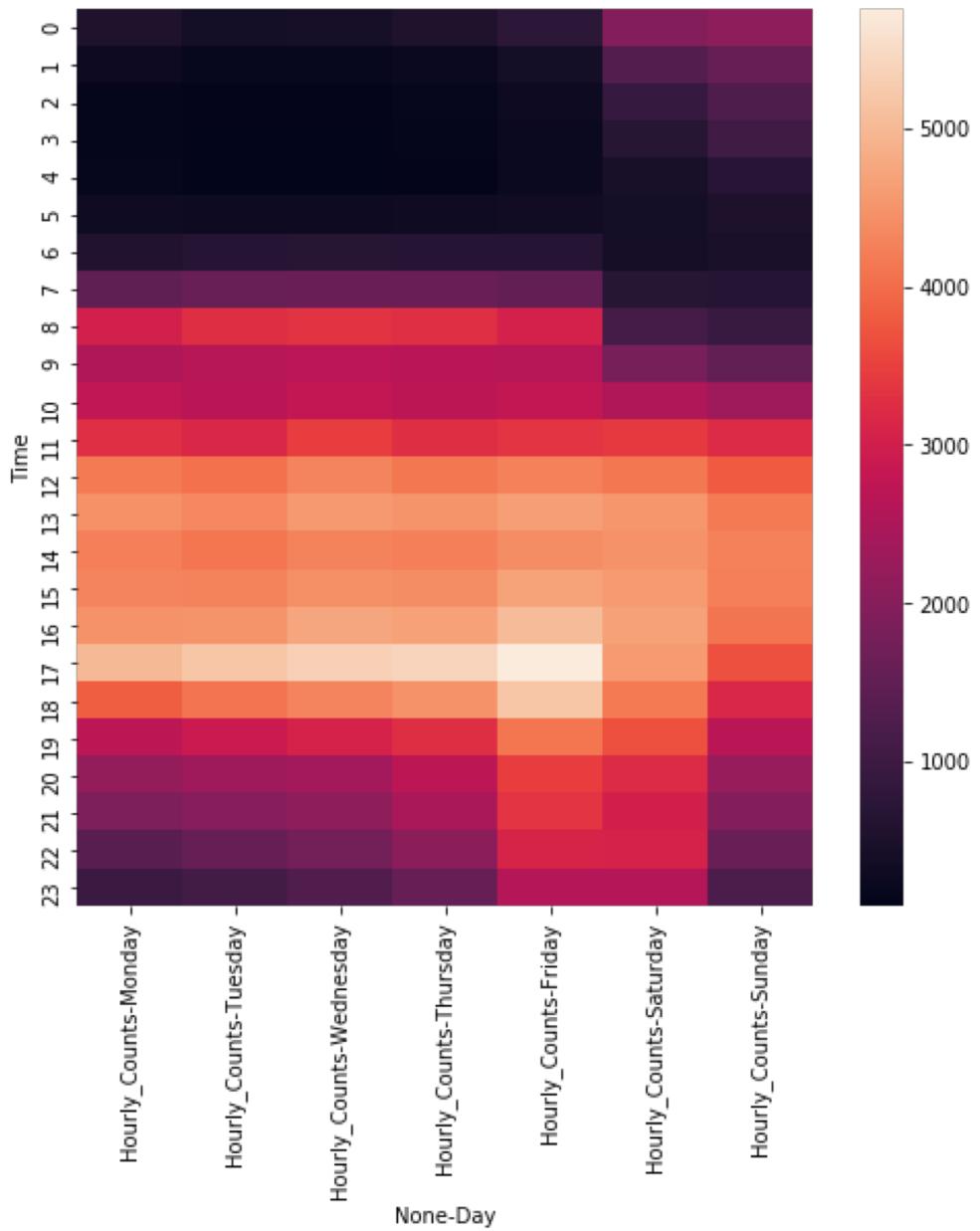
# Exploratory data analysis



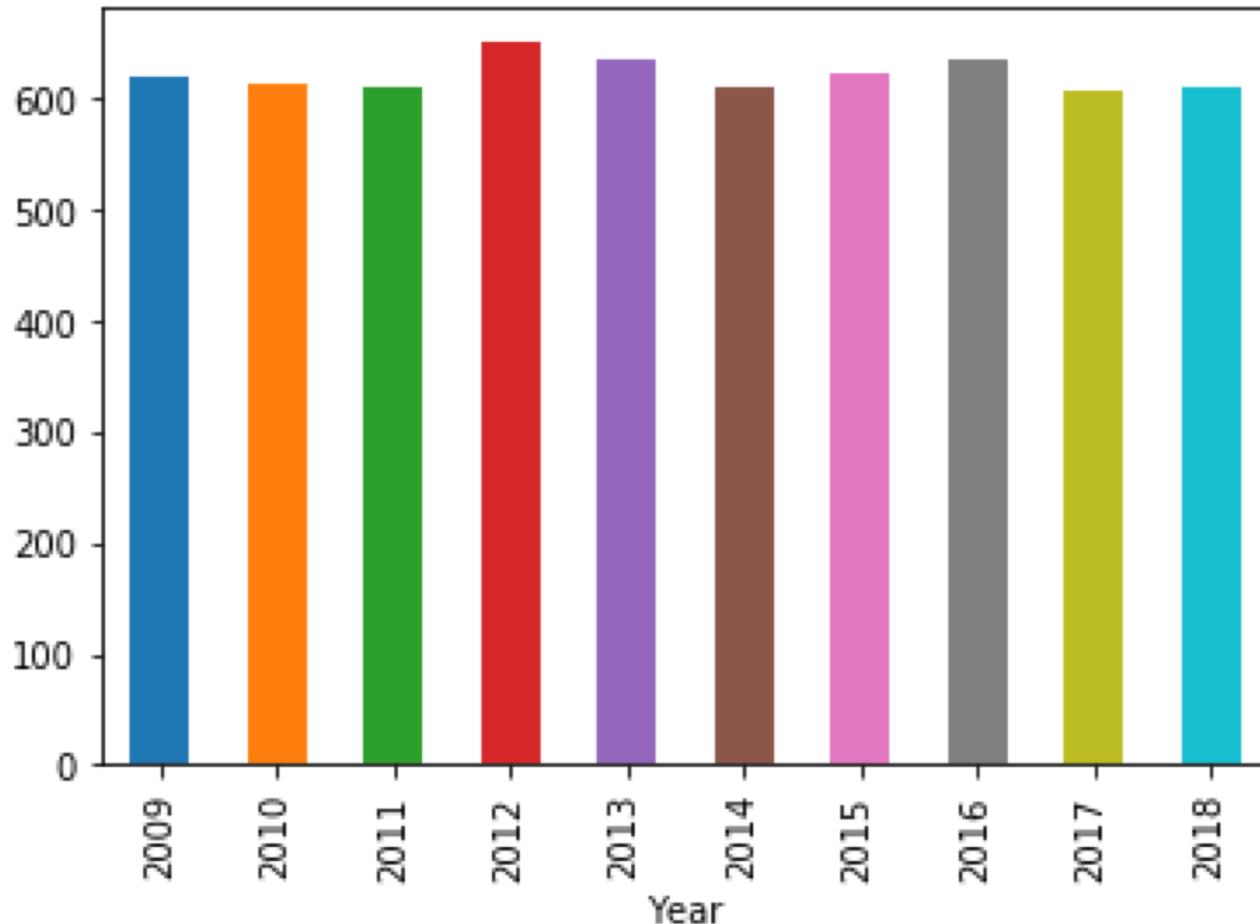




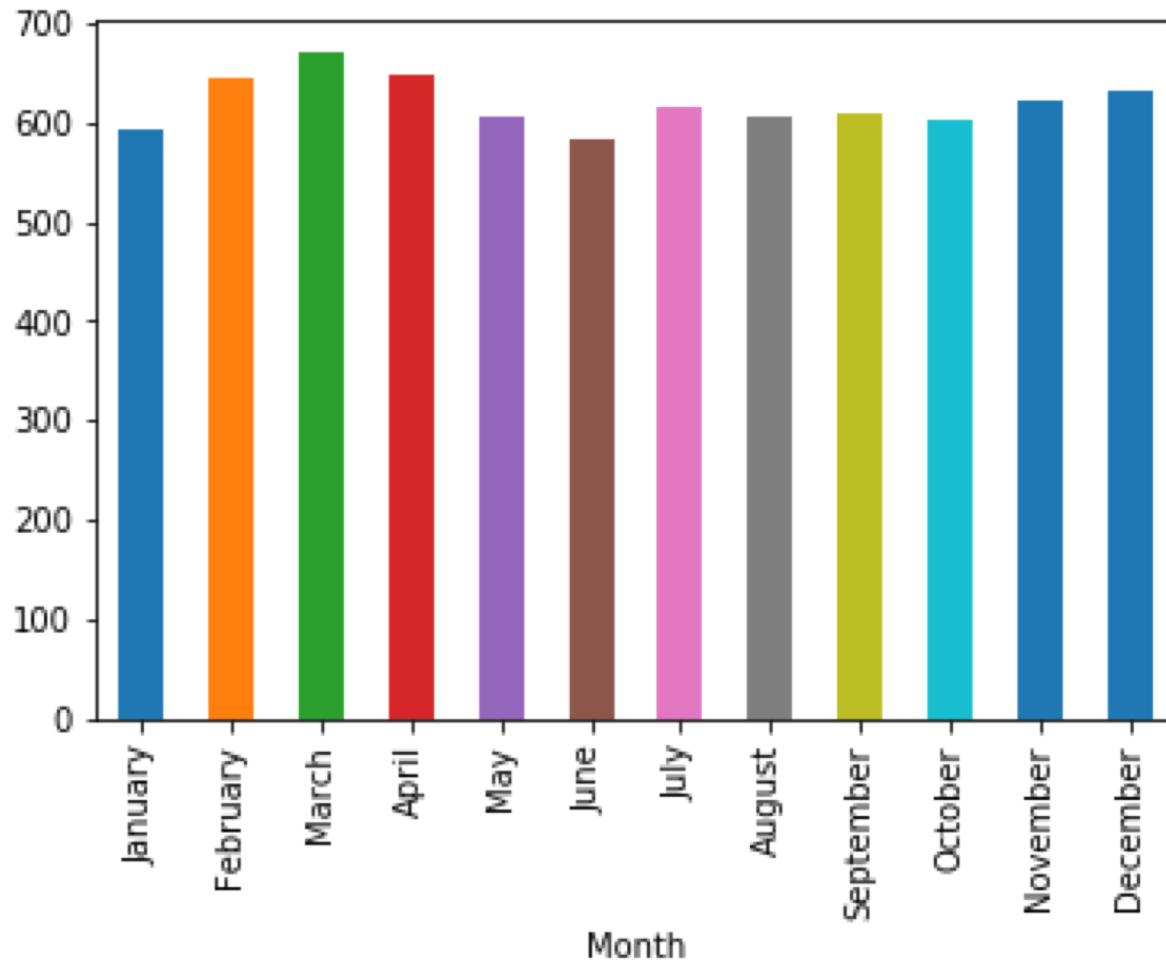
Heat Map for Flinders St-Swanston St (West) Sensor

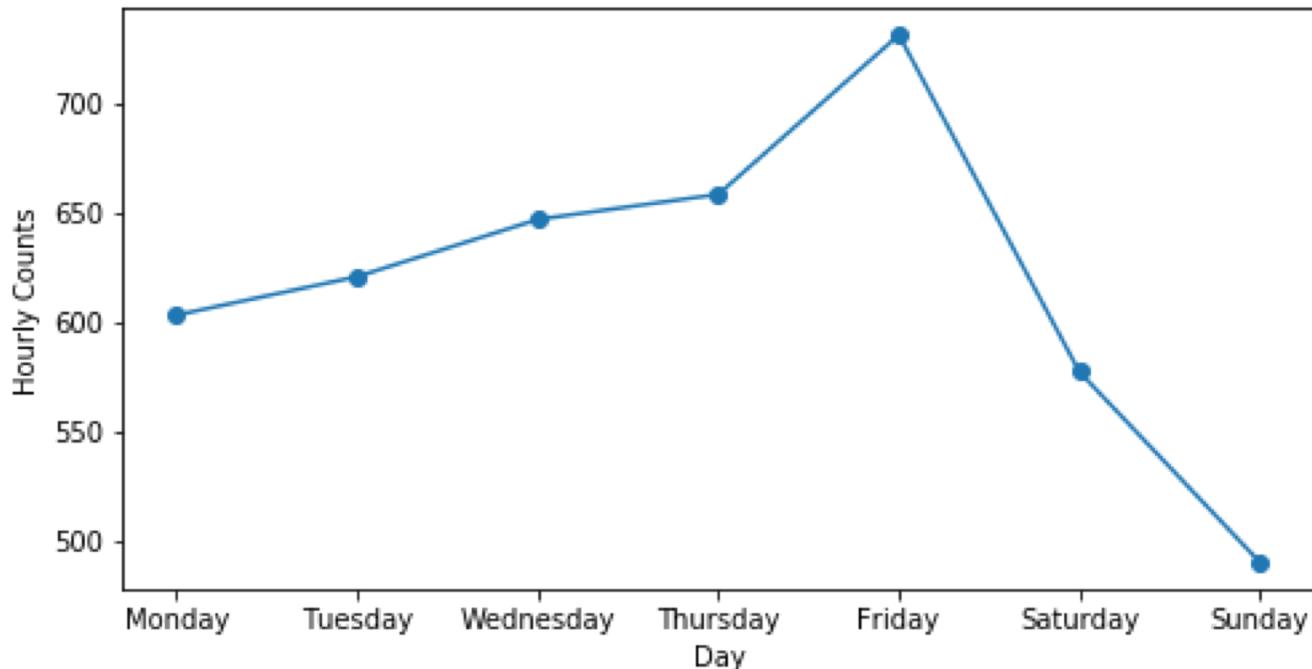


## Mean Hourly Counts grouped by Year



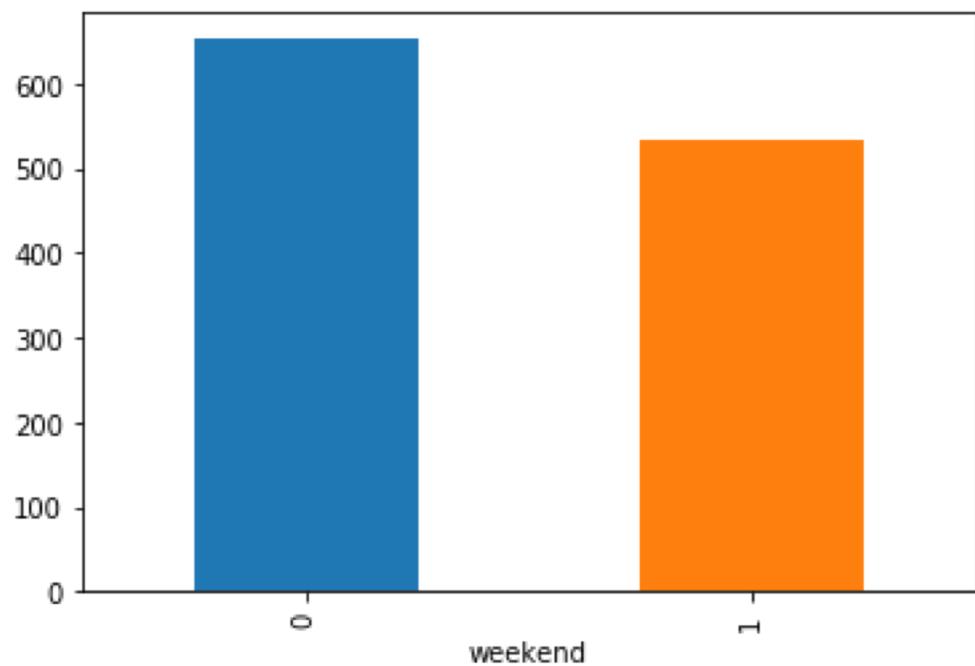
## Mean Hourly Counts grouped by Month





Mean Hourly Counts  
grouped by day

Mean Hourly Counts  
grouped by  
weekend (1) or weekday (0)



## Future Directions

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- ❖ Examine Correlations with other data
  - Weather data (Will scrape from wunderground)
  - Restaurant data (Will scrape from yelp or Zomato)
- ❖ Forecasting future predictions and comparing different models such as
  - ARIMA
  - LSTM
  - Investigate whether weekend and weekday trends will require different model
- ❖ More sophisticated analysis and investigation of data such as
  - Increase in pedestrian count on Friday and Saturday night
  - Effect of Public Holidays