

Life in Melbourne as depicted by Pedestrians

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Introduction

Motivation

- Essential part of modern cities.
- 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

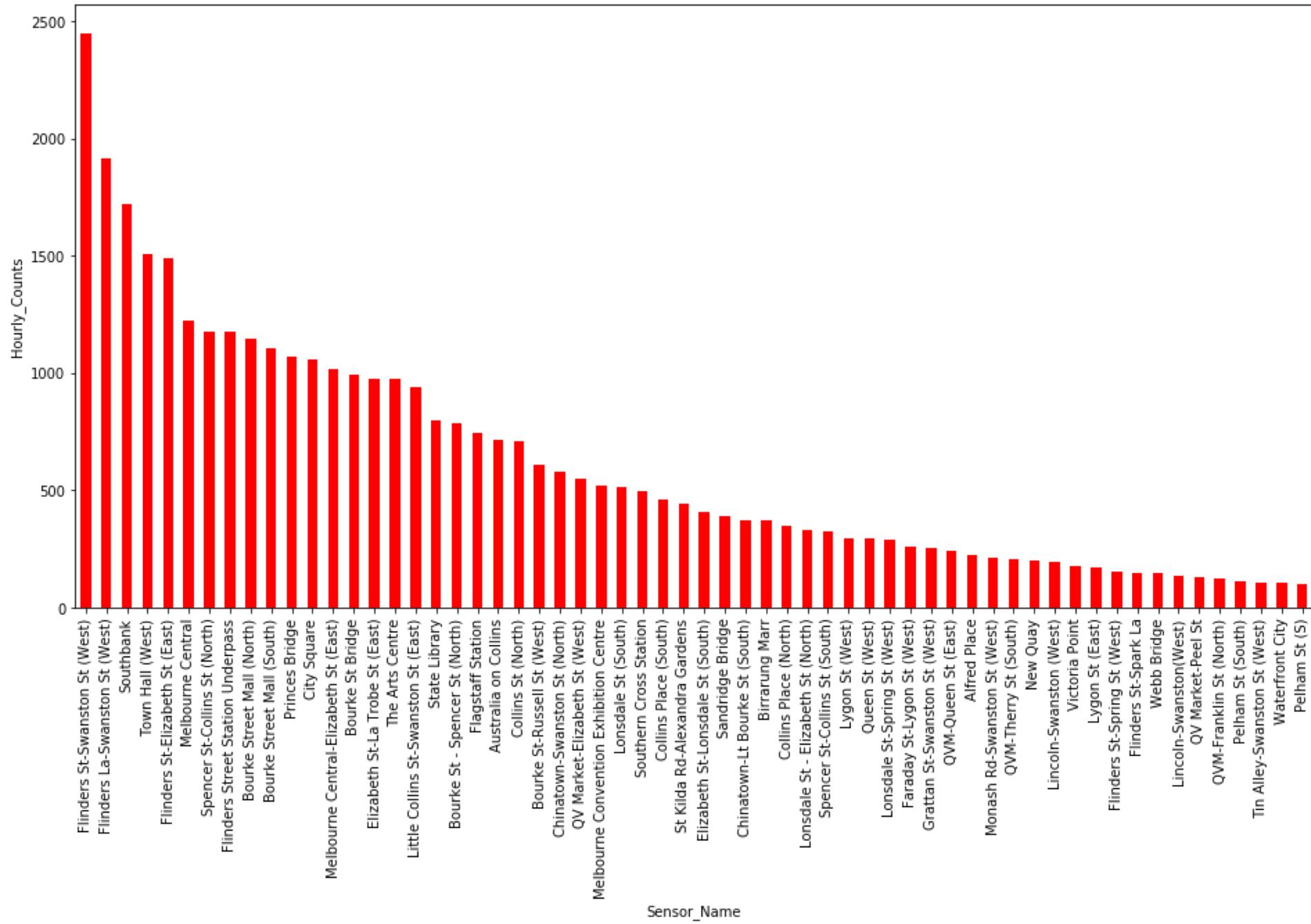
Columns - 10

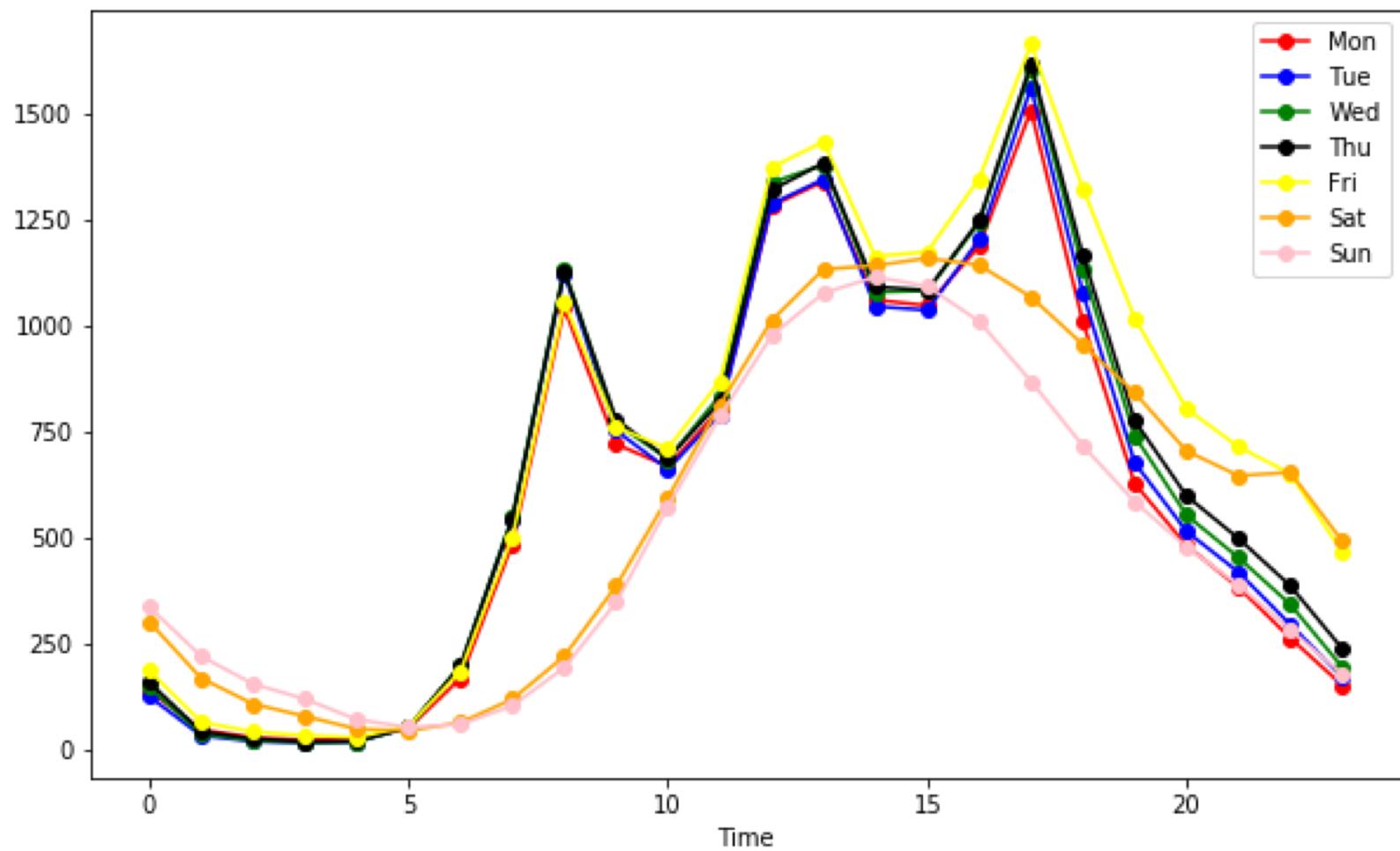
Date_Time	Year	Month	Mdate	Day	Time	Sensor_ID	Sensor_Name	Hourly_Counts
5/1/09	2009	May		1 Friday	0	1	Bourke Street Mall 1(North)	53
5/1/09	2009	May		1 Friday	0	2	Bourke Street Mall 2(South)	52
5/1/09	2009	May		1 Friday	0	4	Town Hall (West)	209
5/1/09	2009	May		1 Friday	0	5	Princes Bridge	157
						6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

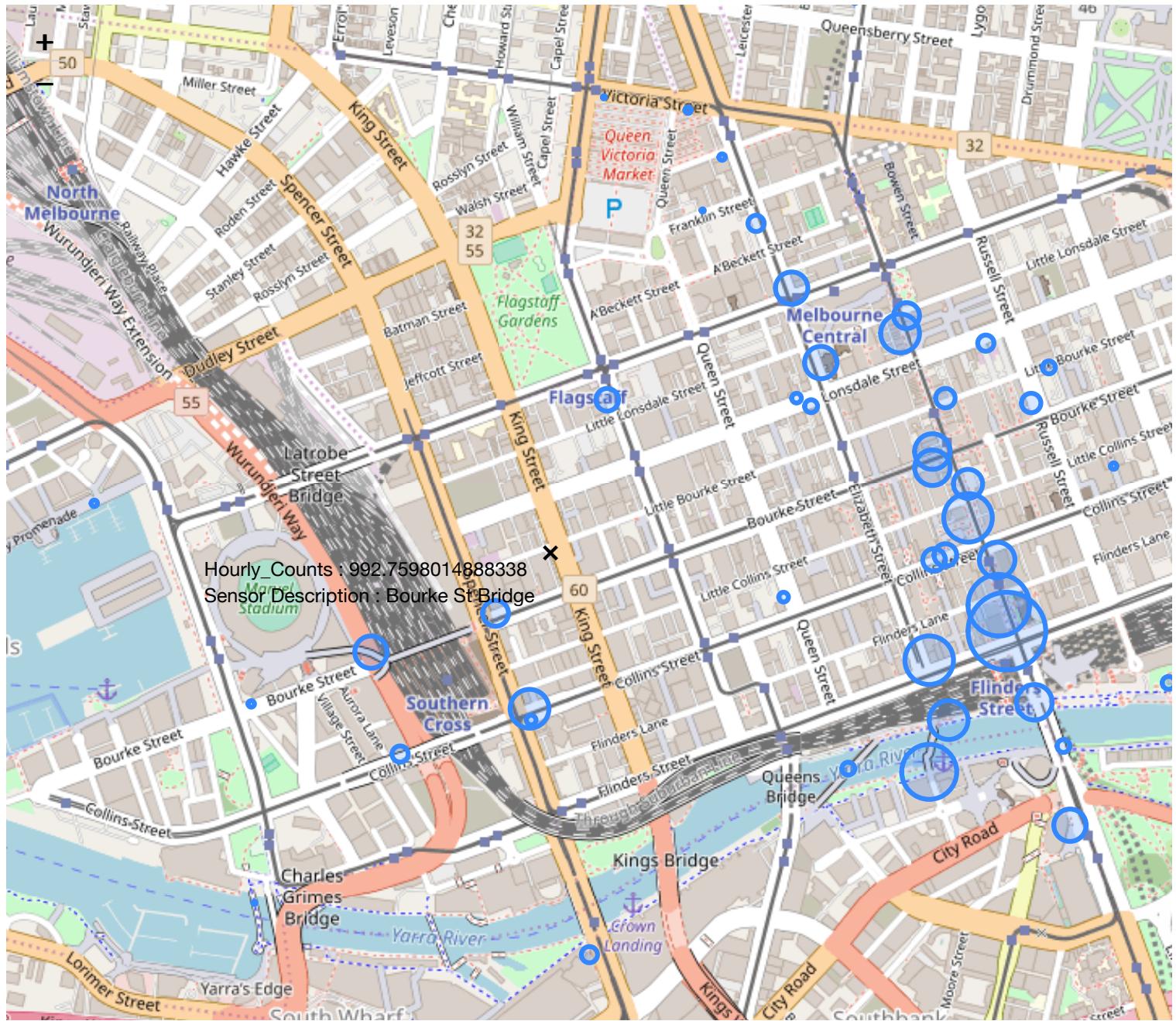
After merging with geographical data

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

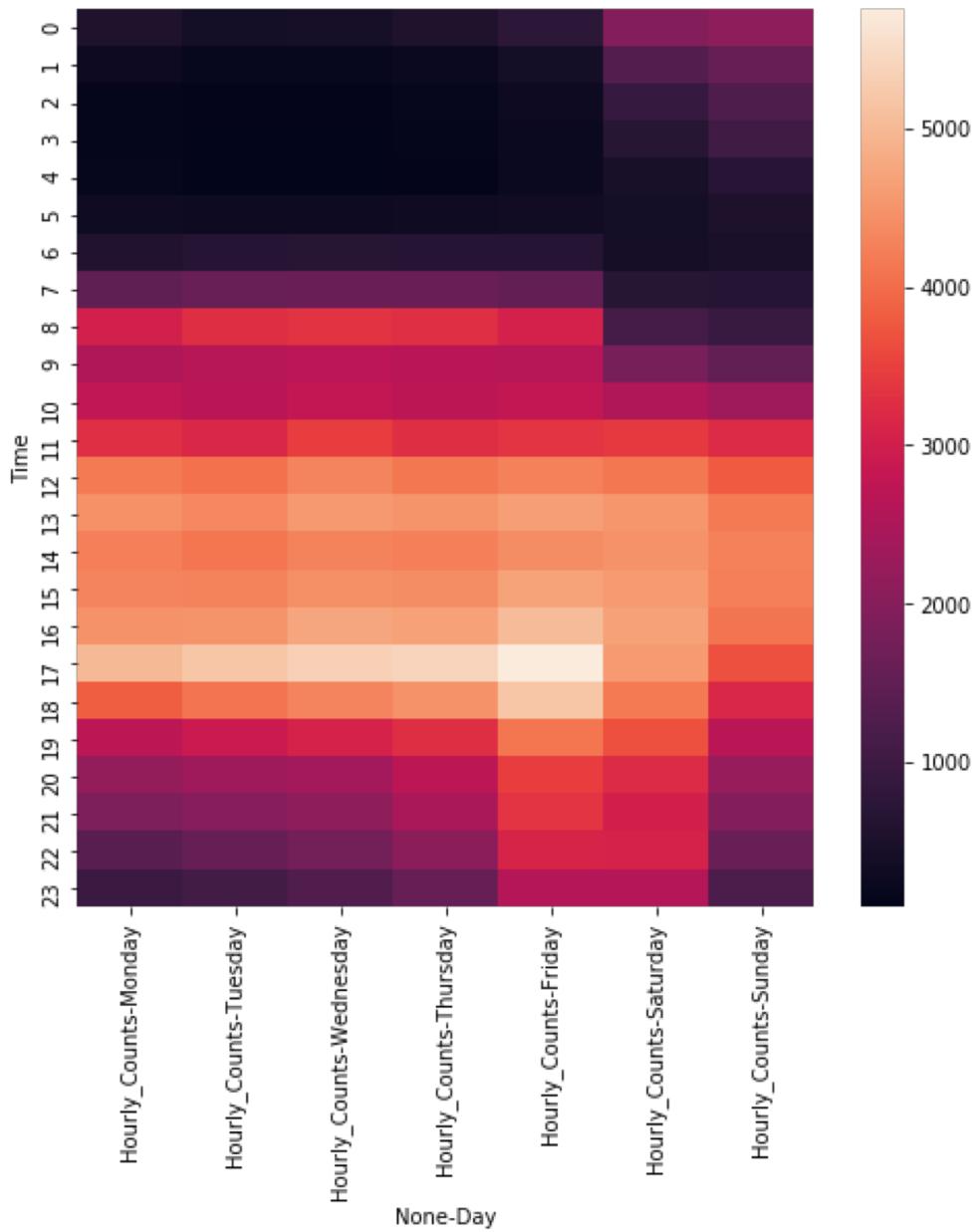
Exploratory data analysis



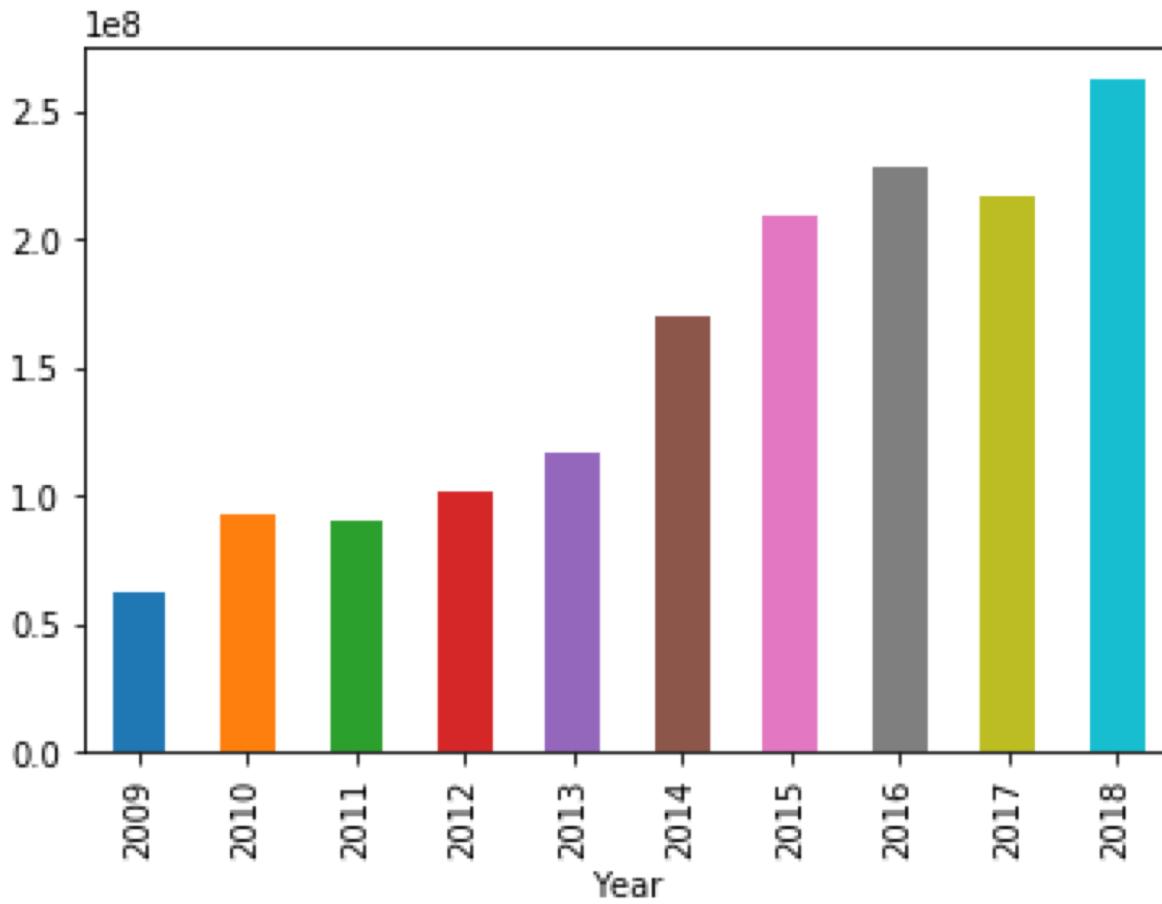




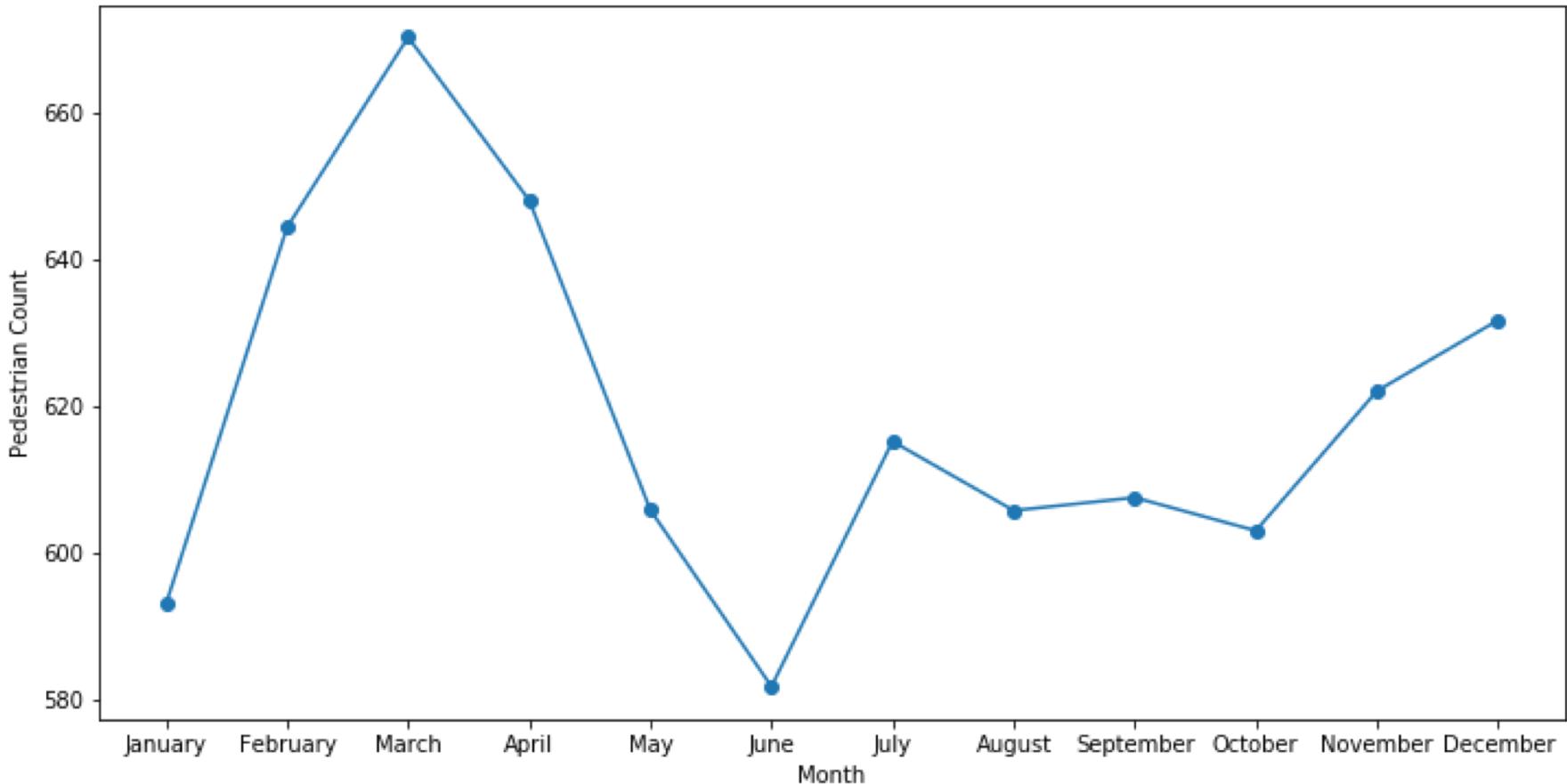
Heat Map for Flinders St-Swanston St (West) Sensor



Hourly Counts grouped by Year

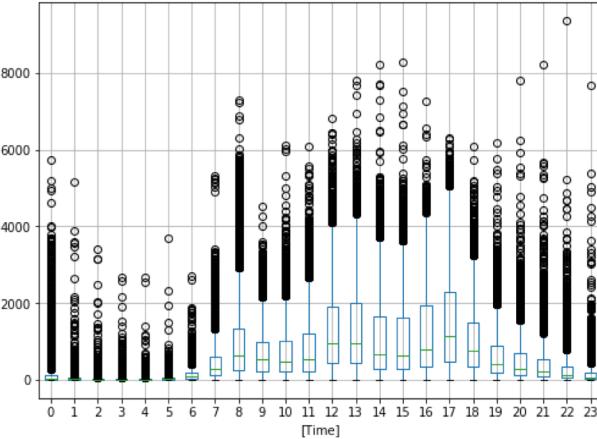


Mean Hourly Counts grouped by Month

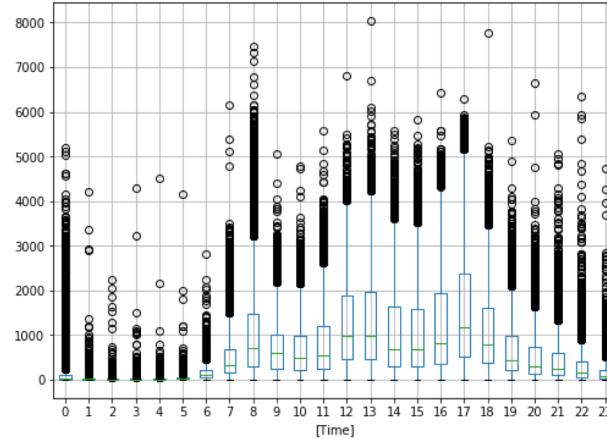


Foot Traffic by Hour

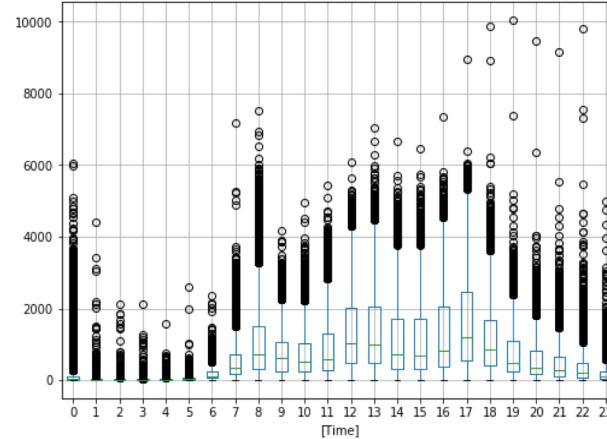
Mon



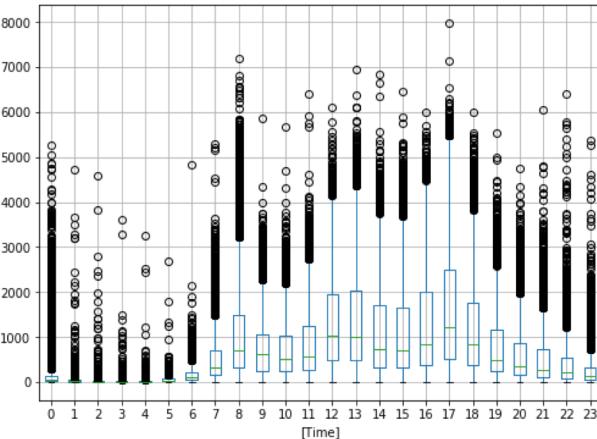
Tue



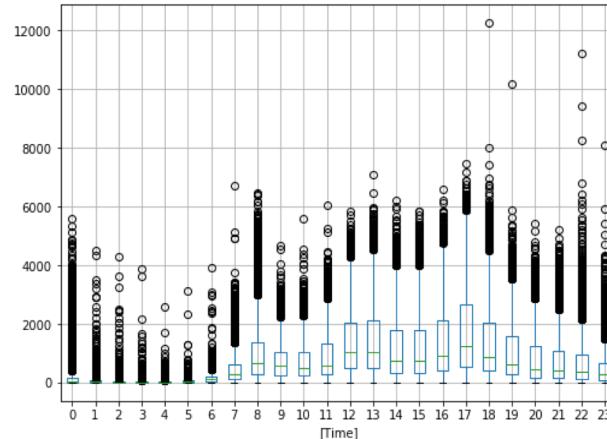
Wed



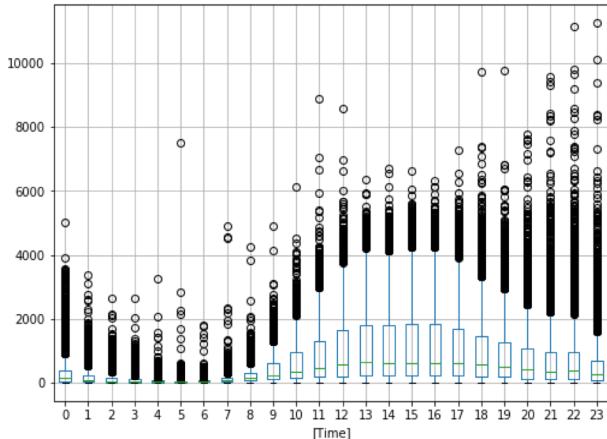
Thu



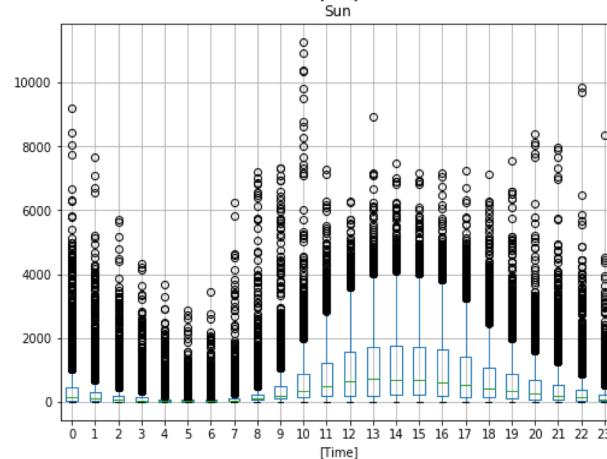
Fri

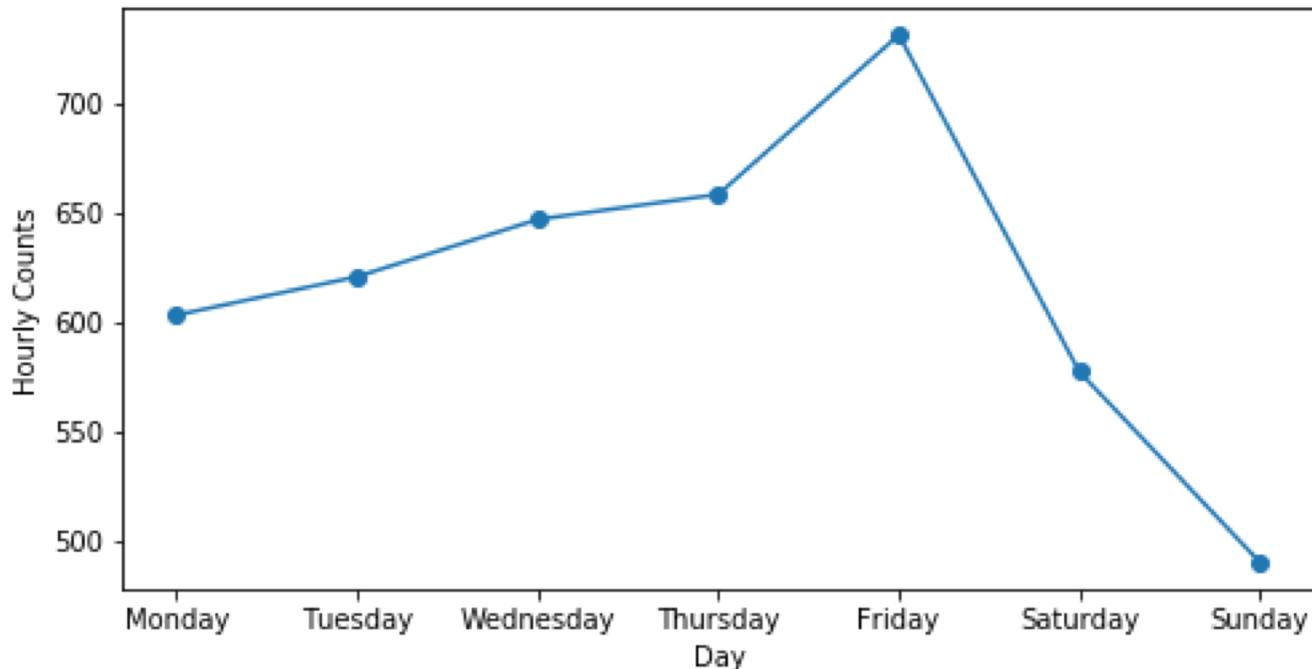


Sat



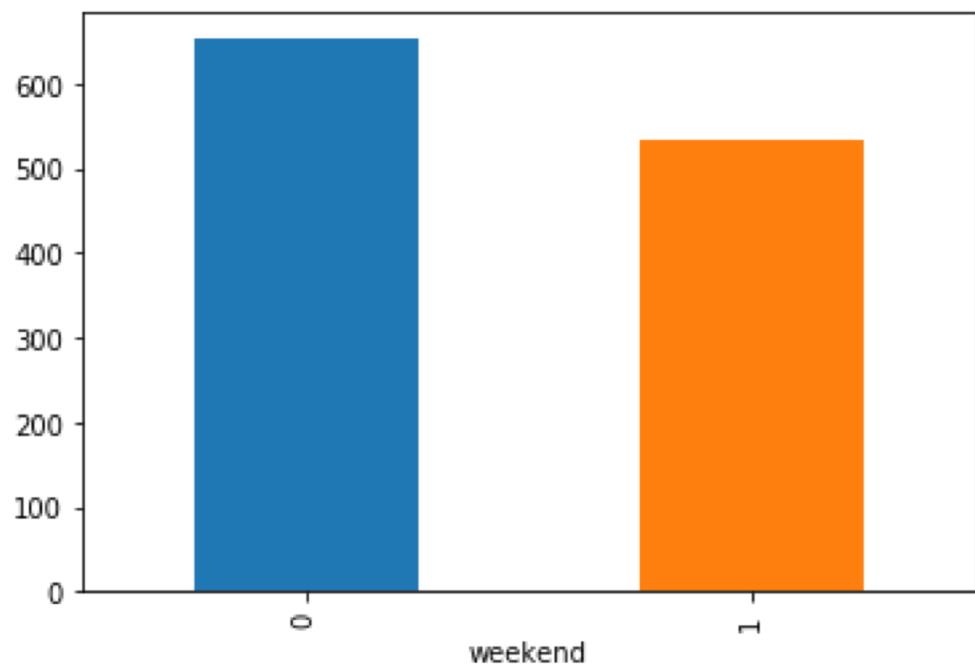
Sun





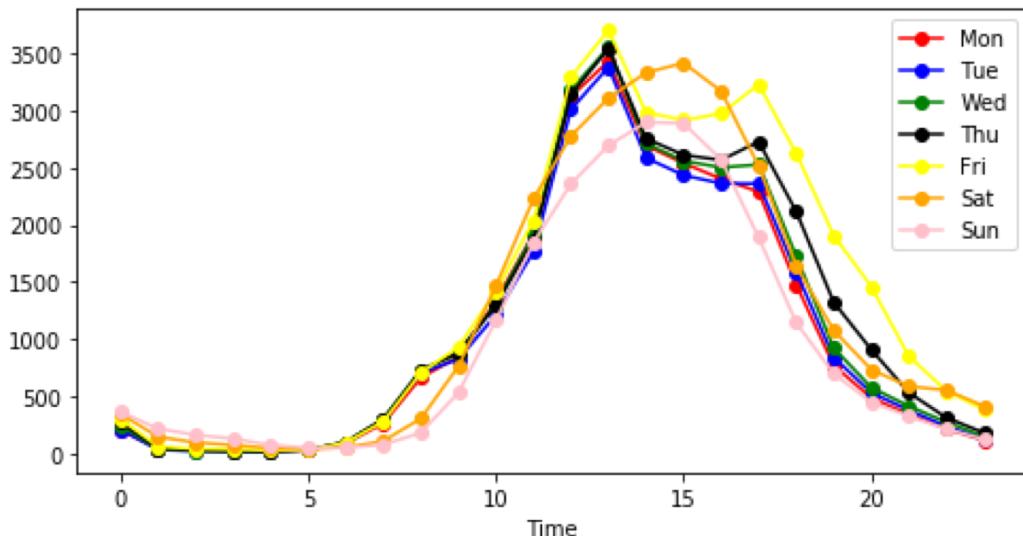
Mean Hourly Counts
grouped by day

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



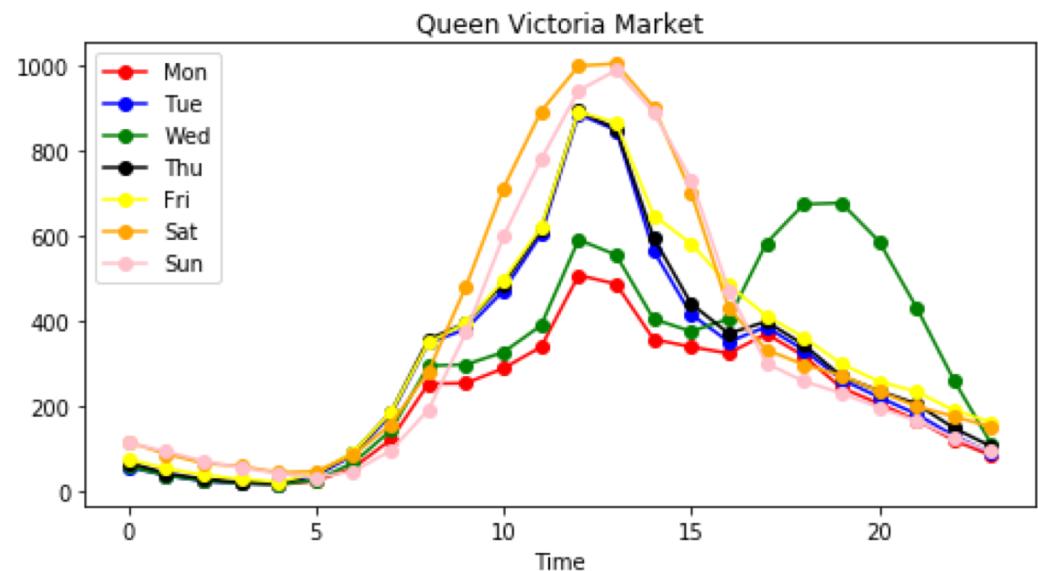
Foot Traffic at Markets

Bourke Street Mall



Bourke Street Mall

Queen Victoria Market



Future Directions

Future Directions

- ❖ Examine Correlations with other data
 - Weather data (Will scrape from wunderground)
 - Restaurant data (Will scrape from yelp or Zomato)
 - Crime data (<https://www.crimestatistics.vic.gov.au/crime-statistics/historical-crime-data>)
- ❖ 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