Activity analysis before and during the first lockdown in Paris

-Lara-Anna Wagner

Dataset

\+
No more Velib
API dump

09/03/2020 - 22/03/2020
Beginning of lockdown: 18/03/2020

Characteristics on velib station	Velib data on disponibility real time
station_id	station_id
name of the bike station	available_bikes
latitude	available_ebikes
Longitude	free_stands
bike_stands	status
banking	updated
bonus	

Rows: 1.399
Columns: 8

Rows: 5.635.608
Columns: 6

Example of entries

Velib data on disponibility

	station_id	available_bikes	available_ebikes	free_stands	status	updated
0	4020	6	0	15	Operative	2020-03-09 00:00:12
1	4021	2	4	20	Operative	2020-03-09 00:00:12
2	32303	8	18	4	Operative	2020-03-09 00:00:12
3	32302	0	7	13	Operative	2020-03-09 00:00:12
4	32301	0	0	17	Close	2020-03-09 00:00:12

Characteristics on velib station

	station_id	name	latitude	longitude	banking	bonus	bike_stands	postcode
0	4020	Place Edmond Michelet	48.860135	2.350064	1	0	23	75004
1	4021	Centre Georges Pompidou	48.861419	2.352581	1	0	26	75004
2	32303	Gaston Roussel - Commune de Paris	48.894320	2.432552	1	0	30	93230
3	32302	Chemin Vert - Fraternité	48.877141	2.446157	0	0	20	93230
4	32301	Mairie de Romainville	48.885109	2.435679	1	0	17	93230

Research Question

1. How many Velib bikes can we find in Paris and how are they distributed throughout the city?
2. How did the bike usage change during lockdown?
3. Which stations gained vs. lost bikes between 8-10am on the first day of lockdown? (compare to same day pre-lockdown)
4. How did the bike usage change over the entire period per arrondissement?

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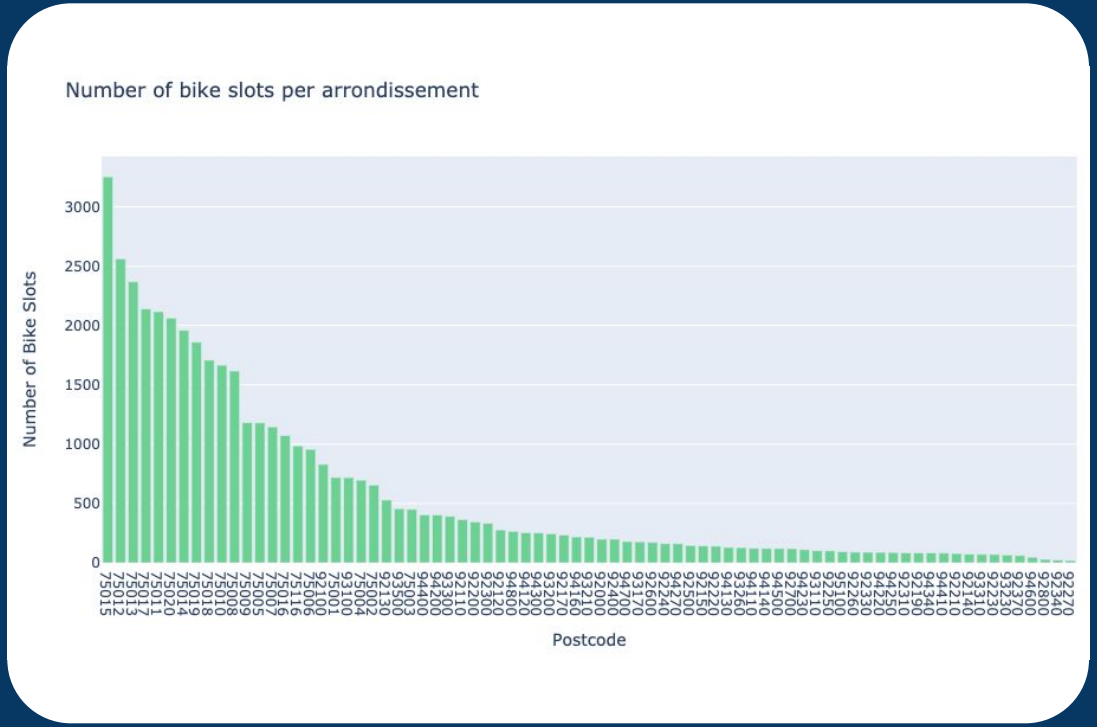
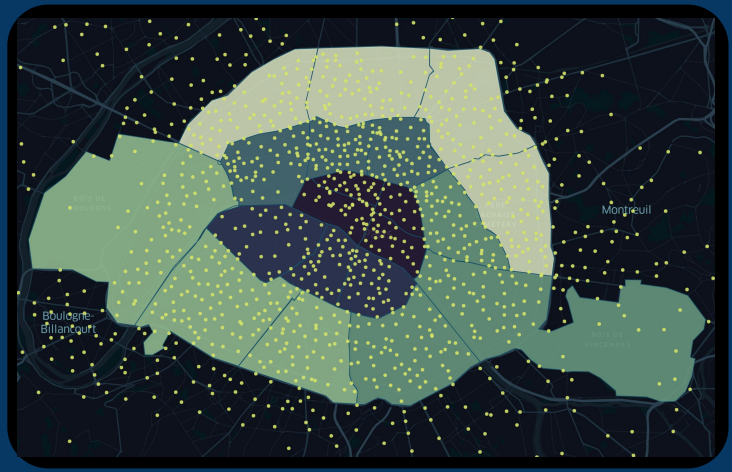
Q1

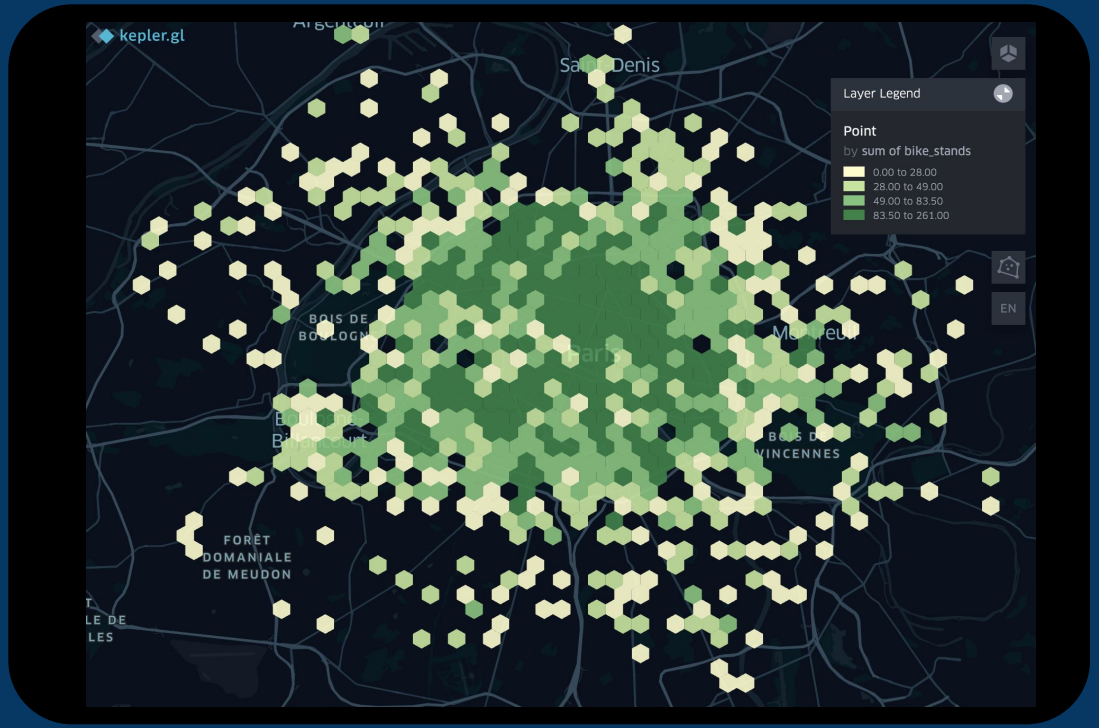


Observation:

Total nb. of Stations: **1399**
Nb. of Stations (Paris): **977**
Highest nb. Of bike slots per arrondissement: **3253 slots (15eme)**



Q1



Observation:

Right bank: highest density => 2,9,8,11,4,1
Left bank: higest density => 15,5,6

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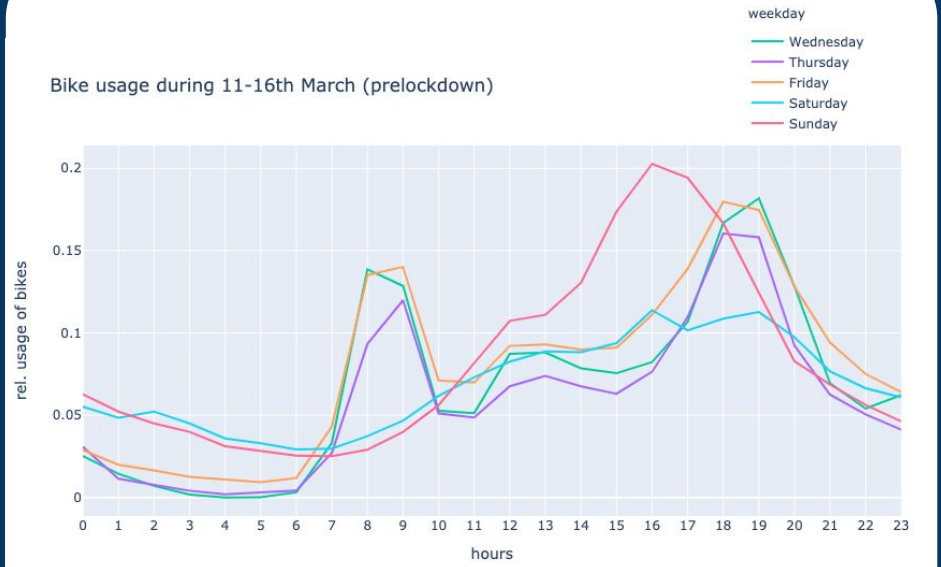
Q2

The relative usage was taken for the y-axis as we don't have the total number of bikes available!

Observation:
As expected we can see less activity on Wednesday (lockdown) especially during the rush hours.

Q2


Bike usage during 11-16th March (prelockdown)
weekday
Wednesday
Thursday
Friday
Saturday
Sunday
rel. usage of bikes
0
0.05
0.1
0.15
0.2
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
hours

Bike usage during 18-22nd March (lockdown)
weekday
Wednesday
Thursday
Friday
Saturday
Sunday
rel. usage of bikes
0
0.01
0.02
0.03
0.04
0.05
0.06
0.07
0.08
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
hours

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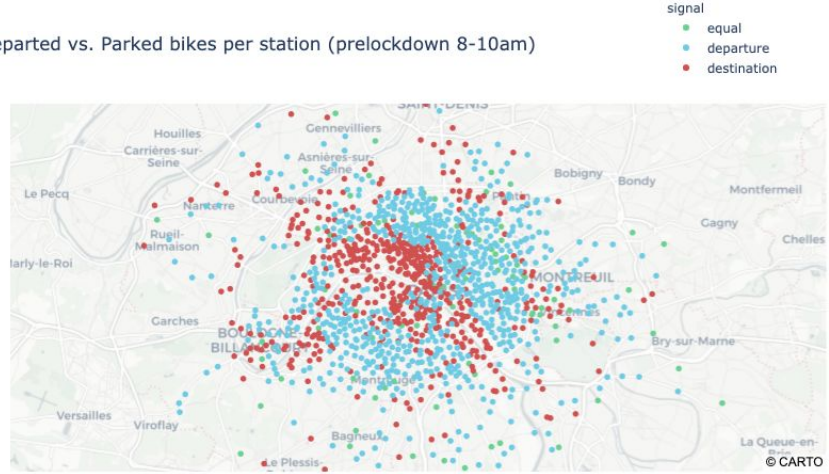
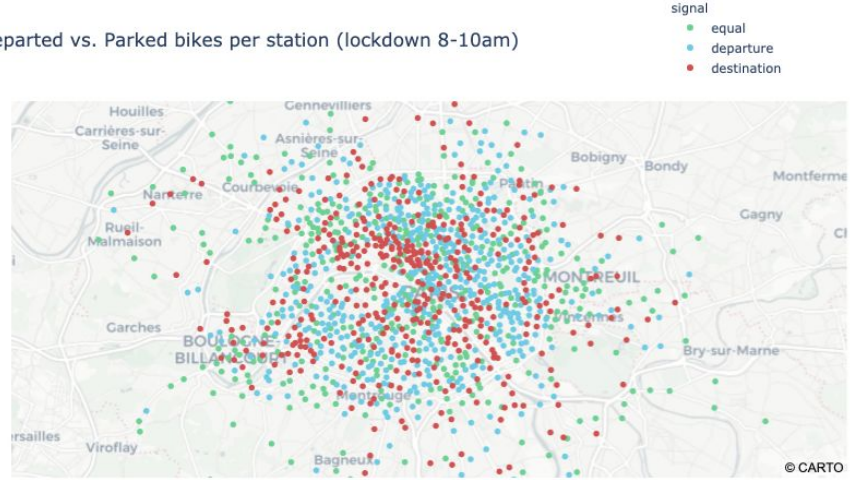
Q3

Departed vs. Parked bikes per station (prelockdown 8-10am)



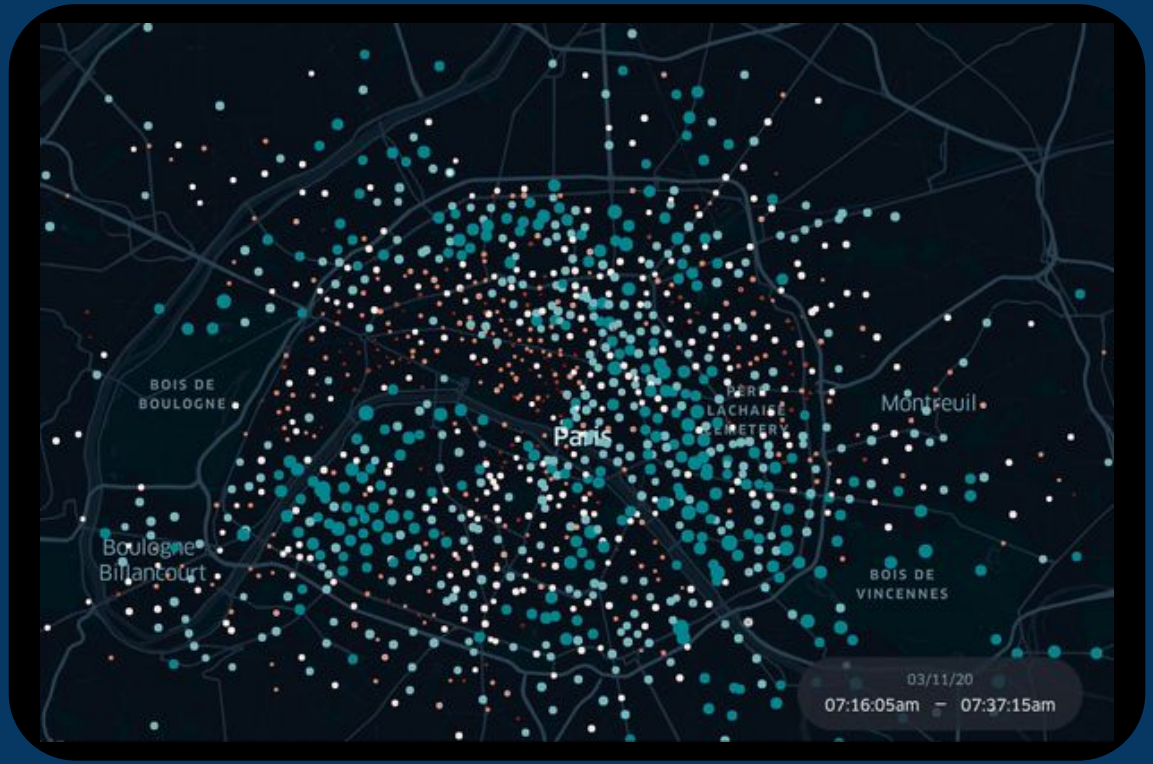
Departed vs. Parked bikes per station (lockdown 8-10am)



Q3

Timelapse of station activity **11/03/2020**

(Wednesday before lockdown)

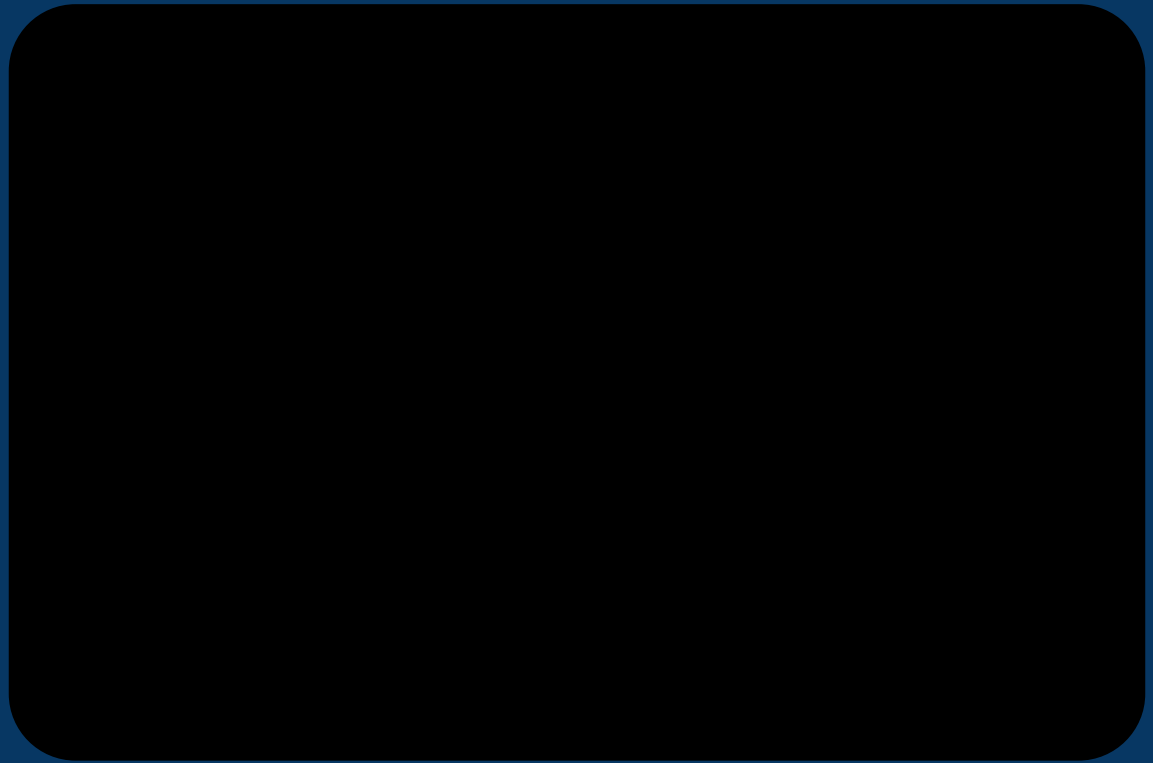


Dot(red, small) = not a lot of bikes available

Dot(big,blue) = a lot of bikes available

Q3

Timelapse of station activity **11/03/2020**
(Wednesday before lockdown)



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Q3

Timelapse of station activity **18/03/2020**

(Wednesday first day of lockdown)

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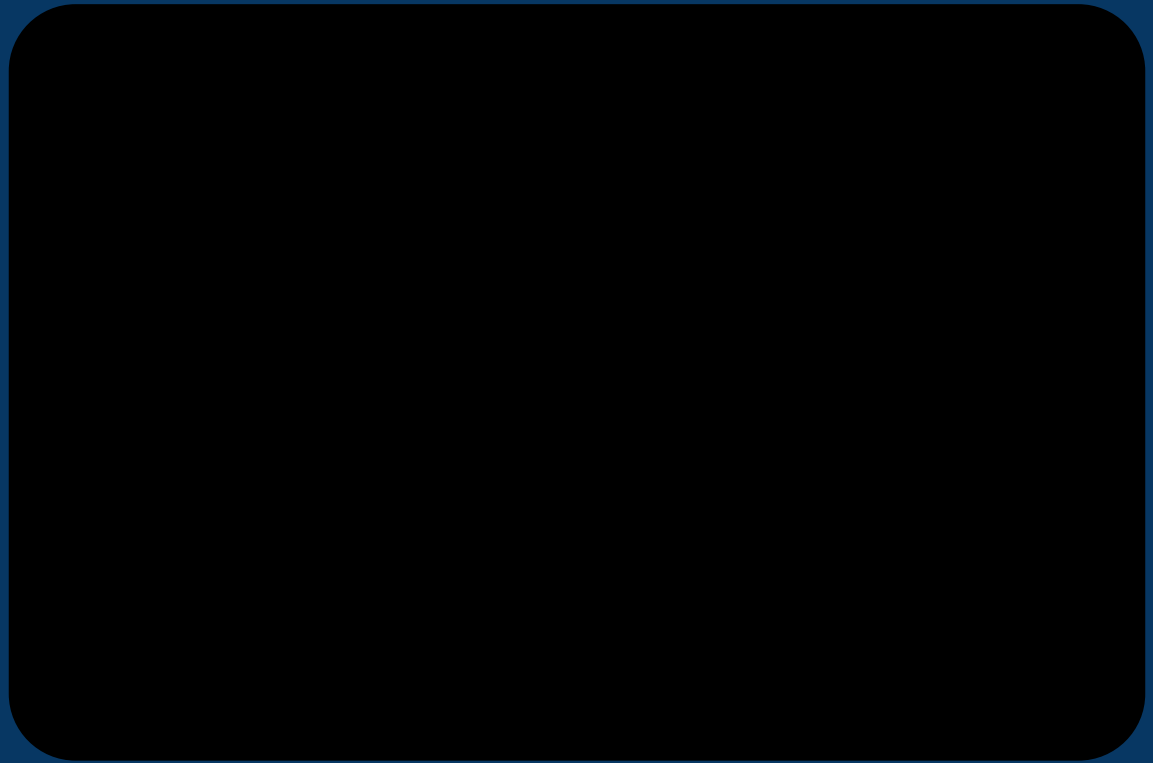
Q3

Timelapse of station activity **18/03/2020**
(Wednesday first day of lockdown)



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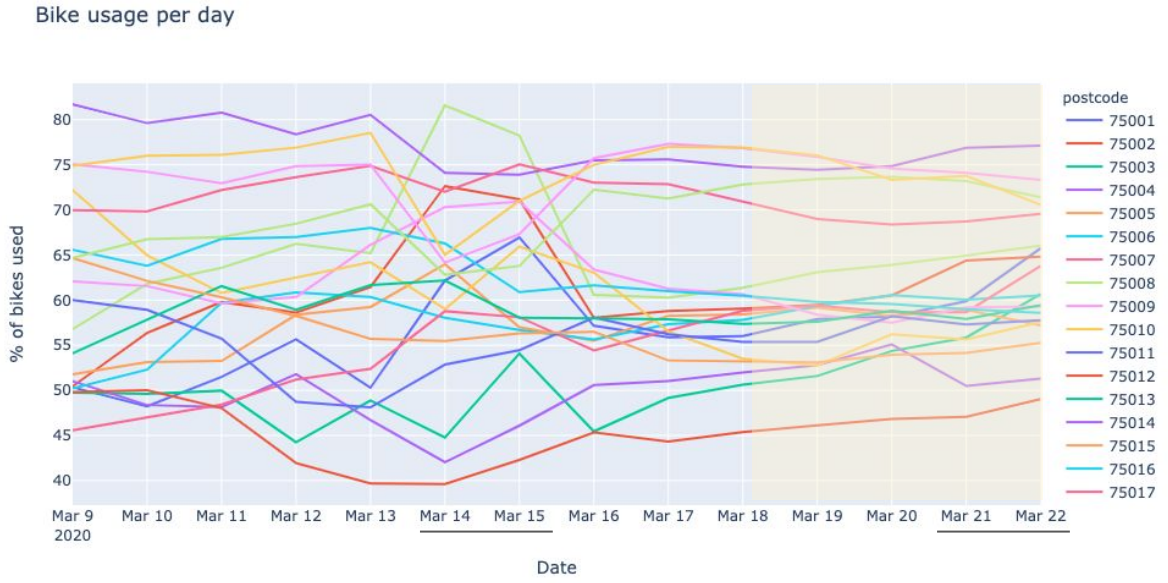
Q4



Only arrondissement in Paris are visualized!

Observation:

Not optimal to tell but we can see a flattening out of the lines during the lockdown period (highlighted in yellow)

Q4

Observation:

We compare the business center (8) to the outskirt arrond. (20)

Weekend
8eme:
PL => people move out during the weekend
L => less usage compared but increase weekend vs week
20eme:
PL => people used bike less during the weekend
L => usage is declining, people chill or respect 1km rule

Conclusion