



Listening behavior during Covid-19

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August 28, 2020

Question: can we see a change on streams per week during the lock down period?

- The intention is to investigate if listening habits changed according to lock down measures.
- Project Goals
 - ▶ Learn how to obtain data from different sources, including AP Is, open source data sets and/or scrape data from the web.
 - ▶ Practice how to clean data using vectorized methods.
 - ▶ Begin to practice basic plotting.

Lock down measures

country	AUT	BEL	BGR	CYP	CZE	DEU	DNK	ESP	EST	FIN	FRA	GBR	GRC	HUN	IRL	ITA	LTU	LUX	LVA	NLD	POL	PRT	ROU	SVK	SWE	mean
week																										
2020-01-03	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
2020-01-10	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
2020-01-17	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
2020-01-24	0.000000	0.000000	0.000000	0.000000	2.400000	2.400000	0.000000	0.000000	0.000000	0.000000	5.200000	5.800000	0.000000	0.000000	0.000000	1.600000	0.000000	0.000000	0.000000	0.000000	3.200000	1.600000	0.000000	0.000000	0.000000	0.000000
2020-01-31	0.000000	7.200000	0.000000	0.000000	14.300000	5.600000	0.000000	4.800000	0.000000	5.600000	12.300000	7.200000	0.000000	0.000000	0.000000	10.700000	0.000000	0.000000	1.200000	0.000000	5.600000	11.100000	3.600000	2.800000	0.000000	3.700000
2020-02-07	0.000000	11.100000	2.800000	0.000000	16.700000	5.600000	0.000000	11.100000	0.000000	10.300000	13.900000	11.100000	0.000000	0.000000	0.000000	8.800000	19.400000	0.000000	2.800000	0.000000	5.600000	11.100000	5.600000	2.800000	0.000000	5.400000
2020-02-14	0.000000	11.100000	7.500000	0.000000	16.700000	9.500000	0.000000	11.100000	0.000000	13.900000	13.900000	11.100000	0.000000	0.000000	5.600000	19.400000	0.000000	0.000000	2.800000	0.000000	5.600000	11.100000	5.600000	2.800000	0.000000	5.900000
2020-02-21	0.000000	11.100000	8.300000	0.000000	16.700000	11.100000	0.000000	11.100000	0.000000	13.900000	13.900000	11.100000	0.000000	0.000000	5.600000	30.300000	0.000000	0.000000	2.800000	0.000000	5.600000	11.100000	5.600000	2.800000	0.000000	6.400000
2020-02-28	11.100000	11.100000	13.900000	0.000000	17.900000	17.900000	6.300000	11.100000	0.000000	17.000000	22.200000	11.100000	11.100000	3.200000	7.200000	49.500000	8.400000	0.000000	5.600000	0.000000	8.700000	11.100000	15.100000	2.800000	0.000000	11.300000
2020-03-06	11.100000	13.100000	18.100000	6.300000	19.400000	25.000000	21.400000	11.100000	0.000000	19.400000	46.800000	11.100000	34.700000	11.100000	11.100000	73.200000	11.100000	6.300000	8.300000	0.800000	11.100000	11.100000	18.700000	11.100000	0.000000	18.100000
2020-03-13	25.200000	26.200000	25.600000	28.600000	46.800000	32.300000	48.800000	46.800000	16.700000	27.900000	48.800000	11.900000	41.200000	43.400000	28.300000	81.300000	29.400000	33.900000	27.000000	32.400000	36.300000	28.000000	49.200000	48.800000	14.300000	36.100000
2020-03-20	85.200000	70.400000	64.400000	51.800000	79.800000	56.300000	75.300000	71.400000	49.200000	56.200000	84.000000	35.400000	84.900000	67.600000	48.200000	88.000000	81.500000	76.500000	55.700000	66.800000	57.400000	63.400000	61.100000	75.000000	24.100000	84.400000
2020-03-27	85.200000	81.500000	73.200000	88.400000	82.400000	76.800000	72.200000	71.800000	63.500000	54.200000	86.000000	79.400000	84.300000	70.800000	64.200000	91.700000	81.500000	79.800000	62.000000	74.100000	57.400000	82.400000	77.600000	75.000000	21.700000	74.100000
2020-04-03	85.200000	81.500000	73.200000	88.400000	82.400000	76.800000	72.200000	71.800000	63.500000	54.200000	86.000000	79.400000	84.300000	70.800000	64.200000	91.700000	81.500000	79.800000	62.000000	74.100000	57.400000	82.400000	77.600000	75.000000	21.700000	74.100000
2020-04-10	85.200000	81.500000	73.200000	88.400000	82.400000	76.800000	72.200000	71.800000	63.500000	54.200000	86.000000	79.400000	84.300000	70.800000	64.200000	91.700000	81.500000	79.800000	62.000000	74.100000	57.400000	82.400000	77.600000	75.000000	21.700000	74.100000
2020-04-17	85.200000	81.500000	73.200000	88.400000	82.400000	76.800000	72.200000	71.800000	63.500000	54.200000	86.000000	79.400000	84.300000	70.800000	64.200000	91.700000	81.500000	79.800000	62.000000	74.100000	57.400000	82.400000	77.600000	75.000000	21.700000	74.100000
2020-04-24	78.900000	81.500000	73.200000	94.400000	60.700000	76.800000	84.500000	85.200000	77.800000	57.400000	86.000000	79.800000	84.300000	70.800000	90.700000	91.500000	81.500000	79.800000	69.700000	79.800000	63.300000	82.400000	87.000000	73.200000	77.500000	77.500000
2020-05-01	74.700000	81.500000	73.200000	84.400000	57.400000	76.800000	84.500000	85.200000	75.000000	57.400000	86.000000	79.800000	84.300000	70.800000	90.700000	91.500000	77.800000	79.800000	69.700000	79.800000	63.300000	84.800000	87.000000	73.200000	77.500000	77.500000
2020-05-08	64.800000	79.100000	64.400000	92.800000	57.400000	66.800000	87.300000	81.900000	71.400000	57.400000	86.000000	79.800000	73.200000	63.000000	90.700000	83.200000	77.800000	79.800000	69.700000	79.800000	63.300000	75.000000	87.000000	73.200000	77.500000	77.500000
2020-05-15	78.900000	75.000000	61.000000	92.800000	57.400000	61.000000	85.700000	82.300000	59.800000	53.700000	76.800000	73.200000	65.000000	63.000000	90.700000	84.100000	75.000000	56.300000	59.800000	84.500000	83.300000	75.000000	77.100000	73.200000	46.800000	86.800000
2020-05-22	59.800000	75.000000	59.700000	83.000000	57.400000	60.000000	85.700000	77.600000	50.000000	50.000000	76.800000	73.200000	63.000000	63.000000	83.300000	63.000000	71.300000	56.300000	57.400000	84.500000	83.300000	71.300000	75.000000	46.800000	66.000000	66.000000
2020-05-29	52.200000	75.000000	54.000000	78.900000	45.400000	59.700000	83.000000	69.700000	50.000000	45.400000	75.300000	70.500000	66.800000	63.000000	83.300000	63.000000	89.200000	43.500000	57.400000	84.500000	75.400000	71.300000	75.000000	73.200000	46.800000	83.000000
2020-06-05	49.000000	74.700000	44.400000	78.900000	41.700000	59.700000	84.500000	66.700000	38.000000	41.700000	72.800000	67.600000	54.600000	63.000000	75.300000	49.400000	52.800000	43.500000	57.400000	84.500000	55.300000	70.500000	57.400000	56.300000	37.000000	57.000000
2020-06-12	43.500000	51.800000	42.500000	84.200000	41.700000	59.700000	83.000000	57.400000	38.000000	42.500000	72.200000	73.200000	54.600000	62.000000	72.200000	47.600000	52.800000	40.400000	49.500000	63.000000	53.700000	69.800000	57.400000	45.100000	44.700000	54.600000
2020-06-19	43.500000	51.800000	42.500000	84.200000	41.700000	59.700000	83.000000	57.400000	38.000000	42.500000	72.200000	73.200000	54.600000	62.000000	72.200000	47.600000	52.800000	39.000000	49.500000	63.000000	53.700000	69.800000	57.400000	45.100000	44.700000	54.600000
2020-06-26	43.500000	51.800000	36.100000	51.700000	25.200000	63.400000	83.000000	38.400000	34.200000	29.600000	51.800000	71.300000	44.700000	52.800000	57.900000	55.600000	30.600000	32.900000	48.300000	59.200000	56.900000	71.500000	41.700000	36.000000	38.000000	47.700000
2020-07-03	43.500000	49.200000	36.100000	47.200000	36.400000	63.400000	83.000000	43.900000	23.000000	29.600000	51.800000	70.500000	49.200000	52.800000	38.900000	55.600000	27.800000	24.100000	48.300000	45.400000	56.900000	68.700000	41.700000	36.000000	38.000000	45.200000
2020-07-10	38.400000	42.000000	47.200000	34.700000	54.300000	54.300000	81.000000	55.100000	22.200000	37.500000	44.700000	54.400000	48.300000	52.800000	38.900000	57.100000	27.800000	24.100000	48.300000	39.800000	44.600000	55.700000	44.300000	36.000000	38.000000	47.700000
2020-07-17	31.500000	48.300000	31.400000	47.200000	35.300000	55.100000	80.200000	61.700000	22.200000	41.100000	43.500000	64.400000	37.400000	52.800000	38.900000	59.300000	27.800000	17.900000	48.300000	39.800000	38.900000	69.100000	45.400000	36.000000	38.000000	44.500000
2020-07-24	38.400000	48.300000	27.800000	47.200000	35.300000	55.100000	80.200000	64.400000	22.200000	38.000000	43.500000	64.400000	37.400000	52.800000	38.900000	59.300000	27.800000	19.400000	48.300000	39.800000	38.900000	71.800000	45.400000	36.000000	38.000000	44.600000
2020-07-31	31.500000	67.800000	31.400000	47.200000	36.100000	56.300000	59.100000	64.400000	18.800000	38.000000	43.500000	65.500000	54.200000	52.800000	38.900000	48.200000	30.600000	21.800000	48.300000	39.800000	38.900000	66.200000	45.400000	35.200000	36.100000	44.300000
2020-08-07	60.300000	31.000000	47.200000	36.100000	57.900000	56.300000	64.400000	64.400000	19.400000	38.000000	43.500000	68.100000	48.300000	52.800000	44.800000	49.400000	25.800000	24.800000	48.300000							

Streams number and lock down

Streams of France, Sweden and Italy

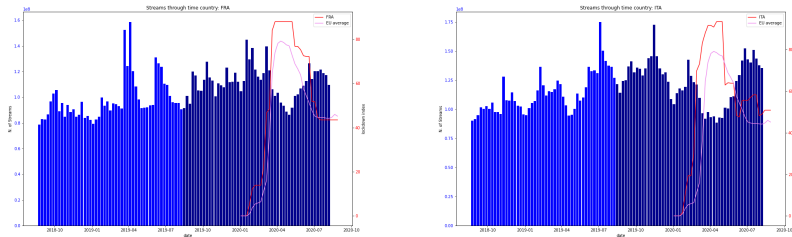


Figure: Streams of France and Italy

Streams number and lock down

Streams of France, Sweden and Italy

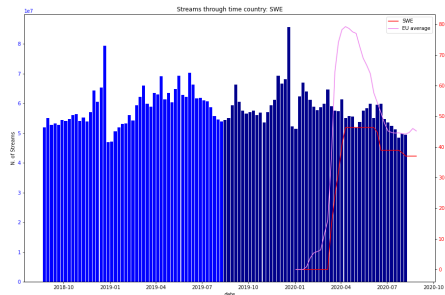
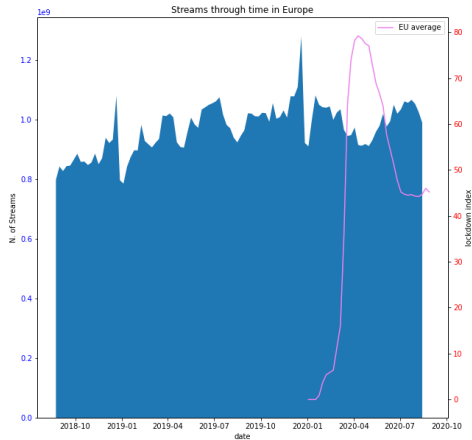


Figure: Streams of Sweden

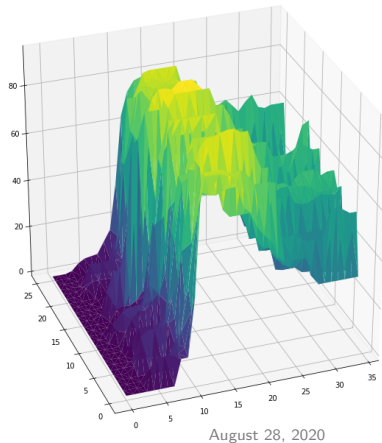
Streams number and lock down

Average streams in Europe



Streams number and lock down

Lock down measures in Europe



Further questions

- Re-study specific countries like Spain and Italy, where the measures were more strict. However, the streams decreased during the lock down.
- Collect data worldwide
- Study the correlations between the number of streams and other factors that weren't considered here like: salary, climate, weather, government support, etc.

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MUCHAS GRACIAS!!!
DANK U!!!

This presentation was made using \LaTeX