

# The Impact of Weather on a Film's Theatrical Launch

Os colegas da Francisca



# Scope/Intro

- Is it possible to correlate the impact of the weather on past ticket sales by looking at Comscore daily sales values for Portugal?
- Is it possible to correlate the impact of weather throughout a film's release with the total sales value using Opus Data dataset?
- Attempt to correlate changes in the weather with a decrease or increase in cinema ticket sales.

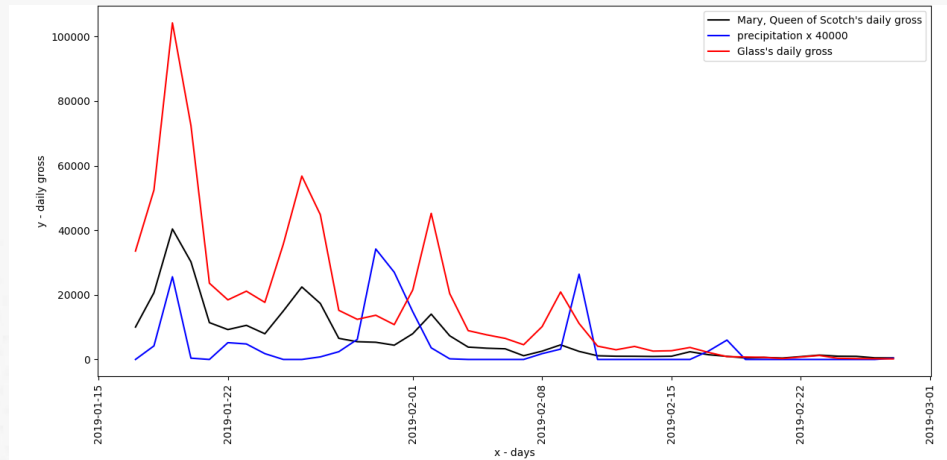


# Impact of the weather on daily cinema tickets sales

Dataset: Daily sales values for Portugal, of the films Glass and Mary, the Queen of Scotch, analyzed between the 17th of January and the 27th of February (comscore dataset) as well as the weather information for these period of time (AccuWeather)

Measure the impact of the weather on cinema ticket sales week by week, comparing 'good' weeks with 'bad' weeks, and comparing 'good' days in 'bad' weeks with 'bad' days in 'good' weeks.

Temperatures rose linearly however that can be misleading because as time passes ticket sales lower



Daily gross and precipitation

# Unexpected days

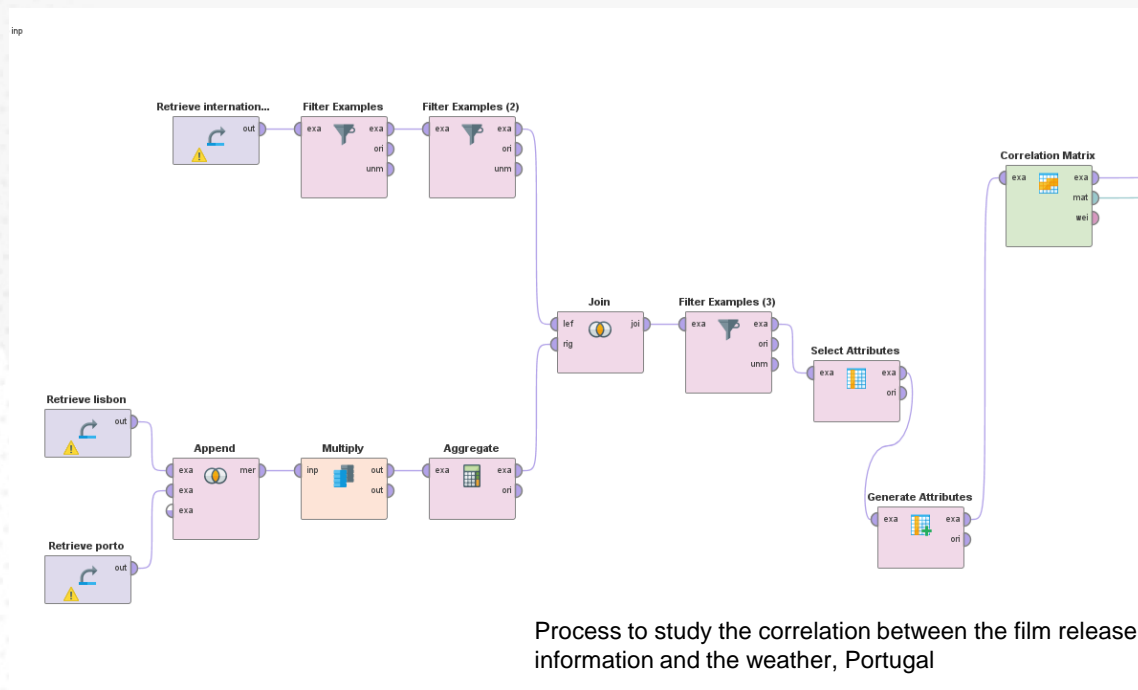
- Events as Valentines Day
- As weeks pass the percentage levels and mondays have more affluence

08/02/2019	Fri	4	10171.66	18%	57928.63
09/02/2019	Sat	4	20902.67	36%	57928.63
10/02/2019	Sun	4	11141.05	19%	57928.63
11/02/2019	Mon	4	4123.97	7%	57928.63
12/02/2019	Tue	4	2997.06	5%	57928.63
13/02/2019	Wed	4	4032.42	7%	57928.63
14/02/2019	Thu	5	2586.13	19%	13489.17
15/02/2019	Fri	5	2700.9	20%	13489.17
16/02/2019	Sat	5	3716.84	28%	13489.17
17/02/2019	Sun	5	2181.19	16%	13489.17
18/02/2019	Mon	5	885.87	7%	13489.17
19/02/2019	Tue	5	759.14	6%	13489.17
20/02/2019	Wed	5	659.1	5%	13489.17
21/02/2019	Thu	6	283.58	9%	3328.64
22/02/2019	Fri	6	768.34	23%	3328.64
23/02/2019	Sat	6	1232.49	37%	3328.64
24/02/2019	Sun	6	367.42	11%	3328.64
25/02/2019	Mon	6	274.45	8%	3328.64
26/02/2019	Tue	6	232.61	7%	3328.64
27/02/2019	Wed	6	169.75	5%	3328.64

Day	Week Day	Week Num	Daily Gross	Percentage of the week	Weekly Gross	High (F) - Porto	Low (F) - Porto	Precip (in.) - Porto	Normal High (F) - Porto	Normal Low (F) - Porto	Normal Precip (in.) - Porto	High (F) - Lisbon	Low (F) - Lisbon	Precip (in.) - Lisbon	Normal High (F) - Lisbon	Normal Low (F) - Lisbon	Normal Precip (in.) - Lisbon
06/02/2019	Wed	3	3301.13	8%	44367.66	58	41	0	57	41	0	64	41	0	57	47	0
07/02/2019	Thu	4	1155.6	9%	13881.47	58	47	0	57	41	0	61	45	0	57	47	0
08/02/2019	Fri	4	2579.72	19%	13881.47	58	44	0.09	58	41	0.01	59	46	0	57	47	0
09/02/2019	Sat	4	4517.11	31%	13881.47	58	52	0.16	58	41	0	59	52	0	58	47	0
10/02/2019	Sun	4	2498.56	17%	13881.47	58	46	1.32	58	41	0	61	50	0	58	47	0
11/02/2019	Mon	4	1142.95	8%	13881.47	59	39	0	58	41	0	61	46	0	58	47	0
12/02/2019	Tue	4	1002.5	7%	13881.47	65	44	0	58	41	0.01	64	45	0	58	47	0
13/02/2019	Wed	4	985.03	8%	13881.47	67	46	0	58	41	0	64	46	0	58	47	0
14/02/2019	Thu	5	925.92	12%	7839.49	70	50	0	58	41	0	66	46	0	58	47	0
15/02/2019	Fri	5	1003.95	13%	7839.49	66	49	0	58	41	0	63	48	0	58	47	0.01
16/02/2019	Sat	5	2388.71	29%	7839.49	68	45	0	58	41	0.01	66	50	0	58	47	0
17/02/2019	Sun	5	1468.73	18%	7839.49	62	47	0.13	58	41	0	61	46	0	58	47	0
18/02/2019	Mon	5	960.9	14%	7839.49	59	45	0.3	58	42	0	54	48	0	58	47	0
19/02/2019	Tue	5	458.8	6%	7839.49	56	38	0	58	42	0	61	48	0	58	47	0.01
20/02/2019	Wed	5	632.48	9%	7839.49	59	40	0	59	42	0.01	63	43	0	58	47	0
21/02/2019	Thu	6	445.85	8%	5638.62	66	47	0	59	42	0	64	45	0	58	47	0
22/02/2019	Fri	6	881.74	14%	5638.62	73	49	0	59	42	0	68	50	0	59	47	0.01
23/02/2019	Sat	6	1348.8	22%	5638.62	72	50	0	59	42	0	70	48	0	59	47	0
24/02/2019	Sun	6	1004.28	16%	5638.62	74	51	0	59	43	0.01	70	46	0	59	47	0.01
25/02/2019	Mon	6	965.35	19%	5638.62	74	53	0	59	43	0	72	48	0	59	47	0
26/02/2019	Tue	6	507.7	10%	5638.62	75	52	0	59	43	0	68	48	0	59	47	0
27/02/2019	Wed	6	484.9	9%	5638.62	64	49	0.02	59	43	0	63	50	0	59	47	0

# Impact of weather on a film release

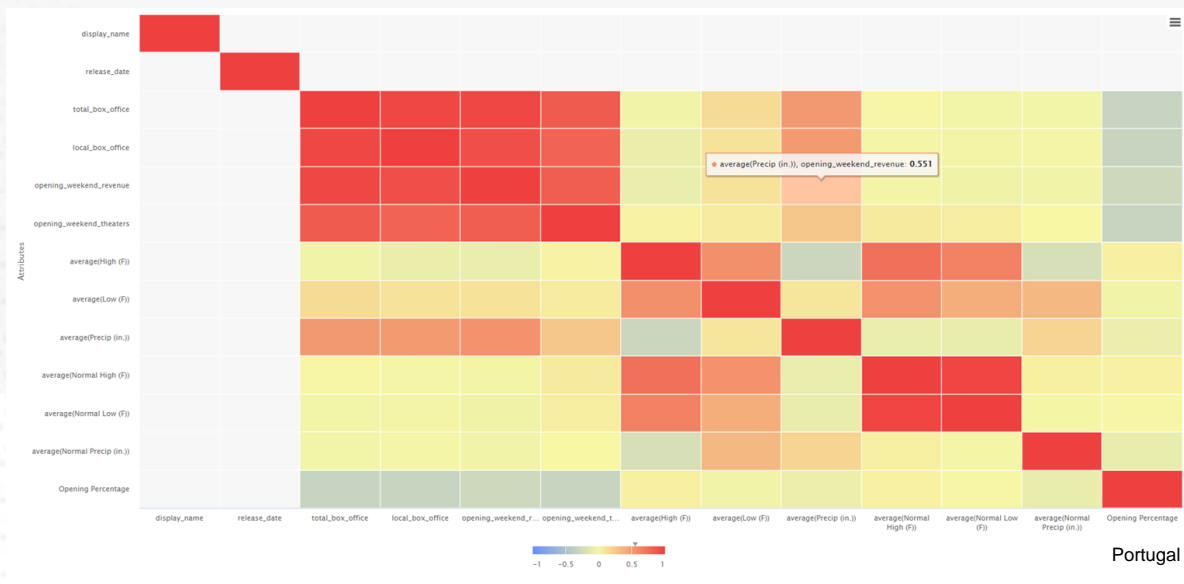
- Used film release information from Opus Data and crossed the release data with the weather dataset
- Studied correlation on the United Kingdom and Portugal
- Dataset: 173 films in the UK and 87 films in Portugal



# Outcomes

- In Portugal, there seems to be a correlation between the weather (especially precipitation) and the success of a film launch
- In the UK that does not seem to happen, as the correlation between them was close to 0

Approximately 0.551 correlation between precipitation and the opening weekend revenue



Hypothesis: The different sun exposure and culture of each country has an effect on how people are affected by the weather (Source: [Current Results](#), 2021)

# Predicting the film's launch success

- The sample used for creating this model was the film's launched between the 1st of January and the 31th of March 2019 (79 films after cleansing for Portugal and 63 for UK)
- It was taken into account the genre of the film and its production size as well
- Our target was the 'Opening Percentage'  $(\text{opening\_weekend\_revenue} / \text{total\_box\_office}) * 100$
- Applied k-NN to create the model



# Conclusions - Portugal/UK Weather Model

- Advantages:

- Can predict in more or less reliably the impact of the theatrical launch of a film
- The impact of the weather was noticed, when removed the model would have worst performance
- The process created is easily used for other datasets
- The Portugal model achieved better results, what cements our hypothesis

- Disadvantages:

- Valid for a short period of time (01/01 - 31/03)
- Only valid for the said countries

## PerformanceVector

PerformanceVector:

root\_mean\_squared\_error: 13.419 +/- 4.774 (micro average: 14.123 +/- 0.000)  
correlation: 0.327 +/- 0.387 (micro average: 0.235)

Model for UK



## PerformanceVector

PerformanceVector:

root\_mean\_squared\_error: 14.218 +/- 3.979 (micro average: 14.751 +/- 0.000)  
correlation: 0.510 +/- 0.389 (micro average: 0.770)

Model for Portugal



# Os colegas da Francisca

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- Francisca Silva
- João Malva



# Technologies used

