CLASS ATTENDANCE AND WEATHER

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Presentation Outline

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Results and Conclusion

01

About the project

About the project

What?

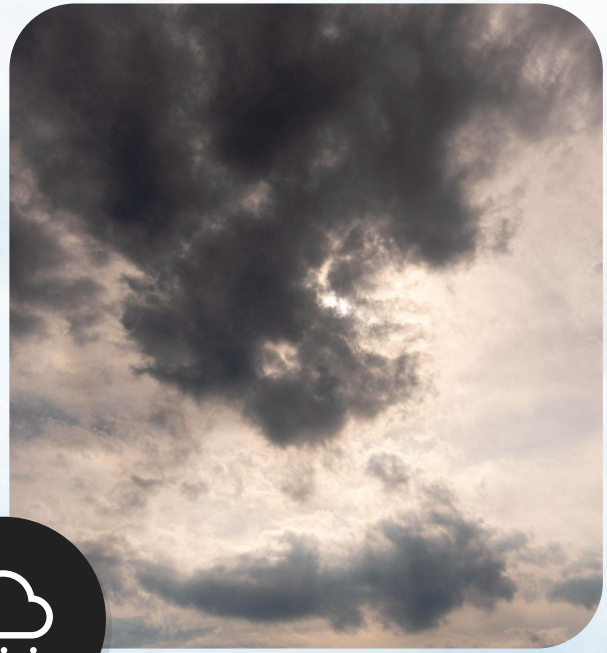
Understand if class attendance is correlated with weather

How?

Using computer vision, APIs, and other data science techniques (Python)

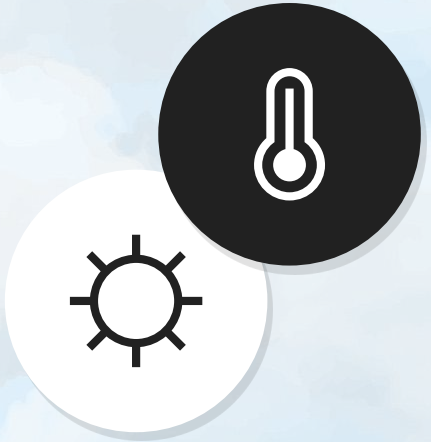
Why?

Professors could prepare lectures accordingly



02

Data



Data

Attendance Data

Photos of classroom
(2 sections)

Weather Data

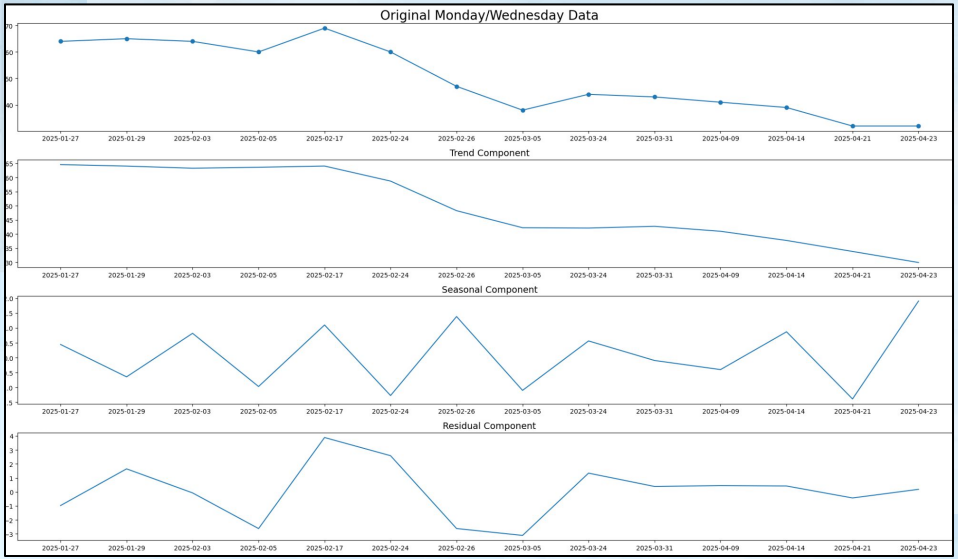
'max_temp', 'min_temp', 'avg_temp', 'temp_departure', 'HDD', 'CDD', 'precipitation', 'new_snow'

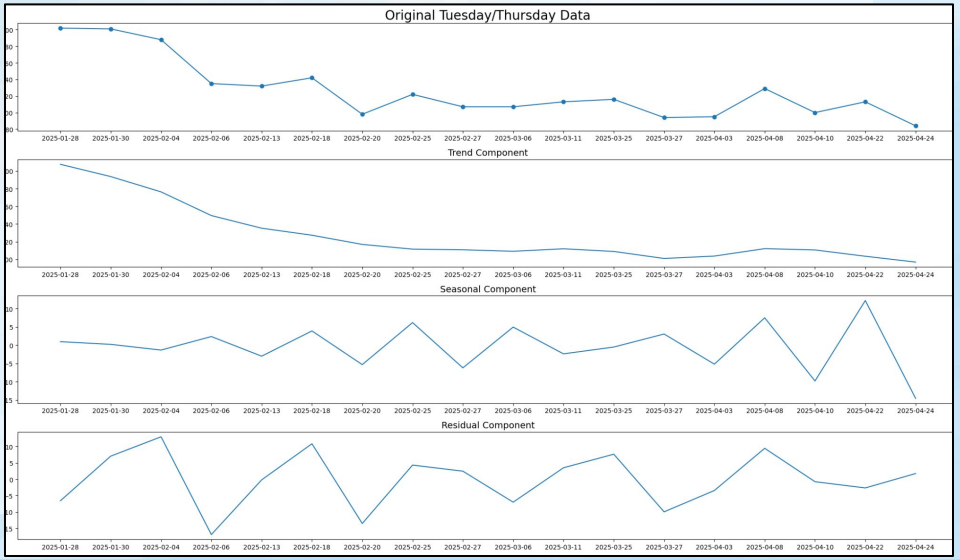
03

Methodology

Methodology

- Separated M/W and T/TH attendance data
- Used STL decomposition to remove trend and seasonality





Methodology

- Calculated correlation between detrended data and each weather feature
- Pearson: linear relationships
- Spearman: linear or non-linear relationships
    - P-value: probability of observing this relationship due to chance

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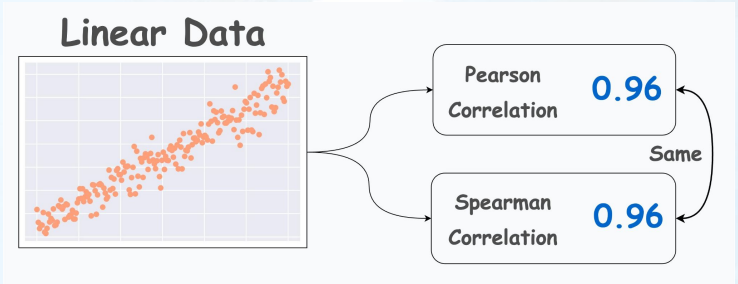

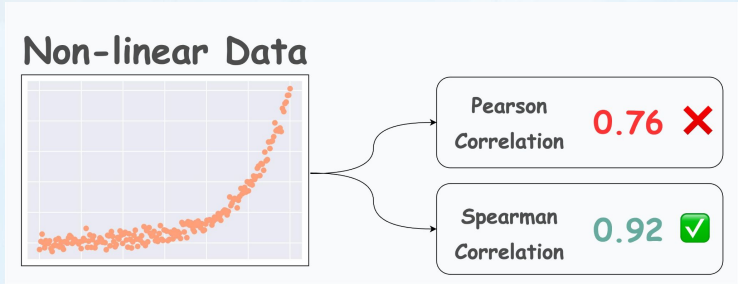

04

Results and Conclusion

Results

Feature	Pearson		Spearman		P-Value		Feature	Pearson		Spearman		P-Value	
	M/W	T/TH	M/W	T/TH	M/W	T/TH		M/W	T/TH	M/W	T/TH	M/W	T/TH
Max Temp	-0.132	0.255	-0.178	0.116	0.542	0.647	HDD	0.110	-0.179	0.141	-0.092	0.631	0.715
Min Temp	-0.046	0.050	-0.075	-0.035	0.798	0.890	CDD	0.045	-	0.034	-	0.907	-
Avg Temp	-0.094	0.183	-0.123	0.090	0.675	0.722	Precipitation	0.562	-0.350	0.516	-0.188	0.059	0.455
Temp Departure	-0.176	0.212	-0.297	0.215	0.303	0.392	New Snow	-	-0.500	-	-0.397	-	0.102

Results

Feature	Pearson		Spearman		P-Value		Feature	Pearson		Spearman		P-Value	
	M/W	T/TH	M/W	T/TH	M/W	T/TH		M/W	T/TH	M/W	T/TH	M/W	T/TH
Max Temp	-0.132	**0.255**	-0.178	**0.116**	0.542	**0.647**	HDD	0.110	-0.179	0.141	-0.092	0.631	0.715
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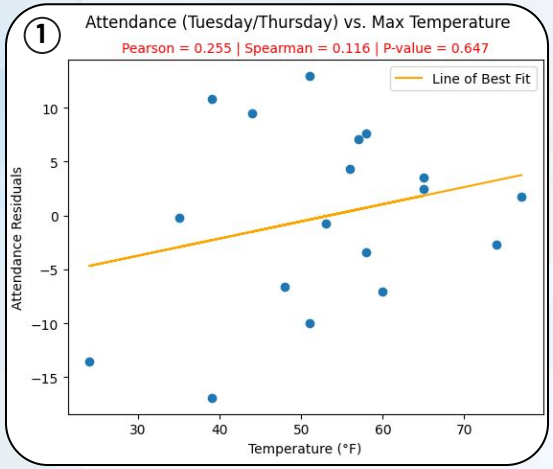

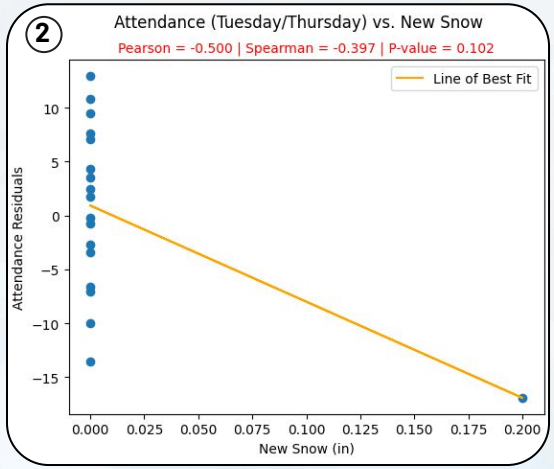

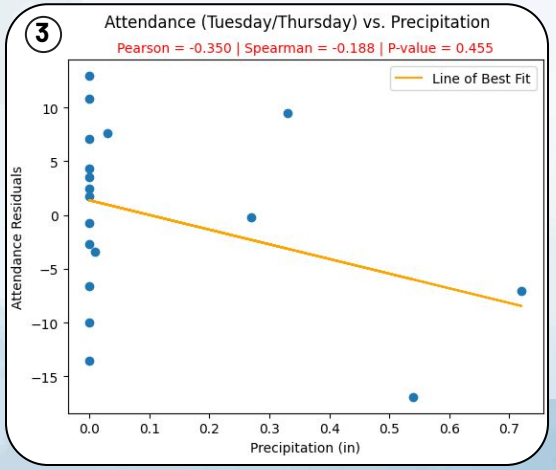

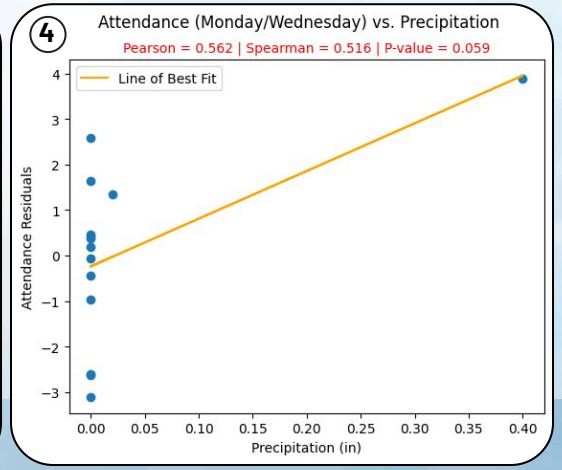

Results

- No significant relationships
- 4 interesting ones:
  - 1: ↑Temp ↔ ↑attendance
  - 2: Snow ↔ ↓attendance
  - 3: Rain ↔ ↓attendance
  - 4: Rain ↔ ↑attendance (?)

Conclusion

- Analysis found no significant correlation between weather and attendance
- Professors shouldn’t rely on weather to prepare lectures
- Future:
  - Collect more data
  - Analyze other variables
  - Redesign class structure/teaching style