Friedrich-Alexander-Universität
Technische Fakultät

Project Report:
Analyzing Bicycle Traffic in the City of Münster

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27.06.2023

Agenda

1 Data Science Question

2 Data Sources

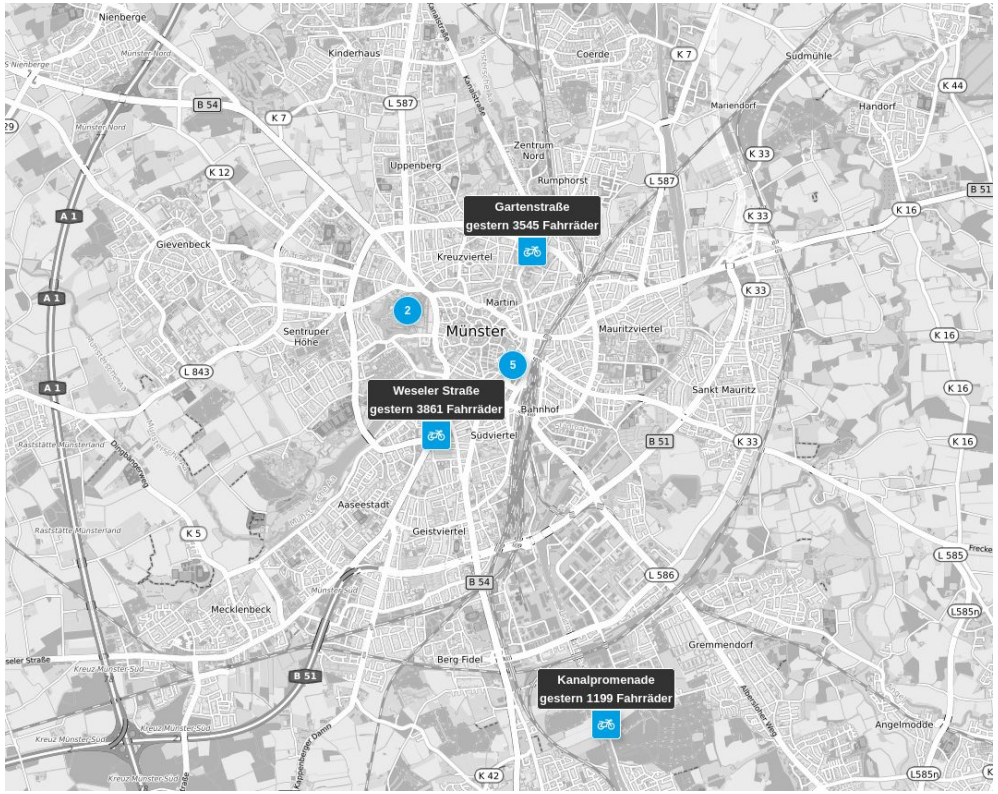
3 Report

4 Conclusion

Data Science Question

1. Motivation

Typical bicycle counter in Münster (Quelle)



Bicycle Counter Locations (Quelle)

1. Goals

Investigate bicycle traffic on …

- different locations
- different day times
- different weather conditions
- holidays

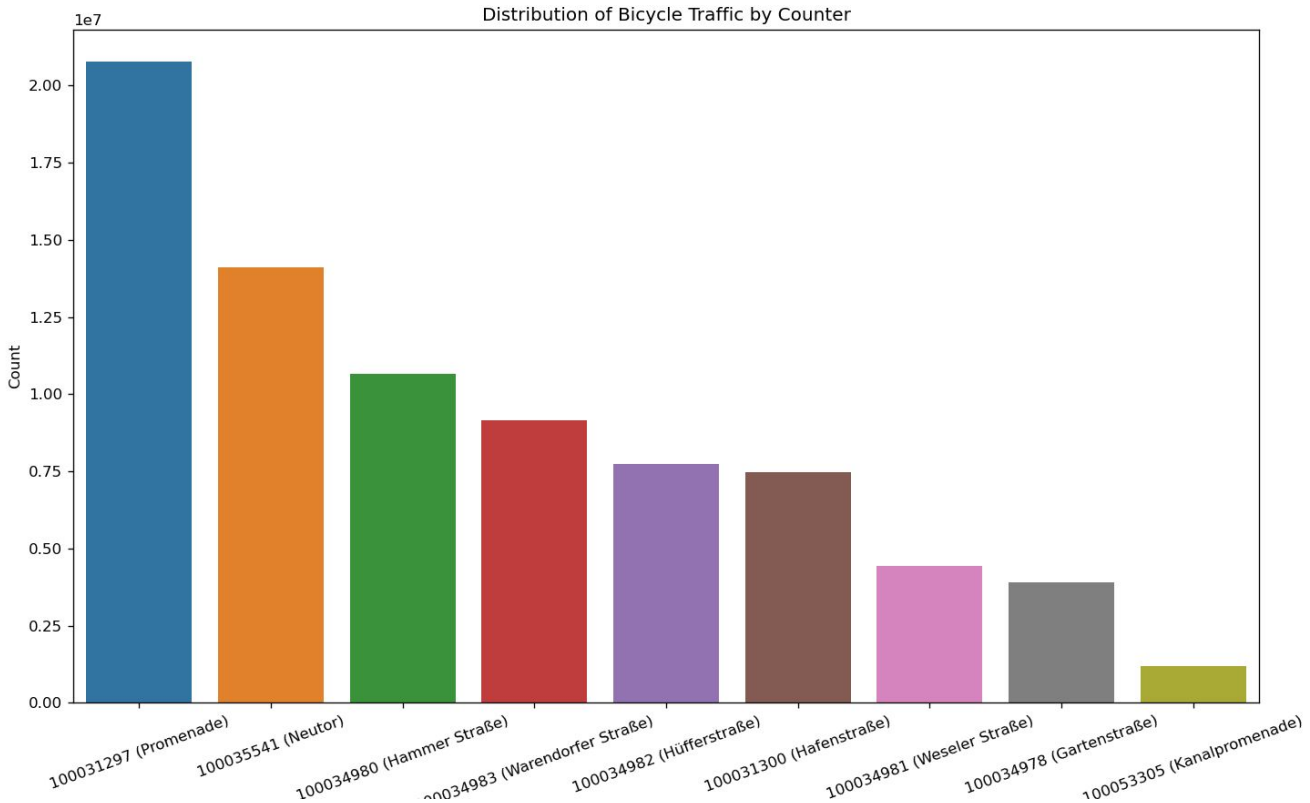
Data Sources

2. Overview

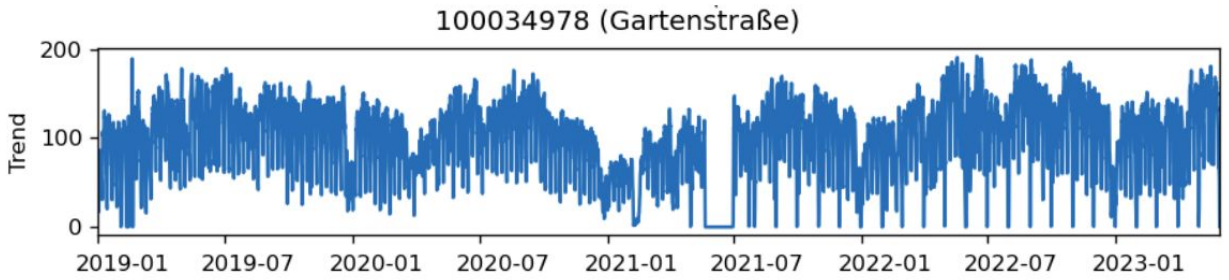
	Description	Data	Example Request
Verkehrszählung Fahrradverkehr Münster (mobilithek dataset)	daily **counts of cyclists** at various bicycle counting stations in Münster	• Link • stored on Github • type: csv • uploaded every night • since: 2019	https://github.com/od-ms/radverkehr-zaehlstellen/blob/main/{counter-id}/{year}-{month}.csv
meteostat.net	**weather data** from national meteorological offices	• Link • type: csv • since: 2021	https://bulk.meteostat.net/v2/hourly/{year}/{station-code}.csv.gz
Feiertage-API	**public holiday information** for each year and each federal state in Germany	• Link • type: json • since: 1900	https://feiertage-api.de/api/?jahr={year}&nur_land={federal_state}

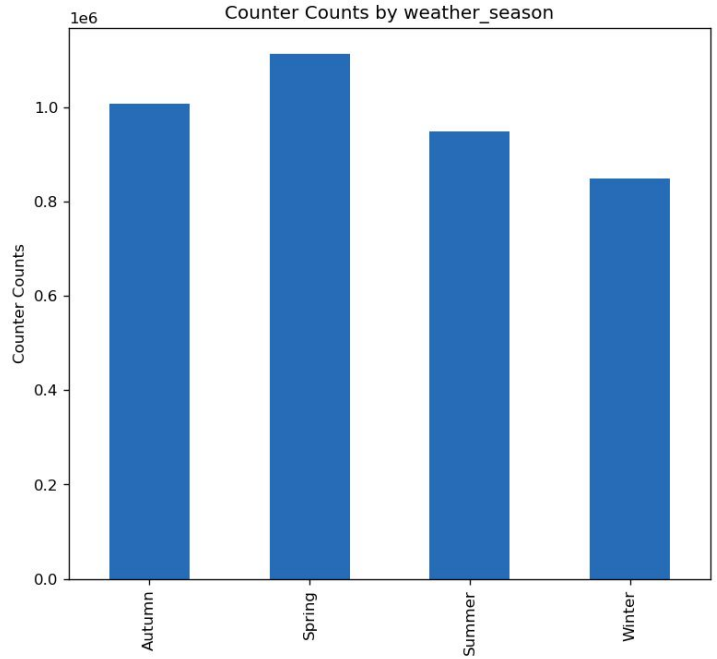
Report

3.1. Distribution of Traffic

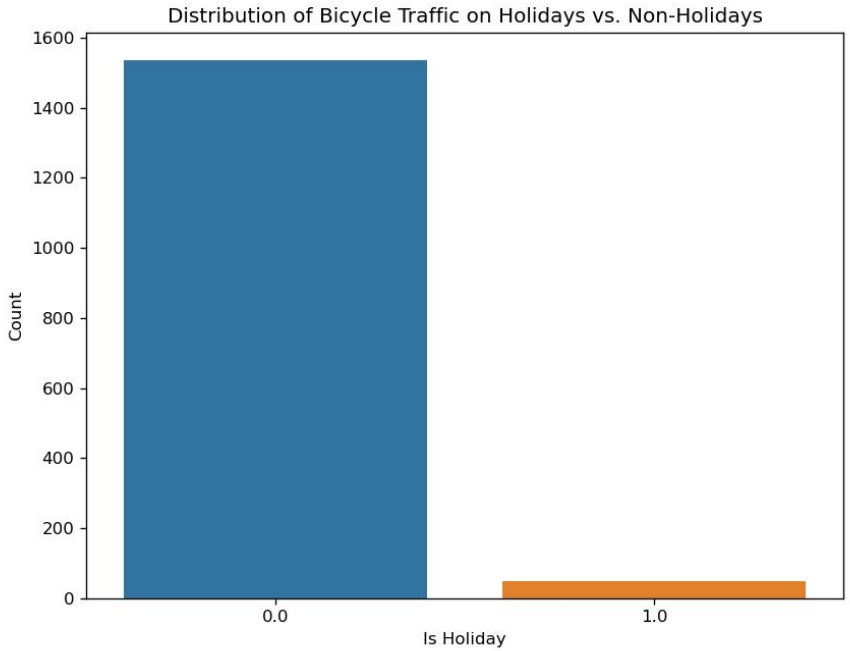


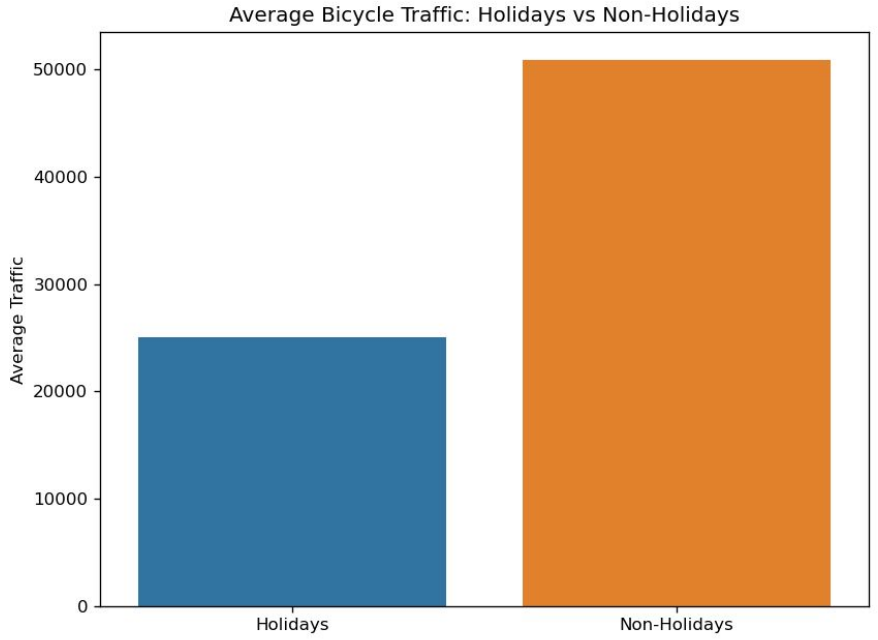
3.2 Distribution by Weather Season



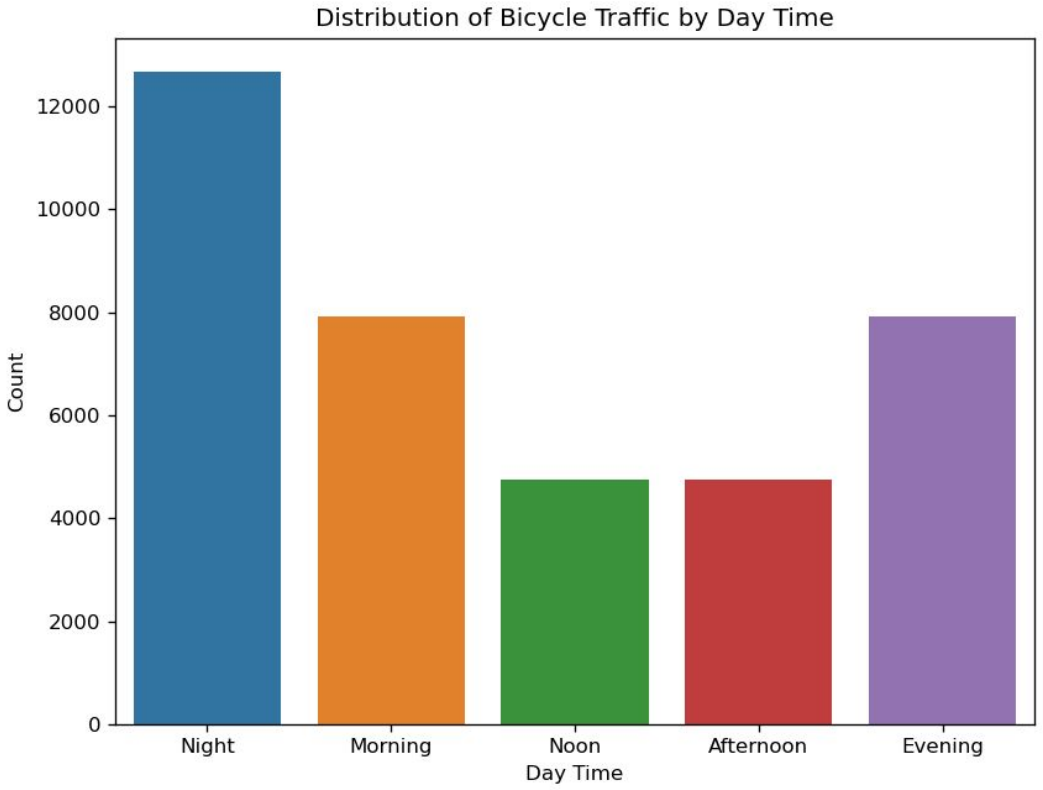


3.3 Holidays vs. Non-Holidays

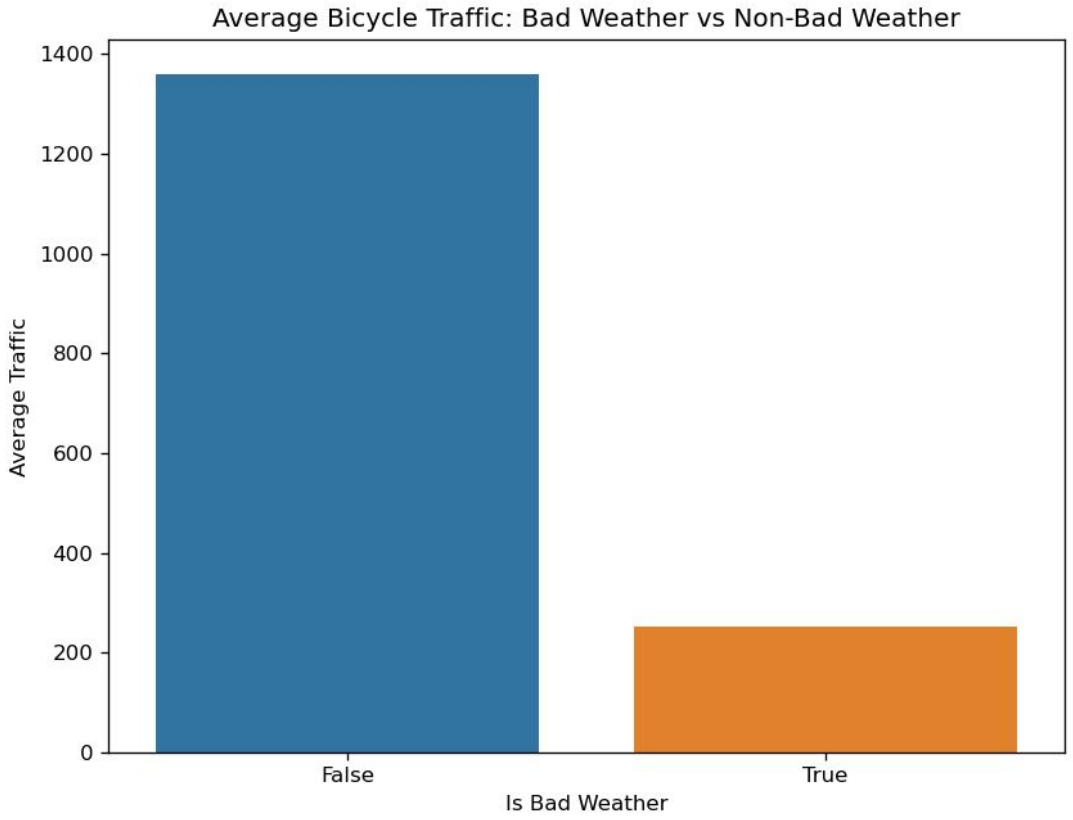




3.4 Distribution by Day Time



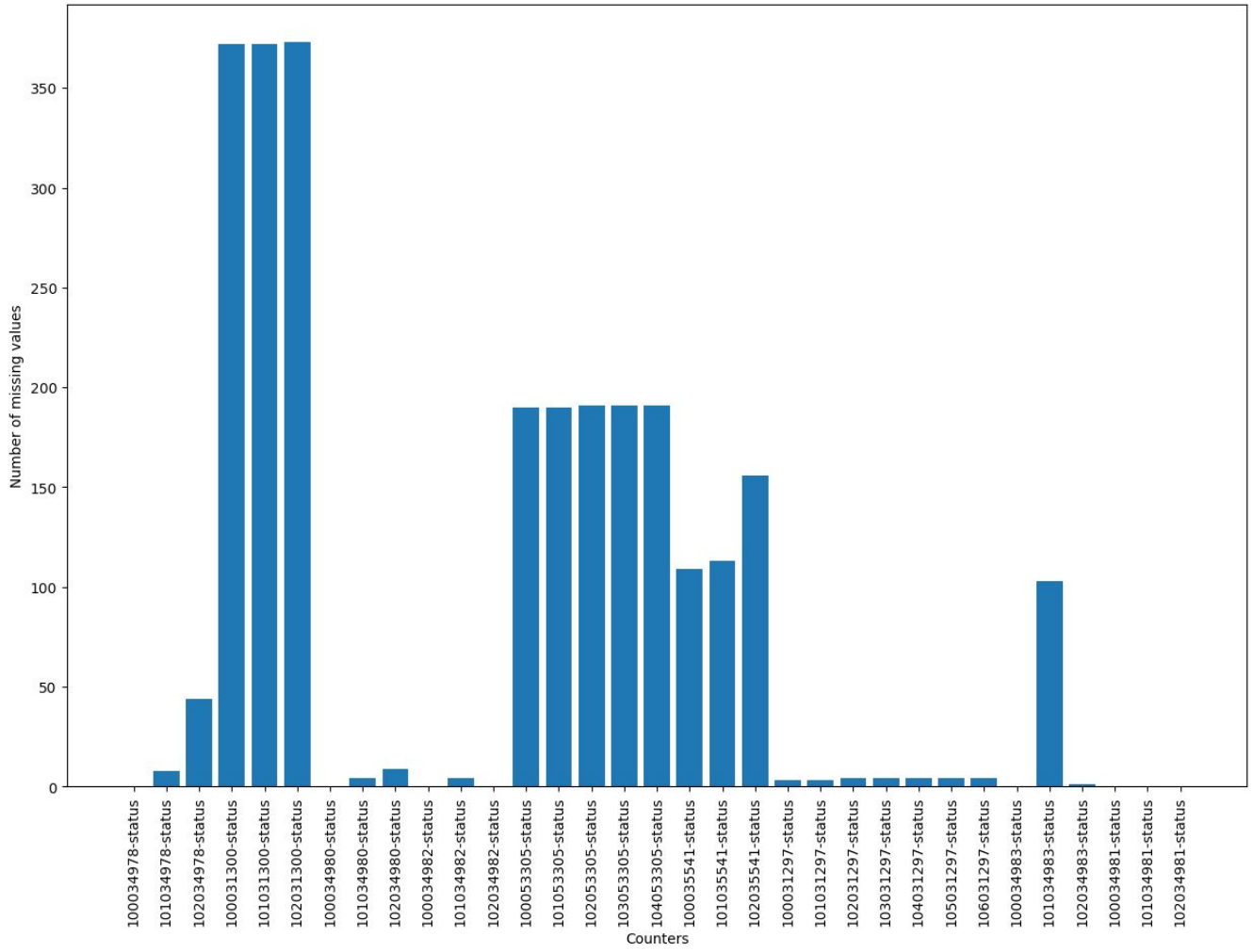
3.5 Bad Weather vs. Non-Bad Weather



3.6 Dataset Challenges

- Missing Counter Data:
  - many counters were installed later
  - many counter have missing values for periods of > 30 days

- Missing Weather Data:
  - for the region of Münster only data since July 2021
  - several columns had periods of missing data



4. Conclusion

Findings	Problems

• unequal distribution of traffic
  ○ “Promenade” highest
  ○ “Kanalpromenede” lowest
	• missing data

• higher volume of traffic during night hours	• time constraint ○ -> findings need to be questioned on a deeper level
• holidays & rainy days reduce traffic	
• spring & autumn have more traffic than summer	

Thank you for your attention