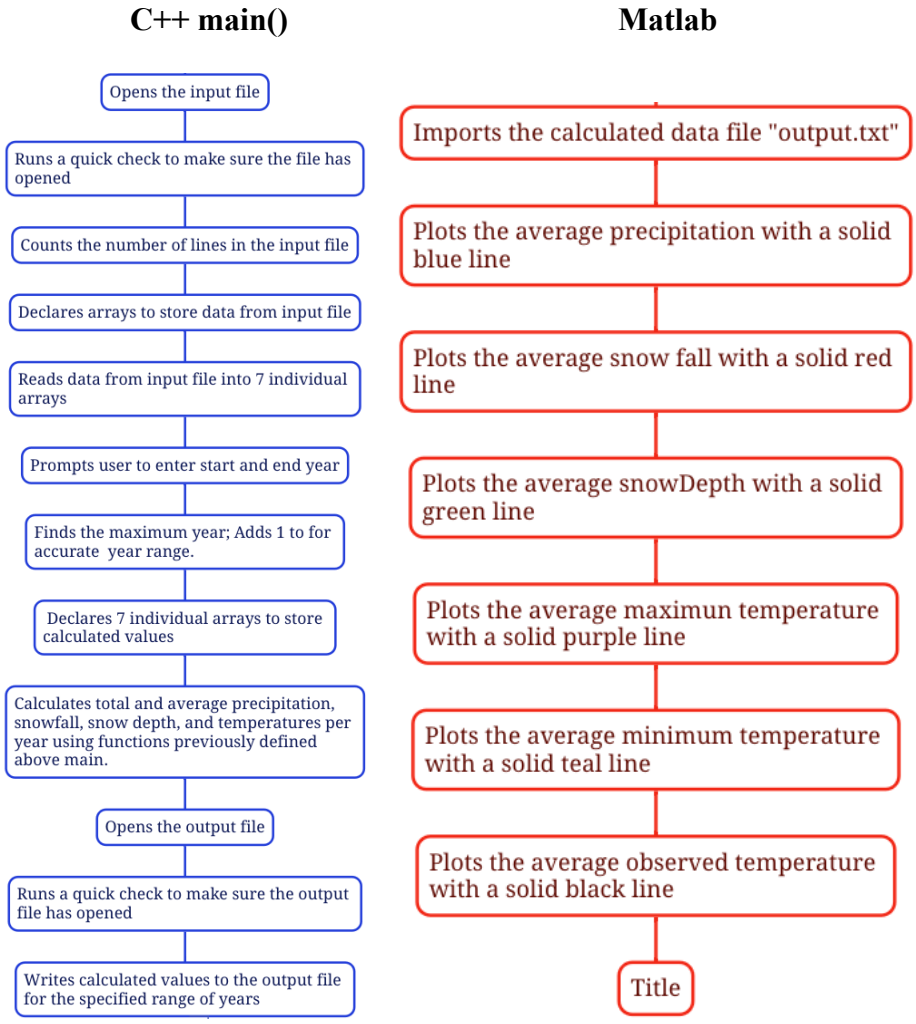
Final Project

WEATHER DATA

ELEC 1520

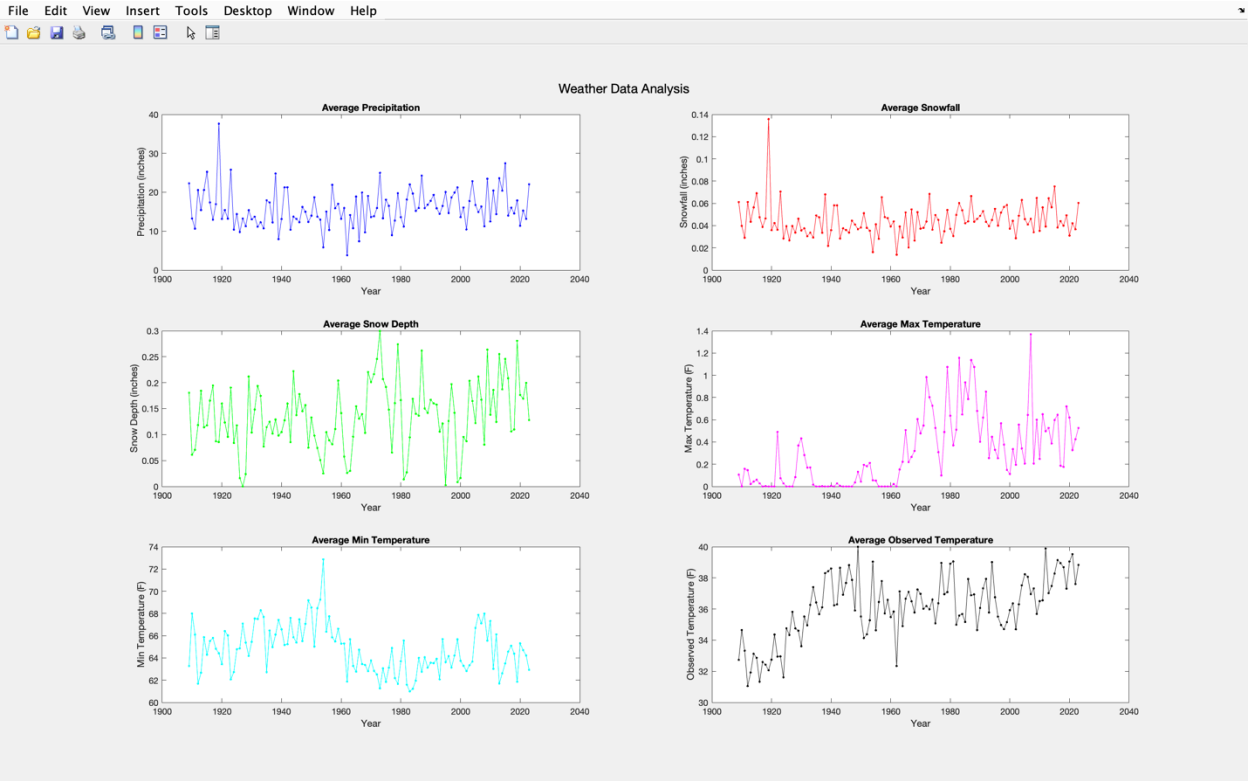
Zac Porter

Top-level Design:

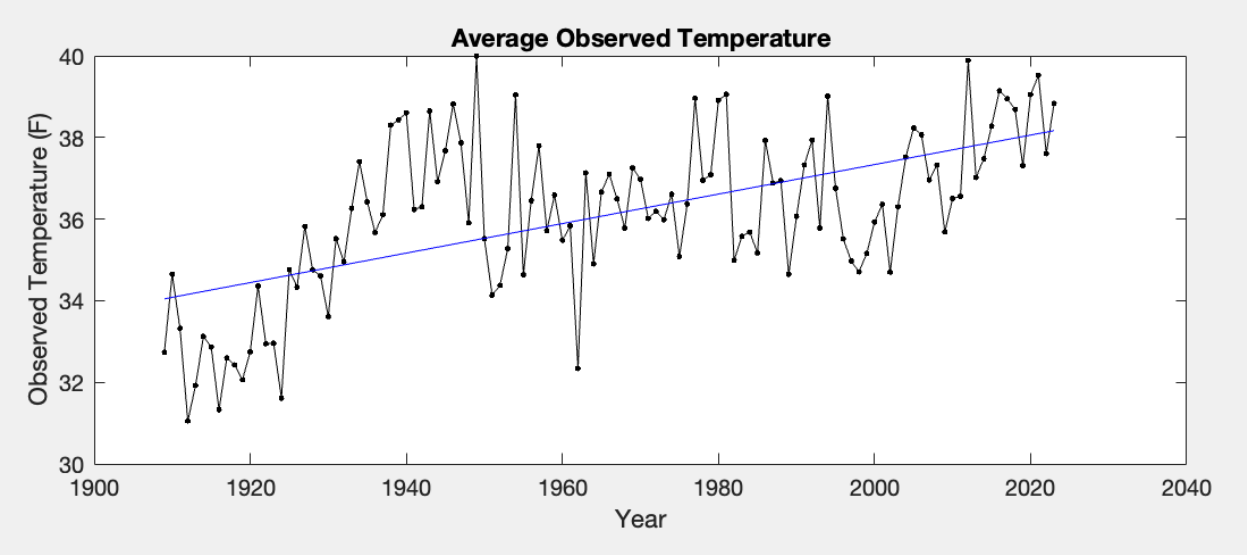


~Please reference my attached file WeatherDataProgram.png for full flow diagram which includes functions~

Matlab Results

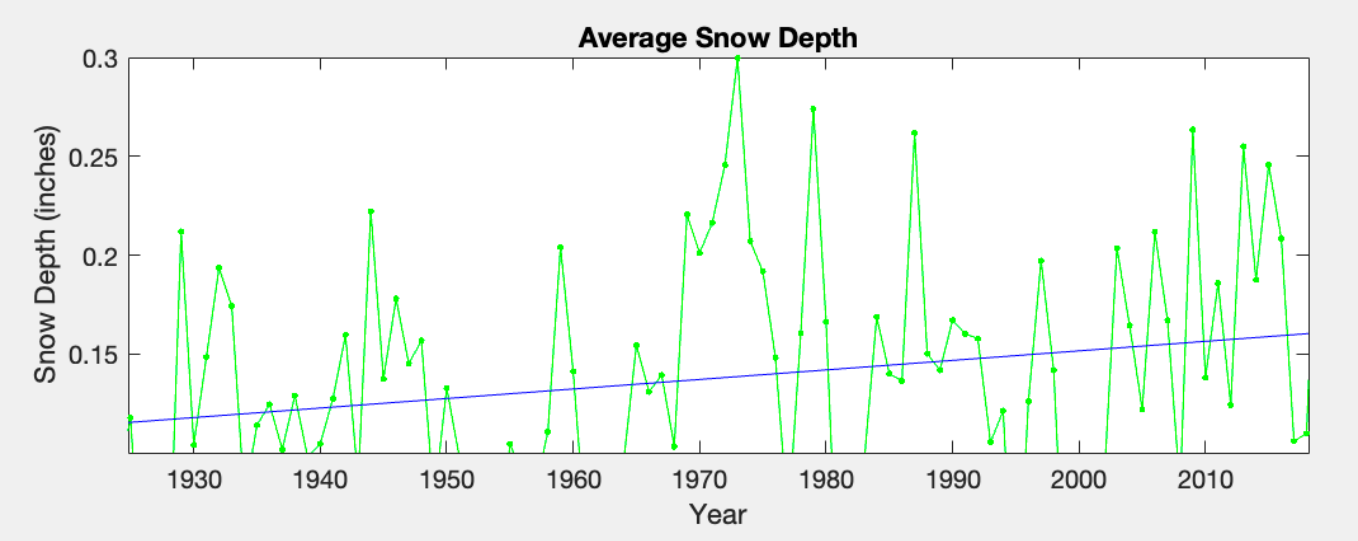


Analysis of Average Observed Temperature Trends in Denver, Colorado's Platte River Valley (1909-2023)



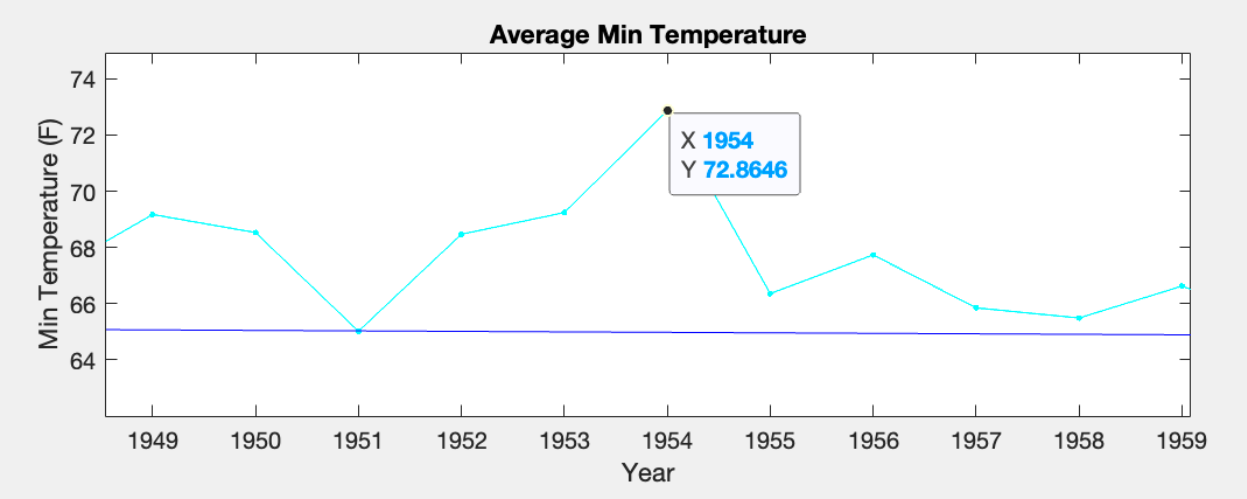
The analysis of historical weather data spanning from 1909 to 2023 in Denver, Colorado's Platte River Valley reveals a warming trend, with the average observed temperature increasing by approximately 4 degrees Fahrenheit over the century-long period. This finding aligns with broader climate change patterns observed globally and underscores the urgency of addressing climate impacts at both local and global scales. Factors contributing to this warming trend may include urbanization, land use changes, and greenhouse gas emissions. The implications of rising temperatures in the Platte River Valley are diverse, ranging from increased demand for cooling infrastructure to heightened risks of heat-related illnesses and potential ecological disruptions. Understanding these temperature trends is essential for informing adaptation and mitigation strategies to address the challenges posed by climate change in the region. Continued monitoring and research are crucial for developing effective climate resilience measures and mitigating the impacts of climate change on Denver's Platte River Valley and its surrounding areas. My motivation for this analysis study was to better understand rising temperatures where I live.

Analysis of Average Snowfall Trends in Denver, Colorado's Platte River Valley (1909-2023)



This study examines snow depth trends in Denver, Colorado's Platte River Valley from 1909 to 2023, revealing what could be a departure from historical patterns. While snow depth historically followed a gradual increase and decrease, recent years have shown a marked shift towards more abrupt snow accumulation and melting. This suggests a potential alteration in snow dynamics, possibly influenced by climate change and human activities such as urbanization. These changes hold implications for water resource management, agriculture, and recreation, including challenges in water availability and increased flood risks during rapid snowmelt. Though these are merely speculations based on the data calculated they may hold some degree of relevance. My motivation for this analysis study was to better understand snowstorms and freeze / melts cycles where I live.

Analysis of Average Snowfall Trends in Denver, Colorado's Platte River Valley (1909-2023)



In examining a century and a bit of weather records in Denver's Platte River Valley, my investigation uncovered a noteworthy anomaly that the year 1954 witnessed. A peak in average minimum temperatures. This departure from the norm demands attention and further exploration. Potential factors contributing to this peak encompass atmospheric dynamics, local environmental shifts, and natural climate fluctuations. Speculating the underlying causes could help us understand the big picture, as it informs planning strategies across sectors such as agriculture, public health, and infrastructure development. Monitoring of weather patterns remains imperative for proactive actions and resilience in navigating the future trajectories of the Platte River Valley. My motivation for this analysis study was to better understand what the minimum temperatures could potentially look like in coming years where I live.

Appendix

Replit Link:

https://replit.com/join/zzphvfyypa-zacporter179

Matlab Script: (.m file included in canvas submission)