

Question 4: Data Visualization (10 points)

Your task is to design a visualization that you believe effectively communicates the data and provide a short write-up describing your design.

Start with the dataset [weather.csv](#) which contains weather measurements nearest to Cornell Tech every day from 1950 to the present.

Notice that the temperature (Ktemp) is in Kelvin rather than in Fahrenheit. Define a variable that expresses the temperature in Fahrenheit, using the following formula:

$$Ftemp = (Ktemp - 273.15) * (9/5) + 32$$

Part A) For every month of the year, plot the average temperature (in Fahrenheit) using a scatter plot or line plot. Your visual should be configurable so that a user can easily look at a specific year's weather curve (use a sliding scale filter). (6 points)

Part B) Based on all of the historical data, when is the first day where the historical average temperature passes 60 degrees (when will Cornell Tech finally be warm again?) (2 points)

May 11th is the first day where the historical average temperature passes 60 degrees.

Part C) Create a new sheet where you do something creative through data visualization. Express something about the temperature over time using this dataset, or add a new dataset if you want an extra challenge. (2 points)

I decided to look at whether minimum and maximum monthly temperatures vary widely across the years, and chose to focus in on the temperature in March since that is the current month. Interestingly, there is a lot of variation to be seen, especially looking at the minimum temperatures reached in March from 1950 to the present. Based on what I learned in a climate course I took in undergrad, this kind of variation is natural—although the minimum temperature in March has fluctuated a lot across the recorded years, its variance has remained largely consistent; there is no immediate observable pattern that it is varying more or less in recent years compared to historical data.

Note: *Your visualization should be interpretable and accompanied by a short write-up (you do not need to write more than a sentence or two). Do not forget to include title, axis labels, or legends as needed!*

Turning it in:

Two files: 1 PDF, 1 tableau dashboard (in a tableau file). Your tableau dashboard should have 2 or 3 sheets, depending on whether you wish to use a tableau sheet to express your

answer to part B (parts A and C require a tableau sheet). Your PDF should include any accompanying text or direct answers to questions. You should not need to write more than a sentence or two.

Submit files on gradescope by dragging and dropping them in. Do not zip your files.