SIT123: Data Capture Technologies

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Lab Report Week 6: Data Visualization

In this task, we will design and develop visualizations for sensor data.

Pre-requisites: You must do the following before this task

1. **Attend Class (Lecture)**
2. **What following resources and videos on introduction to Tableau and how to build basic visualizations** (you might need to provide your details to be able to watch the videos)
   https://www.tableau.com/learn/tutorials/on-demand/tableau-interface
   https://onlinehelp.tableau.com/current/guides/get-started-tutorial/en-us/get-started-tutorial-connect.html
   https://www.tableau.com/learn/tutorials/on-demand/getting-started
   https://www.analyticsvidhya.com/blog/2017/07/data-visualization-made-easy/

3. **Read this sheet from top to bottom**

Task Objective

This is an individual task. You will need to design and develop a visualization for the sensor data shared here:
https://drive.google.com/file/d/1ResskTdqMN2Md770ICK99ehIWURBSsgz/view?usp=sharing
https://drive.google.com/file/d/1m8uRS9a7UOJrQn2mfCD_XYbF5AJo6JZH/view?usp=sharing

Software Required

Tableau - Available in the lab

Task Submission Details

Answer the following questions in this word document itself and submit to unit site.

Q1. What data types can you identify in the two data sets given? Use the information provided in the lecture, and identify the data types available in your datasets.

Temperature Dataset:
- Ordinal (millis)
- Nominal (stamp)
- Quantitative (datetime)
- Ratio (temp)

Humidity Dataset:
- Ordinal (millis)
- Nominal (stamp)
- Quantitative (datetime)
- Ratio (hum)

Q2. Select one of the two data sets. Using your understanding of the given data, identify which visual variables are suitable to be used with your selected data set. Provide details of the visual variables and your justification here.

Using the temperature dataset:
The visual variables should be the milliseconds and the temperature so that we can visualise the changes in temperature over time.

Q3. Design a visualization in Tableau to visualise one of the given data sets. Your visualization does not necessarily need to include all the visual variables you have listed in Q2. It should however be easy to understand, and have a clear message. Provide a screenshot of your visualization here.

Temperature over Time
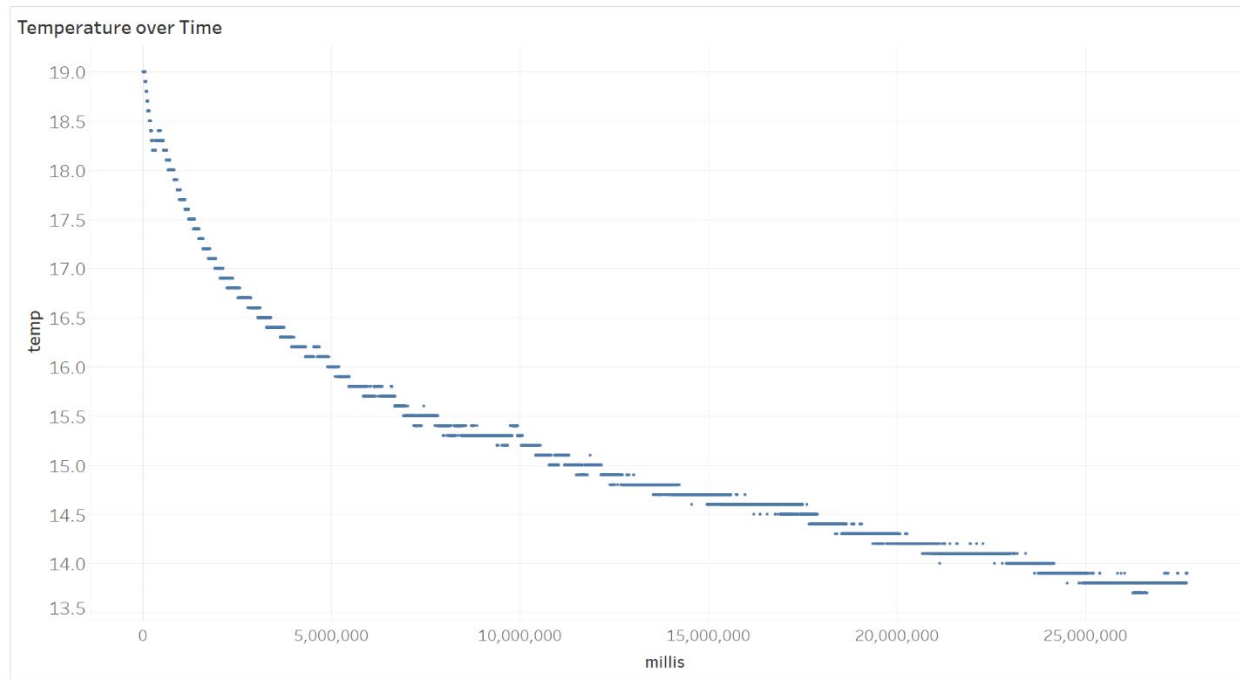
SIT123: Data Capture Technologies

Lab Report Week 7: Data Visualization

In this task, we will design and develop visualizations for sensor data.

Pre-requisites: You must do the following before this task

1. **Attend Class (Lecture)**
2. **What following resources and videos on introduction to Tableau and how to build basic visualizations** (you might need to provide your details to be able to watch the videos)
   https://www.tableau.com/learn/tutorials/on-demand/tableau-interface
   https://onlinehelp.tableau.com/current/guides/get-started-tutorial/en-us/get-started-tutorial-connect.html
   https://www.tableau.com/learn/tutorials/on-demand/getting-started
   https://www.analyticsvidhya.com/blog/2017/07/data-visualization-made-easy/

3. **Read this sheet from top to bottom**

Task Objective

This is an individual task. You will need to design and develop a visualization for the sensor data shared here:
https://drive.google.com/file/d/1ResskTdqMN2Md770ICK99ehIWURBSsgz/view?usp=sharing
https://drive.google.com/file/d/1m8uRS9a7UOJrQn2mfCD_XYbF5AJo6JZH/view?usp=sharing

Software Required

Tableau - Available in the lab

Task Submission Details

The Lab work in this week is continuation from last week (Lab work in week 6). Answer the following questions in this word document itself and submit to unit site.

Q1. Use the visualization in Q3 of Week 6's Lab work to provide some insights to the sensor data. Provide the discussion below.

As time went on from the beginning of the duration of capture time, the time that the temperature remained the same as the temperature itself dropped increased. The temperature also decreased non-linearly.

Q2. Use your visualization knowledge to critique the given visualization below. Consider the following in your critique:

- Who is the audience? (expert? non-expert?)
- What questions does this visualization answer?
- What design principles best describe why it is good / bad?
- Why do you like / dislike this visualization?
- Can you suggest any improvements?

a) Cattle herd – population changes in Australia
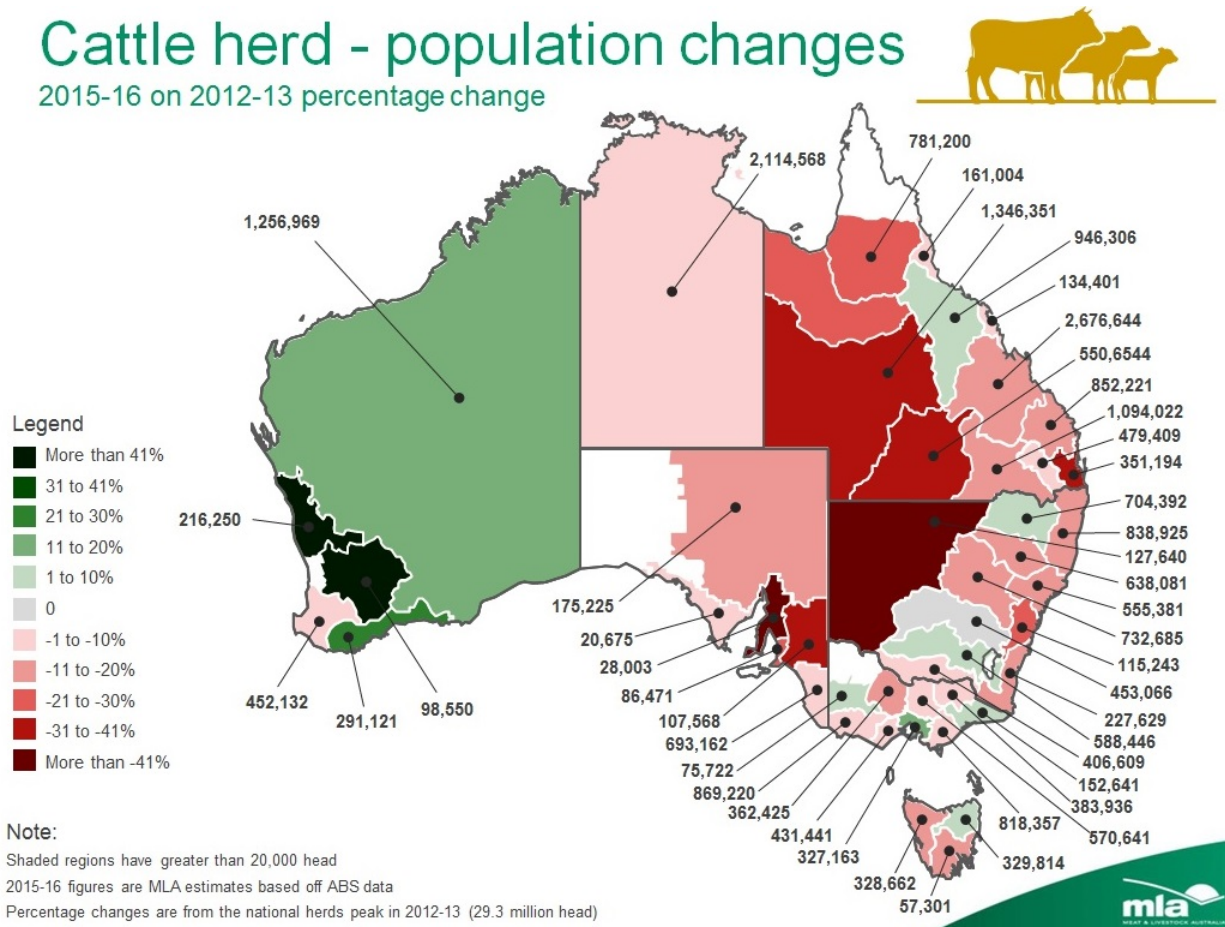

Your Critique:

This infographic is for non-experts who wish to know the change in the number of cattle in each region highlighted in Australia. A good aspect of the design is that there is a key that represents how much the population of cattle has changed. Each region corresponds with a colour that represents the percentage of change. A bad aspect is that particularly in the east side of Australia, there are so many regions that it makes the infographic look cluttered. A way to fix this would be to have an infographic for each state rather than for the entirety of Australia.

b) World's Top 10 Greenhouse Gas Emitters, and How They've Changed

http://www.wri.org/blog/2017/04/interactive-chart-explains-worlds-top-10-emitters-and-how-theyve-changed

Explore the World's Greenhouse Gas Emissions
Find the newest data on global greenhouse gas emissions on **CAIT Climate Data Explorer**
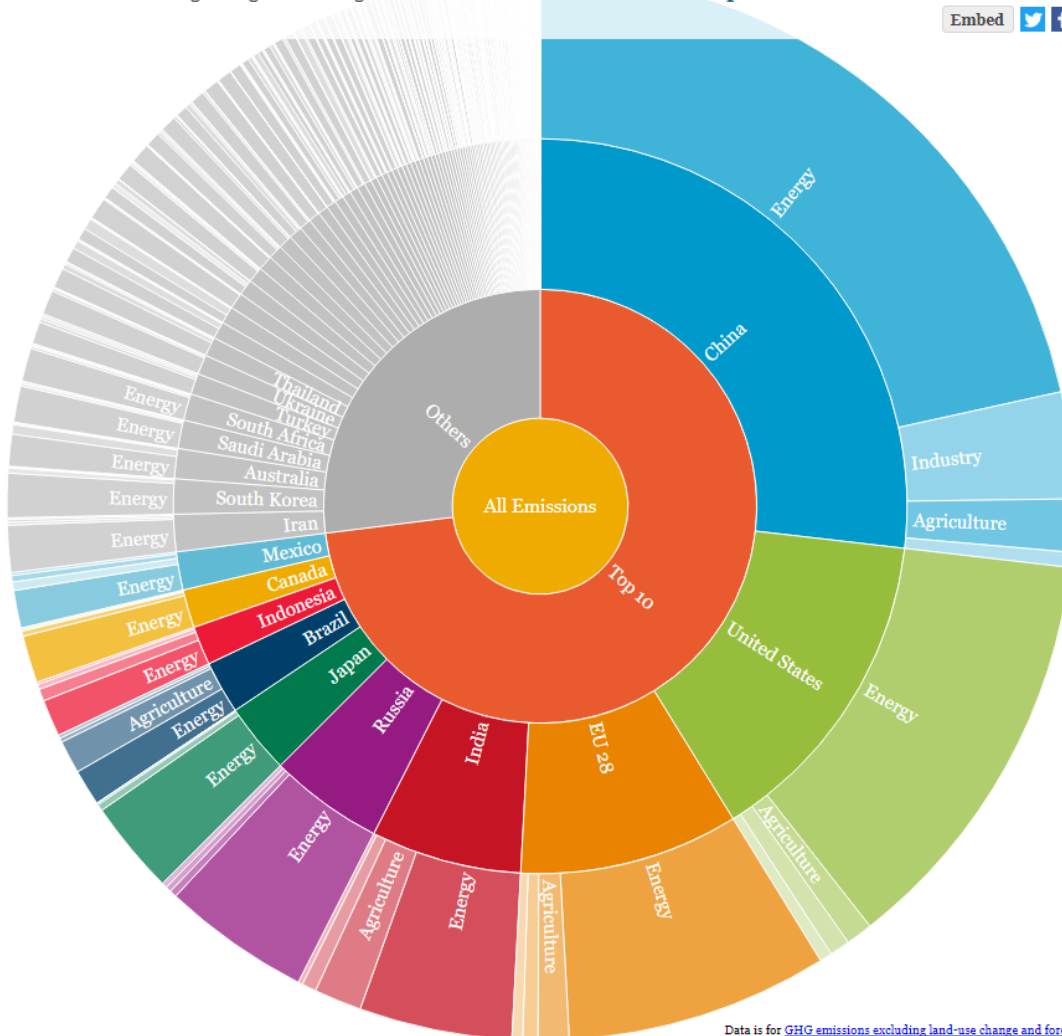
Graphic by Johannes Friedrich based on work by Duncan Clark, Kiln, Mike Bostock and Jason Davies. Thanks also to Jamie Cotta.

Data is for GHG emissions excluding land-use change and forestry and excluding bunker fuels. The EU is considered an emitter for this graph. For more information visit our WRI blog.

Your Critique:
This Infographic shows how much greenhouse gas emissions different categories such as countries and industries produce. It presents different categories of data effectively and

simultaneously. However, where the graph falls short is with areas that produce a miniscule amount of greenhouse gas emissions. These areas can barely be seen or not seen at all as it is too dense. The graph could also benefit from having the percentages displayed as this graph does not really specify an exact amount for each area. This makes the differences between two areas that are similar in amounts of emissions unclear.

Q3: visit the website https://covid-19-au.com/ and critique the map on how easy and quick it was to find the total, active and recovered cases in your area (suburb)?

To find the total, active and recovered number of cases in my area, I first had to find my suburb on the map. I could use the dropdown menu at the top-left corner of the map to switch between which statistic I wanted to view. This was ok, my only issue was that it took me awhile to find my suburb amongst the many other suburbs surrounding mine. This map could benefit from a search bar that one can type their suburb into and have its statistics shown. This would make extracting the information one is looking for more easy and rapid.