CSE3020 – Data Visualization (ELA), Winter Semester 2021-2022

Lab Assignment IA8 – Slot L43-L44

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Lab Assignment – IA8 – Spatial and Temporal Datasets

Note on Software used for following Visualizations: (Tableau)

Microsoft Excel is a spreadsheet developed by Microsoft for Windows, macOS, Android and iOS. It features calculation or computation capabilities, graphing tools, pivot tables, and a macro programming language called Visual Basic for Applications (VBA). Excel forms part of the Microsoft Office suite of software.

It includes:

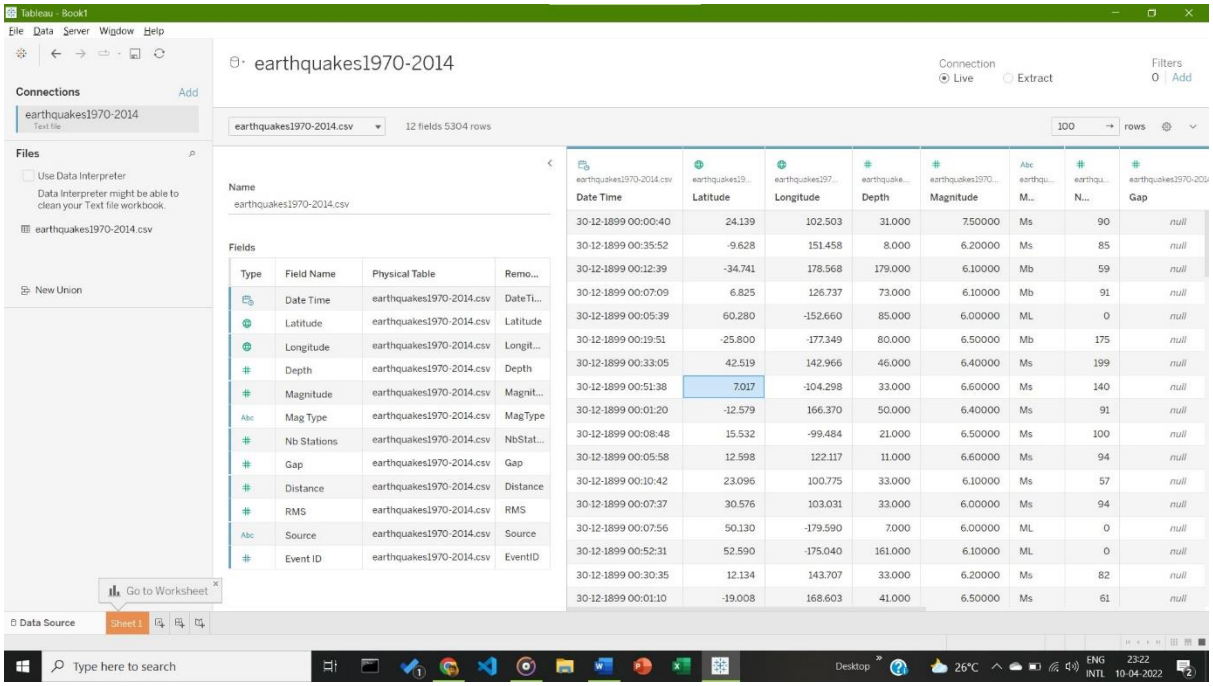
- Easy to access from different sources.
- No need for any technical or programming knowledge, and Quick response for making a dashboard.
- In terms of connecting and sharing, it has various inbuilt advanced features such as: Collaboration and distribution, highly securable, Multiple data sources connection, Easy importation and exportation of the massive size of data.
- For easy accessibility and analysis, the data file can be downloaded locally on mobile or desktop, multilingual representation of data, real-time exploration of any dataset, etc.

Q1) Choose a standard Spatial dataset and generate the visualization of selected spatial data:

Answer: Some Key points to note before visualization process:

1. Dataset Used:

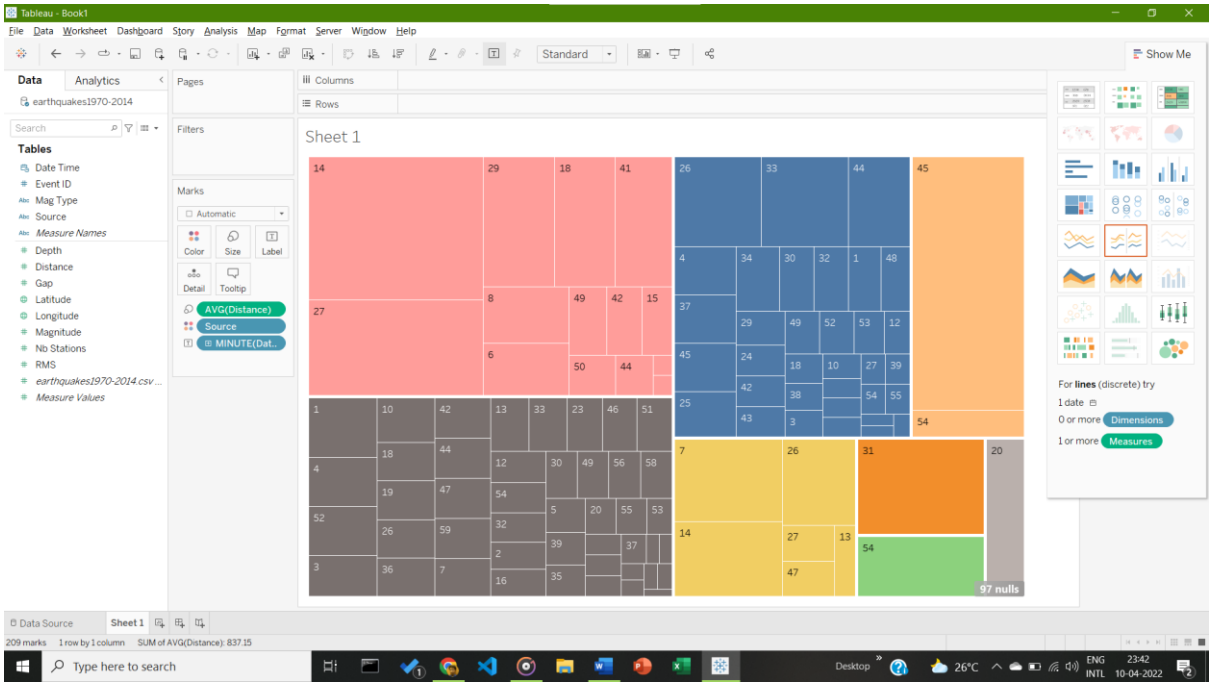
The dataset used is the records of all earthquakes that occurred between 1970 and 2014. The link is as follows: https://data.humdata.org/dataset/catalog-of-earthquakes1970-2014/resource/10ac8776-5141-494b-b3cd-bf7764b2f964 . It is a Geospatial-Temporal Dataset as it contains both data that correlates to region as well as time.



2. Visualization:

Visualization based on Distance (Denoted by size of boxes in tree map), Source (Colour – Spatial Element of Dataset), and Time of Earthquake.

a. Visualization using Tree Maps for Given Spatial Data



Inference:

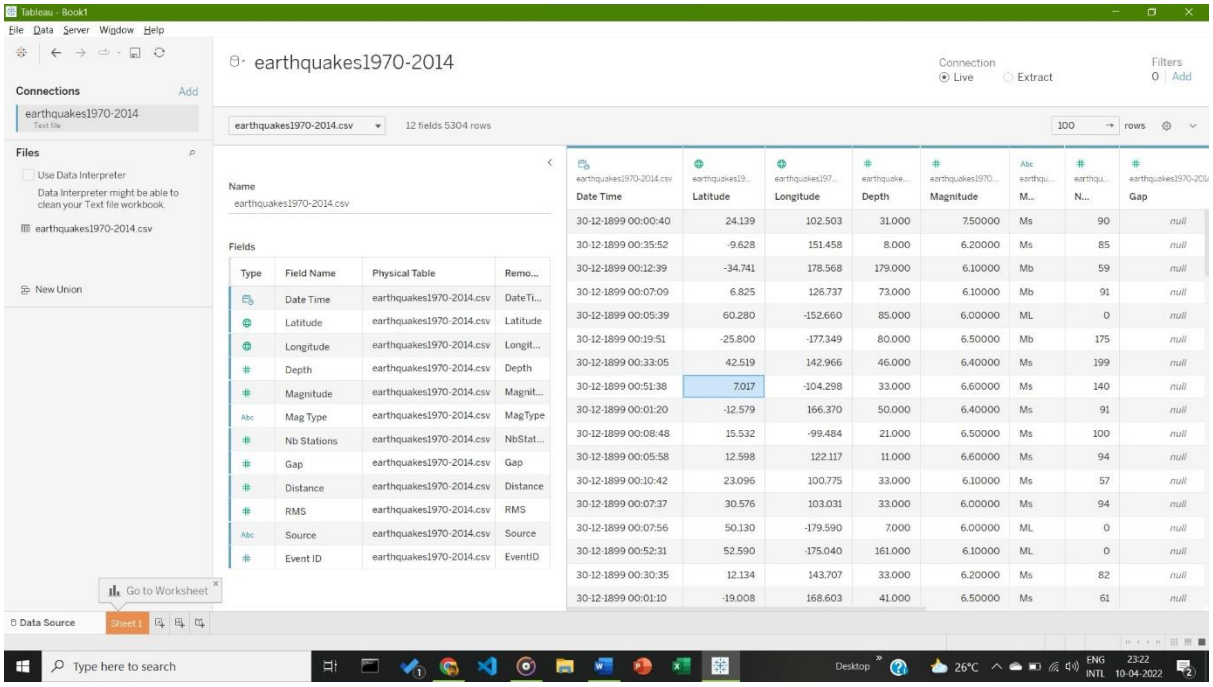
The Spatial Source UW received the highest order based on average distance of 77.0 kms (14mins), followed by NC at 67.0 kms (45 mins).

Q2) Choose a standard temporal dataset and generate appropriate visualization for it:

Answer: Some Key points to note before visualization process:

1. Dataset Used:

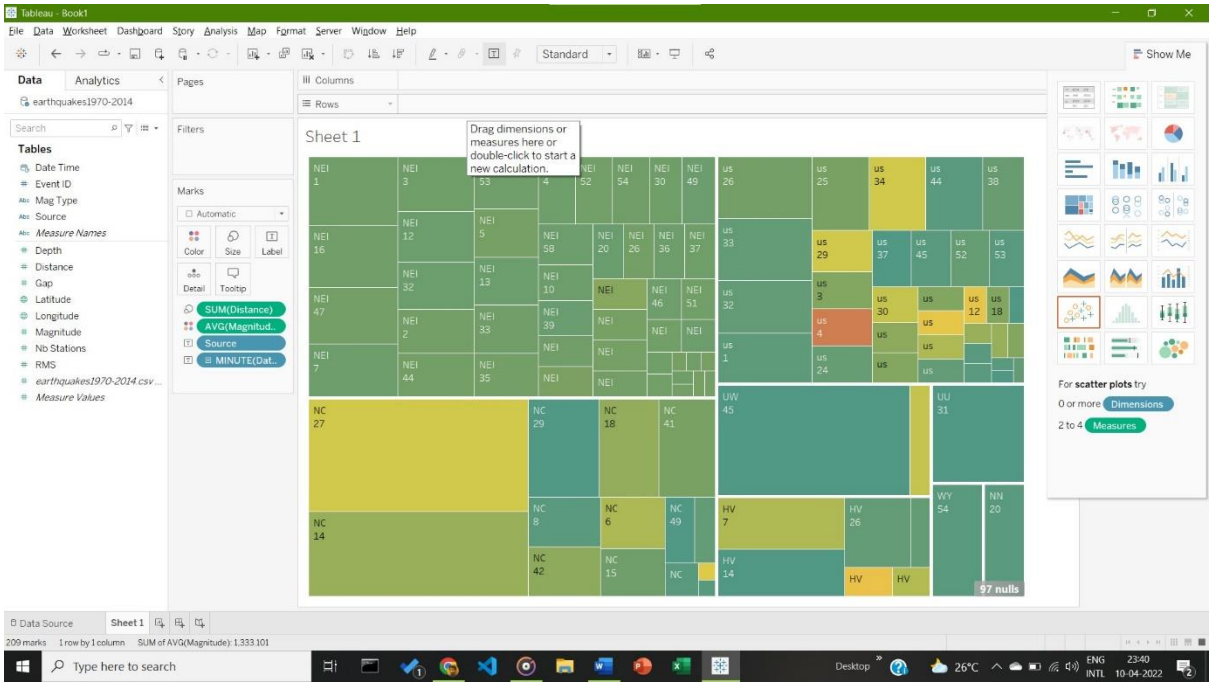
The dataset used is the records of all earthquakes that occurred between 1970 and 2014. The link is as follows: https://data.humdata.org/dataset/catalog-of-earthquakes1970-2014/resource/10ac8776-5141-494b-b3cd-bf7764b2f964 . It is a Geospatial-Temporal Dataset as it contains both data that correlates to region as well as time.



2. Visualization:

Visualization based on Sum of Distance (Denoted by size of boxes in tree map), Abd Magnitude (Denoted by Colour – Spatial Element of Dataset), Source (Text within Tree map boxes), and Time of Earthquake (in Minutes – temporal element of dataset).

b. Visualization using Tree Maps for Given Temporal Dataset:



Inference:

The Spatial Source WY received the highest order based on temporal data TIME of 54 minutes(dark green), followed by UW at 67.0 kms (45 mins).
