Final Project Proposal

(due March 10th 7:00p.m)

This document outlines the guidelines for the project proposal. You can start working on the project once your proposal is accepted and graded by your TA on gradescope. The entire final project is worth 25% of your final grade and the proposal takes account for **5%**. There is no late-submission on the proposal.

Submission Guideline

Download this google doc, fill the table and submit it in **PDF** format on Gradescope.

If you need some inspirations please feel free to take a look at:
Showcase of Information is Beautiful Awards

Project Proposal

	Description
Project Topic	Analyzing the Huge Earthquakes around the World
Dataset Description	Provide 1) the list of attributes and 2) a single item in the dataset as an example. 1). The attributes are: **title**: title name given to the earthquake **magnitude**: The magnitude of the earthquake **date_time**: date and time **cdi**: The maximum reported intensity for the event range **mmi**: The maximum estimated instrumental intensity for the event **alert**: The alert level - “green”, “yellow”, “orange”, and “red” **tsunami**: "1" for events in oceanic regions and "0" otherwise **sig**: A number describing how significant the event is. Larger numbers indicate a more significant event. This value is determined on a number of factors, including: magnitude, maximum MMI, felt reports, and estimated impact **net**: The ID of a data contributor. Identifies the network considered to be the preferred source of information for this event.

	nst: The total number of seismic stations used to determine earthquake location. **dmin**: Horizontal distance from the epicenter to the nearest station **gap**: The largest azimuthal gap between azimuthally adjacent stations (in degrees). In general, the smaller this number, the more reliable the calculated horizontal position of the earthquake. Earthquake locations in which the azimuthal gap exceeds 180 degrees typically have large location and depth uncertainties **magType**: The method or algorithm used to calculate the preferred magnitude for the event **depth**: The depth where the earthquake begins to rupture **latitude / longitude**: coordinate system by means of which the position or location of any place on Earth's surface can be determined and described **location**: location within the country **continent**: continent of the earthquake hit country **country**: affected country 2). In the same order as attributes shown above, one single item example is: M 7.0 - 18 km SW of Malango, Solomon Islands; 7; 22-11-2022 02:03; 8; 7; green; 1; 768; us; 117; 0.509; 17; mww; 14; -9.7963; 159.596; Malango, Solomon Islands; Oceania; Solomon Islands
Dataset Link	https://www.kaggle.com/datasets/warcoder/earthquake-dataset
Why you chose this particular dataset. What kind of story you aim to deliver (e.g “Sales analysis of company xyz”)	Hint) You can refer to the storytelling lecture slides. Earthquakes are happening quickly around the world. And big earthquakes may cause huge damages for us. Using the earthquake dataset between 1/1/2001 to 1/1/2023, we aim to find the trends for large earthquakes that can help us analyze and prevent future potential earthquakes.
1 plot with 0 Key and 2 values	i) Question you are asking from this graph. Is there any relation between the significance of earthquakes and the maximum estimated instrumental intensity can get? ii) Columns you are going to use mmi sig

	iii) Type of graph Scatter plot
1 plot with 1 key and 1 value	i) Question you are asking from this graph. What is the distribution of average earthquakes over years? ii) Columns you are going to use Data_time (key): will collect year information from original data Magnitude (value): average the number of earthquakes for each year iii) Type of graph Histogram
1 plot with 2 keys and 1 value	i) Question you are asking from this graph. What is the distribution of average earthquakes for each alert type over years? ii) Columns you are going to use data_time (key): will collect year information from original data alert (second key) Magnitude (value): average the number of earthquakes for each year iii) Type of graph Stacked bar chart or Streamgraphs
1 geometric visualization	i) Question you are asking from this graph. Where have earthquakes happened around the world? What if the geometric trends for earthquakes to happen? ii) Columns you are going to use Magnitude: for demonstrating earthquakes scale Latitude Longitude iii) Type of graph Global geomap
1 visualization from - box plot, node-link diagram, adjacency matrix	i) Question you are asking from this graph. Is there any difference of average magnitudes between tsunami and non-tsunami earthquakes? ii) Columns you are going to use magnitude: average the number of earthquakes for tsunami or non-tsunami

	tsunami iii) Type of graph Box plot
1 interactivity using Buttons	Describe in which visualization you plan to add the button-related interactivity Add a bottom on a new copy of geomap, the bottom will shift the mapview from magnitude data to depth data of earthquakes Add color change bottom on histogram.
1 interactivity using Tooltips (Display data on hover).	Describe in which visualization you plan to add a tooltip. In geomap visualization, add Tooltip for demonstrating specific magnitude of earthquake when mouse moving to a specific location on map.
1 interactivity using Animation.	Describe 1) what type of animation you plan to add and 2) in which visualization you plan to add. 1). An animation showing the earthquake happened over the years. 2). Add this animation to the geomap visualization.
1 interactivity not learned in class	Describe 1) what type of animation you plan to add and 2) in which visualization you plan to add. 1). Add a brushing interactivity that select out a specific part in the visualization and can zoom in to that part 2). Scatter plot visualization
Any creative form of plot you want to try for the five you selected above? (e.g. pictogram)	Hint) You can refer to the storytelling lecture slides. Note) This is going to be for extra credit. Add pictograms of the earthquake on histogram. Add warning sign on label of some visualizations