Project name:
Seismic Patterns and Trends: Analyzing Japan's Earthquake Data

Team members:
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Research questions:
1. Are there specific regions in Japan more prone to earthquakes, and what factors contribute to this variation?
2. What is the relationship between earthquake magnitude and the other factors(features/columns) in different regions of Japan?
3. Can we predict or model earthquake risks in specific regions of Japan based on historical seismic data and geological information?

Process:

1. Data Collection:
    - Gather historical earthquake data for Japan from reliable sources such as the Japan Meteorological Agency (JMA)
    - Scrape the recent Data for every prefecture & city for the last 30 days https://www.jma.go.jp/bosai/#lang=en&pattern=earthquake_volcano&area_type=japan&area_code=010000
    - Gather Data from 1997 to 2022 (1.2 Earthquake parameters) https://www.data.jma.go.jp/eqev/data/bulletin/eqdoc_e.html
    - Get region name master with scraping (1.A.3 Geographical region names) https://www.data.jma.go.jp/eqev/data/bulletin/catalog/appendix/appendix_e.html
    - Collect data on the date, time, location, magnitude, depth, and other relevant information for each earthquake event.
2. Data Preprocessing:
    - Clean and preprocess the earthquake data, including handling missing or inconsistent data.
    - Convert timestamps to a consistent format and timezone.
    - Group earthquake events by region or time intervals (e.g., daily, monthly, yearly).
3. Data Processing:
    - Calculate earthquake statistics, such as the frequency of earthquakes in different regions, the average magnitude, and depth.
    - Identify trends or patterns, such as seasonal variations or clustering of seismic activity.
4. Data Visualization:
    - Create visualizations to represent earthquake data effectively, using libraries like Matplotlib or Plotly.
    - Generate time series plots to visualize changes in earthquake frequency and magnitude over time.
    - Develop geographical heat maps or plots to show the distribution of earthquakes in Japan.