**7PAM2000 Applied Data Science 1**

**Assignment 1: Visualisation**

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**Dataset:**

A total of 782 earthquakes that occurred between January 1, 2001, and January 1, 2023, are documented in the available datasets. The dataset contains various columns like title, magnitude, country, depth etc which describe the earthquake nature and countries which it has affected.

Link for the dataset: <https://www.kaggle.com/datasets/warcoder/earthquake-dataset?resource=download>

**GitHub link:**

<https://github.com/Dineshc241/ADS.git>

**Visualization 1: line graph**

Chart, line chart

Description automatically generated

Figure 1: line graph for earthquake data

The above line graph gives information about the average magnitude of earthquakes each year, with various ranges of magnitude. Earthquakes with magnitudes less than 7 are considered low, earthquakes with magnitudes 7 to 8 are considered medium, and earthquakes with magnitudes greater than 8 are considered high. In the above graph, we can see that the average of lower earthquakes with magnitudes less than 7 is around 6.6 to 6.7 and that there are stable events in that range every year. The average of mid-range earthquakes came down from 2000 to 2005 but increased till 2015, then saw a dip until 2017 and has increased since then. The high magnitude earthquake’s average decreased from 2000 to 2004 and then increased till 2006, where it was dropped to its lowest level until 2009. The highest average of high-magnitude earthquakes was seen during 2009–2012, and from then on, the average kept on decreasing.

**Visualization 2: Bar graph**

Chart, bar chart

Description automatically generated

Figure 2: Bar graph for each alert

The bar graph represents the count of green and yellow alerts given to people about the earthquake during the year. Bar graphs are a useful tool to easily compare items across categories. Bar graphs have the additional benefit of being able to display data that varies over time, aiding in the visualisation of trends. I have used bar graphs as I am comparing the count of alerts that are green and yellow over the 2014 to 2022 time periods. From the above bar graph, we can observe that 2014 and 2015 have the highest green alerts and the lowest yellow alerts. The years 2017 and 2019 have the highest number of yellow alerts and the lowest number of green alerts. We can also observe that if the green alerts are higher, the yellow alerts are lower, and vice versa, except for the year 2020, where both are low. Most of the green alerts were given between 2014 and 2016, and most of the yellow alerts were given between 2016 and 2019.

**Visualization 3: Pie chart**

Chart, pie chart

Description automatically generated

Figure 3:pie chart of continents with earthquakes

The above pie chart explains the earthquakes that have occurred on each continent from 2000 to 2022. Your data's part-to-whole connection is illustrated by a pie chart. The whole is represented by the sum of all the slices, each of which symbolises one component. The whole set of data here is earthquakes that occurred from 2000 through 2022, and each slice of pie represents the continent where it occurred during the period. The most affected continent is Asia, which has seen 48.5% of total earthquakes from 2000 to 2022. This might be because of its size and its location on tectonic plates. South America and North America follow, with 26.7% and 16.5%, respectively. Africa, Europe, and Oceania (oceans) have experienced the fewest earthquakes.