-CAPSTONE 2 PROJECT PROPOSAL-

PATTERNS AND RELATIONSHIPS IN THE VEI(VOLCANIC EXPLOSIVITY INDEX) OF HISTORICAL VOLCANIC DATA AND PREDICTING FUTURE ERUPTIONS AND THEIR MAGNITUDE

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Problem Statement:
Volcanic eruptions, dynamic geological phenomena with profound global implications, are characterized by the Volcanic Explosivity Index (VEI), a measure reflecting the explosiveness and intensity of such events. This project seeks to address the pervasive challenge of predicting the VEI of future volcanic eruptions, considering essential factors such as the primary rock type and makeup of the volcano as well as historical eruption patterns.

Context:
In a world where volcanic eruptions stand as formidable natural forces, understanding and predicting their potential impact through the VEI is paramount. Their spontaneity underscores their significance, as their eruptions can pose serious threats to human populations, ecosystems, and climate stability.

Criteria for Success:
This project will be deemed 'successful' if the following criteria are met:

-Relationships are observed and charted between VEI and other key variables in the data.
-Predictions are drawn using the data and formed.

Scope of Solution Space:
I will focus extensively on the measure of the VEI and the comparisons contained therein, using this as my key identifier and what I base my relationships on for the project.

Constraints within the Solution Space:
The data obtained will prove to be incredibly useful, however real-time data would be essential in order to obtain the best results. For this project we will not have this type of data, using existing datasets. Results will be measured as such, and expectations delivered accordingly. Also more key variables would indeed further the efficiency of the data and thus the results. Again for the sake of this project we will only be using a few key variables.

Key Stakeholders:
Normally, though highly dependent on where this would be submitted-> Geology Director, Direct Manager, (others)

Data Sources:

Volcano Eruptions (Kaggle, multiple sheets) -
https://www.kaggle.com/datasets/jessemostipak/volcano-eruptions/data

opendatasoft Significant Volcanic Eruptions Database - (.xlsx file)
https://public.opendatasoft.com/explore/dataset/significant-volcanic-eruption-database/export/