**Phase 1 : Problem Definition and Design Thinking**

**Problem Definition:**

The task at hand is to create an earthquake prediction model using a Kaggle dataset. The primary goal is to gain insights into the crucial aspects of earthquake data, including feature analysis and data visualization on a world map for a comprehensive view. The dataset will be divided into training and testing sets to develop a neural network model. This model's ultimate purpose is to forecast earthquake magnitudes by leveraging the provided dataset features. In summary, this project aims to explore earthquake data, create a global visualization, and construct a neural network model for earthquake magnitude prediction.

**Design Thinking:**

To design a data-driven Earthquake Prediction Model in Python using historical seismic data. Start by collecting a comprehensive dataset of past earthquakes, including location, depth, magnitude, and time. Preprocess and clean the data to handle missing values and outliers. Utilize machine learning techniques, such as regression or neural networks, to build a predictive model. Split the dataset into training and testing sets for model evaluation.Evaluate the model's performance using appropriate metrics like RMSE or MAE. Continuously update and fine-tune the model with new data for improved accuracy.

**What are we are looking earthquake prediction model?**

1. Early Warning: Detecting seismic activity in advance to provide early warnings to mitigate potential risks and protect lives and property.

2. Accurate Prediction: Developing a model that accurately forecasts the likelihood, location, magnitude, and timing of earthquakes.

3. Data Integration: Incorporating a wide range of data sources, including historical seismic data, geological data, sensor data, and satellite imagery, to enhance prediction accuracy.

4. Real-time Monitoring: Creating a system capable of continuously monitoring seismic activity in real-time to provide timely alerts.

5. Risk Assessment: Assessing the level of risk for different regions, helping authorities prioritize disaster preparedness and response efforts.

6. Adaptability: Ensuring the model can adapt to changing data patterns and evolving seismic conditions over time.

7. Public Safety: Ultimately, the goal is to use the prediction model to minimize the impact of earthquakes on human lives and infrastructure, by enabling informed decisions and proactive measures.