

Earthquake prediction model using Python

Phase 1- Earthquake prediction model using Python

Date	30 September 2023
Team ID	345
Project Name	4123-Earthquake Prediction Model using Python

PROBLEM

The problem is to develop an earthquake prediction model using a Kaggle dataset. The objective is to explore and understand the key features of earthquake data, visualize the data on a world map for a global overview, split the data for training and testing, and build a neural network model to predict earthquake magnitudes based on the given features.

Listening Ideas

Ranaprathap

Incorporate geological data such as fault lines, tectonic plate boundaries, and geological formations into the model. These features can be crucial indicators of seismic activity.

Consider optimizing the placement of seismic sensors to maximize coverage and accuracy of data collection.

Analyze historical earthquake data to identify patterns, correlations, and trends that could be used to improve predictions.

padmapriya

Utilize data from a network of seismic sensors to provide real-time information about ground motion. This can serve as a valuable input for the prediction model.

Develop visualizations that allow users to explore seismic data on a world map, providing a global overview of earthquake occurrences.

Consider including environmental variables like temperature, humidity, and atmospheric pressure, which can influence seismic activity.

Raja

Explore advanced deep learning architectures like Long Short-Term Memory (LSTM) networks or Gated Recurrent Units (GRUs) which are well-suited for sequential data like seismic measurements.

Combine multiple machine learning models (e.g., neural networks, decision trees) into an ensemble to leverage their collective predictive power.

Develop a system that provides real-time alerts or warnings to communities based on the model's predictions.

Rudhramoorthy

Apply time series analysis techniques to capture temporal patterns and trends in seismic activity. Use this information for making predictions.

Investigate if pre-trained models from related domains (e.g., geophysics, geology) can be fine-tuned for earthquake prediction.

Implement techniques to estimate the uncertainty associated with predictions, providing a measure of confidence in the model's forecasts.

Prioritize ideas

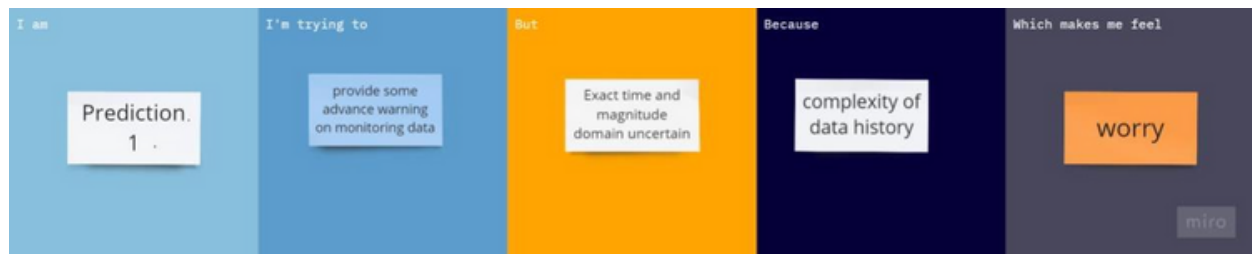


Ideation Phase Problem Statement

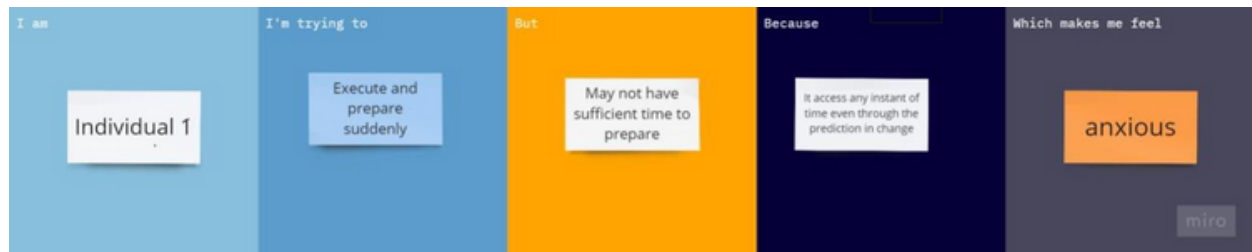
Problems Statements

Problem Statement (PS)	I am (customer)	I'm trying to	But	Because	Which makes me feel
PS-1	Prediction 1	Provide some advance warning based on magnitude on monitoring domain data uncertain	Exact time	Complexity of data history	Worry
PS2	Individual 1	Execute and prepare suddenly	May not have sufficient time to prepare	It accesses any instant of time even though the prediction in change	anxious
PS-3	Prediction 2	Avoid false alarms doing prediction	Sometimes it false alarms	Due to the complexity of prediction earthquakes accuracy	Worry
PS-4	Individual 2	Looking for the prediction announce	May become dispirited or complacent if false alarm occurs frequently	Execution process	hopeless

ProblemStatement 1



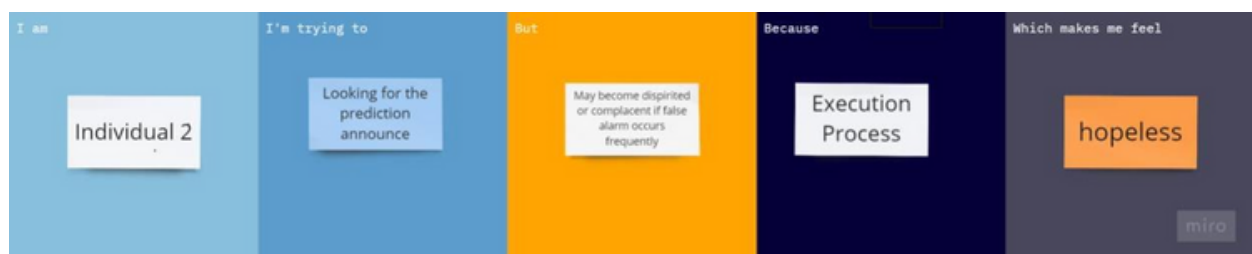
ProblemStatement 2



ProblemStatement 3



ProblemStatement 4



Ideation Phase Empathize & Discover

