Air Quality and Pollution Prediction

This model addresses environmental and public health needs by predicting air quality levels. It aims to provide accurate air quality assessments to help governments, researchers, and the public make informed decisions about environmental policies, health precautions, and urban planning.

The features in the data and their datatypes are:

1. Temperature (Float): Ambient temperature in degrees Celsius
2. Humidity (Float): Relative humidity percentage
3. PM2.5 (Float): Concentration of particulate matter smaller than 2.5 micrometers
4. PM10 (Float): Concentration of particulate matter smaller than 10 micrometers
5. NO2 (Float): Nitrogen dioxide concentration
6. SO2 (Float): Sulfur dioxide concentration
7. CO (Float): Carbon monoxide concentration
8. Proximity_to_Industrial_Areas (Float): Distance to industrial zones
9. Population_Density (Integer): Number of people per unit area

The label is "Air Quality" (String), categorized as Good, Moderate, Poor, or Hazardous.

This data was obtained from an attached CSV file named "updated_pollution_dataset.csv" in the search results.

Implementation of the model:

- The model would be integrated into a larger environmental monitoring system.
- It would be used by environmental agencies, city planners, and public health officials.
- The model would provide real-time air quality predictions based on current sensor data.
- It could be part of a public-facing application that alerts citizens about air quality conditions.
- The system could be used to:
  - Issue air quality warnings
  - Guide policy decisions on traffic management and industrial emissions
  - Assist in urban planning to improve air quality in specific areas
- Regular retraining would be necessary to maintain accuracy as environmental conditions change over time.