ML-BASED TEMPERATURE PREDICTION CHATBOT WITH GUI

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PROBLEM SUMMARY

This project builds a chatbot that predicts the current temperature of Indian cities using a trained machine learning model and weather feature data (humidity, pressure, wind speed). It responds to natural language queries like "What is the temperature in Chennai?" and offers both console and GUI (Tkinter) interfaces.

APPROACH AND ASSUMPTIONS

- Model: A trained regression model (.pkl) predicts temperature in Kelvin, converted to Celsius.
- Features: Prediction uses:
- Date & time (month, day of week, hour)
- Season (mapped as numeric)
- Weather features (humidity, pressure, wind speed)
- City Data: Static weather features per city are preloaded from CSV.
- Interface: Two modes—command-line and Tkinter GUI chatbot.

LIMITATIONS AND POTENTIAL IMPROVEMENTS

Limitations

- Only supports cities in the CSV dataset.
- Predictions are based on static average features, not real-time data.
- Intent handling is keyword-based

Potential Improvements:

- Add real-time data from OpenWeatherMap or other APIs.
- Use NLP models (spaCy) for smarter intent and entity detection.
- Extend GUI with chartbot (tkinter).
- Support more weather details: rain, wind,etc.