NLP to SQL Translation for Weather Data Querying
Project Report

This project aims to create a simple web application that translates English sentences into SQL queries for querying a PostgreSQL database containing weather data. The application leverages natural language processing (NLP) techniques and the T5 model for translation.

Project Components:

Data Source: The project assumes access to a PostgreSQL database containing weather data. The database includes columns like "Date," "Precipitation," "MAX Temperature," "MIN Temperature," "Wind," and "Weather."

Technologies Used:

Flask: A Python web framework used to create the application's web interface.

psycopg2: A PostgreSQL adapter for Python used to establish a connection and execute SQL queries against the database.

Transformers: A library providing pre-trained NLP models, used here for the T5 model.

spaCy: An NLP library used to extract dates from input sentences.

T5 Model: The T5 model is used to translate English sentences into SQL queries. The model is pre-trained and fine-tuned to perform the translation task.

Installation of Libraries:

- pip install Flask
- pip install psycopg2
- pip install transformers
- pip install spacy
- python -m spacy download en_core_web_sm

Project Summary:

This project demonstrates the application of NLP and machine learning techniques to create a user-friendly web application that translates English queries into SQL queries for querying weather data. The user interface simplifies the process of querying the database, allowing users to interact with the data using natural language. By combining various libraries and technologies, the project provides a practical example of bridging the gap between human language and database querying.

TEAM MEMBERS

Yokesh.A

Arul Prakash.N

Muthu Raj.M