# Gemini 2.5 Flash NLP Agent

This is a comprehensive web application built with Streamlit and the Gemini 2.5 Flash model. It serves as a unified platform for a wide range of Natural Language Processing (NLP) tasks, demonstrating the power and versatility of a single Large Language Model through prompt engineering.

Instead of relying on multiple separate models for each task, this application uses a single LLM as a central, multi-talented agent.

### Features

The app contains a sidebar that allows you to perform the following NLP tasks:

* **Sentiment & Emotion Analysis:** Determines the emotional tone and specific emotions within a text.
* **Text Summarization:** Condenses long documents into concise, abstractive summaries.
* **Text Classification:** Categorizes a given text into one of a list of predefined labels.
* **Machine Translation:** Translates text from one language to another.
* **Question Answering:** Answers questions based on a provided document, without using external knowledge.
* **Text Generation:** Generates creative and coherent text based on a user-provided prompt.
* **Topic Modeling & Keyword Extraction:** Identifies the main topics and relevant keywords in a document.
* **Grammatical Error Correction:** Corrects grammatical mistakes in a given text.
* **Chatbot:** A conversational agent that maintains context and responds in a natural, non-technical tone.

### Setup and Installation

1. Clone the Repository (or create the files):  
   First, ensure you have a local copy of the project files (app.py and requirements.txt).
2. Create a Python Virtual Environment:  
   (Optional, but recommended)  
   python -m venv venv  
   source venv/bin/activate # On macOS/Linux  
   venv\Scripts\activate # On Windows
3. Install Dependencies:  
   Install the necessary libraries using the requirements.txt file.  
   pip install -r requirements.txt
4. Set Your Gemini API Key:  
   You must obtain a valid API key from Google AI Studio. Do not put this key directly in your code. Instead, set it as an environment variable in your terminal.
   * **For macOS/Linux:**  
     export GEMINI\_API\_KEY="YOUR\_API\_KEY\_HERE"
   * **For Windows (Command Prompt):**  
     set GEMINI\_API\_KEY=YOUR\_API\_KEY\_HERE
   * **For Windows (PowerShell):**  
     $env:GEMINI\_API\_KEY="YOUR\_API\_KEY\_HERE"

### How to Run the App

After completing the setup, run the following command in the same terminal session where you set your API key:

streamlit run app.py

The application will launch in your web browser, and you can begin using all the available NLP tasks.