Sentiment Analysis App Documentation

Project Overview

This project involves creating a sentiment analysis application using Streamlit, a Python library that enables the development of web apps with minimal coding effort. The application utilizes pretrained models from the HuggingFace model hub to perform sentiment analysis on user-inputted text. The app allows users to enter text, select a pretrained model, and obtain sentiment analysis results.

Local Development and Deployment

Setting Up the Virtual Environment

- **Create a Virtual Environment:**

To isolate project dependencies, a virtual environment named `myenv` is created using Python's `venv` module.

```
python -m venv myenv
```

- **Activate the Virtual Environment:**

Activate the virtual environment using PowerShell.

```
.\myenv\Scripts\Activate
```

- **Install Required Packages:**

With the virtual environment activated, install the necessary packages including PyTorch, HuggingFace Transformers, and Streamlit.

```
pip install torch torchvision torchaudio
pip install transformers
pip install streamlit
```

- **Verify PyTorch Installation:**

Ensure that PyTorch is installed correctly by running the following command:

```
python -c "import torch; print(torch.__version__)"
```

2.3.1+cpu

Developing the Streamlit App

- **Create the Streamlit App (`app.py`):**

The app allows users to input text, select a pretrained sentiment analysis model, and display the analysis results.

- **Run the Streamlit App Locally:**

Start the Streamlit app by executing the following command:

```
streamlit run app.py
```

This command launches the app locally in a web browser.

Output Result from local machine:

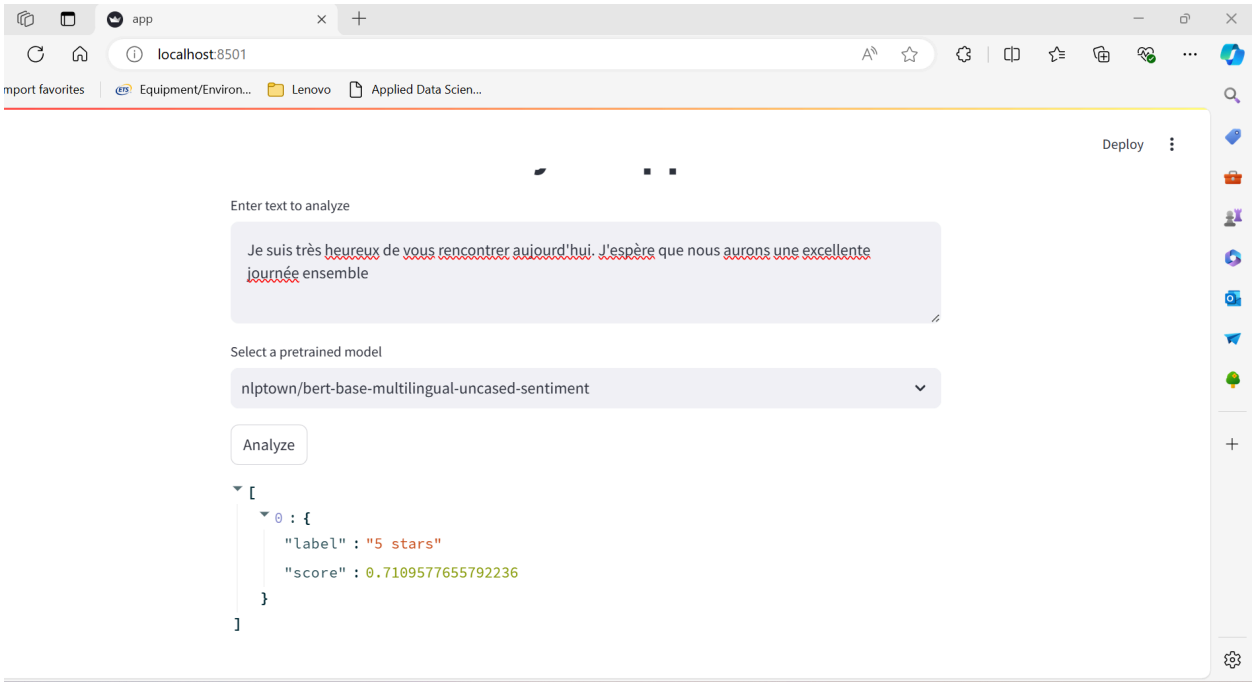
- French Language Sentiment with BERT:

When using the `nlptown/bert-base-multilingual-uncased-sentiment` model for sentiment analysis, the input text: Je suis très heureux de vous rencontrer aujourd'hui. J'espère que nous aurons une excellente journée ensemble which translates to:"I am very happy to meet you today. I hope we will have an excellent day together."

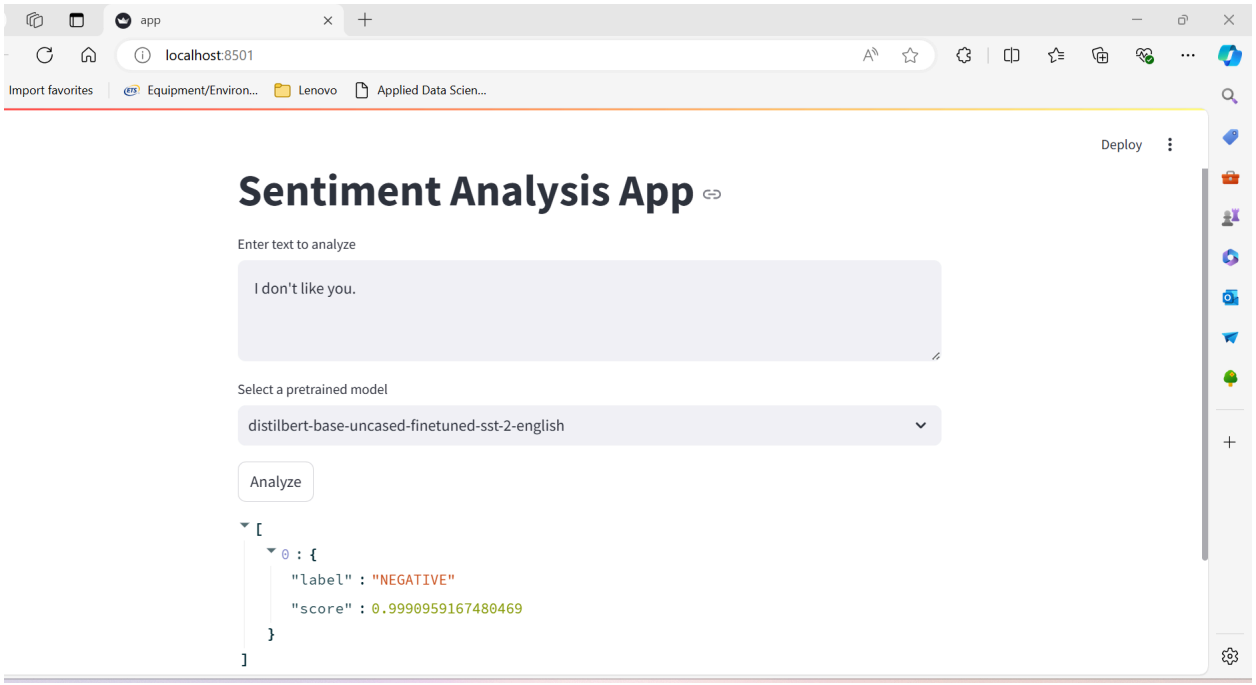
produces the following result:

```
[
  {
    "label": "5 stars",
    "score": 0.7109577655792236
  }
]
```

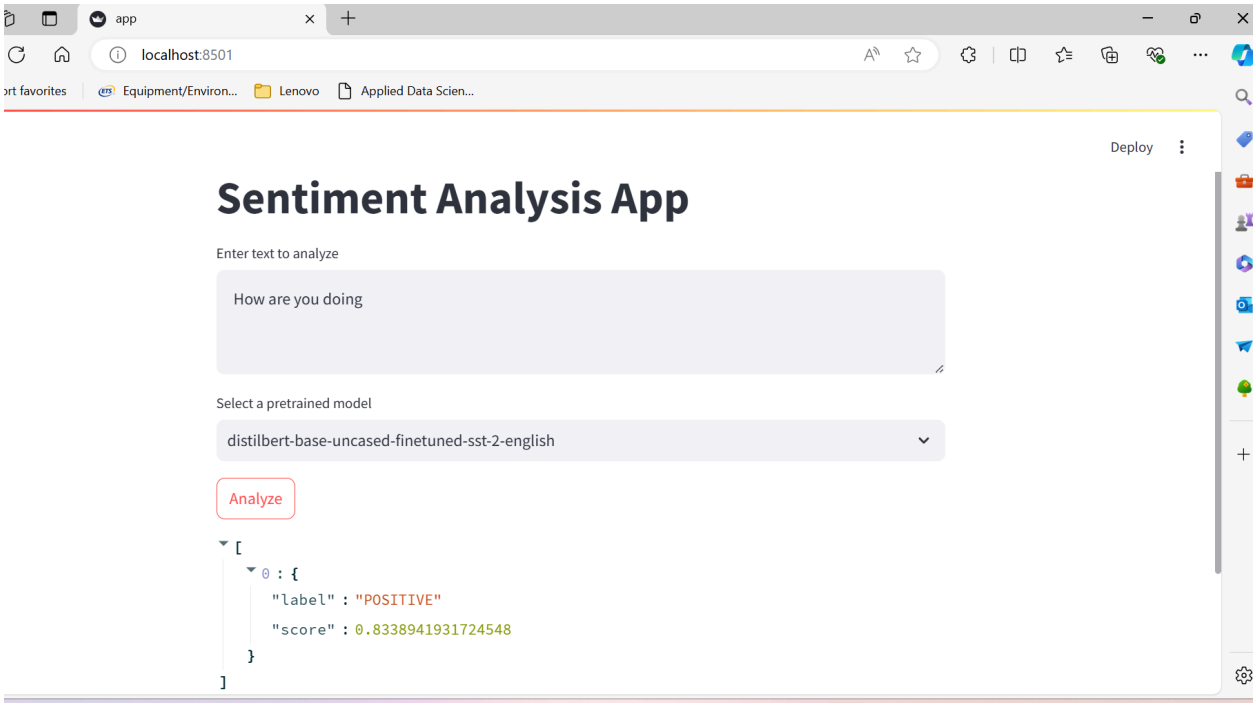
This output indicates a highly positive sentiment with a confidence score of approximately 0.71.



- Negative Sentiment:



- Positive Sentiment:



Conclusion

This project demonstrates the development of a sentiment analysis app using Streamlit and pretrained models from the HuggingFace model hub on a local machine. The app is designed to be user-friendly, allowing easy input of text, selection of models, and viewing of sentiment analysis results. By setting up a virtual environment and installing the necessary dependencies, users can run the app locally on their machine, ensuring a seamless and efficient sentiment analysis experience.