Burnout Indicator Detection Prototype

This prototype demonstrates how a fine-tuned transformer model can be integrated into a lightweight web interface to predict emotion probabilities, aggregate them into affective quadrants, and generate a literature-informed, non-diagnostic burnout indicator. The outputs are based on established literature and are not diagnostic conclusions.

1. Prerequisites

Before execution, the following conditions must be met:

1. **Python 3** must be installed on the host system.
2. The full prototype folder **burnout_indicator_detection_prototype** must be downloaded and stored locally.
3. A terminal session must be opened **and navigated to the prototype directory** prior to execution.

All required dependencies are specified in requirements.txt.

2. Dependency Requirements

All dependencies required to run the prototype are listed in requirements.txt, including:

- streamlit : provides the interactive web-based interface.
- transformers : loads and executes the fine-tuned transformer model and tokenizer.
- torch : provides the deep learning framework used for model inference.
- numpy : supports numerical operations during probability computation and aggregation.

These dependencies must be installed within a **dedicated virtual environment** before launching the application.

3. Installation

Step 1: Navigate to the Prototype Directory

cd ~/path_to/burnout_indicator_detection_prototype

Step 2: Create and Activate a Virtual Environment

On macOS:
python -m venv venv
source venv/bin/activate

Step 3: Install Dependencies

With the virtual environment activated:

pip install --upgrade pip
pip install -r requirements.txt

This installs all required packages (Streamlit, Transformers, PyTorch, NumPy) into the virtual environment.

4. Important Execution Requirement

Streamlit must be executed from **within the activated virtual environment.** Running Streamlit from outside the environment (for example, a system-level or Anaconda installation) may result in dependency resolution errors such as:

ModuleNotFoundError: No module named 'torch'

Executing all commands inside the virtual environment ensures that Streamlit loads the correct libraries.

5. Launching the Prototype

With the virtual environment active, the prototype can be launched using:

./venv/bin/streamlit run app.py

Upon successful launch, Streamlit will provide a local access URL:

http://localhost:8501

This URL can be opened in a web browser to access the prototype interface.

6. Application Behaviour Overview

When a text input is submitted through the interface, the system executes the full inference pipeline. The text is tokenized and processed by the fine-tuned transformer model, which generates probability scores for each emotion label. These probabilities are compared to predefined thresholds to produce binary emotion predictions.

The predicted emotions are aggregated into their corresponding affective quadrants, and a burnout indicator is derived based on the quadrant-level outputs.

The interface then displays:

1. The burnout indicator generated by the rule-based logic
2. The complete quadrant probability profile
3. The three highest-probability emotion predictions

7. Ethical and Usage Disclaimer

This prototype is **strictly non-diagnostic** and intended solely for research and conceptual demonstration purposes. It identifies emotional patterns and presents burnout-associated indicators grounded in established psychological literature but **does not provide medical or clinical assessments**.

The outputs may support reflective journaling or longitudinal emotional self-monitoring, however, they are **not substitutes for professional evaluation or diagnosis**.