Project Documentation: AI Chat Log Summarizer

Project Overview

AI Chat Log Summarizer is a Python-based utility designed to analyze .txt chat logs between a User and an AI, providing:
- Message counts
- Top keyword extraction using TF-IDF
- Topic estimation
- Summary generation

The tool supports summarizing both individual and multiple chat files in batch mode.

Folder Structure

chat-log-summarizer
1.chat_logs (Folder containing .txt chat logs)
      1.1. chat1.txt
      1.2. chat2.txt
2. main.py
3. summarizer.py (main code file)
4. Readme.pdf (include instructions and requirements)

Features

Parses chat logs formatted with
    'User:' for user messages
    'AI:' for AI responses

Outputs:
  - Total message count
  - Message split (User vs AI)
  - Top 5 keywords (via TF-IDF)
  - Summary with topic guess
- Batch mode: Automatically processes multiple `.txt` files from a folder.

Requirements

- Python 3.10 used
-Pycharm (I have used community version)
- **Libraries:**
 - nltk
 - scikit-learn

Install dependencies:

Run this command on terminal-
pip install nltk scikit-learn

Download NLTK stopwords:
(In the summarizer.py this two line has been comment out because I have downloaded them once)
nltk.download('stopwords')
stop_words = set(stopwords.words('english'))

Sample Output

```
Run    summarizer ×

"F:\Humayra\Chat log summarizer\.venv\Scripts\python.exe" "F:\Humayra\Chat log summarizer\summarizer.py"

chat1.txt Results
User Messages:
- Hi, can you tell the me about Python?
- What can is a I use the and it for?

AI Messages:
- Sure! Python is a the popular programming language known forits readability.
- You can use Python is a for web the a the and the  development, data analysis, AI, and more ,machine machine machine machine.
Total Messages: 4
User Messages: 2
AI Messages: 2

Top 5 Keywords: machine, python, use, ai, analysis

Summary for 'chat1.txt'
- The conversation had 4 exchanges.
- The conversation mainly revolved around 'machine'
- Most common keywords: machine, python, use, ai, analysis
```

```
chat2.txt Results
User Messages:
- Hello!
- Can you explain what machine learning is?
- What are some use cases?

AI Messages:
- Hi! How can I assist you today?
- Certainly! Machine learning is a field of AI that allows systems to learn from data.
- Applications include image recognition, fraud detection, and recommendation systems.
Total Messages: 6
User Messages: 3
AI Messages: 3

Top 5 Keywords: learning, machine, systems, ai, allows

Summary for 'chat2.txt'
- The conversation had 6 exchanges.
- The conversation mainly revolved around 'learning'
- Most common keywords: learning, machine, systems, ai, allows
```