thu-vu92 / **knowledge-graph-llms**

Code | Issues 1 | Pull requests | Actions | Projects | Security | Insights

In this project, I explored how to extract knowledge graphs from text using LLMs, such as OpenAI GPT4o.

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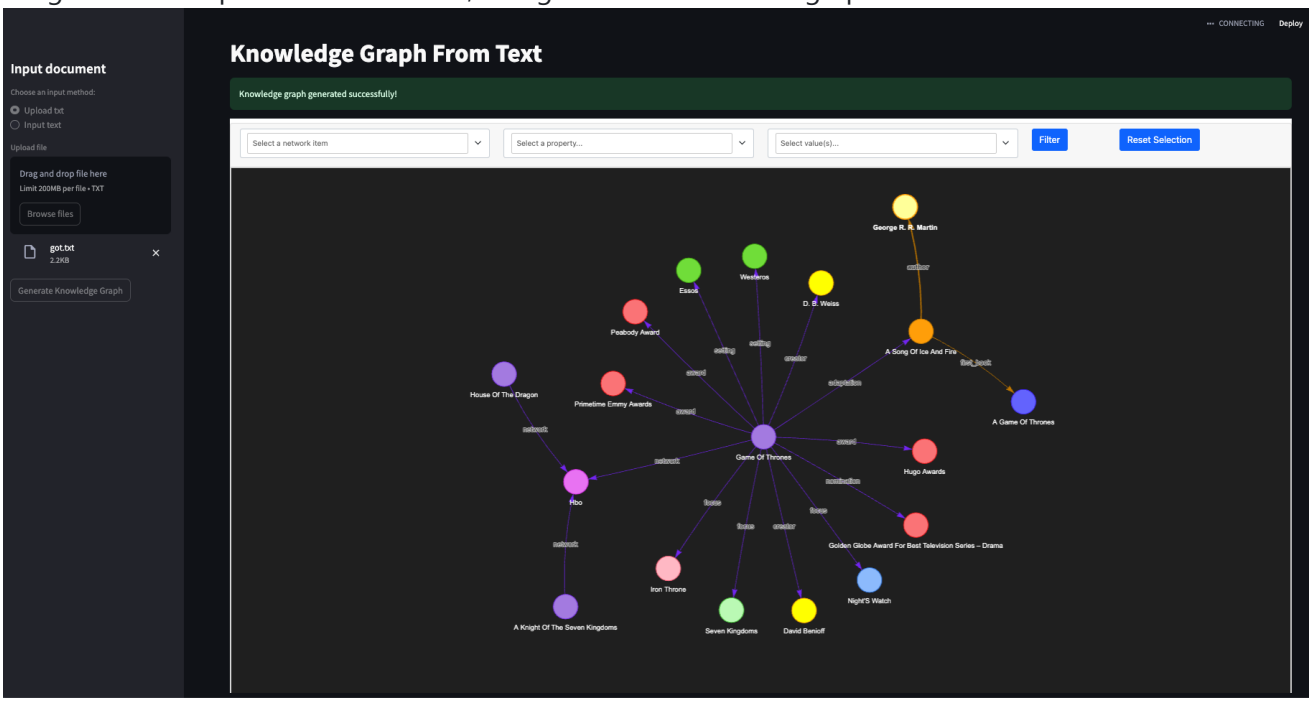
app.py	Add files	3 months ago
generate_knowledge_grap...	Add files	3 months ago
knowledge_graph.html	Add files	3 months ago
knowledge_graph.ipynb	Add files	3 months ago
requirements.txt	Add files	3 months ago

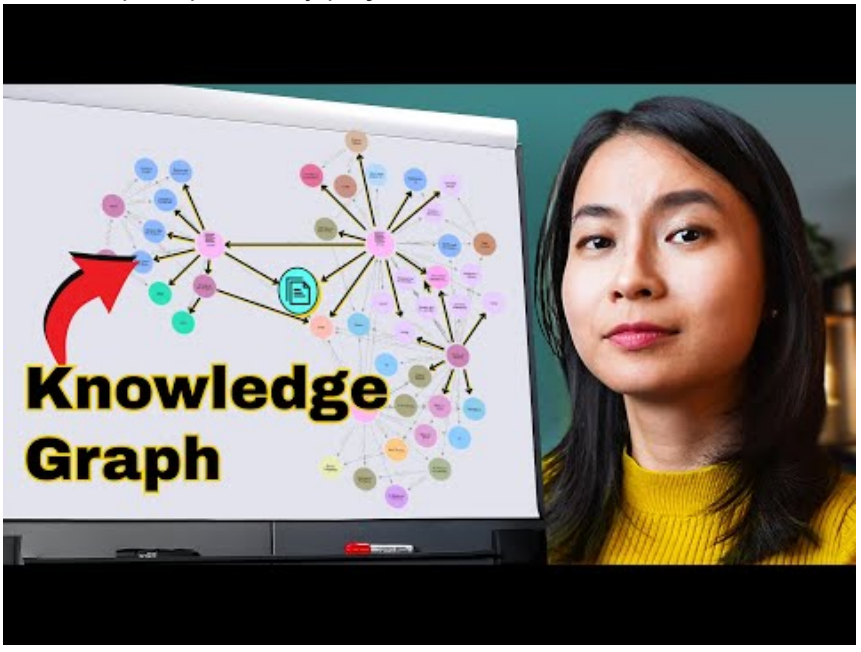
README MIT license

Knowledge Graph Generator

A Streamlit application that extract graph data (entities and relationships) from text input using LangChain and OpenAI's GPT models, and generates interactive graphs.



☞ This repo is part of my project tutorial on Youtube:



Features

- Two input methods: text upload (.txt files) or direct text input
- Interactive knowledge graph visualization
- Customizable graph display with physics-based layout
- Entity relationship extraction powered by OpenAI's GPT-4o model

Installation

Prerequisites

- Python 3.8 or higher
- OpenAI API key

Dependencies

The application requires the following Python packages:

- langchain (>= 0.1.0): Core LLM framework
- langchain-experimental (>= 0.0.45): Experimental LangChain features
- langchain-openai (>= 0.1.0): OpenAI integration for LangChain
- python-dotenv (>= 1.0.0): Environment variable support
- pyvis (>= 0.3.2): Graph visualization
- streamlit (>= 1.32.0): Web UI framework

Install all required dependencies using the provided requirements.txt file:

```
pip install -r requirements.txt
```

Setup

1. Clone this repository:

   ```
   git clone [repository-url]
   cd knowledge_graph_app_2
   ```

   Note: Replace `[repository-url]` with the actual URL of this repository.

2. Create a `.env` file in the root directory with your OpenAI API key:

   ```
   OPENAI_API_KEY=your_openai_api_key_here
   ```

Running the Application

To run the Streamlit app:

```
streamlit run app.py
```

This will start the application and open it in your default web browser (typically at http://localhost:8501).

Usage

1. Choose your input method from the sidebar (Upload txt or Input text)
2. If uploading a file, select a .txt file from your computer
3. If using direct input, type or paste your text into the text area
4. Click the "Generate Knowledge Graph" button
5. Wait for the graph to be generated (this may take a few moments depending on the length of the text)
6. Explore the interactive knowledge graph:
    - Drag nodes to rearrange the graph
    - Hover over nodes and edges to see additional information
    - Zoom in/out using the mouse wheel
    - Filter the graph for specific nodes and edges.

How It Works

The application uses LangChain's experimental graph transformers with OpenAI's GPT-4o model to:

1. Extract entities from the input text
2. Identify relationships between these entities
3. Generate a graph structure representing this information
4. Visualize the graph using PyVis, a Python interface for the vis.js visualization library

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Releases

No releases published

Packages

No packages published

Languages