Knowledge Graph Generator  
CIS 598 – Computer Science Project  
Initial Writeup and Feature List

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# Overview

## The end goal of this project would be a python web app that allows the creation and extension of knowledge graphs from raw text. It would use Chat-GPT to parse the raw text and either create or add onto an existing knowledge graph. The web app would then display the new knowledge graph and the user could see the graph that was generated.

This project would allow the user to create knowledge graphs easily and quickly from raw text. The ability to extend existing knowledge graphs is somewhat lacking in tools to do this so adding the ability for easy extension is valuable. Also, the evaluation of LLM’s to see which is the best at generating knowledge graphs should be an interesting investigation to see which is best.

## Problem/Solution

Problem: Creating knowledge graphs can be time consuming and expensive to do. They need to be created in a specific format that outlines the nodes and the edges between them. Similarly, to that it is also difficult to extend knowledge graphs by either adding new nodes or edges. There aren’t many tools today that easily allow the user to do this.

Solution: Create a web application that allows the user to generate knowledge from raw text in paragraphs. This would use Chat-GPT to parse the raw text and convert it into a knowledge graph. This would allow the user to easily create new knowledge graphs by using existing text or writing a simple prompt describing some nodes and their relationships. It would also allow the user to easily extend knowledge graphs by simply providing some text.

## Algorithmic Functionality

The main algorithmic functionality of this project would involve interacting with Chat-GPT through the API and using its output to generate graphs. Also, the process of extending an existing knowledge graph will require some implemented logic.

## Qualifications

I have worked for two years for KDD Research lab working on NLP and other machine learning areas using Python. I also have had two internships working on the backend in .NET for a full-scale website.

# Feature Lists

## Minimum Viable Product (MVP)

* Allow users to create a knowledge graph from raw text from the web app using the Chat-GPT API.
* Allow users to extend a knowledge graph from raw text from the web app using the Chat-GPT API.
* Allow users to view a static visualization of the knowledge graphs on the web application.

## Version 1.0

* Evaluate the performance of the knowledge graph generation on some known datasets.
* Allow the user to edit the graph.
* Allow the use of other LLM's to generate the graphs.
* Improve the visualization of the knowledge graph to be dynamic (you can scroll around and zoom in).

## Version 2.0

* Host this web app on a server so it is visible publicly.
* Allow the user to upload and export to multiple different types of knowledge graph files.
* Compare the performance of the different LLM's to see which is best.
* Allow the user to edit the graph using text prompts to Chat-GPT.