

Cocktail Calculator: Exploring Cocktail Connections

Project Overview

The **Cocktail Graph Project** is designed to explore relationships between cocktail recipes by identifying how cocktails can be connected based on shared ingredients and preparation techniques. Inspired by a video that demonstrated how you can navigate from one cocktail to another by changing just one ingredient at a time, I set out to create a tool that facilitates such kinds of exploration. The project uses a graph-based approach, where each cocktail represents a node, and edges are created between nodes based on their similarity scores.

Interesting Findings

While building and analyzing the cocktail graph, I discovered several fascinating insights:

- **Connectivity:** Almost all cocktails (except for about 100) can be connected with a similarity score threshold of 7. This threshold corresponds to sharing at least **3 ingredients** or **2 ingredients and 1 technique**.
- **Graph Density:** The graph is surprisingly dense. With an average node degree of **349**, most cocktails are highly connected to others. The overall graph density is **0.05**, indicating that cocktails are very "close" to each other in terms of similarity.

Future Improvements

If I had more time to expand on this project, I would consider the following enhancements:

1. **Improve Similarity Metrics:**
 - Instead of treating all ingredients equally, I would factor in the **proportion of ingredients** in a cocktail (e.g., gin makes up 20% of a gin and tonic).
2. **User-Controlled Graph Building:**
 - Would allow users to interactively adjust the similarity threshold for creating edges in the graph.