DME - readMe

DME is a project that implements three different Distributed Mutual Exclusion (DME) protocols: Lamport Shared Priority Queue, Ricart-Agrawala, and Voting. This project allows you to analyze the time complexities of these protocols based on the number of nodes concurrently requesting the Critical Section (CS).

Running the Program

To run the program, cd to the project root directory and execute the following command:

```
go build && ./dme
```

Modes

Manual Mode

In manual mode, follow these steps:

1. Type "manual" when prompted for the mode.
2. Choose one of the three protocols:
    - Press 1 for Lamport Shared Priority Queue
    - Press 2 for Ricart-Agrawala
    - Press 3 for Voting
3. Enter the number of nodes to concurrently request CS when prompted. Ensure the number is below 10, as 10 is the total number of nodes.

Graph Mode

In graph mode, follow these steps:

1. Type "graph" when prompted for the mode.

2. Sit back and wait for around 3 minutes while a graph is generated. The graph analyzes time complexities for each protocol. The x-axis represents the number of nodes concurrently requesting CS (ranging from 1 to 10), and the y-axis represents the time taken for all processes to finish their CS.

It is not recommended to run the graph mode as it takes around 5min to output the graph. To peruse through the logs of the protocols, manual mode is more suitable. The graph output for time complexity analysis has been included in the project.

External Package Used for Graphing

This project uses the gonum/plot package for graphing. The package provides a flexible and powerful tool for creating plots and visualizing data.