Mini Social networks analysis tool

It is a desktop software for network analysis and visualization. It is a tool used by data analysts and researchers to explore graphs of different networks. It enables users to interact with the graphs in many ways like coloring and adjusting nodes and edges based on calculated metrics or existing features, filtering the graphs based on any criteria, applying different community detection methods, link prediction techniques, and detecting influential users.

Your task is to implement such an interactive system using any programming language you like (we recommend using Python (NetworkX)). It is a GUI desktop application but you can implement it as a web application.

Minimum requirements:

1- At least one community detection algorithm (e.g., Girvan Newman or Louvain algorithm) in addition to

2 - At least 3 community detection evaluations (internal and external evaluation)

3- One link analysis technique(e.g., page rank)

4- Filtering nodes based on centrality measures (use at least three centrality measures)

5- Adjusting nodes and edges based on calculated metrics (node degree, edge weight….)

6- Basic network structure visualization.

Bonuses

1- Interactive visualization

2-Evaluating communities after each iteration

3- Comparing different community detection techniques in terms of the number of communities detected and evaluation criteria

For loading the network, two CSV files will be uploaded nodes file and the edges file.

You should also handle both directed and undirected graphs.