SOCIAL NETWORK ANALYSIS

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Problem Statement

a)Predicting the future link of nodes with Models.
b) Social networking sites allow users to categorize their friends into social circles and communities based on features. The latter approach is time consuming and fails to capture individual aspects of users' communities.

Background

The inferences drawn from the references are mainly the centrality measures and the different models with the cons of the graphical representation.

## Dataset and Features/Project requirement

This dataset contains node features circles and ego network with undirected edges containing 10 ego networks (193 circles and 4039 users).The design constrains are: Maintainability, Heterogeneity:, Scalability, Missing Data. Non-functional requirements include: Performance requirements, Safety requirements, Security requirements, Manageability and Utility.

Design Approach/ Methods

Nodes and edges as input with centrality measures as an aspect to graphically visualise the nodes. Using the Link prediction concept to predict the future association of the nodes. Methods used were on node neighbours, on ensemble of all paths with the use of multiple features of the node. The machine learning models used were SVM, KNN, Random forest etc.

Results and Discussions

We obtained an optimised method that is using an ensemble model to perform future link prediction and then attained accuracy more than 90% which is better than the present used models. We displayed the result using the graphical representation as shows the before and after the implementation of the model
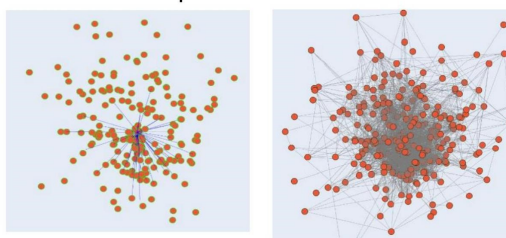
Summary of Project Outcome

a) The results obtained from ensemble model algorithms and choosing the one that gives an optimized accuracy.
b) Discusses about how Important of a factor is to split the dataset into appropriate ratios for optimal working of the models

Conclusion and Future work

Conclusion

- The centrality measures implemented in the project are a key factor for graph plotting helps to visualize the association.
- The combination of models involved helps in obtaining better accuracy.

Future work

- Implementing this method in social network platforms with ensemble models.
- Paper publication is also major aspects.

References

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[2] A. Kumar, D. Chhabra, B. Mendiratta and A. Sinha, Analyzing Information Diffusion in Ego-centric Twitter Social Network, ICSC 2020.

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