Amrita School of Computing
Department of Computer Science and Engineering

Minor Project: 19CSE495
(2020-2024 B.Tech CSE)

Problem Definition Document

Group C4

I. Project Title:

Overlapping Community Detection on Attributed Networks.

II. Team members:

Roll No.	Name
AM.EN.U4CSE20275	Vennam Venkata Siva Naga Sai Mohan
AM.EN.U4CSE20217	Boora Jagadananda Tharaka
AM.EN.U4CSE20215	Balla Hemanth
AM.EN.U4CSE20248	Mudiyala Vishal Reddy

III. Abstract:

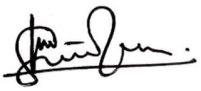
To address the problem of identifying overlapping communities in networks while considering node attributes as well as the topological structure of the network. Normal community detection algorithms assume non-overlapping communities and ignore the additional information provided by node attributes. However, in many real-world scenarios, such as social networks or biological systems, nodes can belong to multiple communities simultaneously. By considering and combining the information from node attributes and the network topology, this project aims to develop an algorithm that can effectively detect overlapping communities that align with both the connections between nodes and their shared attributes, allowing for a more accurate understanding of complex network structures. This problem is relevant as it has applications in various domains, including social network analysis, recommendation systems, and understanding complex systems, providing valuable insights into the relationships and interactions within the networks.

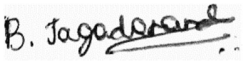
IV. Motivation:

The motivation behind choosing the project "Overlapping Community Detection on Attributed Networks" is to improve our understanding of complex networks by accurately identifying overlapping communities. General community detection methods ignore the presence of overlapping communities and fail to consider the rich information provided by node attributes. By addressing this limitation, we can get deeper insights into the structures and dynamics of real-world networks.

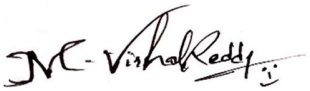
Example:

- Consider a social network like Facebook, where individuals can belong to multiple communities simultaneously.
- A person might be part of various groups based on their interests, hobbies, and professional affiliations.
- By incorporating node attributes such as age, gender, location, and interests, we can accurately detect overlapping communities and uncover more nuanced patterns of social interaction.
- This can enable targeted content recommendation, personalized advertising, and improved understanding of user behavior.

Vennam Venkata Siva Naga Sai Mohan: 

Boora Jagadananda Tharaka: 

Balla Hemanth: 

Mudiyala Vishal Reddy: 

Ms. Deepthi LR (Project Guide):