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REVIEW ARTICLE

Unlocking the Power of Social Networks with Community Detection Techniques for Isolated and Overlapped Communities: A Review

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Abstract

Background: Social Network Analysis is a prominent field of research that captures the attention of numerous data mining expert. Social networks are visualized as network graphs, and identifying communities involves the identification of densely connected nodes. The exploration of community detection in online social networks is an essential field of research. This review paper presents an extensive examination of the latest methodologies and approaches utilized for isolated and overlapped community detection specifically in online social networks. **Objective:** To provide a comprehensive overview of the existing literature on community detection techniques for social networks with isolated and overlapped communities. The review aims to identify the key challenges associated with community detection in such networks and to review the various algorithms and methods that have been proposed to address these challenges. Additionally, this review intends to compare the performance of different community detection techniques on networks with isolated and overlapped communities, and to highlight their strengths and weaknesses. Ultimately, the goal of the review is to provide researchers and practitioners with a better understanding of the current state of the art in community detection for social networks, and to help guide future research in this important area. **Methods:** A comprehensive literature search was conducted on quality databases viz. Scopus, Web of Science, IEEE Xplore, and Science Direct using relevant keywords, and the selected articles were screened for inclusion/ exclusion based on their titles, abstracts, and keywords. The following are some search keywords that can be used for searching community detection papers: Community detection, Graph clustering, Network partitioning, Modularity optimization, Community structure, Graph-based clustering, Network community detection, Overlapping communities, Community detection algorithms, and Evaluation metrics for community detection. Comparative analysis was performed on the chosen articles, considering factors such as algorithms, methodologies, datasets, and