**Abstract**

 The recognition of communities linking like nodes is a demanding subject in the revision of social network data. It has been extensively considered in the social networking community in the perspective of underlying graph structure besides communication among nodes to progress the eminence of the discovered communities. A new approach is proposed based on frequent patterns and the actions of users on networks for community detection. This research work spends association rule mining to discover communities of similar users based on their interests and activities. The Clique Percolation technique initially anticipated for directed networks for driving communities is enlarged by using the ascertained prototypes for seeking network components, i.e., internally tightly linked groups of nodes in directed networks discovering overlapping communities efficiently. The community measures such as the bulk of the community, piece of community and modularity of the community are used for testing the reality of communities. It tests the proposed community detection approach using a sample twitter data of sports person networks with F-measure and precision showing that the proposed method principals to improve the community detection quality.