Incorporating Graph Permanent in Financial Analysis

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The graph permanent is a fundamental combinatorial property that serves to quantify various structural attributes of a graph. Defined as a summation of the products of all possible permutations of the elements in a square matrix, the graph permanent is computed from the adjacency matrix of a network. Our research work explores the novel application of graph permanents in financial analysis. Our approach introduces a new dimension in financial network analysis, offering promising implications for investors, creditors, debtors and policymakers aiming to strengthen financial market stability. Using historical trading data from the Dhaka Stock Exchange (2005–2017), our experiments demonstrate how graph permanents can enrich financial analysis and facilitate more effective optimization of stock networks. Additionally, our experiments using financial statements of companies such as PepsiCo, P&G, and Nestle further underscore the potential of graph permanents in financial analysis.

Biography

Sujoy Das (Std No. 0422054002) is a full-time Ph.D. student in the Department of CSE at Bangladesh University of Engineering and Technology (BUET). He completed his B.Sc. and M.Sc. in Computer Science and Engineering at BUET. His research interests include graph theory, network science and complex systems. He is currently conducting his doctoral research under the supervision of Prof. Dr. Md. Saidur Rahman. He will be speaking about his ongoing research in this talk.