SOCIAL NETWORKS

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COURSE OUTLINE:
The world has become highly interconnected and hence more complex than ever before. We are surrounded by a multitude of networks in our daily life, for example, friendship networks, online social networks, world wide web, road networks etc. All these networks are today available online in the form of graphs which hold a whole lot of hidden information. They encompass surprising secrets which have been time and again revealed with the help of tools like graph theory, sociology, game theory etc. The study of these graphs and revelation of their properties with these tools have been termed as Social Network Analysis.

ABOUT INSTRUCTOR:
Prof. Sudarshan Iyengar has a Ph.D. from the Indian Institute of Science and is currently working as an assistant professor at IIT Ropar and has been teaching this course from the past 5 years. Apart from this course, he has offered several other courses in IIT Ropar like Discrete Mathematics, Theory of Computation, Cryptography, Probability and Computing etc. His research interests include social networks, crowdsourced knowledge building and computational social sciences.

COURSE PLAN:

- **Week 01**: Introduction
- **Week 02**: Handling Real-world Network Datasets
- **Week 03**: Strength of Weak Ties
- **Week 04**: Strong and Weak Relationships (Continued) & Homophily
- **Week 05**: Homophily Continued and +Ve / -Ve Relationships
- **Week 06**: Link Analysis
- **Week 07**: Cascading Behaviour in Networks
- **Week 08**: Link Analysis (Continued)
- **Week 09**: Power Laws and Rich-Get-Richer Phenomena
- **Week 10**: Power law (contd..) and Epidemics
- **Week 11**: Small World Phenomenon
- **Week 12**: Pseudocode (How to go viral on web)