# Introduction and Different Types of Networks

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**CSL7390 Social Network Analysis Lecture 1**
**January 5th, 2024**

# Attendance policy of IIT Jodhpur

## 4.1.9 Attendance Requirements

A student should have full attendance in each course. Unless the student takes leave of absence for valid reasons, the student has to attend every lecture, tutorial, or lab session. The attendance records must be made available to the student after every lecture. Even if the student's attendance falls below 75%, the student will be allowed to appear for the exams. Students not meeting the attendance criterion of 75% will be required to score at least C grade to pass a course. These students would be awarded F grade if their marks are lower than the cut-off for C grade in a course.

# Evaluation policy

- Exams (50%)
    - Minor 1: 15%
    - Minor 2: 15%
    - Major : 20%

- Continuous evaluation (50%)
    - Programming assignments: 20%
    - Project: 30%

# **Project deadlines**

- Feb 12, Mon, 2024: Last date of group formation and topic identification
  - Max no. of members in a group: 4

- Apr 27, Sat, 2024: Project evaluations

# Exemplary project topics

- (Dynamic) Community Detection in (Dynamic) Networks
- Advances in PageRank Calculation
- Building News Networks
- Closure Coefficient and Measuring Quadrangle Formation
- Design algorithm for property tester for Structural balance
- Generating Large Scale-Free Networks With The Chung–Lu Random Graph Model
- Influence Maximization in competitive Product Diffusion
- Influence Maximization on Signed Network
- Predicting links in Multiplex Networks
- Signed Link Prediction and Sign Prediction

# Exemplary project types

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- **Original research:** Coming up with a novel idea, implementing it, and presenting preliminary results

- **Survey:** Reviewing a number of papers on a given topic and performing a comparative study between them

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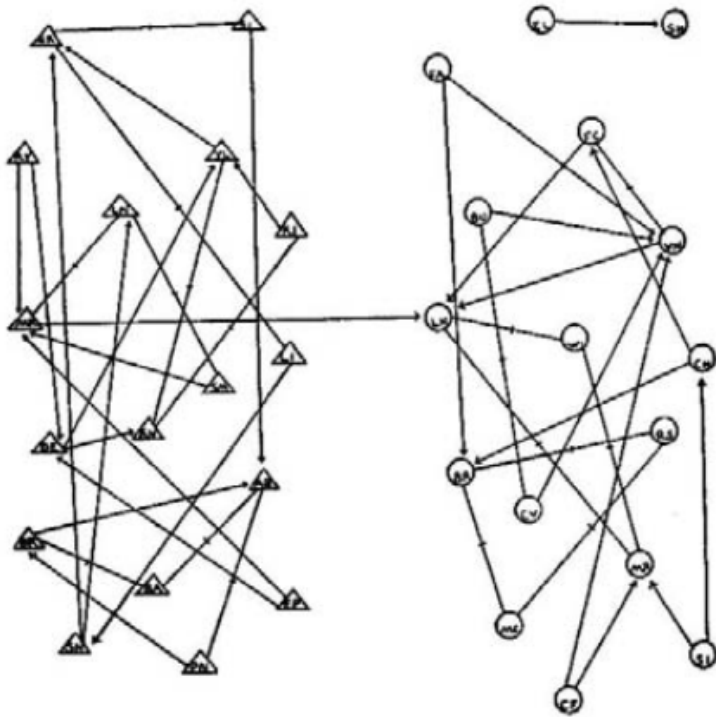
Figure 3.1: Friendships between schoolchildren. This early hand-drawn image of a social network, taken from the work of psychiatrist Jacob Moreno, depicts friendship patterns between the boys (triangles) and girls (circles) in a class of schoolchildren in the 1930s. Reproduced from [228] by kind permission of the American Society of Group Psychotherapy and Psychodrama.
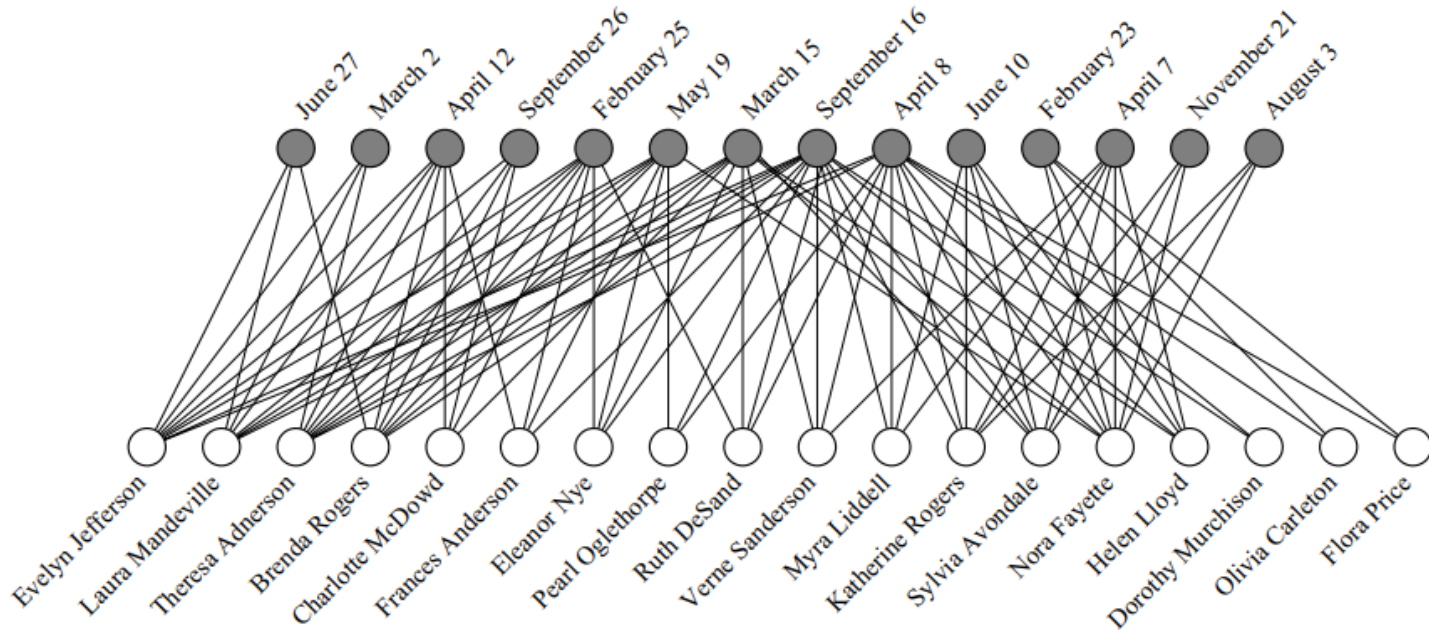
# Affiliation network



Figure 3.2: The affiliation network of the "Southern Women Study." This network (like all affiliation networks) has two types of vertex, the open circles at the bottom representing the 18 women who were the subjects of the study and the shaded circles at the top representing the social events they attended. The edges connect each woman to the events she attended, as deduced from newspaper reports. Data courtesy of L. Freeman and originally from Davis *et al.* [86].

# Why do social network analysis?

- Identify global interaction patterns
- Identify local interaction patterns
- Rank nodes w.r.t. a given task
- Study network dynamics etc.

# References

- 'Networks' by Mark Newman, Oxford University Press, 1st edition, 2010.

# Thank you