

Clustering Coefficient

Introduction to Network Science

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Topic 06

Contents

- Local clustering coefficient
- Global clustering coefficient

Sources

- Albert-László Barabási: Network Science. Cambridge University Press, 2016.
 - Follows almost section-by-section chapter 02
- URLs cited in the footer of specific slides

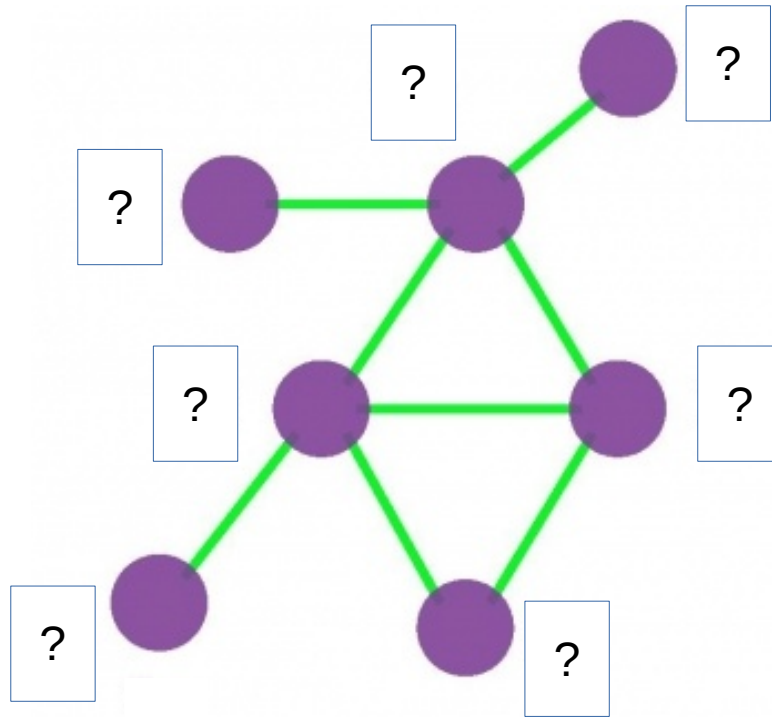
Local clustering coefficient

- The **local clustering coefficient** C_i is a property of a node i
- Let L_i represent the number of links among neighbors of node i

$$C_i = \frac{2L_i}{k_i(k_i - 1)} \quad C_i \triangleq 0 \text{ if } k_i \leq 1$$

Exercise

What is the local clustering coefficient of each node?



$$C_i = \frac{2L_i}{k_i(k_i - 1)}$$

$$C_i \triangleq 0 \text{ if } k_i \leq 1$$

Draw in Nearpod Draw-It
<https://nearpod.com/student/>
Code to be given during class

Average clustering coefficient

- The **average clustering coefficient** is a property of the entire graph

$$\langle C \rangle = \frac{1}{N} \sum_{i=1}^N C_i$$

Sometimes this is called the *curvature* of a graph

Summary

Things to remember

- Local and global clustering coefficient

Practice on your own

- Calculate local clustering coefficient of each node in this graph

