Task 8

CLUSTERING OF SOCIAL-NETWORK GRAPHS

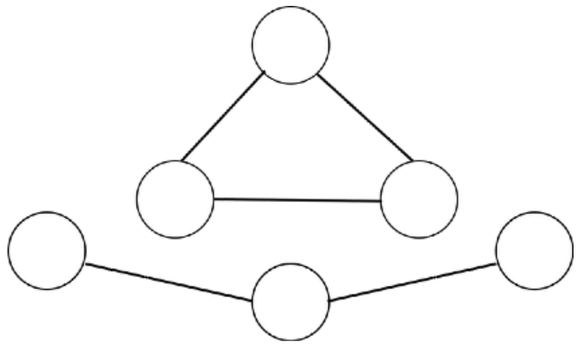
Global clustering coefficient:

- indication of the clustering in the whole network (global)
- can be applied to both undirected and directed networks (often called **transitivity**)

$$C = \frac{\text{number of closed triplets}}{\text{number of all triplets (open and closed)}}.$$

$$C = \frac{3 \times \text{number of triangles}}{\text{number of all triplets}}.$$

- based on triplets of nodes:
  - A triplet is three nodes that are connected by either **three (closed triplet)** or
  - **two (open triplet)** undirected ties of pairs of the node's connections that are connected with each other.



Task 8

CLUSTERING OF SOCIAL-NETWORK GRAPHS

Local clustering coefficient:

- quantifies how close the neighbours of a node are to being a clique (complete graph)
- proportion of links between the nodes within its neighbourhood divided by the number of links that could possibly exist between them.

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

- undirected

$$C_i = \frac{n}{k_i(k_i-1)}.$$

- directed

$$\bar{C} = \frac{1}{n}\sum_{i=1}^{n} C_i.$$

- Network Average Cluster Coefficient