Some Notes on Graph Mining

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1 Into2GraphMining

1. A graph is said to be connected if there is path between every pair of vertices
2. Two graphs $G_1(V_1, E_1)$ and $G_2(V_2, E_2)$ are said to be isomorphic if they are topologically identicle, which means a mapping from V_1 to V_2 exists so that each edge E_1 is mapped to a single edge in E_2 and vice-versa.
3. Frequent subgraph mining (FSM)
    - Given a set of undirected and labeled graphs (D) and a support threshold σ, find all connected and undirected graphs that are subgraphs in at least $\sigma \times D$ of input graphs.

2 Complex networks tools for analyzing networks (R+igraph)

1. `igraph` can be used to handle undirected and directed graphs. It includes implementations for classic graph theory problems like minimum spanning trees and network flow and community structure search.
2. Procefures for analyzing network
    - Create a graph object:
    - Layout the network
    - Ranking
    - Metrics
    - Community detection
    - Export