TP Social Network

A social network can be represented by an oriented graph in which the vertices (or summits) represent the people and the arcs (or arrows) the connection between them. Each arc connects two vertices, called the origin and the end of the arc. The direction of the arc represents the influence that can have a person on another person. Each summit is associated to an information (a string representing the ID), called the label, which is unique: two distinct vertices do not have the same ID.
Each pair (o, e) represents an arc from the vertices o to e (o influences e). The following list of arcs describes the graph:
[('Andreas', 'Bernard'), ('Bernard', 'Andreas'), ('Cathie', 'Andreas'), ('Cathie', 'Daniel'), ('Bernard', 'Cathie'), ('Bernard', 'Daniel'), ('Bernard', 'Emmanuel'), ('Daniel', 'Emmanuel')].

By an associative table (AKA dictionary) representing an adjacency list, in which:
• the names are the labels of the vertices,
• the value associated with [the label of] a vertex o is the list of [labels of] adjacent vertices, such that there exists an arc of which o is the origin and e is the destination.

Write the following functions:

- A function gr(l_arcs) which returns a representation in the form “dictionary” of an adjacency list using as argument graph represented as a list of arcs. The keys of the list are people’s names and the value associated to each key is a list of influenced people.
- A function that takes as argument a list of arcs: ens_sommets (l_arcs) and returns the names of the people in the network,
- A function ens_influenced (l_arcs, n) that returns the influenced people by n.
- A function ens_influencing (l_arcs, n) that returns the set of people that influence n.
- A function Isolated(l_arcs) the set of people who have no influence on any other people.
- A function sources(l_arcs) that returns the set of people that are not influenced by others.

Bonus Question

Write a merge function (FB, Twit) that receives two “social networks” represented as adjacency lists and returns a new list without repetition, consisting of the merge of the two lists.