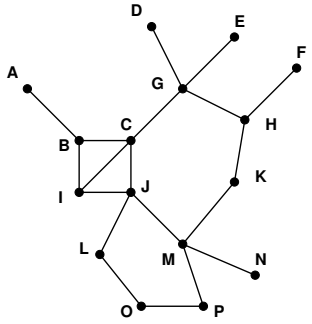
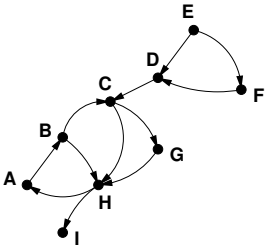
M2 – NSD (Exercises 1)

To get things started

Maximilien Danisch, Marwan Ghanem, Lionel Tabourier

We consider the following graphs, respectively undirected and directed: G_u and G_d.





Exercise 1 — *Graph*

Represent both graphs in the following formats:

- list of edges,
- adjacency matrix,
- adjacency lists.

Exercise 2 — *Degree*

Considering G_u, compute

- its degree distribution,
- its average degree.

Exercise 3 — *Distance*

Considering G_u, compute

- its distance distribution,
- its average distance.

Exercise 4 — *Connectedness*

Considering G_d, find its largest strongly connected component.

Exercise 5 — *Clustering*

Considering G_u, compute

- its clustering distribution,
- its average clustering.