6.S091: Problem Set 3

Suyeol Yun
syyun@mit.edu

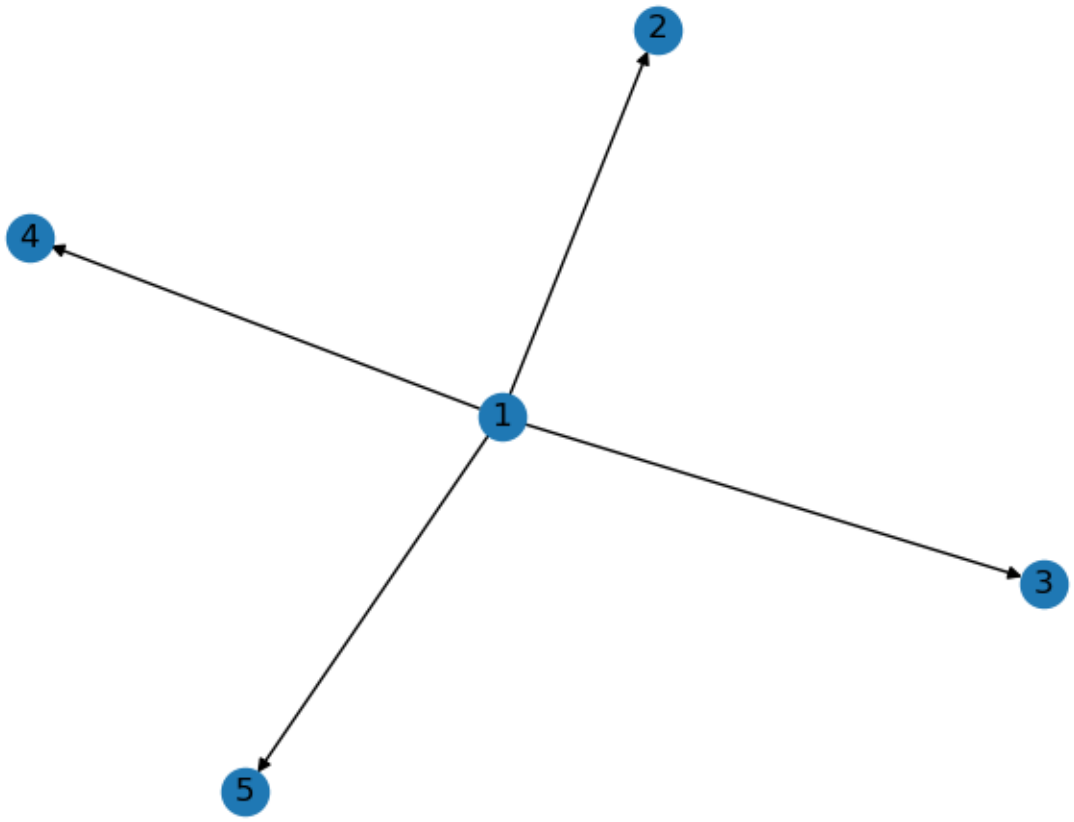
February 1, 2023

Problem 1: Constructing Minimal I-MAPs [5 points]

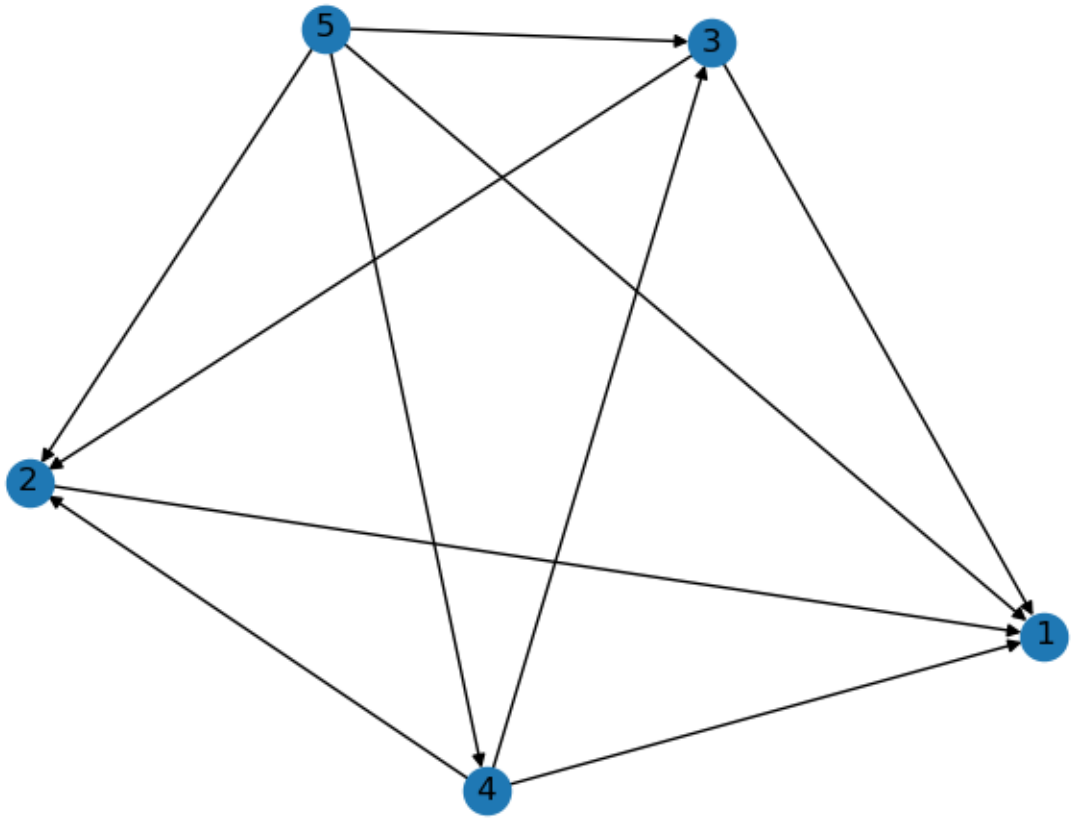
* Code is available at https://github.com/syyunn/6.S091/blob/main/pset3/pb1.py

(a)

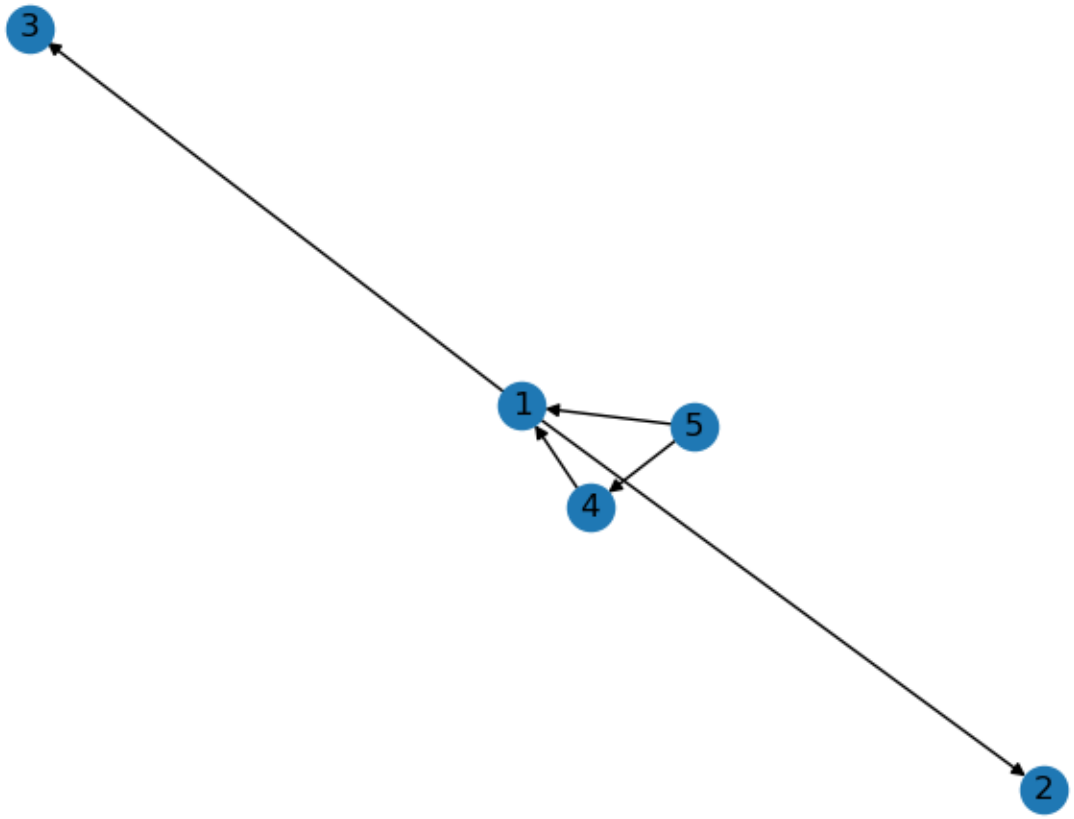
1. Draw $\mathcal{G}_{\pi_a}$



2. Draw $\mathcal{G}_{\pi_b}$



3. Draw $\mathcal{G}_{\pi_c}$



(b)

We can transform $\mathcal{G}_{\pi_a}$ into $\mathcal{G}_{\pi_c}$ by the Chickering sequence (Add $5 \rightarrow 4$, Reverse $1 \rightarrow 5$, then Reverse $1 \rightarrow 4$).

Problem 3

* Code is available at https://github.com/syyunn/6.S091/blob/main/pset3/search_mec.py

(a)

starting_dag2 and 3 both have 4 neighbors.

(b)

1. starting_dag2 has the shortest path of length 1.
2. starting_dag3 has the shortest path of length 3.