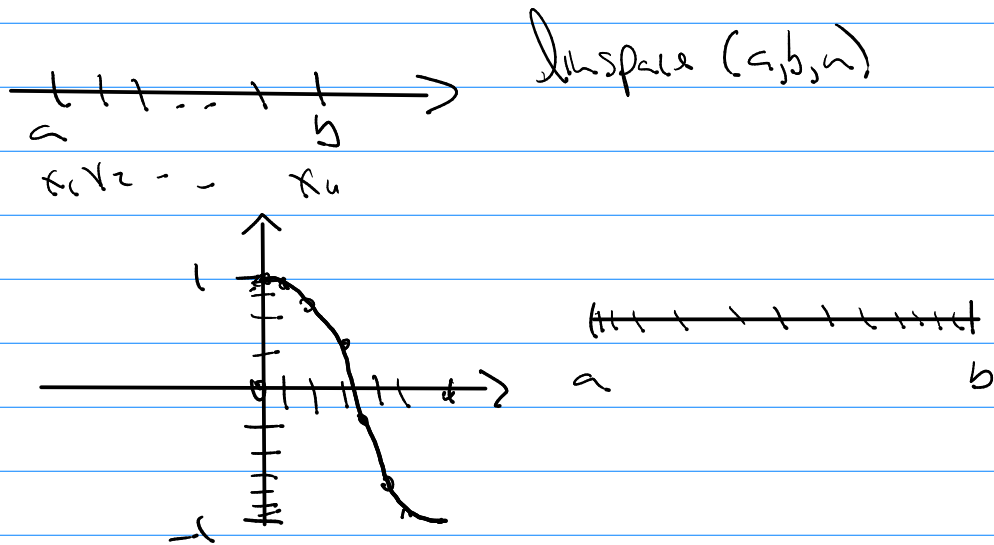


Math 451

Q5f



Proj. 6 Graph theory

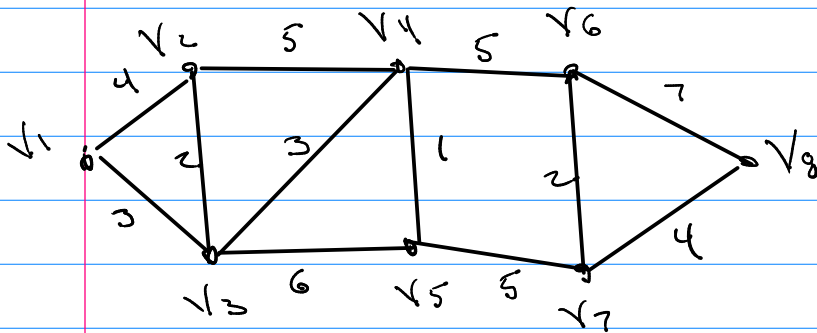
① I'll give you Dijkstra

② Centrality on

A function

$\{c\} = \text{centrality}(AG)$

c is a vector and its values are the number of times the vertex (of index) is in the middle of a shortest path (length ≥ 3)



$$A = \begin{bmatrix} 0 & 4 & 3 & 0 & 0 & 0 & 0 & 0 \\ 4 & 0 & 2 & 5 & 0 & 0 & 0 & 0 \\ 3 & 2 & 0 & 3 & 6 & 0 & 0 & 0 \\ 0 & 5 & 3 & 0 & 1 & 5 & 0 & 0 \\ 0 & 0 & 6 & 1 & 0 & 0 & 5 & 0 \\ 0 & 0 & 0 & 5 & 0 & 0 & 2 & 7 \\ 0 & 0 & 0 & 0 & 5 & 2 & 0 & 4 \\ 0 & 0 & 0 & 0 & 0 & 7 & 4 & 0 \end{bmatrix}$$

$$Dijkstra(A, 4)$$

centrality(prob3_weight) \rightarrow 0 0 15 26 16 0 12 0

hints on centrality

(see video)

heart of the algorithm.

$\text{any}(b\{v\}(2:\text{end}-1) == u)$

(10^2 run
djk in
a loop)

Proj 7

① run calculator on a set of probs

② american revolution data \rightarrow djik, centrality

③ } crypto

④ }