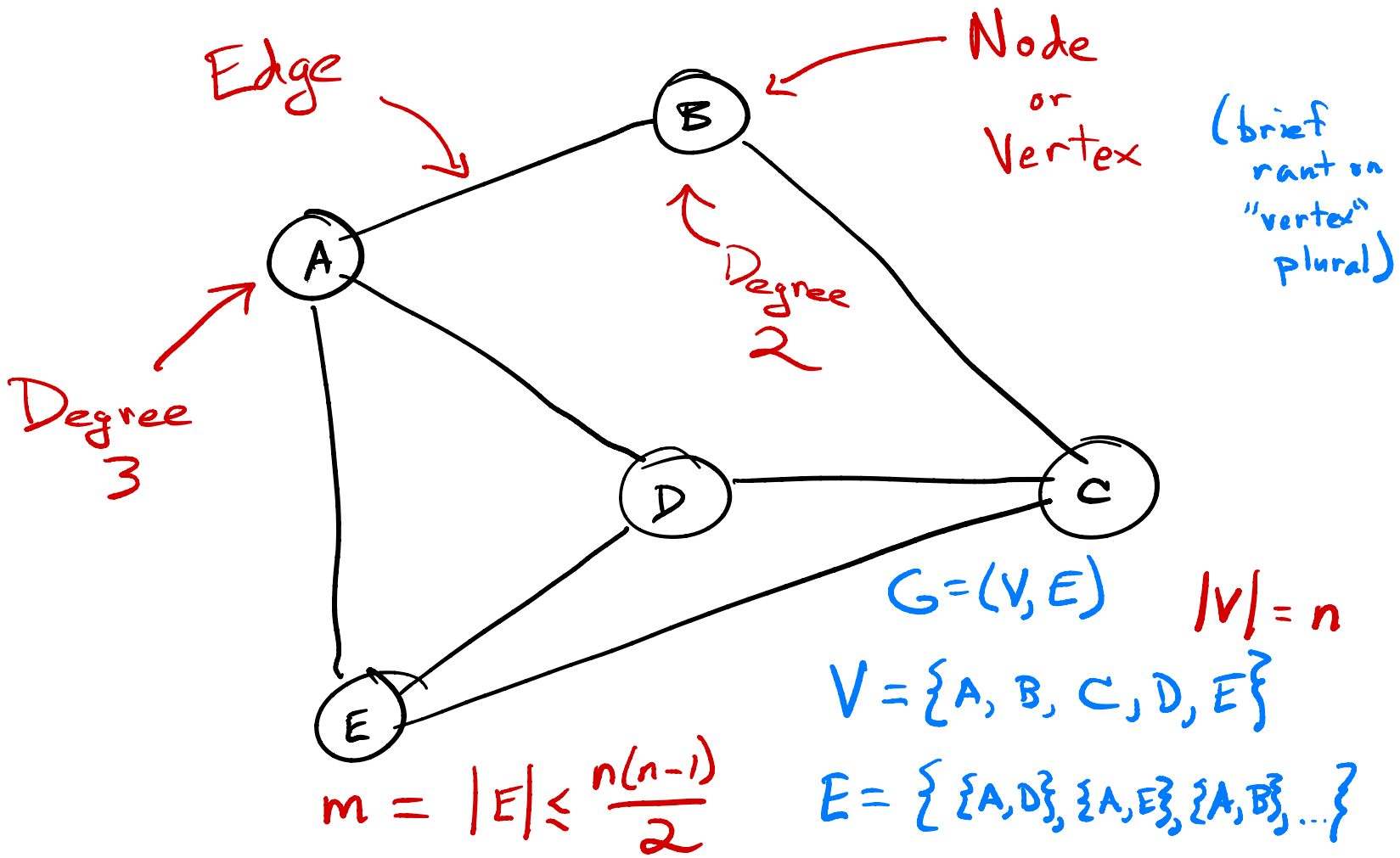


CS 252

M, 8 April 2024



Edge

Node
or
Vertex

(brief rant on
"vertex"
plural)

Degree
3

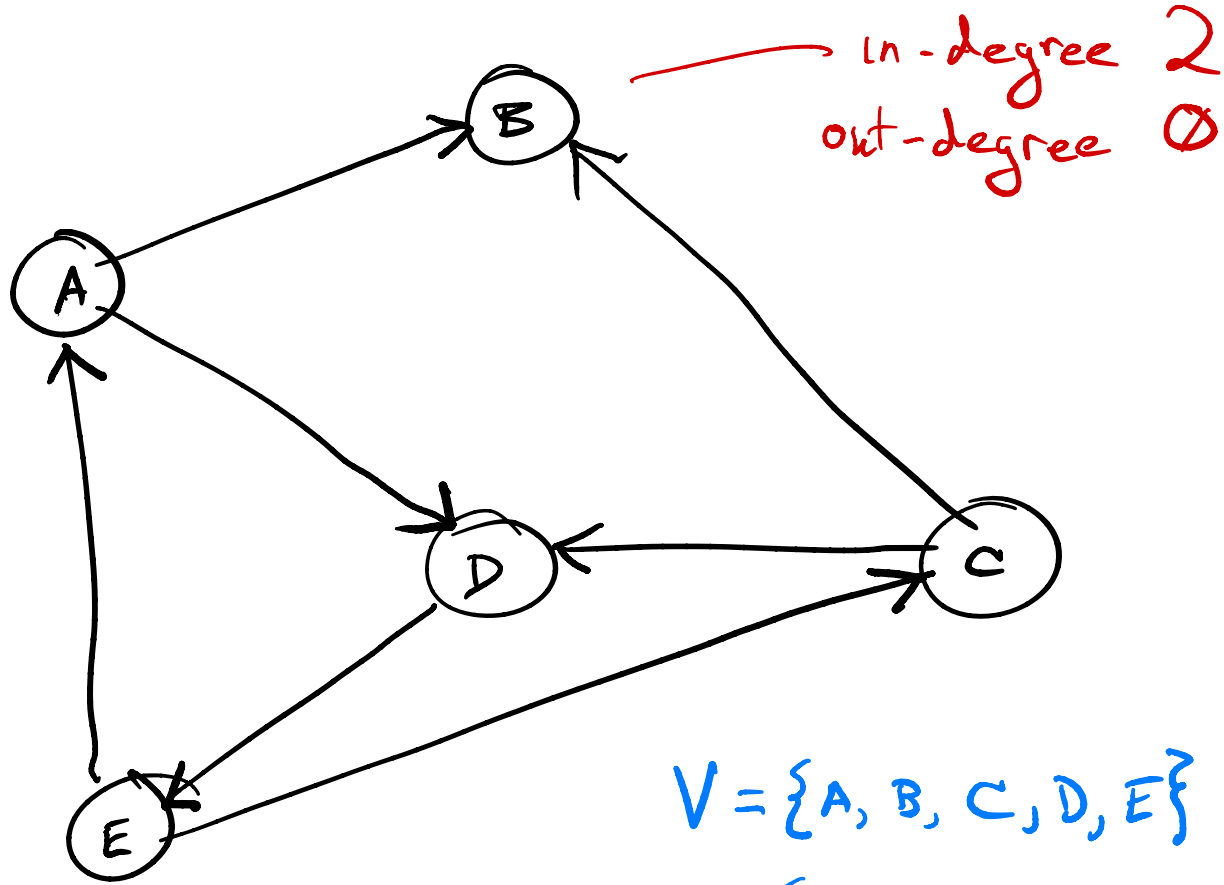
Degree
2

$$G = (V, E) \quad |V| = n$$

$$V = \{A, B, C, D, E\}$$

$$E = \{ \{A, D\}, \{A, E\}, \{A, B\}, \dots \}$$

$$m = |E| \leq \frac{n(n-1)}{2}$$

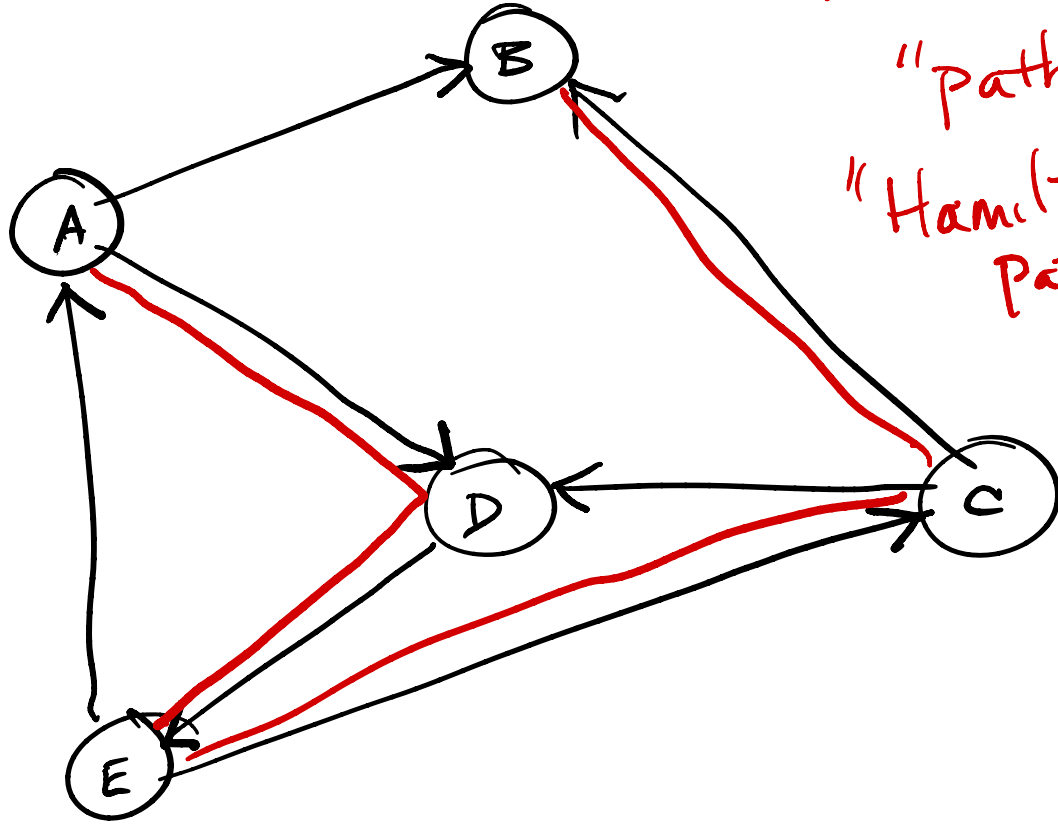


in-degree 2
out-degree 0

loops. E means two things. Sorry.)

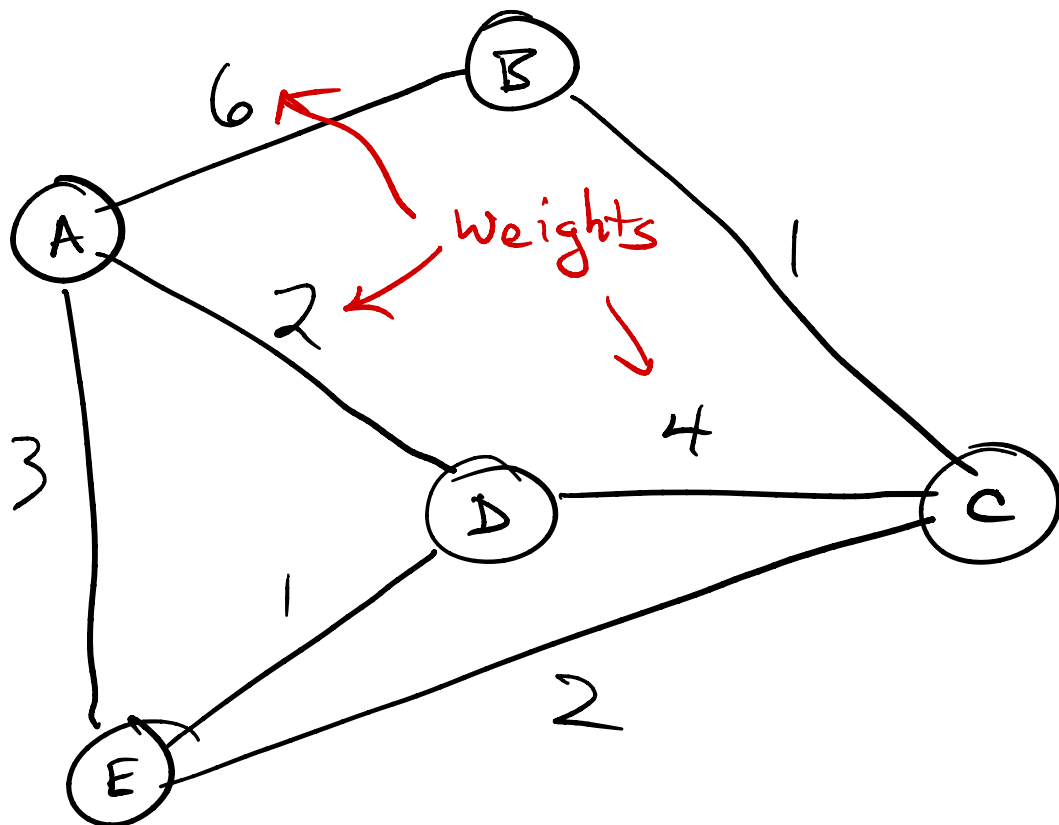
$|E| \leq n(n-1)$ $E = \{(A,D), (A,B), (E,A), \dots\}$ ~~$E = \{(A,D), (A,E), (A,B), \dots\}$~~

$V = \{A, B, C, D, E\}$

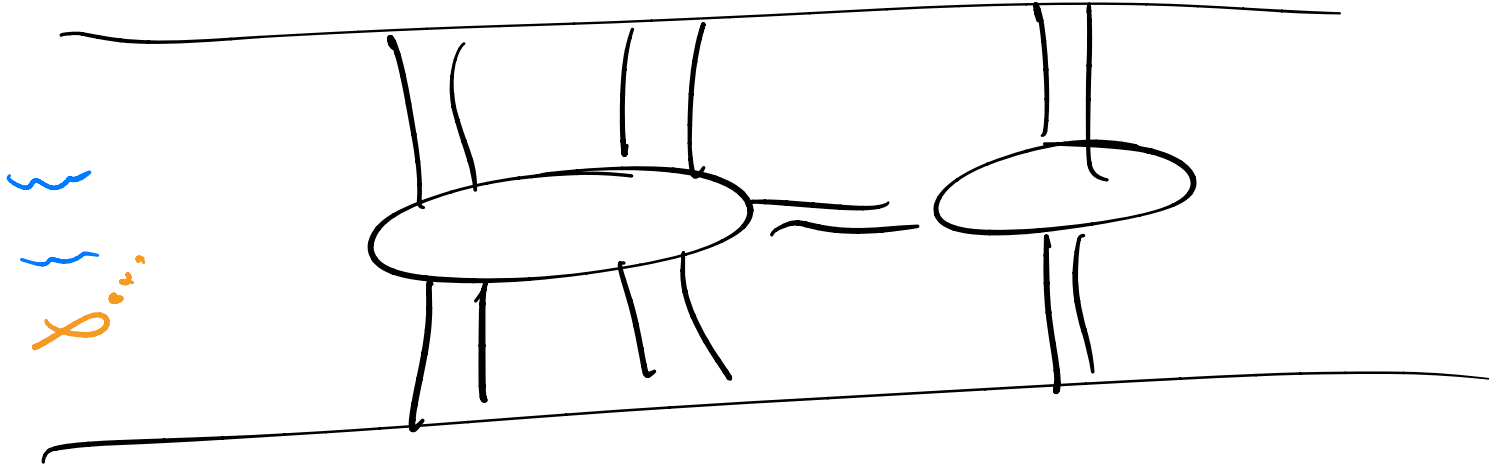
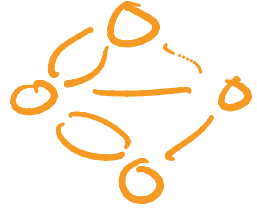


$A \rightarrow D \rightarrow E \rightarrow C \rightarrow B$
"path"

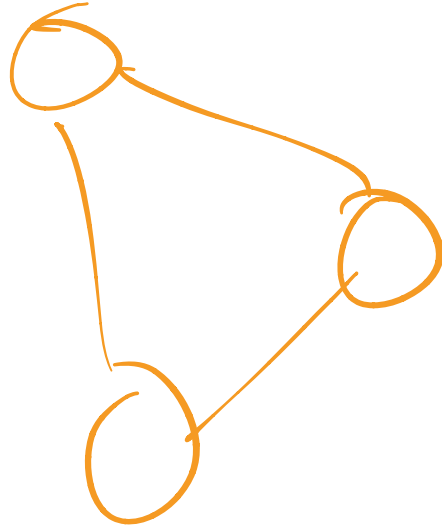
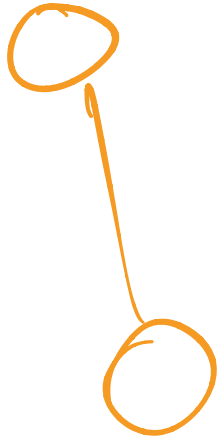
"Hamiltonian
path (hits
every
vertex
once)"



Königsburg bridge problem | Leonhard Euler

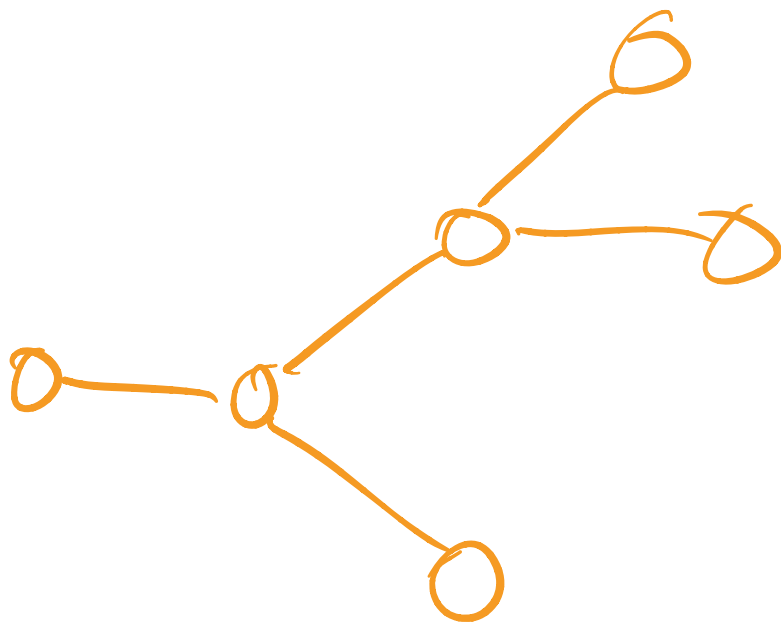


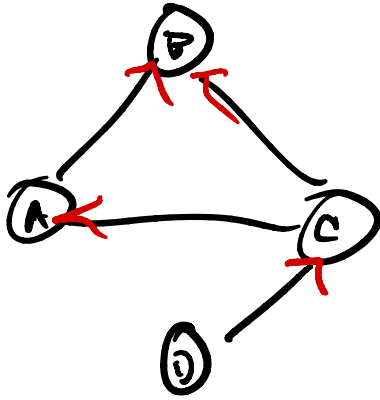
Can you start on one
bank, cross each bridge once
→ end up on the original bank?



Not connected

Tree





Adjacency matrix

from

	A	B	C	D
A	0	1	1	0
B	1	0	1	0
C	1	1	0	1
D	0	0	1	0

to

Adjacency lists

