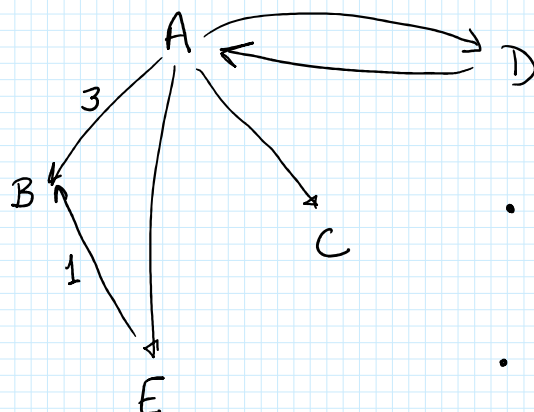
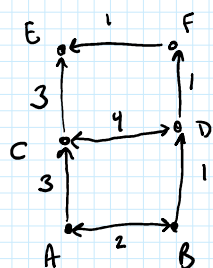


~ Graphs ~



Nodes
Edges
Uni/Bidirectional
Weighted Edges

- Represent Physical System
- Ease of connectivity between nodes



$w = \text{time to transit at intersections}$

fastest path $A \rightarrow D$
 $A \rightarrow B \rightarrow D$ 3
 $A \rightarrow C \rightarrow D$ 7

$A \rightarrow E$
 $A C E$
 $A B D F E$
 $A B D C E$
 $A C D F E$

Build Graph

Evaluate Cost of a given path
 Find all nodes connected to a starting pt

Shortest Path

TO

	FROM						
	A	B	C	D	E	F	G
A	0	2	∞	∞	∞	∞	
B	2	0	∞	∞	∞	∞	
C	3	∞	0	4	∞	∞	
D	∞	1	4	0	∞	∞	
E	∞	∞	3	∞	0	1	
F	∞	∞	∞	1	∞	0	

$E \rightarrow E$
 $F \rightarrow E F$
 $D \rightarrow D F E C$
 $C \rightarrow C D E F$

Facebook
 unweighted edges
 bi directional
 $1 \times 3B \times 3B$

TikTok
 Insta
 unweighted
 unidirectional

bi directional

$\frac{1}{2} \times 3B \times 3B$

4.5×10^{18} bits

499 Peta Bytes
sparse matrix

undirectional

D \rightarrow D F E C

C \rightarrow C D E F

B \rightarrow A B D C E F

A \rightarrow A B C D E F

class nodes
name
list of edges

class edge
src
dst
wt

class graph
list of nodes
insert
list friend
find all connections
remove node
add friend.