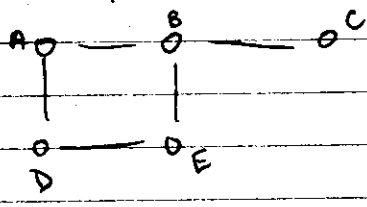
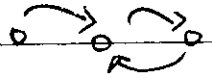
Introduction to Graph Mining

- A graph $G(V, E)$ is a set of vertices (nodes) and a set of edges connecting the nodes
- Example 1:



- Example 1 represented using an adjacency matrix:

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

- Graphs can be directed: 
And weighted
- Applications: Web (links between pages), Twitter (follower relationships), Facebook (friends), LinkedIn (connections), movies (two actors are connected if they co-starred in a movie), etc

Connectivity and density

- A graph is connected if there exists a path between every pair of vertices
- Example 1 is connected
- Example 2 below is not, but consists of 2 connected components (subgraphs)