

REPRESENTING GRAPHS

In addition to representing graphs as a set of nodes & vertices (& weights), or through a picture, they are oftentimes represented as adjacency matrices.

We're going to introduce these without too much linear algebra:

	Angela	Albert	Riki	Cindy
Angela	No	No	Yes	No
Albert	No	No	Yes	Yes
Riki	Yes	Yes	No	Yes
Cindy	No	Yes	Yes	No

	Angela	Albert	Riki	Cindy
Angela	0	0	1	0
Albert	0	0	1	1
Riki	1	1	0	1
Cindy	0	1	1	0

$$A = \begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & 0 & 1 & 1 \\ 1 & 1 & 0 & 1 \\ 0 & 1 & 1 & 0 \end{bmatrix}$$

Who did you text yesterday?

	Aristotle	Plato	Socrates	Xenophon
Aristotle	Yes	Yes	Yes	No
Plato	No	No	Yes	Yes
Socrates	No	Yes	No	Yes
Xenophon	No	No	Yes	No

$$\begin{bmatrix} 1 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 \\ 0 & 1 & 0 & 1 \\ 0 & 0 & 1 & 0 \end{bmatrix}$$

How many times did you text each person yesterday?

	Aristotle	Plato	Socrates	Xenophon
Aristotle	7	10	4	0
Plato	0	0	3	6
Socrates	0	2	0	1
Xenophon	0	0	12	0

$$\begin{bmatrix} 7 & 10 & 4 & 0 \\ 0 & 0 & 3 & 6 \\ 0 & 2 & 0 & 1 \\ 0 & 0 & 12 & 0 \end{bmatrix}$$

Weighted & Directed