

GRAPH THEORY

NETWORKX

What is Graph Theory?

A VERY BRIEF *graph theory* INTRODUCTION TO

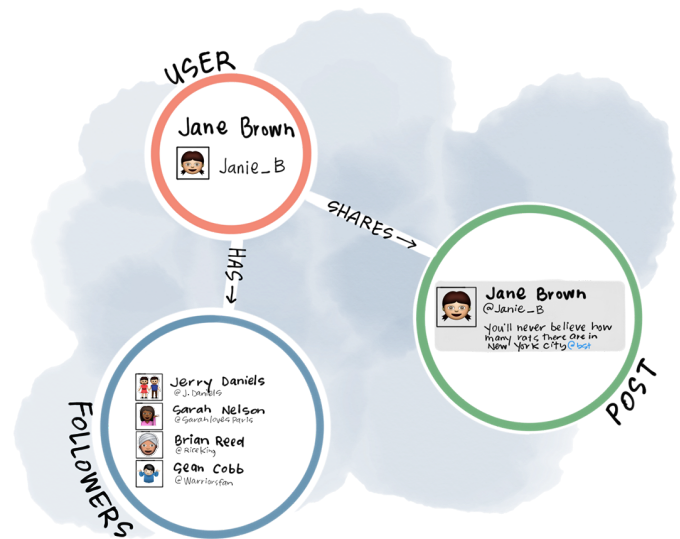


- Graphs are a way to formally represent a network, or a collection of inter connected objects.
- In mathematics, graphs are defined as ordered pairs, with two parts: vertices + edges.

So, what's the definition of a graph?

it looks like this!

$G = (V, E)$ where V is a set of nodes, also called vertices, and E is a set of edges, also called links.



Applications

Nodes

+

Edges

=

Graph

Express the target object

+

Express the relationship

=

Express the causality between objects

Vehicle Routing for Supply Chain Optimization

Physical Locations of warehouses and customers

+

Routes linking the physical locations

Google PageRank

Webpages

+

Hyperlinks between webpages

Ride-sharing platform (Uber)

Drivers and customers

+

Ride requests from customers



Organizational Network Analysis

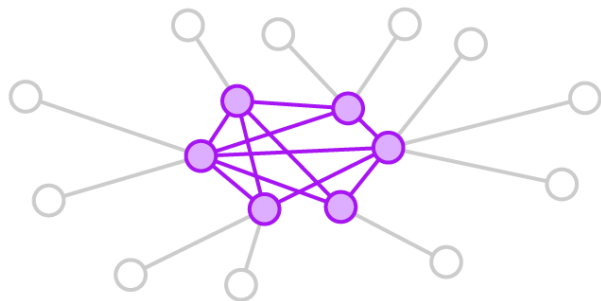
Organizational Network Analysis (ONA) is a structured way to visualize how communications, information, and decisions flow through an organization. Organizational networks consist of nodes and ties, the foundation for understanding how information in your organization is flowing, can flow, and should flow.



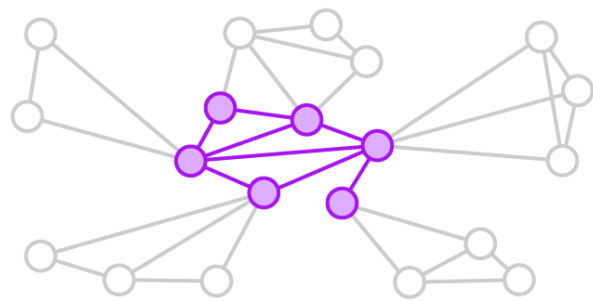
Which employees will come up with good ideas



Which employees will change others' behavior



Which teams will complete projects on time



Which teams will innovate effectively



Whether an organization is siloed



Which employees the organization can't afford to lose

<https://hbr.org/2018/11/better-people-analytics>

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