What is NetworkX?

A Python package for the creation and manipulation of complex networks.

• Data structures for graphs, digraphs, and multigraphs
• Many standard graph algorithms
• Network structure and analysis measures
• Generators for classic graphs, random graphs, and synthetic networks
How to install NetworkX


- NetworkX requires Python 3.5, 3.6, 3.7, or 3.8.
- You should type `python --version` in command prompt (powershell or 命令提示符 or terminal) to check the version of your python before installing the package.
- Use command `pip install networkx` to install NetworkX.
- Use command `conda install -c anaconda network` to install NetworkX if you are using conda environment.
Create a graph

Import the networks package
>>> import networkx as nx

Create an empty graph with no nodes and no edges.
>>> G = nx.Graph()

Create an empty directed graph.
>>> G = nx.DiGraph()

Add one or more nodes to the graph G.
>>> G.add_node(node)
>>> G.add_nodes_from([node1, node2...])

Add one or more edges to the graph G.
>>> G.add_edge(u, v)
>>> G.add_edges_from([(u1, v1), (u2, v2)...])

https://networkx.github.io/documentation/stable/tutorial.html#creating-a-graph
Build dfs tree from source node.

```python
>>> T = nx.dfs_tree(graph, source_node)
```

Print the traversing process of dfs from the source node

```python
>>> T.edges()
```


Print the shorts path from source node to target node using Dijkstra algorithm

```python
>>> dijkstra_path(G, source, target, weight='weight')
```

Overview of NetworkX

NetworkX is a Python package for the creation, manipulation, and study of the structure, dynamics, and functions of complex networks.

NetworkX provides:
- tools for the study of the structure and dynamics of social, biological, and infrastructure networks;
- a standard programming interface and graph implementation that is suitable for many applications;
- a rapid development environment for collaborative, multidisciplinary projects;
- an interface to existing numerical algorithms and code written in C, C++, and FORTRAN; and
- the ability to painlessly work with large nonstandard data sets.

With NetworkX you can load and store networks in standard and nonstandard data formats, generate many types of random and classic networks, analyze network structure, build networks...