Drawing graphs in Python with networkx

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```python
import matplotlib.pyplot as plt

G=nx.Graph()

#########################Adding nodes#########################
G.add_node(1)
G.add_nodes_from([2,3,4])

#Add an nbunch: iterable container of nodes  (e.g. a list, set, graph, file, etc..)
H=nx.path_graph(1)
#G now contains the nodes of H as nodes of G.
G.add_nodes_from(H)
#Graph of Graph
#G.add_node(H)



G.add_node("b")       # adds node "behnam"
G.add_nodes_from("behnam") # adds 6 nodes: 'b','e' ,'h', 'n', 'a','m'


#########################Adding edges#########################
G.add_edge(1, 4)
edge_2_3=(2,3)
G.add_edge(*edge_2_3) # unpack edge tuple with *

#An edge can be associated with any object x using G.add_edge(n1,n2,object=x).
edge_2_4=(2,4,{'weight':3.1415})

G.add_edge(*edge_2_4)

G.add_edge(1, 2, weight=4.7 )
G.add_weighted_edges_from([(3,4,0.125)])


#########################Accessing nodes,edges and neighbors#########################
print 'Nodes'
print G.nodes()
print 'List of edges'
print G.edges()
print 'Neighbors'
print G.neighbors(1)


#Accessing edges
print 'Accessing edges'
print G[3]
print G[4]
print G[4][2]['weight']


for (u,v,d) in G.edges(data='weight'):
    if d>0.5: print('(%d, %d, %.3f)'%(u,v,d))


#########################Adding attributes to nodes#########################
G.add_node(1, time='5pm')
print G.node[1]

G.add_edges_from([(1,2,{'color':'blue'}), (2,3,{'weight':8})])

#########################Multigraphs#########################
#allow you to add the same edge twice, possibly with different edge data.

MG=nx.MultiGraph()
MG.add_weighted_edges_from([(1,2,.5), (1,2,.75), (2,3,.5)])
MG.degree(weight='weight')

GG=nx.Graph()
for n,nbrs in MG.adjacency_iter():
    for nbr,edict in nbrs.items():
        minvalue=min([d['weight'] for d in edict.values()])
        GG.add_edge(n,nbr, weight = minvalue)

print 'shortest path from 1 to 3'
print nx.shortest_path(GG,1,3)



#########################Graph operations#########################
#subgraph(G, nbunch)      - induce subgraph of G on nodes in nbunh
#union(G1,G2)             - graph union
#disjoint_union(G1,G2)    - graph union assuming all nodes are different
#cartesian_product(G1,G2) - return Cartesian product graph
#compose(G1,G2)           - combine graphs identifying nodes common to both
#complement(G)            - graph complement
#create_empty_copy(G)     - return an empty copy of the same graph class
#convert_to_undirected(G) - return an undirected representation of G
#convert_to_directed(G)   - return a directed representation of G

#########################Ploting Graphs #########################


#nx.draw_spectral(G)
#nx.draw_circular(G)
#nx.draw_random(G)

pos=nx.spring_layout(G) # positions for all nodes
nx.draw_networkx_labels(G,pos,font_size=20,font_family='sans-serif')
nx.draw(G,pos)

plt.show()
```

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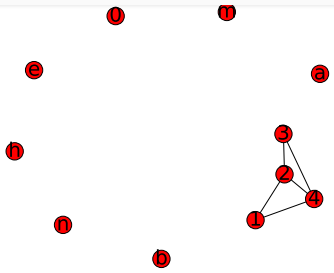

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About me

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I'm robotics enthusiastic with several years of experience in software development with C++ and Python. My main areas of interest are machine learning, computer vision, and robotics.

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