


```
[23]: allConnectedNodes=node_connected_component(G, 'Bootstrap')
for node in allConnectedNodes:
    print(node)

Snmp
Purchasing
Fast Net WMC
jQuery
Nuance Product
AWS IAM
methodical
Bootstrap
Spring Framework
codecenter
Powerhouse Programming- beginners and advance
6e18743d-a5af-5dc1-a6b1-20d293705199
ResumeId-35
Service
Network +
Asp.Net 4.5 Mvc
Sales Operations
Positive Attitude
Scripting
Computer Literacy
Technical Support
Develop
Relationship Building
Microsoft Excel
As/400 Os
Apache Struts
Microsoft Sql Server T-Sql
Windows Forms
Borland C++
Microsoft Visual C++
61c088f9-63ea-5af7-b0ab-9310db497b4d
Coaching And Mentoring
Oracle Sql
Reporting
Driving
Outlook
Fibribing
Microsoft Solutions Framework
Sql
Television Commissioning
Microsoft Visio
Documentation
Angular
Data Visualization
BITRAK
oracle
Test Management
Operating Systems
BEST Services
Pharmaceutical
Forecasting
ResumeId-35
Interpersonal Skills
Microstation
53775ae6-ea18-5dd5-8f64-a4e378a7b399
ResumeId-40
PostgreSQL
ResumeId-8
It Operations Management
Chairing Meetings
Business Communication
Oracle Pro/Cobol
analytics
bootstrap and jquery
AutoCAD
Analytical
Communication Skills
Distributors
dae41437-da2b-5d60-942b-a6903029bfb4
Account Management
Adabas C For Windows
Java ee
RPM
Configuration Management
Adobe After Effects
software engineering
Microfocus Dialogue Systems
C# 3
Disaster Recovery Planning
eclipse
Local Area Networks
Sound Systems
Conditions (Farming)
Visual Basic (Ver 2 Through .Net)
Ethernet
Account management
Adabas
android programming
Networking/lan
Smaller systems that had to be developed as well includes the housing system
ResumeId-14
Tax/Insurance, Financial, Equity, Insurance, Pension/Provident Sys
ajax
networking
Marketing Requirements
java
Computer Sciences
strategic word
Troubleshooting (Problem Solving)
Advertising
Business Analytics
Budgeting
Team Lead
Metrics
Java And C#
HF SON SYSTEM
ResumeId-30
JAVASCRIPT
Webmasters (Farming)
Xml (Dtd's, Schema'S)
XMP
Team Management
ASP
Product Owner
Microsoft Frontpage
Veterinary
Technical Training
Visual Studio 2008,2010,2012
Architectures - Legacy Mainframe Etc
EntityFramework 6
DB2
T-EC
Processes & ProjectManagement
HVAC
Visual Basic 6 And Other Versions
Administration
Git +
Presenting.
Microsoft word
data science
Project Planning
1bafe92b-cbb0-5872-b7b0-43ef10dae39e
Information risk management
1f629273-d09c-573e-b230-c6adbd9a8821
Project Management
Communications
Garbage Disposal Unit
Mentor
Software Development
ResumeId-21
Maintenance
Business Analysis(Requirement Developing Functional Specifications Documents)
Facilitating
Operations
3da9b977-9603-542d-9466-cd52e51c3bd8
Adobe fireworks
Macroeconomics
Unit Testing
Adobe fireworks
Installations (Manual/Mechanical)
ResumeId-34
Development (Overall)
Research and development
Access
16c9ff4b-1e24-5a37-ac1f-202991986e30
Managerial
Business Development
test and support solutions built using SharePoint
Troubleshooting
database design and managment
Telephonic Skills and leader ship skills
ResumeId-17
Microbiology
Business To Business
Sales and Marketing
Computer-Aided Design
EC2
d46dd701-fbf4-5a3c-b4b1-412928be24b6
ResumeId-20
Clinic Management
Sentry
Microsoft Sql Server
C# 1.3
Report Creation and Distribution
Rapid Prototyping
Rapid Prototyping
R
solutions architect
Microsoft Dynamics AX
vaddin
Nuance Voice Products
Database Administration
Internet Procurement
Multitasking
reporting
Gerrit
MySQL
C++ Developer
budget allocation
Spanish language
Creativity
Network Connections
Team Building
Training
Service-Oriented Architecture
Microsoft
angular 1
ResumeId-2
Resumming
Landscaping
Construction
Natural
ResumeId-27
Teamcity
R1/Sql
JAVASCRIPT
a61bdcdb3-3eae-5052-8927-fcf83c361cb0
Archi
Iis 4/5
Jenkins
Hardworking And Dedicated
quick learner
English language
Data
SharePoint Skills
Scheduling
Basic Android programming
Service-Orientation
Resource Planning
Angular JS
Checklists
CS3
.NET
SQL Database Development
JAVA Objective C # Android and windows phone 7 app development.
Systems Driven
Systems Analysis
Network Security
Infrastructure
Online Research
CS3
LES3
Matlab
Counsellor
Business Process Improvement
New Business Development
sas
Selling Techniques
Microsoft Access
hikemate
2b387592-8148-5720-a661-a2730061d14c
Linux (fedora/ubuntu)
4a6d68a6-17c0-3e6b-827e-88ad505cad09
Windows 10
ResumeId-24
Empathy with their client
MySQL
Programming
Sharepoint
Hr Auditing
Problem solving
Computer networking
Contractors Integration
blogger
64202ed2-90a7-5139-90e9-4c3caa409aba
Power point and MS Excell
Jsp
Gaming
IBM Db2
Microsoft Biztalk Server
Meeting deadlines
Customer Relationship Management
.NET
Problem Solving
Computer Skills
Coordinating
Fro C
Microsoft Office
ResumeId-19
Unique
Python
HA Proxy
Hibernate (Java)
Visual Basic For Applications (Office Automation)
Vhdl
Systems Analysts
Budget/c-1ae2-33db-9e31-ee6dfa591981
jason
ASP.Net
Bootstrap +
Dashboard
Agile Software Development
Networks
Lean Manufacturing
Human Resource And Payroll Systems
Network Management
Business Tasks And Supervise Results
Data Cabling
CSS
Oracle Developer 2000
Sql Windows
C#
MVC
Revision Controls
Windows 2000 Server Admin And Windows Nt
Debugging
Distributed Computing
Relays
French Languages
PAB
Backup
Wireless Communications
Dbml
Tutorials
Electronics 1 & 2
Xhtml
Asp.Net Mvc
Customer service
Entity Framework
Governance
5e7cf91c-9ae9-58de-9aa8-e84e7c3e4d03
AJAX
GCM
Telierik Controls
66fc13b0-6871-5598-a9a3-4fb9b6e7aa04
ResumeId-22
Agile Methodologies
dc29c791-448a-5532-9100-alf5e9a741c0
Accounting Up To Balance Sheet
Adobe Photoshop
Network Support
Sales Support
ResumeId-31
Asp.Net WebForms
html
JSP
0242a07f-aae1-56ef-a264-53eb2b402d89
Furnishing
Wireless LAN
JavaScript
Designs
Presentation Skills
System Design
Authorization (Computing)
Database Desing
SRS3
MS word
Microsoft powerpoint
Motivational Skills
Teaching
jQuery and css
Relationship Management
Packaging And Labeling
Psychology Degree
2a66bd9b-d67c-5c7a-b9ff-2eac73dfd6db
Macromedia Flash
Washing Machines
Program Management
MS SQL
MS SQL Server
ResumeId-28
Microsoft project management
A dedication to customer service
mysql
Windows Workstation, Servers
sas
Voice Specialist
AngularJS
Excel
Java Programming(SE & EE)
cics
Perl
TVB
Verbal Communication
Active Server Pages
javascript
C + +
Idea/I Datascom
Cobol
AJAX
Scrum Master
SOAP
MVC (2 Year) +
Information Security
Continuous Improvement Process
Business explorer
IATA messaging and SSIM formats
Practice Management
3864a06e-5108-53f7-9375-130d2ed752cd
Javascript and bootstrap
asp .NET
Web Services
WepSite
and Java
ResumeId-4
Manuals
Html 5
Programming (Java, C++, Vb)
VB.Net40-ac86-5cf2-ba8f-3clef9e21982
2b387592-8148-5720-a661-a2730061d14c
Learning
Spring
Technical Information
C++
Microsoft Office 97
Xml Web Services
Microsoft excel
Microsoft Excel
Management
asp
IIS
Computer Hardware
ResumeId-6
Oracle 7/8/9/10g/11g
Web Development
RADIOS
2 and 4
Complex Problem Solving
Reliability
Optimization And Management
Embedded Linux
Engineering
Ionic framework
Business Acquisition
ColdFusion
SOAP development
3p/Hps/Hps+
Leadership
Stress Management
Business Process
Quality Control
Supply chain Management solutions
Oracle PL/Sql
SharePoint
ResumeId-33
Community engagement
Morpheus
Facilitation Of Workshops And Trainings
Solution/ Requirements Definition
Architectures - Mixer, Client Server Etc
Python (Programming Language)
android
Database maintenance
Microsoft Word
C / C++
Network connectivity,FTP,TCP
SQL
C Programming Language
Attention To Detail
ResumeId-22
Microsoft Windows 2000
Emergency Handling
Database Desing, Implementation And Management
Branding
client liasion
VBA
Java programming
jQuery
GIT
Test Planning
ITIL
ITIL5
In-depth knowledge of the market
Systems Development Life Cycle
MVC
Java Developer
ResumeId-29
proficient in linux systems such as Ubuntu and Fedora
Analytical skills
MySQL
80b33eb3-edfc-5274-b3e6-cda37f549fde
hikemate
Java SE
a2eae2ac-ed28-502b-a9d3-c805f83bcb58
Java EE (restful API's)
ResumeId-38
Software Development
Electronics Development
billing system
C
Change Management
Research
CF Developer
Agile/Winmax
Microsoft Sna/Host Integration Server
git/view
Social Skills
ResumeId-15
SQL/MySQL
Geographic Information Systems
66594eb2-73d9-5323-3268-da7962fb75d
Networking Hardware
Informatica
jcl
Cics
Git
wordpress
Systems Integration
Avaya
Health Insurance
MVC
ResumeId-39
Content Management Server 2002
mySQL
Database Design
Prototype (Manufacturing)
excel
Budgets
Enhanced Data Rates For GSM Evolution
Voice Loggers
Logo Development
firebase
vertical
Powerpoint and outlook.
Programming iLanguagevb .NET
Perl (Programming Language)
Analytical skills
SAP BI Crystal And Web Intelligence
ResumeId-1
Tooling
asp .NET Winforms
Analytical Thinking Skills
ResumeId-25
Switch (Electrical Components)
Com
Cobit 5 Certification
Microsoft office advanced word
Databases
Microfocus Cobol
contact with internal and external parties
SQL database design and development
Campaigns
JIRA
Photoshop
IT electronic assembler language and networks
Magento
Consulting
Business Information Systems
architect
Leadership
Software Design
Marketing
Designer
SSIS
Incident Management
Visual paradigms
Dispatching
Avaya PBX
Wcf Services
Sql Server Reporting Services
2546e56e-4700-5254-b9f1-8758abe95359
ResumeId-7
ResumeId-36
Analysis
ResumeId-3
analysis
Unix (Sun Solaris)
Pico Blaze
Electrical Wirings
Mentoring
caa34d99-8aa4-5ade-8ada-7d41a77acffe
JavaScript
communication skills
Oracle Designer 2000
Architectures -.Net Framework
Graphic Design
microsoft office
Application Services
Asp.Net
VB
Life Skill
Oracle Rdbms
Specialist
Java EE (restful APIs)
PHP/JS
MS PROJECTS
Hyperion Analyzer
Java EE
Marker Trend
Self Motivation
Sql Server Integration Services
J Developer
Web developer
e5a255c2-3dce-5582-823b-a6a195b50041
Network Switches
delphi
Microsoft Windows 98
Dev Vax Openvms
Simple Object Access Protocol (SOAP)
Marketing/Sales
Java (Programming Language)
sql
Amazon Web Services
forensics
Grid 2
f1b26fb3-4bf0-58c3-a34c-78af2d118070
MFC
Geometry
MFC
Microsoft office
O/S Symbian Uid
Forecasting
Talent
Crystal Report Writer 5, 8.5
Automation
Painting
ASP .NET
Mentoring new developers
Life Insurance
Sql Server
EntityFramework 6 0.008
Emergency Handling 0.004
Bootstrap 0.004
MVC3 0.004
jQuery 0.004
SQL Database Development 0.004
BEST Services 0.004

In [27]: hh="list(G.neighbors('C#'))
len(hh)

Out [27]: 15

Input: Resume

Output: List of recommended Job Descriptions

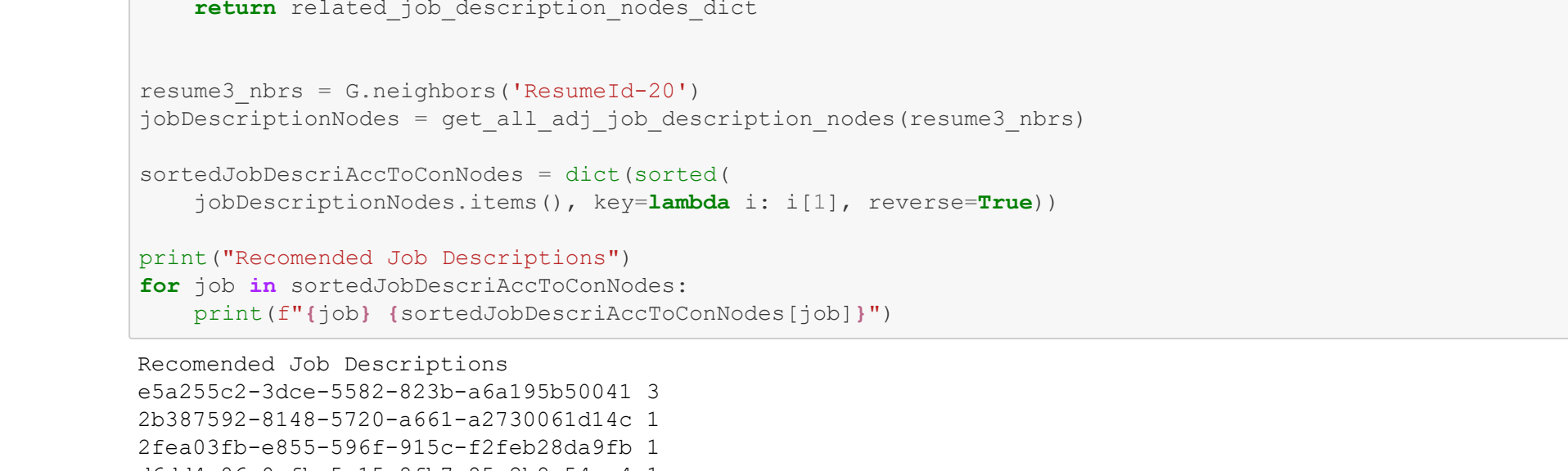
In [28]: def get_all_adj_job_description_nodes(resume3_nbrs):
    related_job_description_nodes_dict = {}
    for skill in resume3_nbrs:
        skill_nabhour = G.neighbors(skill)
        for each_node in skill_nabhour:
            if(G.nodes[each_node]['type'] == 'jobDescription'):
                if G.nodes[each_node]['title'] in related_job_description_nodes_dict:
                    related_job_description_nodes_dict[G.nodes[each_node]
                                                         ['title']] += 1
                else:
                    related_job_description_nodes_dict[G.nodes[each_node]
                                                         ['title']] = 1
    return related_job_description_nodes_dict

resume3_nbrs = G.neighbors('ResumeId-20')
jobDescriptionNodes = get_all_adj_job_description_nodes(resume3_nbrs)
sortedJobDescriptionAccToConNodes = dict(sorted(
    jobDescriptionNodes.items(), key=lambda i: i[1], reverse=True))

print("Recommended Job Descriptions")
for job in sortedJobDescriptionAccToConNodes:
    print(f"({job} |sortedJobDescriptionNodes[{job}]))"

Recommended Job Descriptions
e5a255c2-3dce-5582-823b-a6a195b50041 3
2b387592-8148-5720-a661-a2730061d14c 1
2fe6a3fb-e815-99ef-915c-f2feb28da9fb 1
d6d04a06-0a7b-5a15-87b7-85c2b8c54eae 1
1fe6a0a6-5c16-5c1f-ba8f-3clef9e21982 1
3245936c-lae2-53db-9e31-ee6dfa591981 1
0242a07f-aae1-56ef-a264-53eb2b402d89 1
10229a10c0ae-573a-b230-c6adbd9a8821 1
61c088f9-63ea-5af7-b0ab-9310db497b4d 1
```

```
In [24]: nx.draw_spring(G)
```



Predicting Associations

- Clustering Coefficient
- nx.clustering(Graph, Node)
- nx.average_clustering(G)

```
In [25]: nx.average_clustering(G)
```

Out [25]: 0.6

Recommend Users to learn skills

[Bipartite graph concept applies here]

```
In [26]: resume1_nbrs=G.neighbors('ResumeId-2')
resume3_nbrs=G.neighbors('ResumeId-3')
differentSkills= set( (resume1_nbrs).difference(resume3_nbrs)
skillNodes=[]
for skill in differentSkills:
    skillNodes.append(G.nodes(skill))
sortedSkillsAccToEigen = sorted(skillNodes, key=lambda i: i['eigenvector'],reverse=True)
print("Top Skills to be learned")
for skill in sortedSkillsAccToEigen:
    print(f"({skill} |title'")) round(skill['eigenvector'],3)))")
topSkills to be learned
C# 1.3
ASP.Net
SSRS 0.019
EntityFramework 6 0.008
Emergency Handling 0.004
Bootstrap 0.004
MVC3 0.004
jQuery 0.004
SQL Database Development 0.004
BEST Services 0.004
```

```
In [27]: hh="list(G.neighbors('C#'))
len(hh)
```

Out [27]: 15