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Lab 3: Getting the stargazers of a GitHub Respository and Create a network

Step 1: Install PyGithub requests and get information about your GitHub Profile

In [1]:

```
pip install PyGithub
```

```
Collecting PyGithub
  Downloading PyGithub-1.59.0-py3-none-any.whl (342 kB)
     ----------------------------------- 342.1/342.1 kB 1.4 MB/s eta
0:00:00
Collecting deprecated (from PyGithub)
  Downloading Deprecated-1.2.14-py2.py3-none-any.whl (9.6 kB)
Collecting pyjwt[crypto]>=2.4.0 (from PyGithub)
  Downloading PyJWT-2.8.0-py3-none-any.whl (22 kB)
Requirement already satisfied: pynacl>=1.4.0 in c:\anaconda\pspr\lib\site
-packages (from PyGithub) (1.4.0)
Requirement already satisfied: requests>=2.14.0 in c:\anaconda\pspr\lib\s
ite-packages (from PyGithub) (2.27.1)
Requirement already satisfied: cryptography>=3.4.0 in c:\anaconda\pspr\li
b\site-packages (from pyjwt[crypto]>=2.4.0->PyGithub) (3.4.8)
Requirement already satisfied: six in c:\anaconda\pspr\lib\site-packages
(from pynacl>=1.4.0->PyGithub) (1.16.0)
Requirement already satisfied: cffi>=1.4.1 in c:\anaconda\pspr\lib\site-p
ackages (from pynacl>=1.4.0->PyGithub) (1.15.0)
Requirement already satisfied: urllib3<1.27,>=1.21.1 in c:\anaconda\pspr
\lib\site-packages (from requests>=2.14.0->PyGithub) (1.26.9)
Requirement already satisfied: certifi>=2017.4.17 in c:\anaconda\pspr\lib
\site-packages (from requests>=2.14.0->PyGithub) (2022.12.7)
Requirement already satisfied: charset-normalizer~=2.0.0 in c:\anaconda\p
spr\lib\site-packages (from requests>=2.14.0->PyGithub) (2.0.4)
Requirement already satisfied: idna<4,>=2.5 in c:\anaconda\pspr\lib\site-
packages (from requests>=2.14.0->PyGithub) (2.10)
Requirement already satisfied: wrapt<2,>=1.10 in c:\anaconda\pspr\lib\sit
e-packages (from deprecated->PyGithub) (1.12.1)
Requirement already satisfied: pycparser in c:\anaconda\pspr\lib\site-pac
kages (from cffi>=1.4.1->pynacl>=1.4.0->PyGithub) (2.21)
Installing collected packages: pyjwt, deprecated, PyGithub
  Attempting uninstall: pyjwt
    Found existing installation: PyJWT 2.1.0
    Uninstalling PyJWT-2.1.0:
      Successfully uninstalled PyJWT-2.1.0
Successfully installed PyGithub-1.59.0 deprecated-1.2.14 pyjwt-2.8.0
Note: you may need to restart the kernel to use updated packages.
```

In [2]:

[notice] A new release of pip is available: 23.1.2 -> 23.2
[notice] To update, run: python.exe -m pip install --upgrade pip

```
pip install networkx
```

Requirement already satisfied: networkx in c:\anaconda\pspr\lib\site-pack
ages (2.7.1)
Note: you may need to restart the kernel to use updated packages.

[notice] A new release of pip is available: 23.1.2 -> 23.2
[notice] To update, run: python.exe -m pip install --upgrade pip

In [3]:

```python
import requests
import base64
import networkx as nx
from github import Github
from pprint import pprint
```

In [4]:

```python
username="ezhilarasan28"
url=f"https://api.github.com/users/{username}"
user_data=requests.get(url).json()
pprint(user_data)
```

```
{'avatar_url': 'https://avatars.githubusercontent.com/u/121945105?v=4',
 'bio': None,
 'blog': '',
 'company': None,
 'created_at': '2023-01-04T11:59:05Z',
 'email': None,
 'events_url': 'https://api.github.com/users/ezhilarasan28/events{/privac
y}',
 'followers': 0,
 'followers_url': 'https://api.github.com/users/ezhilarasan28/followers',
 'following': 0,
 'following_url': 'https://api.github.com/users/ezhilarasan28/following{/
other_user}',
 'gists_url': 'https://api.github.com/users/ezhilarasan28/gists{/gist_i
d}',
 'gravatar_id': '',
 'hireable': None,
 'html_url': 'https://github.com/ezhilarasan28',
 'id': 121945105,
 'location': None,
 'login': 'ezhilarasan28',
 'name': 'Ezhilarasan C',
 'node_id': 'U_kgDOB0S8EQ',
 'organizations_url': 'https://api.github.com/users/ezhilarasan28/orgs',
 'public_gists': 0,
 'public_repos': 5,
 'received_events_url': 'https://api.github.com/users/ezhilarasan28/recei
ved_events',
 'repos_url': 'https://api.github.com/users/ezhilarasan28/repos',
 'site_admin': False,
 'starred_url': 'https://api.github.com/users/ezhilarasan28/starred{/owne
r}{/repo}',
 'subscriptions_url': 'https://api.github.com/users/ezhilarasan28/subscri
ptions',
 'twitter_username': None,
 'type': 'User',
 'updated_at': '2023-07-11T06:23:20Z',
 'url': 'https://api.github.com/users/ezhilarasan28'}
```

Step 2: Getting Public respositories of a user

In [5]:

```python
username="ezhilarasan28"
g=Github()
user=g.get_user(username)
for repo in user.get_repos():
    print(repo)
```

```
Repository(full_name="ezhilarasan28/Ezhilarasan")
Repository(full_name="ezhilarasan28/facebook_data_")
Repository(full_name="ezhilarasan28/tkinter")
Repository(full_name="ezhilarasan28/Web-Application")
Repository(full_name="ezhilarasan28/web_application")
```

In [10]:

```python
#Access_Token='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'
```

Step 3: Querying for Stargazers of a particular respository

In [11]:

```python
ACCESS_TOKEN="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"
USER="ptwobrussell"
REPO="Mining-the-Social-Web"
#REPO="Mining-the-Social-Web-2nd-Edition"
client=Github(ACCESS_TOKEN, per_page=100)
user=client.get_user(USER)
repo=user.get_repo(REPO)
stargazers=[s for s in repo.get_stargazers()]
print("Number of stargazers", len(stargazers))
```

```
Number of stargazers 1210
```

Step 4: Constructing an ego graph of a repository and its Starganers

In [12]:

```python
g=nx.DiGraph()
g.add_node(repo.name+"(repo)",type='repo',lang=repo.language,owner=user.login)
for sg in stargazers:
    g.add_node(sg.login+"(user)",type='user')
    g.add_edge(sg.login+"(user)",repo.name+"(repo)",type='gazes')
```

Step 5 : Perform handly graph operation

In [13]:

```python
print(nx.info(g))
print(g.nodes['Mining-the-Social-Web(repo)'])
print(g.nodes['ptwobrussell(user)'])
print(g['ptwobrussell(user)']['Mining-the-Social-Web(repo)'])
print(g['ptwobrussell(user)'])
print(g['Mining-the-Social-Web(repo)'])
print(g.in_edges(['ptwobrussell(user)']))
print(g.out_edges(['ptwobrussell(user)']))
print(g.in_edges(['Mining-the-Social-Web(repo)']))
print(g.out_edges(['Mining-the-Social-Web(repo)']))
```

```
DiGraph with 1211 nodes and 1210 edges
{'type': 'repo', 'lang': 'JavaScript', 'owner': 'ptwobrussell'}
{'type': 'user'}
{'type': 'gazes'}
{'Mining-the-Social-Web(repo)': {'type': 'gazes'}}
{}
[]
[('ptwobrussell(user)', 'Mining-the-Social-Web(repo)')]
[('rdempsey(user)', 'Mining-the-Social-Web(repo)'), ('prb(user)', 'Min
ing-the-Social-Web(repo)'), ('mcroydon(user)', 'Mining-the-Social-Web
(repo)'), ('twleung(user)', 'Mining-the-Social-Web(repo)'), ('kevinchi
u(user)', 'Mining-the-Social-Web(repo)'), ('nikolay(user)', 'Mining-th
e-Social-Web(repo)'), ('tswicegood(user)', 'Mining-the-Social-Web(rep
o)'), ('ngpestelos(user)', 'Mining-the-Social-Web(repo)'), ('darron(us
er)', 'Mining-the-Social-Web(repo)'), ('brunojm(user)', 'Mining-the-So
cial-Web(repo)'), ('rgaidot(user)', 'Mining-the-Social-Web(repo)'),
('openweb(user)', 'Mining-the-Social-Web(repo)'), ('shanlalit(user)',
'Mining-the-Social-Web(repo)'), ('hoffmann(user)', 'Mining-the-Social-
Web(repo)'), ('nacht(user)', 'Mining-the-Social-Web(repo)'), ('hectore
```

In [ ]: