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Lab 3: Getting the stargazers of a GitHub Repository and create a network

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

```
In [1]: import requests
from pprint import pprint
username = 'kavinilavu30'
url = f'https://api.github.com/users/{username}'
user_data = requests.get(url).json()
pprint(user_data)

{'avatar_url': 'https://avatars.githubusercontent.com/u/104381632?v=4',
 'bio': None,
 'blog': '',
 'company': None,
 'created_at': '2022-04-25T16:51:26Z',
 'email': None,
 'events_url': 'https://api.github.com/users/kavinilavu30/events{/privacy}',
 'followers': 1,
 'followers_url': 'https://api.github.com/users/kavinilavu30/followers',
 'following': 0,
 'following_url': 'https://api.github.com/users/kavinilavu30/following{/other_u
ser}',
 'gists_url': 'https://api.github.com/users/kavinilavu30/gists{/gist_id}',
 'gravatar_id': '',
 'hireable': None,
 'html_url': 'https://github.com/kavinilavu30',
 'id': 104381632,
 'location': None,
 'login': 'kavinilavu30',
 'name': None,
 'node_id': 'U_kgDOBji8wA',
 'organizations_url': 'https://api.github.com/users/kavinilavu30/orgs',
 'public_gists': 0,
 'public_repos': 4,
 'received_events_url': 'https://api.github.com/users/kavinilavu30/received_eve
nts',
 'repos_url': 'https://api.github.com/users/kavinilavu30/repos',
 'site_admin': False,
 'starred_url': 'https://api.github.com/users/kavinilavu30/starred{/owner}/{/rep
o}',
 'subscriptions_url': 'https://api.github.com/users/kavinilavu30/subscriptions',
 'twitter_username': None,
 'type': 'User',
 'updated_at': '2022-08-08T04:39:01Z',
 'url': 'https://api.github.com/users/kavinilavu30'}
```

Step-2: Getting Public repositories of a user

In [2]: `!pip install pygithub`

```
Collecting pygithub
  Downloading PyGithub-1.55-py3-none-any.whl (291 kB)
Collecting pyjwt>=2.0
  Downloading PyJWT-2.4.0-py3-none-any.whl (18 kB)
Collecting deprecated
  Downloading Deprecated-1.2.13-py2.py3-none-any.whl (9.6 kB)
Requirement already satisfied: requests>=2.14.0 in c:\users\lenovo\anaconda3\lib\site-packages (from pygithub) (2.28.1)
Requirement already satisfied: pynacl>=1.4.0 in c:\users\lenovo\anaconda3\lib\site-packages (from pygithub) (1.4.0)
Requirement already satisfied: cffi>=1.4.1 in c:\users\lenovo\anaconda3\lib\site-packages (from pynacl>=1.4.0->pygithub) (1.14.5)
Requirement already satisfied: six in c:\users\lenovo\anaconda3\lib\site-packages (from pynacl>=1.4.0->pygithub) (1.15.0)
Requirement already satisfied: pycparser in c:\users\lenovo\anaconda3\lib\site-packages (from cffi>=1.4.1->pynacl>=1.4.0->pygithub) (2.20)
Requirement already satisfied: certifi>=2017.4.17 in c:\users\lenovo\anaconda3\lib\site-packages (from requests>=2.14.0->pygithub) (2020.12.5)
Requirement already satisfied: idna<4,>=2.5 in c:\users\lenovo\anaconda3\lib\site-packages (from requests>=2.14.0->pygithub) (2.10)
Requirement already satisfied: charset-normalizer<3,>=2 in c:\users\lenovo\anaconda3\lib\site-packages (from requests>=2.14.0->pygithub) (2.1.0)
Requirement already satisfied: urllib3<1.27,>=1.21.1 in c:\users\lenovo\anaconda3\lib\site-packages (from requests>=2.14.0->pygithub) (1.26.4)
Requirement already satisfied: wrapt<2,>=1.10 in c:\users\lenovo\anaconda3\lib\site-packages (from deprecated->pygithub) (1.12.1)
Installing collected packages: pyjwt, deprecated, pygithub
Successfully installed deprecated-1.2.13 pygithub-1.55 pyjwt-2.4.0
```

In [3]: `import base64
from github import Github
from pprint import pprint

username="kavinilavu30"
g=Github()
user=g.get_user(username)
for repo in user.get_repos():
 pprint(repo)`

```
Repository(full_name="kavinilavu30/NLP")
Repository(full_name="kavinilavu30/PML")
Repository(full_name="kavinilavu30/PML-1")
Repository(full_name="kavinilavu30/sample1")
```

Step-3: Querying for stargazers of a particular repository

```
In [4]: from github import Github

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 1209

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

```
In [5]: import networkx as nx

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 handy graph operations

```
In [6]: 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)']))
```

Name:

Type: DiGraph

Number of nodes: 1210

Number of edges: 1209

Average in degree: 0.9992

Average out degree: 0.9992

{'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)', 'Mining-the-Social-Web(repo)'), ('mcroydon(user)', 'Mining-the-Social-Web(repo)'), ('twleung(user)', 'Mining-the-Social-Web(repo)'), ('kevinchiu(user)', 'Mining-the-Social-Web(repo)'), ('nikolay(user)', 'Mining-the-Social-Web(repo)'), ('tswicegood(user)', 'Mining-the-Social-Web(repo)'), ('ngpestelos(user)', 'Mining-the-Social-Web(repo)'), ('darron(user)', 'Mining-the-Social-Web(repo)'), ('brun

In []: