Accessing open research literature with Python

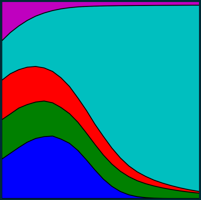
Nikoleta Glynatsi

2017-02

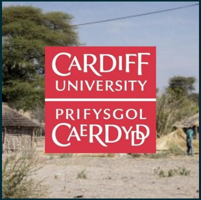
About me

CARDIFF UNIVERSITY

PRIFYSGOL CAERDYDD



Software
Sustainability
Institute



Definition

A **literature review** is a search and evaluation of the available literature in your given subject or chosen topic area.
-Royal Literary Fund

Definition

Web Scraping is a technique employed to extract large amounts of data from websites. - WebHarvy

- Literature Review;
- World Wide Web;
- Web Scraping;

Arcas

https://github.com/Nikoleta-v3/Arcas

Arcas

```
pip install arcas
```

Arcas

```
pip install arcas
```

```
git clone git@github.com:Nikoleta-v3/Arcas.git
python setup.py develop
```

Arcas

```
arcas_scrape -p arxiv -t "Prisoner’s Dilemma" -y 2014 -r 1
```

Arcas

```
arcas_scrape -p arxiv -t "Prisoner's Dilemma" -y 2014 -r 1
```

```
arcas_scrape -p ieee -t "Prisoner Dilemma" -a "Nowak" -y 2014
... -r 1 -s 2
```

Arcas

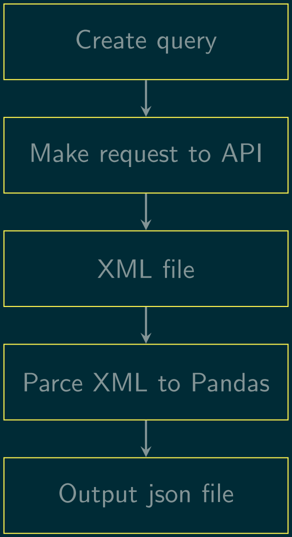
```
arcas_scrape -p arxiv -t "Prisoner’s Dilemma" -y 2014 -r 1
```

```
arcas_scrape -p ieee -t "Prisoner Dilemma" -a "Nowak" -y 2014
... -r 1 -s 2
```

```
arcas_scrape -p ieee -b "game theory" -t "Prisoner Dilemma"
... -a "Nowak" -y 2014 -r 1 -s 2
```

Results

```
{
"key":{"0":"Deng2014","1":"Deng2014","2":"Deng2014"},
"unique_key":{"0":"3369e749ce1c92062806e7fa3c41c90e",
              "1":"3369e749ce1c92062806e7fa3c41c90e",
              "2":"3369e749ce1c92062806e7fa3c41c90e"},
"title":{"0":"Generalized prisoner’s dilemma",
         "1":"Generalized prisoner’s dilemma",
         "2":"Generalized prisoner’s dilemma"},
"author":{"0":"Xinyang Deng","1":"Qi Liu","2":"Yong Deng"},
"abstract":{"0":"  Prisoner’s dilemma has been ...",
            "1":"  Prisoner’s dilemma has been ...",
            "2":"  Prisoner’s dilemma has been ..."},
"date":{"0":2014,"1":2014, "2":2014},
"journal":{"0":"arXiv","1":"arXiv","2":"arXiv"},
"provenance":{"0":"arXiv","1":"arXiv","2":"arXiv"}
}
```



Create query

Make request to API

XML file

Parce XML to Pandas

Output json file

```
from arcas import *

def get_arguments(api, word, count):
    arguments = [{’-a’: None, ’-b’: word, ’-s’: None,
                  ’-r’: count, ’-y’: None, ’-t’: None},
    return arguments

def main_program(arguments):
    parameters = pp.parameters_fix(arguments=arguments)
    url = pp.create_url_search(parameters=parameters)
    response = pp.make_request(url)
    root = pp.get_root(response)
    article = pp.parse(root)
    return article
```

```
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    article = pp.parse(root)
    return article
```

```
words = ["prisoner’s dilemma", "prisoners evolution", "prisoner dilemma", ...]
apis = {"ieee": Ieee, "nature": Nature, "arxiv": Arxiv, "springer": Springer, "plos": Plos}
list_apis = [’plos’, ’arxiv’, ’ieee’, ’nature’, ’springer’]
count = 10
```

```python
from arcas import *

def get_arguments(api, word, count):
    arguments = [{’-a’: None, ’-b’: word, ’-s’: None,
                  ’-r’: count, ’-y’: None, ’-t’: None},
    return arguments

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list_apis = [’plos’, ’arxiv’, ’ieee’, ’nature’, ’springer’]
count = 10
```
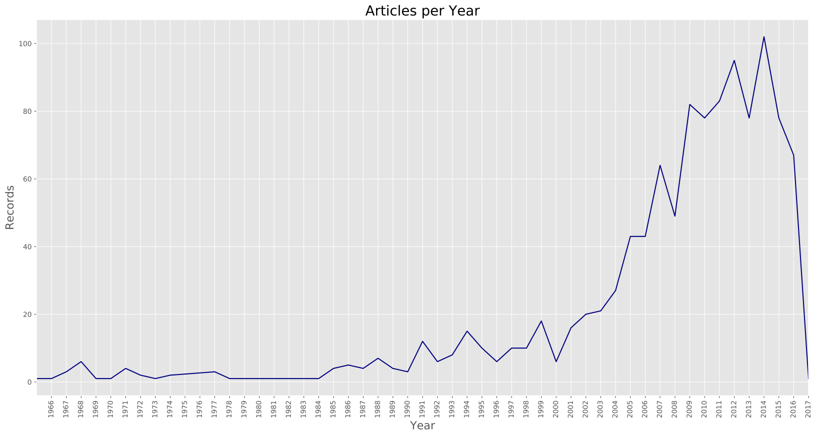

```python
for wr in words:
    for p in list_apis:
        pp = apis[p]()

        arguments = get_arguments(p, wr, count)
        raw_articles = main_program(arg)

        df = pp.to_dataframe(raw_article)
        pp.export(dfs, filename=’articles/{}-{}.json’.format(p, wr))
```


Articles per Year
Records
100
80
60
40
20
0
1966
1967
1968
1969
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
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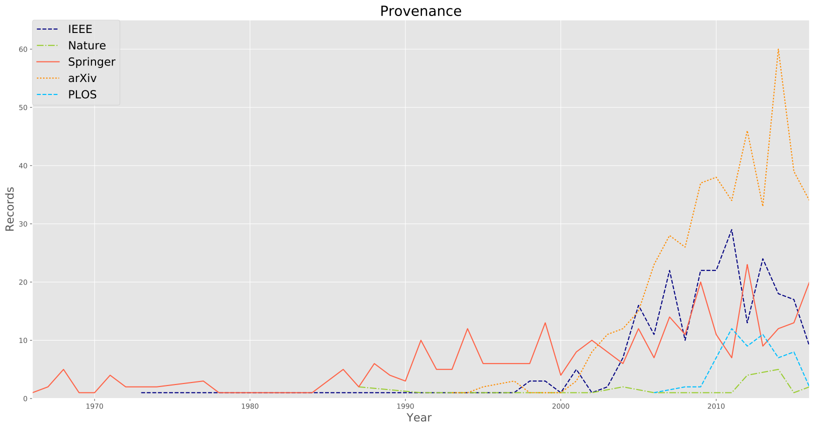
2011
2012
2013
2014
2015
2016
2017
Year


Provenance
IEEE
Nature
Springer
arXiv
PLOS
Records
Year
0
10
20
30
40
50
60
1970
1980
1990
2000
2010

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ttps://github.com/Nikoleta-v3/Arcas