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Python爬虫

NSD python

爬虫

- 网络爬虫（又被称为网页蜘蛛，网络机器人，在FOAF社区中间，更经常的称为网页追逐者），是一种按照一定的规则，自动地抓取万维网信息的程序或者脚本。另外一些不常使用的名字还有蚂蚁、自动索引、模拟程序或者蠕虫。

知识讲解

通用爬虫/搜索引擎

- Google
- Baidu
- Yahoo

知识讲解

协议/robots.txt

- Robots协议（也称为爬虫协议、机器人协议等）的全称是“网络爬虫排除标准”（Robots Exclusion Protocol），网站通过Robots协议告诉搜索引擎哪些页面可以抓取，哪些页面不能抓取。

知识讲解

Robots.txt

禁止所有搜索引擎访问网站的任何部分
User-agent: *
Disallow: /
实例分析：淘宝网的 Robots.txt文件
User-agent: Baiduspider
Disallow: /
User-agent: baiduspider
Disallow: /

知识讲解

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urllib库

urllib get -1

```
import urllib.request
response = urllib.request.urlopen('http://python.org/')
html = response.read()
print(html)
```

知识讲解

urllib get - 模拟浏览器

知识讲解

```
import urllib.request
import urllib.parse

url='http://www.baidu.com'
hearder={
'User-Agent':'Mozilla/5.0 (X11; Fedora; Linux x86_64)
AppleWebKit/537.36 (KHTML, like Gecko) Chrome/58.0.3029.110
Safari/537.36'}

request=urllib.request.Request(url,headers=header)
reponse=urllib.request.urlopen(request).read()

fhandle=open("./1.html","wb")
fhandle.write(reponse)
fhandle.close()
```

urllib post

```
import urllib.request
import urllib.parse

url='http://www.example.com/login'
header={
'User-Agent':'Mozilla/5.0 (X11; Fedora; Linux x86_64)
AppleWebKit/537.36 (KHTML, like Gecko) Chrome/58.0.3029.110
Safari/537.36'
                        }
data={'name':'fengxin','pass':'123'}
postdata=urllib.parse.urlencode(data).encode('utf8') #进行编码
request=urllib.request.Request(url,data=postdata)
reponse=urllib.request.urlopen(request).read()

fhandle=open("./1.html","wb")
fhandle.write(reponse)
fhandle.close()
```

知识讲解

Urllib cookie


```
import http.cookiejar
import urllib.request
import urllib.parse

cj = http.cookiejar.CookieJar()
opener =
urllib.request.build_opener(urllib.request.HTTPCookieProcessor(
cj))
data = {'username': 'admin', 'password': 'admin'}
r = opener.open("http://localhost:8888/login",
data=urllib.parse.urlencode(data).encode('utf8'))
print(r.read())
r = opener.open('http://localhost:8888/')
print(r.read())
```

Urllib 代理

知识讲解

```
from urllib import request

proxy = request.ProxyHandler({'http': '81.89.71.166:51890'})  # 设置
proxy
opener = request.build_opener(proxy)  # 挂载opener
opener.addheaders = [('User-Agent','Mozilla/5.0 (X11; Fedora; Linux
x86_64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/
58.0.3029.110 Safari/537.36')]
request.install_opener(opener)
page = opener.open('http://www.baidu.com').read()
page = page.decode('utf-8')
print(page)
```

练习

- 利用urllib发送get请求到任意网页
- 使用代理访问 http://2017.ip138.com/ic.asp

知识讲解

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requests库

requests

- 安装

知识讲解

```
pip install requests
```

基本操作

知识讲解

```
import requests

r = requests.get('https://github.com/timeline.json’)
r = requests.post("http://httpbin.org/post")
r = requests.put("http://httpbin.org/put")
r = requests.delete("http://httpbin.org/delete")
r = requests.head("http://httpbin.org/get")
r = requests.options("http://httpbin.org/get")
```

Get传参

知识讲解

```
import requests

payload = {'key1': 'value1', 'key2': ['value2', 'value3']}
r = requests.get('http://httpbin.org/post',  params=payload)
```

POST传参

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知识讲解

```
import requests

payload = {'key1': 'value1', 'key2': 'value2’}
r = requests.post("http://httpbin.org/post", data=payload)
print r.text
```

定制请求头

知识讲解

```
url = 'https://api.github.com/some/endpoint’
headers = {'user-agent': 'my-app/0.0.1’}
r = requests.get(url, headers=headers)
```

代理

知识讲解

```
import requests

proxies = { "http": "http://10.10.1.10:3128", "https": "http://
10.10.1.10:1080", } requests.get("http://example.org", proxies=proxies)
```

Session

知识讲解

```
s = requests.Session() s.get('http://httpbin.org/cookies/set/
sessioncookie/123456789')
r = s.get("http://httpbin.org/cookies")
print r.text
# '{"cookies": {"sessioncookie": "123456789"}}'
```

练习

- 使用requests库登陆一个网页

知识讲解

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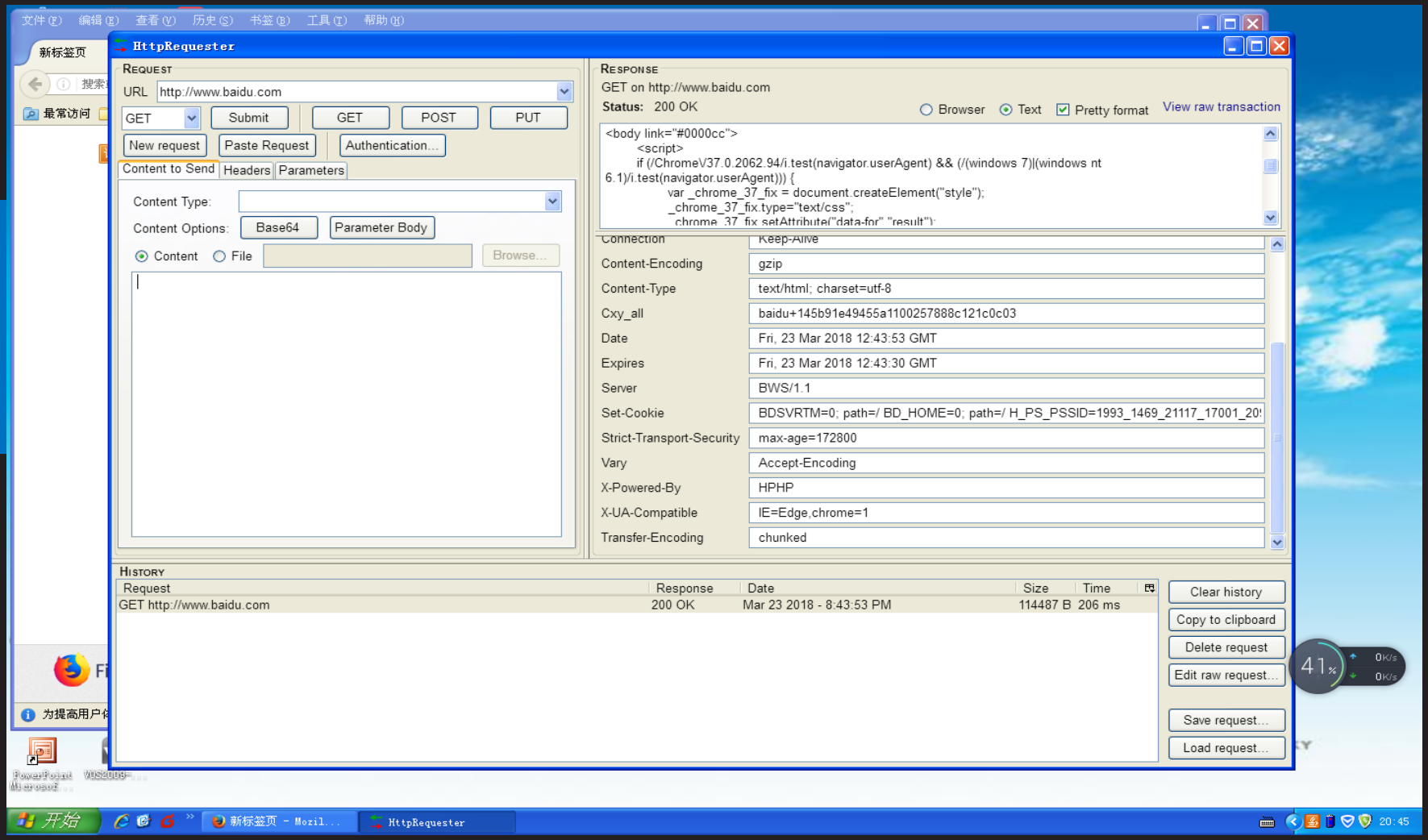
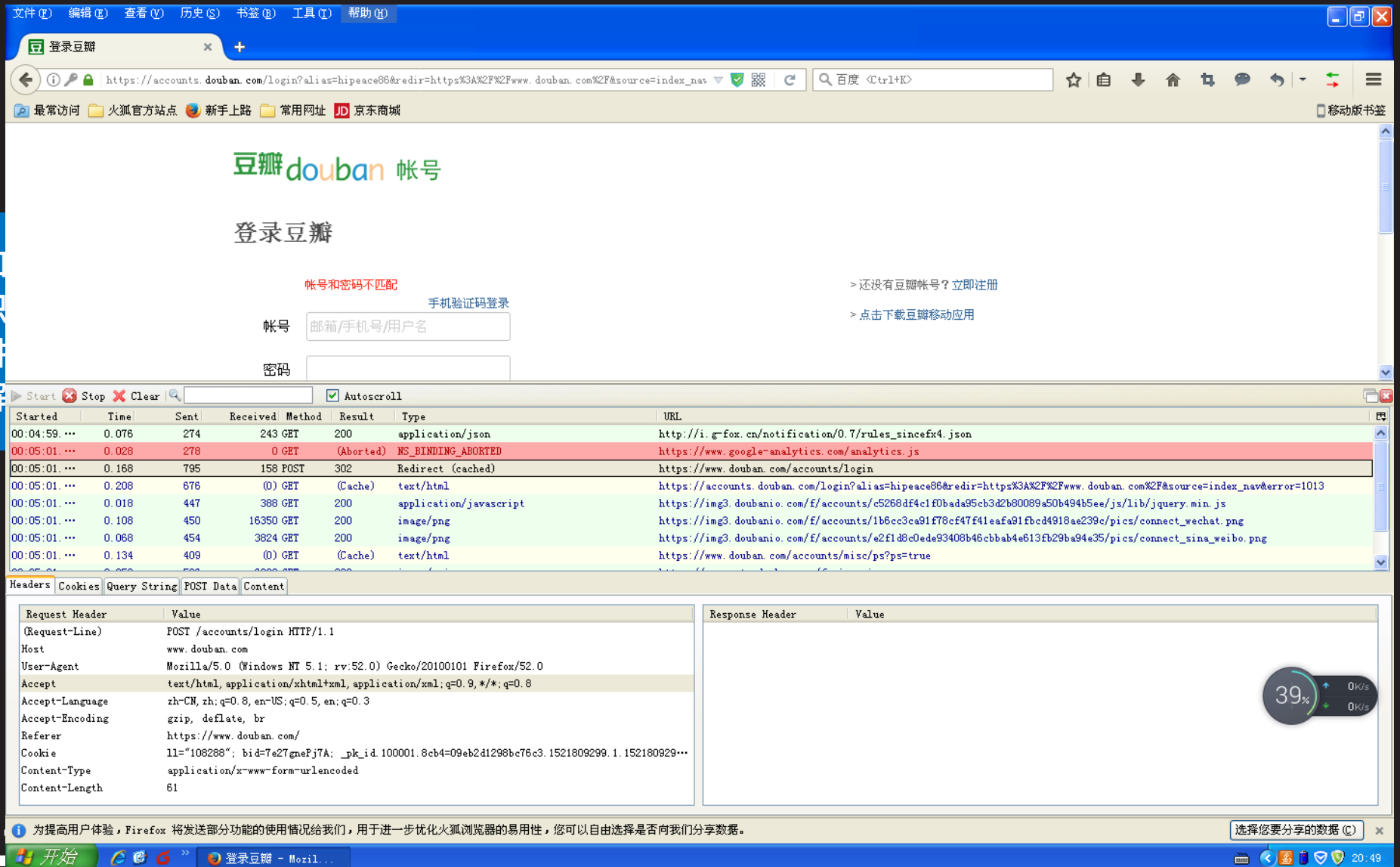
工具

Firefox扩展httprequester

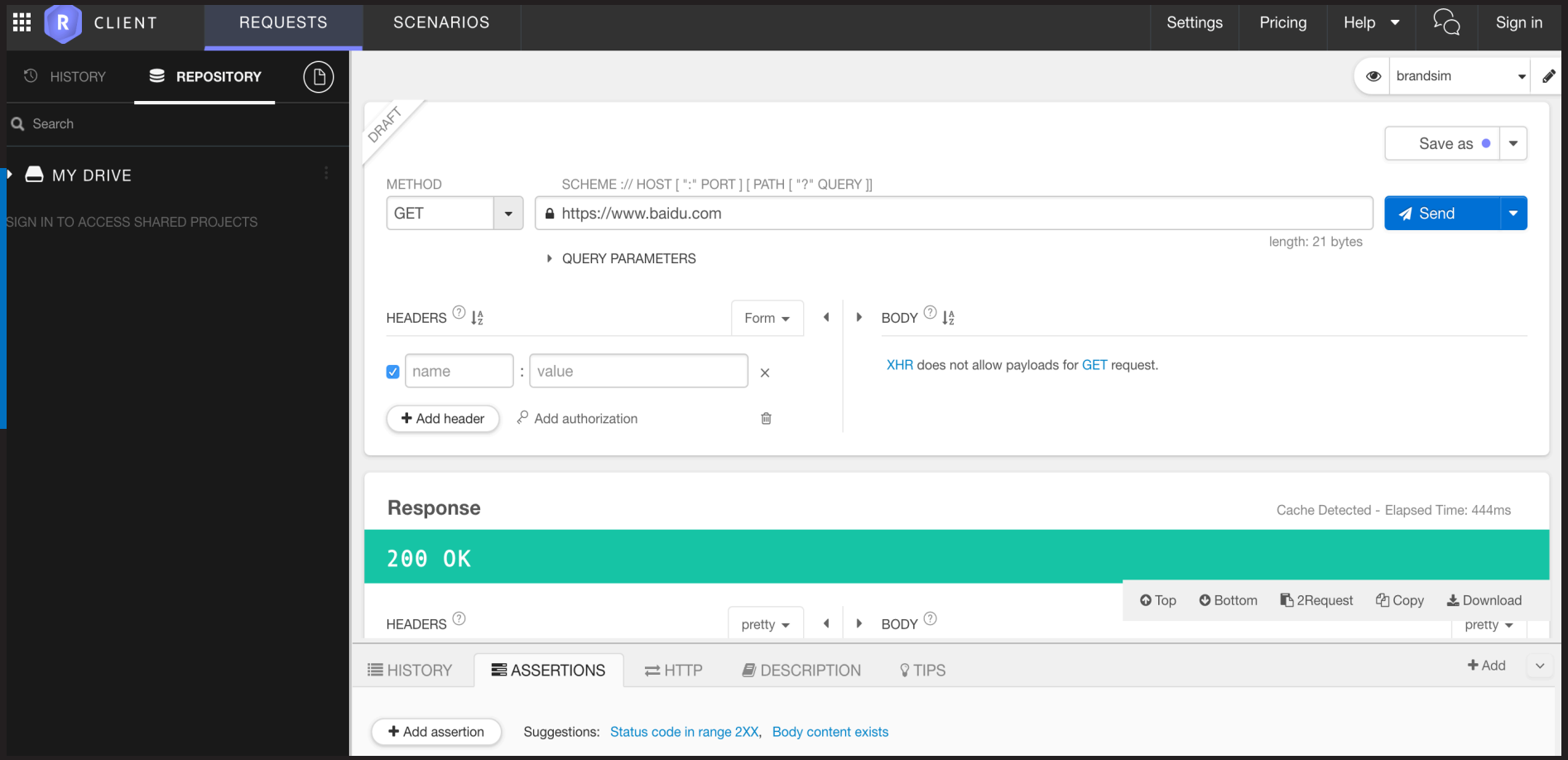
知识讲解



Firefox扩展httpfox



Chrome扩展RestletClient



pyquery库

pyquery

- pyquery 可让你用 jQuery 的语法来对 xml 进行操作。这I和 jQuery 十分类似。如果利用 lxml，pyquery 对 xml 和 html 的处理将更快。
- 这个库不是（至少还不是）一个可以和 JavaScript交互的代码库，它只是非常像 jQuery API 而已。
- 安装

  pip install pyquery

知识讲解

初始化（1）直接字符串

知识讲解

```
from pyquery import PyQuery as pq
doc = pq("<html></html>")
```

初始化（2）lxml.etree

知识讲解

```
from lxml import etree
doc = pq(etree.fromstring("<html></html>"))
```

初始化（3）直接URL

知识讲解

```
from pyquery import PyQuery as pq
doc = pq('http://www.baidu.com')
```

初始化（4）传文件

```
from pyquery import PyQuery as pq
doc = pq(filename='hello.html')
```

知识讲解

样例

```
<div>
    <ul>
        <li class="item-0">first item</li>
        <li class="item-1"><a href="link2.html">second item</a></li>
        <li class="item-0 active"><a href="link3.html"><span
class="bold">third item</span></a></li>
        <li class="item-1 active"><a href="link4.html">fourth item</a></li>
        <li class="item-0"><a href="link5.html">fifth item</a></li>
     </ul>
</div>
```

知识讲解

```
from pyquery import PyQuery as pq
doc = pq(filename='hello.html')
print doc.html()
print type(doc)
li = doc('li')
print type(li)
print li.text()
```

遍历

```
from pyquery import PyQuery as pq
doc = pq(filename='hello.html')
lis = doc('li')
for li in lis.items():
    print li.html()

print lis.each(lambda e: e)
```

知识讲解

练习

- 使用pyquery解析html

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pyspider

pyspider

- A Powerful Spider(Web Crawler) System in Python.
- Write script in Python
- Powerful WebUI with script editor, task monitor, project manager and result viewer
- MySQL, MongoDB, Redis, SQLite, Elasticsearch; PostgreSQL with SQLAlchemy as database backend
- RabbitMQ, Beanstalk, Redis and Kombu as message queue
- Task priority, retry, periodical, recrawl by age, etc...
- Distributed architecture, Crawl Javascript pages, Python 2&3, etc...

安装&启动

pip install pyspider

pyspider

http://localhost:5000/

知识讲解