分析 AJAX 传递的 JSON 获取数据

需求

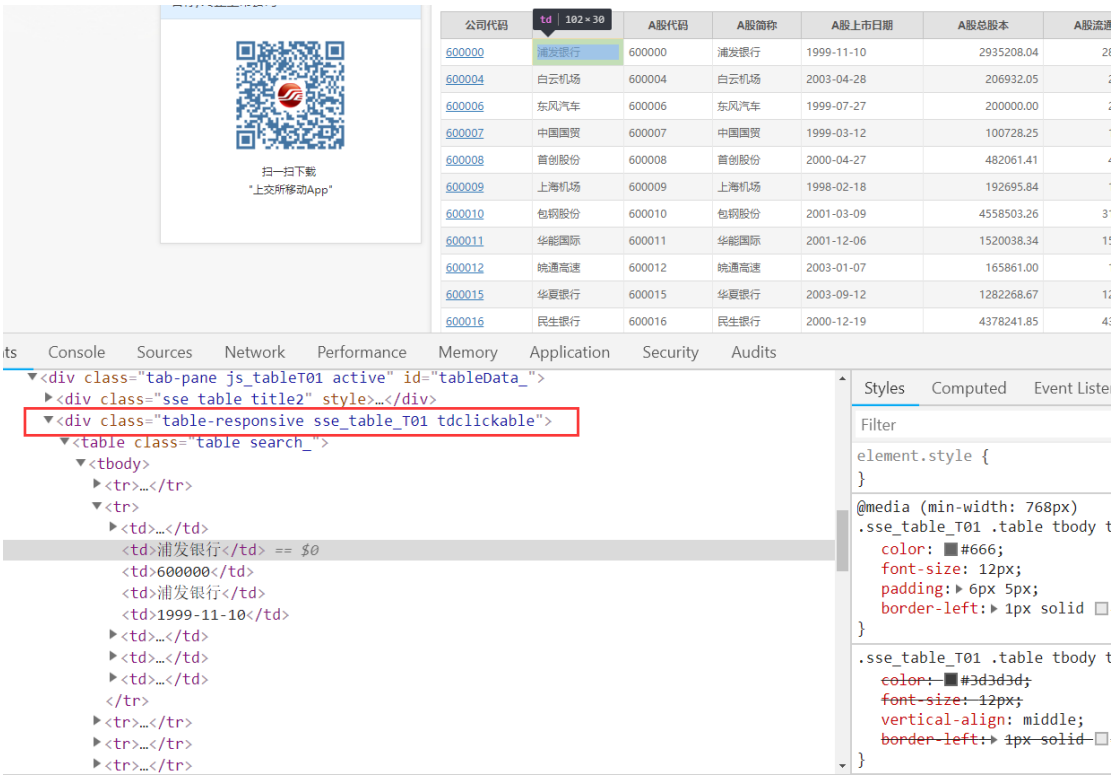
爬取伤害证券交易所网站，获取 A 股上市公司信息，包括公司代码，公司简称，A 股代码，

A 股简称以及 A 股总资本和 A 股流通资本这几项

审查元素

打开 http://www.sse.com.cn/assortment/stock/list/share/

查看 A 股上市公司信息



发现上市公司条目在 class 为 table-responsive sse_table_T01 tdclickable 的 div 下的 table 中

查看网页源码，发现该 div 为空，我们用普通的爬取方法是获取不到数据的

```
<div class="table-responsive sse_table_T01 tdclickable"  >
<table class="table search_">
<script type="text/javascript">

</script>
            </table></div>
```

这是因为这个网页是使用了 AJAX 技术的**动态网页。**它可以通过与服务器进行少量数据交换

而在不重新加载整个网页的情况下对部分网页进行异步更新。

获取动态数据两种的思路

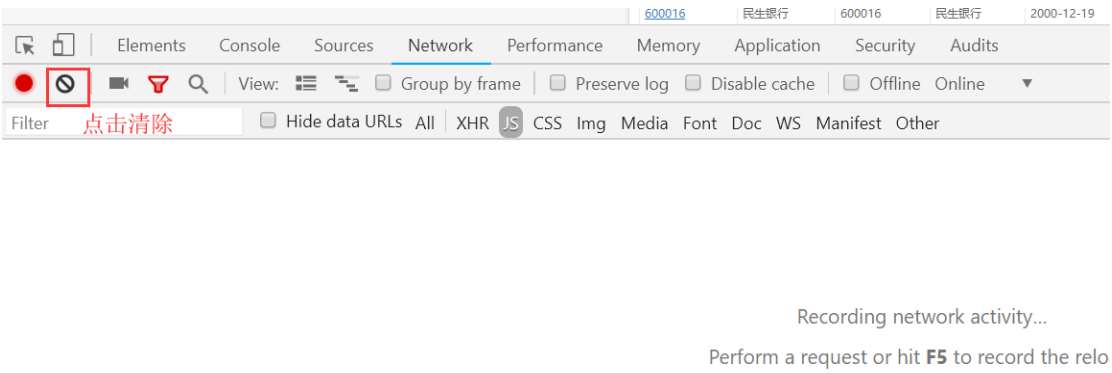
1. 分析页面请求

2. 利用 selenium 模拟浏览器行为或其他抓包工具直接获取

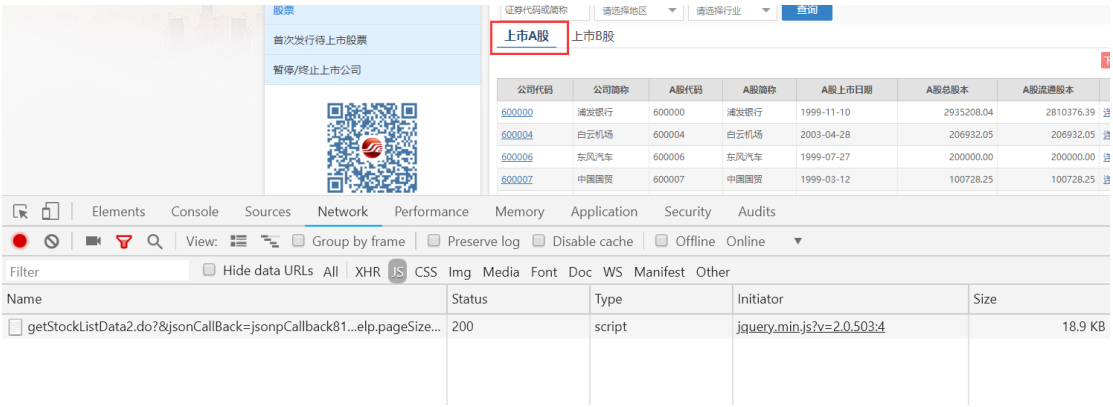
效率最高的就是分析出请求数据的 URL 一般都可以。

分析请求数据的 URL

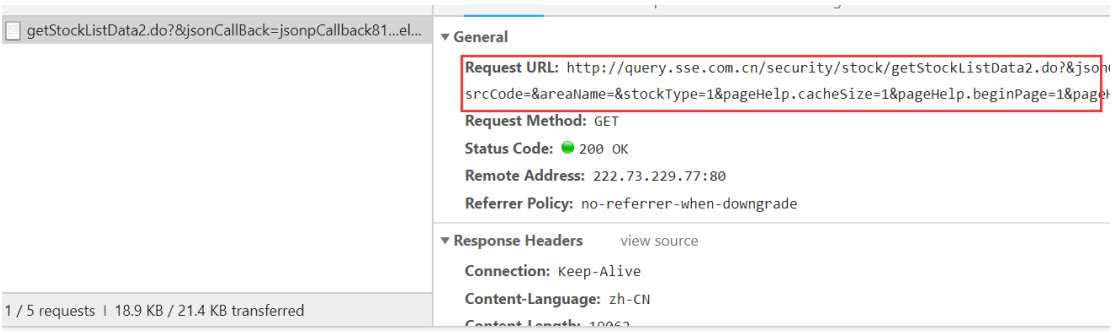
打开开发者工具，选 Network 进行 JS 分析，点击清除，更方便定位



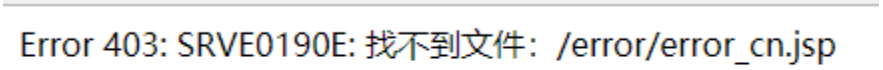
点击网页中上市 A 股，进行加载刷新



出现了一个条目，就是我们要找的数据的 url，（有的网站会出现一堆的 js 条目，就需要去分析一下了）



浏览器里打开目标验证一下有没有我们需要的数据

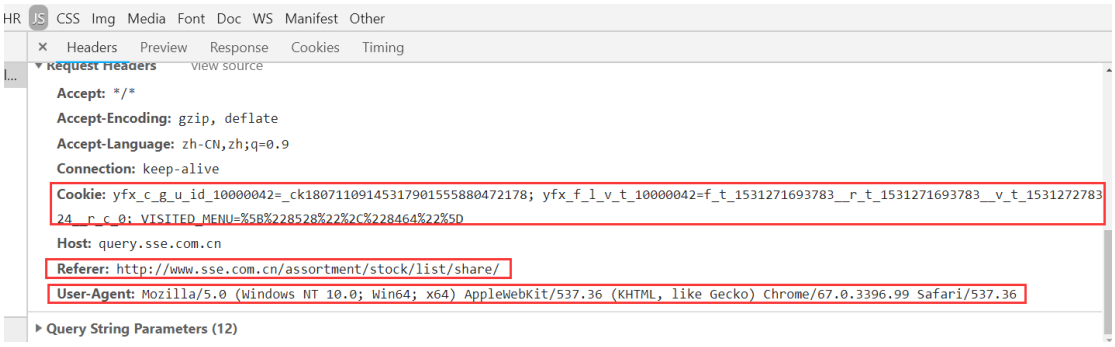


403 码表示我们没有权限浏览目标地址。这是网站的自我保护行为。

JSON 数据的获取

思路：修改 Request-Headers 中 Cookie，User-Agent，Referer 等信息，让爬虫模拟人的操作

需要修改的内容可以在 Headers 中查看：



代码实现

```
import requests

url='http://query.sse.com.cn/security/stock/getStockListData2.do?&jsonCallBack=jsonpCallback81793&isPagination=true&stockCode=&csrcCode=&areaName=&stockType=1&pageHelp.cacheSize=1&pageHelp.beginPage=1&pageHelp.pageSize=25&pageHelp.pageNo=1&_=1531271694633'
headers={'Cookie':'yfx_c_g_u_id_10000042=_ck18071109145317901555880472178;
yfx_f_l_v_t_10000042=f_t_1531271693783__r_t_1531271693783__v_t_1531272783524__r_c_0; VISITED_MENU=%5B%228528%22%2C%228464%22%5D',
'User-Agent':'Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/67.0.3396.99 Safari/537.36',
'Referer':'http://www.sse.com.cn/assortment/stock/list/share/'
}
response=requests.get(url,headers=headers)
print(response.text)
a='{"content":'+response.text[19:-1]+'}'#去除开都的jsonpCallback81793(和结尾的)
b=json.loads(a)
print(b)
```

结果

jsonpCallback81793({"areaName":"","csrcCode":"","downloadFileName":null,"execlStream":null,"jsonCallBack":"jsonpCallback81793","pageHelp":{"beginPage":1,"cacheSize":1,"data":[{"NUM":"1","totalFlowShares":"2810376.39","endDate":"2018-07-10","LISTING_DATE":"1999-11-10","SECURITY_CODE_A":"600000","COMPANY_CODE":"

600000","SECURITY_CODE_B":"-","END_SHARE_CODE":"-","SECURITY_ABBR_A":" 浦发银行","COMPANY_ABBR":" 浦发银行","SECURITY_ABBR_B":"-","END_SHARE_MAIN_DEPART":"-","totalShares":"2935208.04","END_SHARE_VICE_DEPART":"-","CHANGE_DATE":"-"},{"NUM":"2","totalFlowShares":"206932.05","endDate":"2018-07-10","LISTING_DATE":"2003-04-28","SECURITY_CODE_A":"600004","COMPANY_CODE":"600004","SECURITY_CODE_B":"-","END_SHARE_CODE":"-","SECURITY_ABBR_A":" 白云机场","COMPANY_ABBR":" 白云机场","SECURITY_ABBR_B":"-","END_SHARE_MAIN_DEPART":"-","totalShares":"206932.05","END_SHARE_VICE_DEPART":"-","CHANGE_DATE":"-"},{"NUM":"3","totalFlowShares":"200000.00","endDate":"2018-07-10","LISTING_DATE":"1999-07-27","SECURITY_CODE_A":"600006","COMPANY_CODE":"600006","SECURITY_CODE_B":"-","END_SHARE_CODE":"-","SECURITY_ABBR_A":" 东风汽车","COMPANY_ABBR":" 东风汽车","SECURITY_ABBR_B":"-","END_SHARE_MAIN_DEPART":"-","totalShares":"200000.00","END_SHARE_VICE_DEPART":"-","CHANGE_DATE":"-"},{"NUM":"4","totalFlowShares":"100728.25","endDate":"2018-07-10","LISTING_DATE":"1999-03-12","SECURITY_CODE_A":"600007","COMPANY_CODE":"600007","SECURITY_CODE_B":"-","END_SHARE_CODE":"-","SECURITY_ABBR_A":" 中国国贸","COMPANY_ABBR":" 中国国贸","SECURITY_ABBR_B":"-","END_SHARE_MAIN_DEPART":"-","totalShares":"100728.25","END_SHARE_VICE_DEPART":"-","CHANGE_DATE":"-"},{"NUM":"5","totalFlowShares":"482061.41","endDate":"2018-07-10","LISTING_DATE":"2000-04-27","SECURITY_CODE_A":"600008","COMPANY_CODE":"600008","SECURITY_CODE_B":"-","END_SHARE_CODE":"-","SECURITY_ABBR_A":" 首创股份","COMPANY_ABBR":" 首创股份

","SECURITY_ABBR_B":"-","END_SHARE_MAIN_DEPART":"-","totalShares":"482061.41","END_SHARE_VICE_DEPART":"-","CHANGE_DATE":"-"},{"NUM":"6","totalFlowShares":"109347.64","endDate":"2018-07-10","LISTING_DATE":"1998-02-18","SECURITY_CODE_A":"600009","COMPANY_CODE":"600009","SECURITY_CODE_B":"-","END_SHARE_CODE":"-","SECURITY_ABBR_A":"上海机场","COMPANY_ABBR":"上海机场","SECURITY_ABBR_B":"-","END_SHARE_MAIN_DEPART":"-","totalShares":"192695.84","END_SHARE_VICE_DEPART":"-","CHANGE_DATE":"-"},{"NUM":"7","totalFlowShares":"3167721.16","endDate":"2018-07-10","LISTING_DATE":"2001-03-09","SECURITY_CODE_A":"600010","COMPANY_CODE":"600010","SECURITY_CODE_B":"-","END_SHARE_CODE":"-","SECURITY_ABBR_A":"包钢股份","COMPANY_ABBR":"包钢股份","SECURITY_ABBR_B":"-","END_SHARE_MAIN_DEPART":"-","totalShares":"4558503.26","END_SHARE_VICE_DEPART":"-","CHANGE_DATE":"-"},{"NUM":"8","totalFlowShares":"1520038.34","endDate":"2018-07-10","LISTING_DATE":"2001-12-06","SECURITY_CODE_A":"600011","COMPANY_CODE":"600011","SECURITY_CODE_B":"-","END_SHARE_CODE":"-","SECURITY_ABBR_A":"华能国际","COMPANY_ABBR":"华能国际","SECURITY_ABBR_B":"-","END_SHARE_MAIN_DEPART":"-","totalShares":"1520038.34","END_SHARE_VICE_DEPART":"-","CHANGE_DATE":"-"},{"NUM":"9","totalFlowShares":"165861.00","endDate":"2018-07-10","LISTING_DATE":"2003-01-07","SECURITY_CODE_A":"600012","COMPANY_CODE":"600012","SECURITY_CODE_B":"-","END_SHARE_CODE":"-","SECURITY_ABBR_A":"皖通高速","COMPANY_ABBR":"皖通高速","SECURITY_ABBR_B":"-","END_SHARE_MAIN_DEPART":"-","totalShares":"165861.00","END_SHARE_VICE_DEPART":"-","CHANGE_DATE":"-"},{"NUM":"10","totalFlowSh

ares":"1282268.67","endDate":"2018-07-10","LISTING_DATE":"2003-09-12","SECURITY_CODE_A":"600015","COMPANY_CODE":"600015","SECURITY_CODE_B":"-","END_SHARE_CODE":"-","SECURITY_ABBR_A":"华夏银行","COMPANY_ABBR":"华夏银行","SECURITY_ABBR_B":"-","END_SHARE_MAIN_DEPART":"-","totalShares":"1282268.67","END_SHARE_VICE_DEPART":"-","CHANGE_DATE":"-"},{"NUM":"11","totalFlowShares":"4378241.85","endDate":"2018-07-10","LISTING_DATE":"2000-12-19","SECURITY_CODE_A":"600016","COMPANY_CODE":"600016","SECURITY_CODE_B":"-","END_SHARE_CODE":"-","SECURITY_ABBR_A":"民生银行","COMPANY_ABBR":"民生银行","SECURITY_ABBR_B":"-","END_SHARE_MAIN_DEPART":"-","totalShares":"4378241.85","END_SHARE_VICE_DEPART":"-","CHANGE_DATE":"-"},{"NUM":"12","totalFlowShares":"307565.39","endDate":"2018-07-10","LISTING_DATE":"2006-10-17","SECURITY_CODE_A":"600017","COMPANY_CODE":"600017","SECURITY_CODE_B":"-","END_SHARE_CODE":"-","SECURITY_ABBR_A":"日照港","COMPANY_ABBR":"日照港","SECURITY_ABBR_B":"-","END_SHARE_MAIN_DEPART":"-","totalShares":"307565.39","END_SHARE_VICE_DEPART":"-","CHANGE_DATE":"-"},{"NUM":"13","totalFlowShares":"2317367.47","endDate":"2018-07-10","LISTING_DATE":"2006-10-26","SECURITY_CODE_A":"600018","COMPANY_CODE":"600018","SECURITY_CODE_B":"-","END_SHARE_CODE":"-","SECURITY_ABBR_A":"上港集团","COMPANY_ABBR":"上港集团","SECURITY_ABBR_B":"-","END_SHARE_MAIN_DEPART":"-","totalShares":"2317367.47","END_SHARE_VICE_DEPART":"-","CHANGE_DATE":"2006-10-20"},{"NUM":"14","totalFlowShares":"2210108.69","endDate":"2018-07-10","LISTING_DATE":"2000-12-12","SECURITY_CODE_A":"600019","COMPANY_CODE":"600019","SECURITY_CODE_

B":"-","END_SHARE_CODE":"-","SECURITY_ABBR_A":"宝钢股份","COMPANY_ABBR":"宝钢股份","SECURITY_ABBR_B":"-","END_SHARE_MAIN_DEPART":"-","totalShares":"2226791.51","END_SHARE_VICE_DEPART":"-","CHANGE_DATE":"-"},{"NUM":"15","totalFlowShares":"224737.18","endDate":"2018-07-10","LISTING_DATE":"2003-08-08","SECURITY_CODE_A":"600020","COMPANY_CODE":"600020","SECURITY_CODE_B":"-","END_SHARE_CODE":"-","SECURITY_ABBR_A":"中原高速","COMPANY_ABBR":"中原高速","SECURITY_ABBR_B":"-","END_SHARE_MAIN_DEPART":"-","totalShares":"224737.18","END_SHARE_VICE_DEPART":"-","CHANGE_DATE":"-"},{"NUM":"16","totalFlowShares":"213973.93","endDate":"2018-07-10","LISTING_DATE":"2003-10-29","SECURITY_CODE_A":"600021","COMPANY_CODE":"600021","SECURITY_CODE_B":"-","END_SHARE_CODE":"-","SECURITY_ABBR_A":"上海电力","COMPANY_ABBR":"上海电力","SECURITY_ABBR_B":"-","END_SHARE_MAIN_DEPART":"-","totalShares":"240965.71","END_SHARE_VICE_DEPART":"-","CHANGE_DATE":"-"},{"NUM":"17","totalFlowShares":"1068861.31","endDate":"2018-07-10","LISTING_DATE":"2004-06-29","SECURITY_CODE_A":"600022","COMPANY_CODE":"600022","SECURITY_CODE_B":"-","END_SHARE_CODE":"-","SECURITY_ABBR_A":"山东钢铁","COMPANY_ABBR":"山东钢铁","SECURITY_ABBR_B":"-","END_SHARE_MAIN_DEPART":"-","totalShares":"1094654.96","END_SHARE_VICE_DEPART":"-","CHANGE_DATE":"-"},{"NUM":"18","totalFlowShares":"1360069.00","endDate":"2018-07-10","LISTING_DATE":"2013-12-19","SECURITY_CODE_A":"600023","COMPANY_CODE":"600023","SECURITY_CODE_B":"-","END_SHARE_CODE":"-","SECURITY_ABBR_A":"浙能电力","COMPANY_ABBR":"浙能电力

","SECURITY_ABBR_B":"-","END_SHARE_MAIN_DEPART":"-","totalShares":"1360069.00","END_SHARE_VICE_DEPART":"-","CHANGE_DATE":"-"},{"NUM":"19","totalFlowShares":"180000.00","endDate":"2018-07-10","LISTING_DATE":"2017-12-15","SECURITY_CODE_A":"600025","COMPANY_CODE":"600025","SECURITY_CODE_B":"-","END_SHARE_CODE":"-","SECURITY_ABBR_A":"华能水电","COMPANY_ABBR":"华能水电","SECURITY_ABBR_B":"-","END_SHARE_MAIN_DEPART":"-","totalShares":"1800000.00","END_SHARE_VICE_DEPART":"-","CHANGE_DATE":"-"},{"NUM":"20","totalFlowShares":"403203.29","endDate":"2018-07-10","LISTING_DATE":"2002-05-23","SECURITY_CODE_A":"600026","COMPANY_CODE":"600026","SECURITY_CODE_B":"-","END_SHARE_CODE":"-","SECURITY_ABBR_A":"中远海能","COMPANY_ABBR":"中远海能","SECURITY_ABBR_B":"-","END_SHARE_MAIN_DEPART":"-","totalShares":"403203.29","END_SHARE_VICE_DEPART":"-","CHANGE_DATE":"-"},{"NUM":"21","totalFlowShares":"850183.93","endDate":"2018-07-10","LISTING_DATE":"2005-02-03","SECURITY_CODE_A":"600027","COMPANY_CODE":"600027","SECURITY_CODE_B":"-","END_SHARE_CODE":"-","SECURITY_ABBR_A":"华电国际","COMPANY_ABBR":"华电国际","SECURITY_ABBR_B":"-","END_SHARE_MAIN_DEPART":"-","totalShares":"986297.67","END_SHARE_VICE_DEPART":"-","CHANGE_DATE":"-"},{"NUM":"22","totalFlowShares":"12107120.96","endDate":"2018-07-10","LISTING_DATE":"2001-08-08","SECURITY_CODE_A":"600028","COMPANY_CODE":"600028","SECURITY_CODE_B":"-","END_SHARE_CODE":"-","SECURITY_ABBR_A":"中国石化","COMPANY_ABBR":"中国石化","SECURITY_ABBR_B":"-","END_SHARE_MAIN_DEPART":"-","totalShares":"12107120.96","END_SHARE_VICE_DEPART":"-","CHANGE_DATE":"-"},{"NUM":"23","totalFlow

Shares":"1008817.33","endDate":"2018-07-10","LISTING_DATE":"2003-07-25","SECURITY_CODE_A":"600029","COMPANY_CODE":"600029","SECURITY_CODE_B":"-","END_SHARE_CODE":"-","SECURITY_ABBR_A":"南方航空","COMPANY_ABBR":"南方航空","SECURITY_ABBR_B":"-","END_SHARE_MAIN_DEPART":"-","totalShares":"1008817.33","END_SHARE_VICE_DEPART":"-","CHANGE_DATE":"-"},{"NUM":"24","totalFlowShares":"1209298.94","endDate":"2018-07-10","LISTING_DATE":"2003-01-06","SECURITY_CODE_A":"600030","COMPANY_CODE":"600030","SECURITY_CODE_B":"-","END_SHARE_CODE":"-","SECURITY_ABBR_A":"中信证券","COMPANY_ABBR":"中信证券","SECURITY_ABBR_B":"-","END_SHARE_MAIN_DEPART":"-","totalShares":"1211690.84","END_SHARE_VICE_DEPART":"-","CHANGE_DATE":"-"},{"NUM":"25","totalFlowShares":"770011.75","endDate":"2018-07-10","LISTING_DATE":"2003-07-03","SECURITY_CODE_A":"600031","COMPANY_CODE":"600031","SECURITY_CODE_B":"-","END_SHARE_CODE":"-","SECURITY_ABBR_A":"三一重工","COMPANY_ABBR":"三一重工","SECURITY_ABBR_B":"-","END_SHARE_MAIN_DEPART":"-","totalShares":"773862.16","END_SHARE_VICE_DEPART":"-","CHANGE_DATE":"-"}],"endDate":null,"endPage":null,"objectResult":null,"pageCount":58,"pageNo":1,"pageSize":25,"searchDate":null,"sort":null,"startDate":null,"total":1426},"result":[{"NUM":"1","totalFlowShares":"2810376.39","endDate":"2018-07-10","LISTING_DATE":"1999-11-10","SECURITY_CODE_A":"600000","COMPANY_CODE":"600000","SECURITY_CODE_B":"-","END_SHARE_CODE":"-","SECURITY_ABBR_A":"浦发银行","COMPANY_ABBR":"浦发银行","SECURITY_ABBR_B":"-","END_SHARE_MAIN_DEPART":"-","totalShares":"2935208.04","END_SHARE_VICE_DEPART":"-","CHANGE_DATE":"-"},{"NUM":"2","totalFlowSh

ares":"206932.05","endDate":"2018-07-10","LISTING_DATE":"2003-04-28","SECURITY_CODE_A":"600004","COMPANY_CODE":"600004","SECURITY_CODE_B":"-","END_SHARE_CODE":"-","SECURITY_ABBR_A":"白云机场","COMPANY_ABBR":"白云机场","SECURITY_ABBR_B":"-","END_SHARE_MAIN_DEPART":"-","totalShares":"206932.05","END_SHARE_VICE_DEPART":"-","CHANGE_DATE":"-"},{"NUM":"3","totalFlowShares":"200000.00","endDate":"2018-07-10","LISTING_DATE":"1999-07-27","SECURITY_CODE_A":"600006","COMPANY_CODE":"600006","SECURITY_CODE_B":"-","END_SHARE_CODE":"-","SECURITY_ABBR_A":"东风汽车","COMPANY_ABBR":"东风汽车","SECURITY_ABBR_B":"-","END_SHARE_MAIN_DEPART":"-","totalShares":"200000.00","END_SHARE_VICE_DEPART":"-","CHANGE_DATE":"-"},{"NUM":"4","totalFlowShares":"100728.25","endDate":"2018-07-10","LISTING_DATE":"1999-03-12","SECURITY_CODE_A":"600007","COMPANY_CODE":"600007","SECURITY_CODE_B":"-","END_SHARE_CODE":"-","SECURITY_ABBR_A":"中国国贸","COMPANY_ABBR":"中国国贸","SECURITY_ABBR_B":"-","END_SHARE_MAIN_DEPART":"-","totalShares":"100728.25","END_SHARE_VICE_DEPART":"-","CHANGE_DATE":"-"},{"NUM":"5","totalFlowShares":"482061.41","endDate":"2018-07-10","LISTING_DATE":"2000-04-27","SECURITY_CODE_A":"600008","COMPANY_CODE":"600008","SECURITY_CODE_B":"-","END_SHARE_CODE":"-","SECURITY_ABBR_A":"首创股份","COMPANY_ABBR":"首创股份","SECURITY_ABBR_B":"-","END_SHARE_MAIN_DEPART":"-","totalShares":"482061.41","END_SHARE_VICE_DEPART":"-","CHANGE_DATE":"-"},{"NUM":"6","totalFlowShares":"109347.64","endDate":"2018-07-10","LISTING_DATE":"1998-02-18","SECURITY_CODE_A":"600009","COMPANY_CODE":"600009","SECURITY_CODE_B":"-","END_S

HARE_CODE":"-","SECURITY_ABBR_A":"上海机场","COMPANY_ABBR":"上海机场","SECURITY_ABBR_B":"-","END_SHARE_MAIN_DEPART":"-","totalShares":"192695.84","END_SHARE_VICE_DEPART":"-","CHANGE_DATE":"-"},{"NUM":"7","totalFlowShares":"3167721.16","endDate":"2018-07-10","LISTING_DATE":"2001-03-09","SECURITY_CODE_A":"600010","COMPANY_CODE":"600010","SECURITY_CODE_B":"-","END_SHARE_CODE":"-","SECURITY_ABBR_A":"包钢股份","COMPANY_ABBR":"包钢股份","SECURITY_ABBR_B":"-","END_SHARE_MAIN_DEPART":"-","totalShares":"4558503.26","END_SHARE_VICE_DEPART":"-","CHANGE_DATE":"-"},{"NUM":"8","totalFlowShares":"1520038.34","endDate":"2018-07-10","LISTING_DATE":"2001-12-06","SECURITY_CODE_A":"600011","COMPANY_CODE":"600011","SECURITY_CODE_B":"-","END_SHARE_CODE":"-","SECURITY_ABBR_A":"华能国际","COMPANY_ABBR":"华能国际","SECURITY_ABBR_B":"-","END_SHARE_MAIN_DEPART":"-","totalShares":"1520038.34","END_SHARE_VICE_DEPART":"-","CHANGE_DATE":"-"},{"NUM":"9","totalFlowShares":"165861.00","endDate":"2018-07-10","LISTING_DATE":"2003-01-07","SECURITY_CODE_A":"600012","COMPANY_CODE":"600012","SECURITY_CODE_B":"-","END_SHARE_CODE":"-","SECURITY_ABBR_A":"皖通高速","COMPANY_ABBR":"皖通高速","SECURITY_ABBR_B":"-","END_SHARE_MAIN_DEPART":"-","totalShares":"165861.00","END_SHARE_VICE_DEPART":"-","CHANGE_DATE":"-"},{"NUM":"10","totalFlowShares":"1282268.67","endDate":"2018-07-10","LISTING_DATE":"2003-09-12","SECURITY_CODE_A":"600015","COMPANY_CODE":"600015","SECURITY_CODE_B":"-","END_SHARE_CODE":"-","SECURITY_ABBR_A":"华夏银行","COMPANY_ABBR":"华夏银行","SECURITY_ABBR_B":"-","END_SHARE_MAIN_DEPART":"-","totalShares":"1282268.

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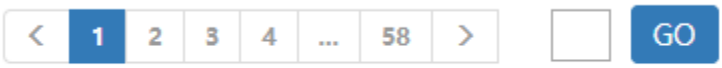
扩展作业

问题：要抓 30 页该怎么办?



分析 url：

第二页 url：

http://query.sse.com.cn/security/stock/getStockListData2.do?&jsonCallBack=jsonpCallback96322&isPagination=true&stockCode=&csrcCode=&areaName=&stockType=1&pageHelp.cacheSize=1&pageHelp.beginPage=2&pageHelp.pageSize=25&pageHelp.pageNo=2&pageHelp.endPage=21&_=1531271694634

第三页 url：

http://query.sse.com.cn/security/stock/getStockListData2.do?&jsonCallBack=jsonpCallback4267&isPagination=true&stockCode=&csrcCode=&areaName=&stockType=1&pageHelp.cacheSize=1&pageHelp.beginPage=3&pageHelp.pageSize=25&pageHelp.pageNo=3&pageHelp.endPage=31&_=1531271694635

不同之处仅仅在个别关键字部分进行了修改。

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def find_pageA(c): #根据传递参数 c（提取的页数）来选择目标 url 地址
        return
'http://query.sse.com.cn/security/stock/getStockListData2.do?&jsonCallBack=jsonpCallback4267&isPagination=true&stockCode=&csrcCode=&areaName=&stockType=1&pageHelp.cacheSize=1&pageHelp.beginPage='+str(c)+'&pageHelp.pageSize=25&pageHelp.pageNo='+str(c)+'&pageHelp.endPage='+str(c)+'1&_=153127169463'+str(c)
```

作业：

动态的获取豆瓣电影的 json 数据.docx

https://movie.douban.com/tag/#/