# 测试案例

## 测试 API

- 测试的 API 为：天气 API
- 接口 URL：https://www.sojson.com/open/api/weather/json.shtml
- 请求方式:GET
- 参数：city 为城市名称(仅支持国内城市)，支持的城市可以带上市、县、区之类,如：北京,深圳、南山区、长沙市、长沙等等。
- 返回值格式如下(查询城市为北京)：

```
{
        "date": "20180815",
        "message": "Success !",
        "status": 200,
        "city": "北京",
        "count": 22,
        "data": {
                "shidu": "86%",
                "pm25": 13.0,
                "pm10": 27.0,
                "quality": "优",
                "wendu": "25",
                "ganmao": "各类人群可自由活动",
                "yesterday": {
                        "date": "14 日星期二",
                        "sunrise": "05:23",
                        "high": "高温 29.0℃",
                        "low": "低温 24.0℃",
                        "sunset": "19:14",
                        "aqi": 20.0,
                        "fx": "东风",
                        "fl": "<3 级",
                        "type": "雷阵雨",
                "notice": "带好雨具，别在树下躲雨"
        },
        "forecast": [{
                "date": "15 日星期三",
                "sunrise": "05:24",
                "high": "高温 32.0℃",
                "low": "低温 24.0℃",
                "sunset": "19:12",
                "aqi": 34.0,
                "fx": "东北风",
                "fl": "3-4 级",
                "type": "多云",
                "notice": "阴晴之间，谨防紫外线侵扰"
        }, {
                "date": "16 日星期四",
                "sunrise": "05:25",
                "high": "高温 30.0℃",
                "low": "低温 22.0℃",
                "sunset": "19:11",
                "aqi": 43.0,
                "fx": "无持续风向",
                "fl": "<3 级",
                "type": "多云",
                "notice": "阴晴之间，谨防紫外线侵扰"
        }, {
                "date": "17 日星期五",
                "sunrise": "05:26",
                "high": "高温 29.0℃",
                "low": "低温 22.0℃",
                "sunset": "19:10",
                "aqi": 61.0,
                "fx": "东南风",
                "fl": "<3 级",
                "type": "阴",
                "notice": "不要被阴云遮挡住好心情"
        }, {
                "date": "18 日星期六",
                "sunrise": "05:27",
                "high": "高温 30.0℃",
                "low": "低温 22.0℃",
                "sunset": "19:08",
                "aqi": 65.0,
                "fx": "东南风",
                "fl": "<3 级",
                "type": "多云",
                            "notice": "阴晴之间，谨防紫外线侵扰"
                   }, {
                            "date": "19 日星期日",
                            "sunrise": "05:28",
                            "high": "高温 31.0℃",
                            "low": "低温 21.0℃",
                            "sunset": "19:07",
                            "aqi": 67.0,
                            "fx": "东南风",
                            "fl": "<3 级",
                            "type": "晴",
                            "notice": "愿你拥有比阳光明媚的心情"
                   }]
         }
}
```

# 测试场景

通过接口来查询 北京 的天气信息

# 代码实现

weather_api_test.py

```
import requests
from  urllib import parse


#构造接口测试数据
data={'city':'北京'}
city=parse.urlencode(data).encode('utf-8')
url='https://www.sojson.com/open/api/weather/json.shtml'

#发送请求
r=requests.get(url,params=city)
# print(r.text)

#将返回结果转化为 Json 类型
response_data=r.json()
```

```
#分别获取日期，响应信息，状态、和城市
print(response_data['date'])
print(response_data['message'])
print(response_data['status'])
print(response_data['city'])

#获取当日天气
print(response_data['data']['forecast'][0]['date'])
print(response_data['data']['forecast'][0]['type'])
print(response_data['data']['forecast'][0]['high'])
print(response_data['data']['forecast'][0]['low'])
```

注意：

- 每个 IP 日调用额度 2000 次，超过过多，会直接封掉 IP 段。
- 每次请求间隔必须 3 秒一次，如果多次超过 3 秒内调用多次，会封掉 IP 段
- 更多注意事项

# 集成到 Unittest

## 应用背景

上面的案例只是针对单个场景进行了接口调用，但是实际的接口测试需要针对不同的参数场景进行测试。另外还需要设置断言，生成测试报告。

## 用例设计

| 测试场景 | 用例描述 | 期望结果 |
|---|---|---|
| 正常参数 | 传入正常参数进行测试 | 返回'Success'提示信息,city 传参一致。 |
| 异常参数 | 传入异常参数，如数字，英文字符 | 返回'Check the parameters'提示信息 |
| 参数缺省 | 不传 city 参数 | 返回'Check the parameters'提示信息，状态码:400 |

## 代码实现

weather_api_unittest.py

```
import unittest
import requests
from  urllib import parse
from time import sleep

class WeatherTest(unittest.TestCase):
    def setUp(self):
        self.url='https://www.sojson.com/open/api/weather/json.shtml'

        #代理设置，避免 ip 被封
        # self.proxies={'http':'http://125.118.146.222:6666'}



    def test_weather_beijing(self):
        '''测试北京天气'''
        data = {'city': '北京'}
        city = parse.urlencode(data).encode('utf-8')

        # r=requests.get(self.url,params=city,proxies=self.proxies)
        r=requests.get(self.url,params=city)
        result=r.json()
        #断言
        self.assertEqual(result['status'],200)
        self.assertEqual(result['message'],'Success !')
        self.assertEqual(result['city'],'北京')
        #设置间隔时间，避免 ip 被封
        sleep(3)


    def test_weather_param_error(self):
        '''参数异常'''

        data={'city':'666'}
        # r=requests.get(self.url,params=data,proxies=self.proxies)
        r=requests.get(self.url,params=data)
        result=r.json()

        self.assertEqual(result['message'],'Check the parameters.')
        sleep(3)


    def test_weather_no_param(self):
        '''参数缺省'''

        # r=requests.get(self.url,params=data,proxies=self.proxies)
        r=requests.get(self.url)
        result=r.json()

        self.assertEqual(result['message'],'Check the parameters.')
        self.assertEqual(result['status'],400)
        sleep(3)


if __name__ == '__main__':
    unittest.main()
```

运行结果：

```
C:\Python35\python.exe D:/api_test/requests_api_test/weather_api_unittest.py
...
----------------------------------------------------------------------
Ran 3 tests in 10.312s

OK

Process finished with exit code 0
```

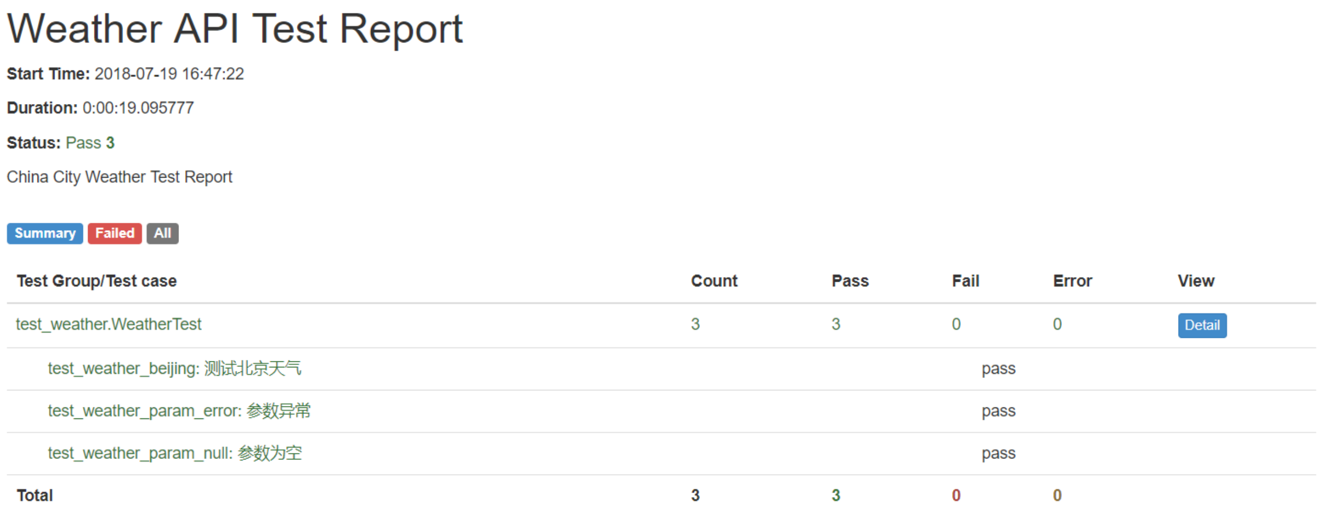
# 生成测试报告

- 首先创建文件夹 reports 和 test_case
- 下载 BSTestRunner
- 创建 run.py 模块

run.py

```
import unittest
from BSTestRunner import BSTestRunner
import time


#指定测试用例和测试报告的路径
test_dir = './test_case'
report_dir = './reports'

#加载测试用例
discover = unittest.defaultTestLoader.discover(test_dir, pattern='test_weather.py')

#定义报告的文件格式
now = time.strftime("%Y-%m-%d %H_%M_%S")
report_name = report_dir + '/' + now + ' test_report.html'

#运行用例并生成测试报告
with open(report_name, 'wb') as f:
    runner = BSTestRunner(stream=f, title="Weather API Test Report", description="China City Weather Test Report")
    runner.run(discover)
```

运行之后可以看到测试报告如下：



# Weather API Test Report

**Start Time:** 2018-07-19 16:47:22

**Duration:** 0:00:19.095777

**Status:** Pass **3**

China City Weather Test Report

Summary Failed All

| Test Group/Test case | Count | Pass | Fail | Error | View |
|---|---|---|---|---|---|
| test_weather.WeatherTest | 3 | 3 | 0 | 0 | Detail |
| test_weather_beijing: 测试北京天气 | | | pass | | |
| test_weather_param_error: 参数异常 | | | pass | | |
| test_weather_param_null: 参数为空 | | | pass | | |
| **Total** | **3** | **3** | **0** | **0** | |