python天气信息获取模块

基于lxml，requests，bs4库。爬取中国天气网

使用前必看

使用的库有 lxml，requests，json，pickle，bs4，re，os

> 其中*lxml，requests，bs4*库 python不自带，需要自行检查并安装
> 以下提供pip的下载方法，由于国内pip下载过慢，此处将使用清华镜像源下载
> 如果仍然发生超时(time out)请再尝试一次

```
pip install -i https://pypi.tuna.tsinghua.edu.cn/simple/ lxml
```

```
pip install -i https://pypi.tuna.tsinghua.edu.cn/simple/ requests
```

```
pip install -i https://pypi.tuna.tsinghua.edu.cn/simple/ bs4
```

使用方法

导入库

```
import weather
```

> 此模块方法封装在**weather**类中，在调用方法前需要先实例化此类
> 需传入要查找的城市名称
> 要注意：不支持县，村级，不支持直接输入省名，国外城市，可查询省内城市及直辖市

可行的方法

```
w = weather("郑州")
```

不支持的方法

```
# 查找了县级
w = weather("通许")
Exception: 查找不到该城市

# 查找了省名
w = weather("河南")
Exception: 不支持查找整个省的天气，可尝试查找省会郑州，或省内其他城市

# 查找了国外城市
w = weather("堪培拉")
Exception: 查找不到该城市
```

内部方法概要

方法	用途	参数	返回值
real_time_weather	获取实时天气信息	无	python字典
weather_suggestion	获取实时天气建议	无	python字典
week_weather	获取14天天气信息	无	python列表
hours_weather	获取72小时天气信息	无	python列表

real_time_weather获取实时天气信息方法

返回值信息(字典dict)

字典键	键	注解	示例值	类型
date	Huang_Li	黄历列表	宜/忌	列表(list)
	week	星期	星期一	字符串(str)
	lunar_calendar	农历	农历正月初十	
weather	Vehicle_limit_operation	限行尾号	限行尾号：1和6	
	air_temperature	气温	6	
	weather	天气	晴	
	air_quality	空气质量	空气质量 良	
	wind_power	风力	北风 2级	
	humidity	湿度	湿度：37%	

字典键	键	注解	示例值	类型
	ultraviolet_rays	紫外线	紫外线：4级	
	pressure	气压	气压1015百帕	
	body_sensation	体感	凉	
	Somatosensory_temperature	体感温度	10℃	
	visibility	能见度	良好	
	visibility_distance	能见距离	9.9km	
	cloudiness	云量	晴	
	cloud_ratio	云量比	7%	
	sunrise_time	日出时间	日出：07:23	
	sunset_time	日落时间	日落：17:56	
air_quality	air_quality	空气质量	良	
	air_quality_recommendations	空气质量建议	空气良好，可以正常参加户外活动。	
	air_quality_recommendations_list	空气质量建议列表	['无需戴口罩', '适宜外出', '适宜开窗', '关闭净化器']	列表 (list)
	pollutant_index_list	污染物指数列表0:Pm2.5, 1:pm10, 2:O3, 3:NO2 4:SO2	['54', '65', '88', '15', '9']	

程序示例

```python
w.weather("郑州")
weather_dict = w.real_time_weather()
```

返回示例

```
{
    "date": {
        "Huang_Li": [
            "宜：祭祀、祈福、求嗣、斋醮、入殓、除服、成服、移柩、安葬、启钻",
            "忌：嫁娶、动土、开光、盖屋、破土"
        ],
        "week": "星期二",
        "lunar_calendar": "农历正月十一"
    },
    "weather": {
        "Vehicle_limit_operation": "限行尾号：2和7",
        "air_temperature": "8℃",
        "weather": "霾",
        "air_quality": "空气质量 轻度污染",
        "wind_power": "东风 2级",
        "humidity": "湿度：51%",
        "ultraviolet_rays": "紫外线：3级",
        "pressure": "气压1011百帕",
        "body_sensation": "凉",
        "Somatosensory_temperature": "10℃",
        "visibility": "中等",
        "visibility_distance": "4.4km",
        "cloudiness": "多云",
        "cloud_ratio": "51%",
        "sunrise_time": "日出：07:22",
        "sunset_time": "日落：17:57"
    },
    "air_quality": {
        "air_quality": "轻度污染",
        "air_quality_recommendations": "空气一般，敏感人员外出时，需做好防护措施。",
        "air_quality_recommendations_list": [
            "建议戴口罩",
            "减少外出",
            "减少开窗",
            "开启净化器"
        ],
        "pollutant_index_list": [
            "114",
            "112",
            "58",
            "32",
            "13",
            "1"
        ]
    }
}
```

week_weather获取14天天气信息方法

返回值信息(列表list)

索引	键	注解	示例值	类型

索引	键	注解	示例值	类型
0	date	日期	今天(02-04)	字符串(str)
	weather	天气	晴	
	air_temperature	气温	-1/10℃	
	air_quality	空气质量	良	
	wind_power	风力	北风 2级	
1~13	...同上	...	...	...

> 注意：在第8~14天中无法获取空气质量信息，值为"暂无"为正常现象

程序示例

```
w.weather("郑州")
weather_list = w.week_weather()
```

返回示例

```json
[
    {
        "date": "今天(02-04)",
        "weather": "晴转多云",
        "air_temperature": "-1/10℃",
        "air_quality": "轻度",
        "wind_power": "东北风 4级"
    },
    {
        "date": "明天(02-05)",
        "weather": "雨夹雪",
        "air_temperature": "-1/1℃",
        "air_quality": "良",
        "wind_power": "东北风 3级"
    },
    {
        "date": "周四(02-06)",
        "weather": "雨夹雪转多云",
        "air_temperature": "-3/2℃",
        "air_quality": "良",
        "wind_power": "东北风 1级"
    },
    {
        "date": "周五(02-07)",
        "weather": "晴",
        "air_temperature": "-2/10℃",
        "air_quality": "良",
        "wind_power": "西南风 3级"
    },
    {
        "date": "周六(02-08)",
        "weather": "多云",
        "air_temperature": "1/13℃",
        "air_quality": "良",
        "wind_power": "西风 3级"
    },
    {
        "date": "周日(02-09)",
        "weather": "晴转多云",
        "air_temperature": "1/15℃",
        "air_quality": "良",
        "wind_power": "西风 3级"
    },
    {
        "date": "周一(02-10)",
        "weather": "阴",
        "air_temperature": "4/16℃",
        "air_quality": "良",
        "wind_power": "南风 3级"
    },
    {
        "date": "周二(02-11)",
        "weather": "多云",
```

```json
        "air_temperature": "4/13℃",
        "air_quality": "暂无",
        "wind_power": "西北风 1级"
    },
    {
        "date": "周三(02-12)",
        "weather": "晴",
        "air_temperature": "5/19℃",
        "air_quality": "暂无",
        "wind_power": "西北风 1级"
    },
    {
        "date": "周四(02-13)",
        "weather": "晴",
        "air_temperature": "2/15℃",
        "air_quality": "暂无",
        "wind_power": "东南风 1级"
    },
    {
        "date": "周五(02-14)",
        "weather": "晴转多云",
        "air_temperature": "1/12℃",
        "air_quality": "暂无",
        "wind_power": "东北风 3级"
    },
    {
        "date": "周六(02-15)",
        "weather": "多云",
        "air_temperature": "1/11℃",
        "air_quality": "暂无",
        "wind_power": "东南风 1级"
    },
    {
        "date": "周日(02-16)",
        "weather": "小雨",
        "air_temperature": "2/9℃",
        "air_quality": "暂无",
        "wind_power": "北风 1级"
    },
    {
        "date": "周一(02-17)",
        "weather": "多云转晴",
        "air_temperature": "2/12℃",
        "air_quality": "暂无",
        "wind_power": "东南风 1级"
    }
]
```

hours_weather获取72小时天气信息方法

返回值信息(列表list)

索引	键	注解	示例值	类型
0	time	时间	14时	字符串(str)
	weather	天气	晴	
	air_quality	空气质量	良	
1~71	...同上	...	...	...

程序示例

```
w.weather("郑州")
weather_list = w.hours_weather()
```

返回示例

```json
[
    {
        "time": "14时",
        "weather": "晴",
        "air_quality": "轻度"
    },
    {
        "time": "15时",
        "weather": "晴",
        "air_quality": "轻度"
    },
    {
        "time": "16时",
        "weather": "晴",
        "air_quality": "轻度"
    },
    {
        "time": "17时",
        "weather": "晴",
        "air_quality": "轻度"
    },
    {
        "time": "18时",
        "weather": "晴",
        "air_quality": "轻度"
    },
    {
        "time": "19时",
        "weather": "晴",
        "air_quality": "轻度"
    },
    {
        "time": "20时",
        "weather": "晴",
        "air_quality": "轻度"
    },
    {
        "time": "21时",
        "weather": "晴",
        "air_quality": "轻度"
    },
    {
        "time": "22时",
        "weather": "晴",
        "air_quality": "良"
    },
    {
        "time": "23时",
        "weather": "晴",
        "air_quality": "良"
    },
    {
        "time": "00时",
```

        "weather": "多云",
        "air_quality": "良"
    },
    {
        "time": "01时",
        "weather": "多云",
        "air_quality": "良"
    },
    {
        "time": "02时",
        "weather": "阴",
        "air_quality": "良"
    },
    {
        "time": "03时",
        "weather": "阴",
        "air_quality": "良"
    },
    {
        "time": "04时",
        "weather": "阴",
        "air_quality": "良"
    },
    {
        "time": "05时",
        "weather": "阴",
        "air_quality": "良"
    },
    {
        "time": "06时",
        "weather": "阴",
        "air_quality": "良"
    },
    {
        "time": "07时",
        "weather": "阴",
        "air_quality": "良"
    },
    {
        "time": "08时",
        "weather": "阴",
        "air_quality": "良"
    },
    {
        "time": "09时",
        "weather": "阴",
        "air_quality": "良"
    },
    {
        "time": "10时",
        "weather": "阴",
        "air_quality": "良"
    },
    {

```
        "time": "11时",
        "weather": "阴",
        "air_quality": "良"
    },
    {
        "time": "12时",
        "weather": "阴",
        "air_quality": "良"
    },
    {
        "time": "13时",
        "weather": "阴",
        "air_quality": "良"
    },
    {
        "time": "14时",
        "weather": "多云",
        "air_quality": "良"
    },
    {
        "time": "15时",
        "weather": "多云",
        "air_quality": "良"
    },
    {
        "time": "16时",
        "weather": "冰雹",
        "air_quality": "良"
    },
    {
        "time": "17时",
        "weather": "冰雹",
        "air_quality": "良"
    },
    {
        "time": "18时",
        "weather": "冰雹",
        "air_quality": "良"
    },
    {
        "time": "19时",
        "weather": "多云",
        "air_quality": "良"
    },
    {
        "time": "20时",
        "weather": "多云",
        "air_quality": "良"
    },
    {
        "time": "21时",
        "weather": "多云",
        "air_quality": "良"
    },
```

```json
    {
        "time": "22时",
        "weather": "多云",
        "air_quality": "良"
    },
    {
        "time": "23时",
        "weather": "多云",
        "air_quality": "良"
    },
    {
        "time": "00时",
        "weather": "多云",
        "air_quality": "良"
    },
    {
        "time": "01时",
        "weather": "冰雹",
        "air_quality": "良"
    },
    {
        "time": "02时",
        "weather": "冰雹",
        "air_quality": "良"
    },
    {
        "time": "03时",
        "weather": "多云",
        "air_quality": "良"
    },
    {
        "time": "04时",
        "weather": "多云",
        "air_quality": "良"
    },
    {
        "time": "05时",
        "weather": "冰雹",
        "air_quality": "良"
    },
    {
        "time": "06时",
        "weather": "多云",
        "air_quality": "良"
    },
    {
        "time": "07时",
        "weather": "冰雹",
        "air_quality": "良"
    },
    {
        "time": "08时",
        "weather": "冰雹",
        "air_quality": "良"
    }
```

    },
    {
        "time": "09时",
        "weather": "多云",
        "air_quality": "良"
    },
    {
        "time": "10时",
        "weather": "多云",
        "air_quality": "良"
    },
    {
        "time": "11时",
        "weather": "冰雹",
        "air_quality": "良"
    },
    {
        "time": "12时",
        "weather": "多云",
        "air_quality": "优"
    },
    {
        "time": "13时",
        "weather": "多云",
        "air_quality": "优"
    },
    {
        "time": "14时",
        "weather": "多云",
        "air_quality": "优"
    },
    {
        "time": "15时",
        "weather": "多云",
        "air_quality": "优"
    },
    {
        "time": "16时",
        "weather": "多云",
        "air_quality": "优"
    },
    {
        "time": "17时",
        "weather": "多云",
        "air_quality": "优"
    },
    {
        "time": "18时",
        "weather": "多云",
        "air_quality": "优"
    },
    {
        "time": "19时",
        "weather": "多云",

```json
        "air_quality": "优"
    },
    {

        "time": "20时",
        "weather": "多云",
        "air_quality": "优"
    },
    {

        "time": "21时",
        "weather": "多云",
        "air_quality": "优"
    },
    {

        "time": "22时",
        "weather": "多云",
        "air_quality": "优"
    },
    {

        "time": "23时",
        "weather": "多云",
        "air_quality": "良"
    },
    {

        "time": "00时",
        "weather": "多云",
        "air_quality": "良"
    },
    {

        "time": "01时",
        "weather": "多云",
        "air_quality": "良"
    },
    {

        "time": "02时",
        "weather": "多云",
        "air_quality": "良"
    },
    {

        "time": "03时",
        "weather": "多云",
        "air_quality": "良"
    },
    {

        "time": "04时",
        "weather": "大部分多云",
        "air_quality": "良"
    },
    {

        "time": "05时",
        "weather": "间歇性多云",
        "air_quality": "良"
    },
    {

        "time": "06时",
```

```json
        "weather": "间歇性多云",
        "air_quality": "良"
    },
    {
        "time": "07时",
        "weather": "部分多云",
        "air_quality": "良"
    },
    {
        "time": "08时",
        "weather": "部分晴",
        "air_quality": "良"
    },
    {
        "time": "09时",
        "weather": "部分晴",
        "air_quality": "良"
    },
    {
        "time": "10时",
        "weather": "大部分晴",
        "air_quality": "良"
    },
    {
        "time": "11时",
        "weather": "大部分晴",
        "air_quality": "良"
    },
    {
        "time": "12时",
        "weather": "部分晴",
        "air_quality": "良"
    }
]
```