seldom

Release 2.6.0

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Web UI/HTTP automated testing framework based on unittest.

Features:

- Provide scaffolding to quickly generate automated test items
- Start and close the browser globally, reducing the number of browser launches
- Provides support for multiple data file parameterization
- Support for use case failure/error reruns
- Automatically generate HTML test reports
- Support for HTTP interface testing (v 2.0)

Using *seldom* to write test Web UI automation tests is very simple.

```
import seldom


class YouTest(seldom.TestCase):

    def test_case(self):
        """a simple test case """
        self.open("https://www.baidu.com")
        self.type(id_="kw", text="seldom")
        self.click(css="#su")
        self.assertInTitle("seldom")


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

CHAPTER 1

User guide

1.1 Installation

The first step in using any software is to install it correctly.

- pip install seldom

seldom has uploaded it to pypi.org , You can install it using the *pip* command.

```
> pip install seldom
```

If you want to keep up with the latest version, you can install with github repository url:

```
> pip install -U git+https://github.com/defnngj/seldom.git@master
```

You can see the dependent libraries in the *requires.txt* file.

```
colorama>=0.4.3
XTestRunner>=1.3.1
selenium>=4.0.0
parameterized>=0.7.0
poium==1.0.0
openpyxl==3.0.3
pyyaml>=5.1
requests>=2.22.0
jsonschema>=3.2.0
jmespath>=0.10.0
webdriver-manager>=3.5.0
```

Finally, used the *seldom -v* command to view the version.

```
> seldom -v
seldom 2.6.0
```

1.2 Create project

In this chapter we will quickly experience the *seldom* project

1.2.1 Create case

Create a Python file: *test_sample.py* .

```
import seldom

class YouTest(seldom.TestCase):

    def test_case(self):
        """a simple test case """
        self.open("https://www.baidu.com")
        self.type(id_="kw", text="seldom")
        self.click(css="#su")
        self.assertInTitle("seldom")

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

If you have an environment for *Selenium*, you can now run this use case.

1.2.2 Automated project creation

seldom provides scaffolding to help us quickly create Web UI automation projects.

1. view the help:

```
> seldom -h
usage: seldom [-h] [-v] [-project PROJECT] [-r R] [-m M] [-install INSTALL]

WebUI automation testing framework based on Selenium.

optional arguments:
  -h, --help         show this help message and exit
  -v, --version      show version
  -project PROJECT   Create an Seldom automation test project.
  -h2c H2C           HAR file converts an interface test case.
  -r R               run test case
  -m M               run tests modules, classes or even individual test methods
                     from the command line
  -install INSTALL   Install the browser driver, For example, 'chrome',
                     'firefox'.
```

2. Create project:

```
> seldom -project mypro
```

3. View directory structure:

```
mypro/
├── test_dir/
│   ├── test_sample.py
```

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```
├── test_data/
│   ├── data.json
├── reports/
└── run.py
```

- `test_dir/` Test case directory.
- `test_dir/` Test data file directory.
- `reports/` Test Report directory.
- `run.py` Run the test file.

1.3 Quick Start

1.3.1 Download Browser Driver

As with *Selenium*, before you can run automated tests using *seldom*, you need to configure the browser driver, This step is very important.

Automatically download

Seldom provides automatic download driven by *chrome/firefox/ie/edge/opera* browser.

```
> seldom -install chrome
> seldom -install firefox
> seldom -install ie
> seldom -install edge
> seldom -install opera
```

- By default, download to the current *C://Users/username/.wdm/drivers/* directory.
- Chrome: *ChromeDriver* Mirror image of Taobao used.
- Safari: *safaridriver* (macOS,default path:*/usr/bin/safaridriver*)

1.3.2 `main()` Method

main() method is *seldom* run test entry method, It provides some of the most basic and important configurations.

```
import seldom

# ...

if __name__ == '__main__':

    seldom.main(path="./",
                browser="chrome",
                base_url=None,
                report=None,
                title="project name",
                tester="Anonymous",
                description="Environment description",
                debug=False,
                rerun=0,
```

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```
                save_last_run=False,
                language="en",
                timeout=None,
                whitelist=[],
                blacklist=[]
    )
```

Parameter specification

- path : Specifies the test directory or file.
- browser : Run browser name(for example: "chrome", "firefox").
- base_url : A parameter to test the HTTP interface testing, setting the global URL.
- report : The name of the custom test report, The default format is *YYYY_mm_dd_HH_MM_SS_result.html*.
- title : Test report title.
- title : Specifies the tester, default 'Anonymous'.
- description : Test report description.
- debug : Debug mode, set to True does not generate test HTML tests, default is *False*.
- rerun : Sets the number of failed reruns, Default is *0*.
- save_last_run : Set to save only the last result, default to *False*.
- language : Set the HTML report in English and Chinese, default 'en', Chinese *zh-CN*.
- timeout : Sets the timeout, Default *10* seconds.
- whitelist : The use case *label* sets the whitelist.
- blacklist : Use case *label* Sets the blacklist.

1.3.3 Run Test

Run under a terminal (recommended)

Create the file *run.py*, And import *main()* method.

```
import seldom

seldom.main()
```

main() Method Run the use case in the current file by default.

```
> python run.py      # Run with the Python command
> seldom -r run.py   # Run with the Seldom command
```

Set the running directory, file

You can specify the directory or file to run with the *path* parameter.

Run a class or method

The *seldom -m* command can provide a more granular run.

```
> seldom -m test_sample      #  test_sample.py file
> seldom -m test_sample.SampleTest       #  SampleTest Class
> seldom -m test_sample.SampleTest.test_case    # test_case method
```

1.3.4 Failed Rerun

seldom support failed reruns, as well as screenshots.

```
import seldom

class YouTest(seldom.TestCase):

    def test_case(self):
        """a simple test case """
        self.open("https://www.baidu.com")
        self.type(id_="kw", text="seldom")
        self.click(css="#su_error")
        #...


if __name__ == '__main__':
    seldom.main(rerun=3, save_last_run=False)
```

Parameters

- rerun : Sets the number of failed reruns, Default is *0*.
- save_last_run : Sets to save only the last result, default to *False*.

Run logs

```
> python test_sample.py
```

The test report

To view the screenshots, click the *show* button in the report.

1.3.5 Test Report

seldom automatically generates HTML test reports by default.

- Befor running the test case

```
mypro/
|--- test_sample.py
```

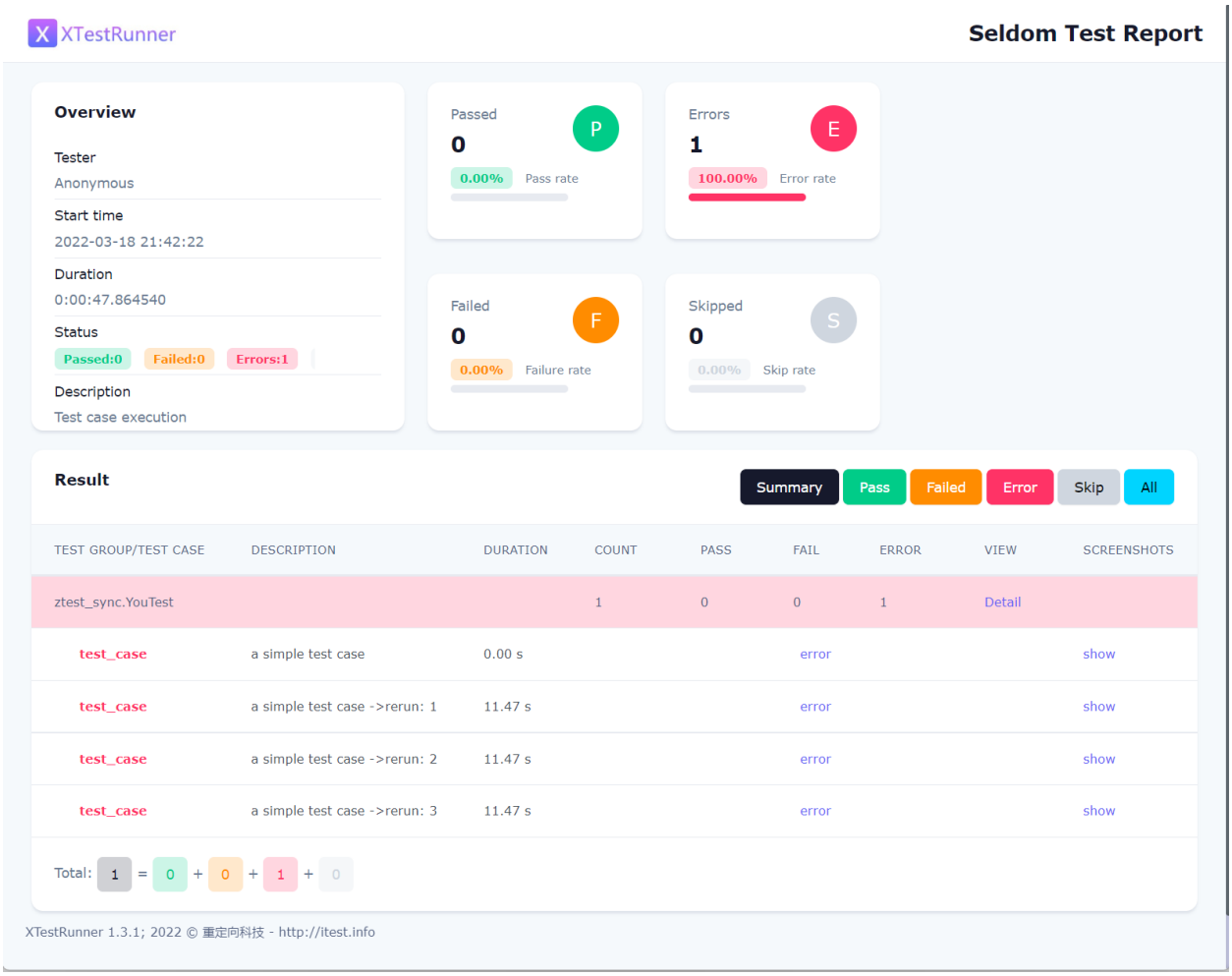
- After running the test case

```
mypro/
|-- reports/
|   |-- 2020_01_01_11_20_33_result.html
|-- test_sample.py
```

Open the *2020_01_01_11_20_33_result.html* test report through a browser, View the test results.

Debug mode

if you don't want to generate and HTML report every time you run, You can opent the *debug* mode.


XTestRunner
Seldom Test Report
Overview
Tester
Anonymous
Start time
2022-03-18 21:42:22
Duration
0:00:47.864540
Status
Passed:0
Failed:0
Errors:1
Description
Test case execution
Passed
0
0.00%
Pass rate
Errors
1
100.00%
Error rate
Failed
0
0.00%
Failure rate
Skipped
0
0.00%
Skip rate
Result
Summary
Pass
Failed
Error
Skip
All
TEST GROUP/TEST CASE
DESCRIPTION
DURATION
COUNT
PASS
FAIL
ERROR
VIEW
SCREENSHOTS
ztest_sync.YouTest
1
0
0
1
Detail
test_case
a simple test case
0.00 s
error
show
test_case
a simple test case ->rerun: 1
11.47 s
error
show
test_case
a simple test case ->rerun: 2
11.47 s
error
show
test_case
a simple test case ->rerun: 3
11.47 s
error
show
Total: 1 = 0 + 0 + 1 + 0
XTestRunner 1.3.1; 2022 © 重定向科技 - http://itest.info

```
import seldom

seldom.main(debug=True)
```

Define Test Reports

```
import seldom

seldom.main(report="report.html",
            title="xxxx",
            tester="username",
            description="run evn:windows 10/ chrome")
```

- report: Configure the report name and path.
- title: Customize the title of the report.
- tester: Customize the current tester.
- description: Add report information.

XML Test Reoprt

If you want to generate a report in XML format, just change the suffix name *.xml* of the report.

```
import seldom

seldom.main(report="report.xml")
```

1.4 seldom API

1.4.1 Find Element

Selenium provides 8 ways of find element, which are consistent with Selenium.

- id_
- name
- class_name
- tag
- link_text
- partial_link_text
- css
- xpath

Demo

```
self.type(id_="kw", text="seldom")
self.type(name="wd", text="seldom")
self.type(class_name="s_ipt", text="seldom")
self.type(tag="input", text="seldom")
self.type(xpath="//input[@id='kw']", text="seldom")
self.type(css="#kw", text="seldom")
```

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```
self.click(link_text="hao123")
self.click(partial_link_text="hao")
```

Help Information

- CSS Selectors
- xpath Syntax

Index

Sometimes a single element cannot be found by a single location, then you can specify the index of an element via *index*.

```
self.type(tag="input", index=7, text="seldom")
```

tag="input" Matches a set of elements, *index=7* Specifies the eighth element in the set, *index* default subscript *0*.

1.4.2 Fixture

A test fixture represents the preparation needed to perform one or more tests, and any associated cleanup actions.

seldom provides a way to implement fixtures.

start & end

Fixture for each test case.

```
import seldom


class TestCase(seldom.TestCase):

    def start(self):
        print("start case")

    def end(self):
        print("end case")

    def test_search_seldom(self):
        self.open("https://www.baidu.com")
        self.type_enter(id_="kw", text="seldom")

    def test_search_poium(self):
        self.open("https://www.baidu.com")
        self.type_enter(id_="kw", text="poium")
```

start_class & end_class

Fixture for each test class.

```
import seldom


class TestCase(seldom.TestCase):

    @classmethod
    def start_class(cls):
```

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```
        print("start test class")

    @classmethod
    def end_class(cls):
        print("end test class")

    def test_search_seldom(self):
        self.open("https://www.baidu.com")
        self.type_enter(id_="kw", text="seldom", clear=True)

    def test_search_poium(self):
        self.open("https://www.baidu.com")
        self.type_enter(id_="kw", text="poium", clear=True)


Warning: Don't write the use case steps into the fixture method!
Because it is not part of a use case, the test report will not be generated if the␣
↪steps in it fail to run.
```

1.4.3 Assertion

seldom provides a set of assertion methods for Web pages.

Deom

```
# Asserts is equals to "title"
self.assertTitle("title")

# Asserts contains "title"
self.assertInTitle("title")

# Asserts is equals to "title"
self.assertUrl("url")

# Asserts contains "url"
self.assertInUrl("url")

# Asserts that the page contains "text"
self.assertText("text")

# Asserts that the page not contains "text"
self.assertNotText("text")

# Assert that the warning message is equal to "text"
self.assertAlertText("text")

# Asserts whether an element exists
self.assertElement(css="#kw")

# Asserts if the element does not exist
self.assertNotElement(css="#kwasdfasdfa")
```

1.4.4 Skipping tests and expected failures

The following decorators and exception implement test skipping and expected failures:

Method

- @seldom.skip(reason) : Unconditionally skip the decorated test. reason should describe why the test is being skipped.
- @seldom.skip_if(condition, reason) : Skip the decorated test if condition is true.
- @seldom.skip_unless(condition, reason) : Skip the decorated test unless condition is true.
- @seldom.expected_failure : Mark the test as an expected failure or error. If the test fails or errors it will be considered a success. If the test passes, it will be considered a failure.

Demo

```
import seldom

@seldom.skip("skip this use test class")
class YouTest(seldom.TestCase):

    @seldom.skip("skip this case")
    def test_case(self):
        # ...


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

1.4.5 WebDriver API

Seldom simplifies the API, Make it easier for you to navigate Web pages.

Most APIs are provided by *WebDriver* class:

```
import seldom

class TestCase(seldom.TestCase):

    def test_seldom_api(self):
        # Accept warning box.
        self.accept_alert()

        # Adds a cookie to your current session.
        self.add_cookie({'name' : 'foo', 'value' : 'bar'})

        # Adds a cookie to your current session.
        cookie_list = [
            {'name' : 'foo', 'value' : 'bar'},
            {'name' : 'foo', 'value' : 'bar'}
        ]
        self.add_cookie(cookie_list)


        # Clear the contents of the input box.
        self.clear(css="#el")
```

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```
        # It can click any text / image can be clicked
        # Connection, check box, radio buttons, and even drop-down box etc..
        self.click(css="#el")

        # Mouse over the element.
        self.move_to_element(css="#el")

        # Click the element by the link text
        self.click_text("")

        # Simulates the user clicking the "close" button in the titlebar of a popup␣
↪window or tab.
        self.close()

        # Delete all cookies in the scope of the session.
        self.delete_all_cookies()

        # Deletes a single cookie with the given name.
        self.delete_cookie('my_cookie')

        # Dismisses the alert available.
        self.dismiss_alert()

        # Double click element.
        self.double_click(css="#el")

        # Execute JavaScript scripts.
        self.execute_script("window.scrollTo(200,1000);")

        # Setting width and height of window scroll bar.
        self.window_scroll(width=300, height=500)

        # Setting width and height of element scroll bar.
        self.element_scroll(css=".class", width=300, height=500)

        # open url.
        self.open("https://www.baidu.com")

        # Gets the text of the Alert.
        self.get_alert_text

        # Gets the value of an element attribute.
        self.get_attribute(css="#el", attribute="type")

        # Returns information of cookie with ``name`` as an object.
        self.get_cookie()

        # Returns a set of dictionaries, corresponding to cookies visible in the␣
↪current session.
        self.get_cookies()

        # Gets the element to display,The return result is true or false.
        self.get_display(css="#el")

        # Get a set of elements
        self.get_element(css="#el", index=0)
```

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```
        # Get element text information.
        self.get_text(css="#el")

        # Get window title.
        self.get_title

        # Get the URL address of the current page.
        self.get_url

        # Set browser window maximized.
        self.max_window()

        # Mouse over the element.
        self.move_to_element(css="#el")

        # open url.
        self.open("https://www.baidu.com")

        # Quit the driver and close all the windows.
        self.quit()

        # Refresh the current page.
        self.refresh()

        # Right click element.
        self.right_click(css="#el")

        # Saves a screenshots of the current window to a PNG image file.
        self.screenshots() # Save to HTML report
        self.screenshots('/Screenshots/foo.png')  # Save to the specified directory

        # Saves a element screenshot of the element to a PNG image file.
        self.element_screenshot(css="#id") # Save to HTML report
        self.element_screenshot(css="#id", file_path='/Screenshots/foo.png') # Save␣
↪to the specified directory

        """
        Constructor. A check is made that the given element is, indeed, a SELECT tag.␣
↪If it is not,
        then an UnexpectedTagNameException is thrown.
        <select name="NR" id="nr">
            <option value="10" selected="">10 dollar</option>
            <option value="20">20 dollar</option>
            <option value="50">50 dollar</option>
        </select>
        """
        self.select(css="#nr", value='20')
        self.select(css="#nr", text='20 dollar')
        self.select(css="#nr", index=2)

        # Set browser window wide and high.
        self.set_window(100, 200)

        # Submit the specified form.
        self.submit(css="#el")
```

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```
        # Switch to the specified frame.
        self.switch_to_frame(css="#el")

        # Returns the current form machine form at the next higher level.
        # Corresponding relationship with switch_to_frame () method.
        self.switch_to_frame_out()


        # Switches focus to the specified window.
        # This switches to the new windows/tab (0 is the first one)
        self.switch_to_window(1)

        # Operation input box.
        self.type(css="#el", text="selenium")


        # Implicitly wait.All elements on the page.
        self.wait(10)

        # Setting width and height of window scroll bar.
        self.window_scroll(width=300, height=500)
```

1.4.6 Keys

Sometimes we need to use the keyboard, For example: `enter` ,‘‘backspace‘‘ ,‘‘TAB‘‘ ,‘‘ctrl/command + a‘‘, `ctrl/command + c` and so on.

sedom provides a set of keyboard operations.

Demo

```
import seldom


class Test(seldom.TestCase):

    def test_key(self):
        self.open("https://www.baidu.com")

        self.Keys(css="#kw").input("seldomm")

        self.Keys(id_="kw").backspace()

        self.Keys(id_="kw").input("github")

        self.Keys(id_="kw").select_all()

        self.Keys(id_="kw").cut()

        self.Keys(id_="kw").paste()

        self.Keys(id_="kw").enter()


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

1.5 Advanced Usage

1.5.1 Random Test Data

seldom provides a method for randomly capturing test data.

Demo

```
import seldom
from seldom import testdata


class YouTest(seldom.TestCase):

    def test_case(self):
        """a simple test case """
        word = testdata.get_word()
        self.open("https://www.baidu.com")
        self.type(id_="kw", text=word)
        self.click(css="#su")
        self.assertInTitle(word)


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

Get a random word by *get_word()* and search for that word.

More method

- first_name()
- last_name()
- username()
- get_birthday()
- get_date()
- get_digits()
- get_email()
- get_float()
- get_now_time()
- get_past_time()
- get_future_time()
- get_past_datetime()
- get_future_datetime()
- get_int()
- get_int32()
- get_int64()
- get_md5()
- get_uuid()

- get_word()
- get_words()
- get_phone()

1.5.2 Data-driven Best Practices

If you automate a function when the test data is different but the steps are the same, you can use parameterization to save test code.

@data

method of parameterizing test cases.

```
import seldom
from seldom import data


class BaiduTest(seldom.TestCase):

    @data([
        (1, 'seldom'),
        (2, 'selenium'),
        (3, 'unittest'),
    ])
    def test_baidu(self, _, keyword):
        """
        used parameterized test
        """
        self.open("https://www.baidu.com")
        self.type(id_="kw", text=keyword)
        self.click(css="#su")
        self.assertTitle(keyword+"_")
```

@data_class

Parameterizes a test class by setting attributes on the class.

```
import seldom
from seldom import data_class

@data_class(
    ("keyword", "assert_tile"),
    [("seldom", "seldom_"),
     ("python", "python_")
])
class YouTest(seldom.TestCase):

    def test_case(self):
        """a simple test case """
        self.open("https://www.baidu.com")
        self.type(id_="kw", text=self.keyword)
        self.click(css="#su")
        self.assertTitle(self.assert_tile)
```

CSV data file

seldom support for parameterization of *CSV* files.

data.csv file contents:

username	password
admin	admin123
guest	guest123

```
import seldom
from seldom import file_data


class YouTest(seldom.TestCase):

    @file_data("data.csv", line=2)
    def test_login(self, username, password):
        """a simple test case """
        print(username)
        print(password)
        # ...
```

- file: The name of the CSV file.
- line: Start reading line 1 by default.

Excel data file

seldom support for parameterization of *excel* files.

```
import seldom
from seldom import file_data


class YouTest(seldom.TestCase):

    @file_data("data.xlsx", sheet="Sheet1", line=2)
    def test_login(self, username, password):
        """a simple test case """
        print(username)
        print(password)
        # ...
```

- file : The name of the Excel file.
- sheet: Excel sheet name, default to *sheet1*.
- line : Start reading line 1 by default.

JSON data file

seldom support for parameterization of *JSON* files.

json file:

```
{
 "login1":  [
    ["admin", "admin123"],
    ["guest", "guest123"]
 ],
"login2":  [
    {
```

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```
      "username": "Tom",
      "password": "tom123"
    },
    {
      "username": "Jerry",
      "password": "jerry123"
    }
  ]
}
```

Note: 'login1' and 'login2' are called in the same way. The difference is that the former is more concise while the latter is easier to read.

python code:

```
import seldom
from seldom import file_data


class YouTest(seldom.TestCase):

    @file_data("data.json", key="login1")
    def test_login(self, username, password):
        """a simple test case """
        print(username)
        print(password)
        # ...
```

- file : The name of the JSON file..
- key: Specifies the key of the dictionary. By default, parsing the entire JSON file is not specified.

YAML file data

seldom support for parameterization of *YAML* files.

data.yaml file:

```
login1:
  - - admin
    - admin123
  - - guest
    - guest123
login2:
  - username: Tom
    password: tom123
  - username: Jerry
    password: jerry123
```

Like JSON usage, YAML is much more compact to write.

python code:

```
import seldom
from seldom import file_data


class YouTest(seldom.TestCase):

```

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```
    @file_data("data.yaml", key="login1")
    def test_login(self, username, password):
        """a simple test case """
        print(username)
        print(password)
        # ...
```

- file : The name of the YAML file.
- key: Specifies the key of the dictionary. By default, parsing the entire YAML file is not specified.

ddt library

Seldom supports third party parameterized libraries:ddt.

installation:

```
> pip install ddt
```

Create the test file *test_data.json*:

```
{
    "test_data_1": {
        "word": "seldom"
    },
    "test_data_2": {
        "word": "unittest"
    },
    "test_data_3": {
       "word": "selenium"
    }
}
```

In *seldom* use *ddt*.

```
import seldom
from ddt import ddt, file_data


@ddt
class YouTest(seldom.TestCase):

    @file_data("test_data.json")
    def test_case(self, word):
        """a simple test case """
        self.open("https://www.baidu.com")
        self.type(id_="kw", text=word)
        self.click(css="#su")
        self.assertInTitle(word)


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

See the ddt documentation for more usage:https://ddt.readthedocs.io/en/latest/example.html

1.5.3 Page Objects Design Patterns

poium Is *Page objects* design pattern best practice.

installation:

```
> pip install poium==1.0.0
```

Use 'seldom' and 'poium' together

```
import seldom
from poium import Page, Element


class BaiduPage(Page):
    """baidu page"""
    search_input = Element(id_="kw")
    search_button = Element(id_="su")


class BaiduTest(seldom.TestCase):
    """Baidu serach test case"""

    def test_case(self):
        """
        A simple test
        """
        page = BaiduPage(self.driver)
        page.get("https://www.baidu.com")
        page.search_input = "seldom"
        page.search_button.click()
        self.assertInTitle("seldom")


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

1.5.4 Automatic Email

Demo

```
import seldom
from seldom import SMTP

# ...

if __name__ == '__main__':
    seldom.main()
    smtp = SMTP(user="send@126.com", password="abc123", host="smtp.126.com")
    smtp.sendmail(to="receive@mail.com", subject='Email title')
```

- subject: Email title, default: *Seldom Test Report*.
- to: Addressee email, Add multiple recipients commas ',' to separate.

1.5.5 Use Case Dependencies

While it is not recommended to write dependent use cases, there are times when you can't completely avoid them.

depend

depend Decorators are used to set dependent use cases.

```
import seldom
from seldom import depend


class TestDepend(seldom.TestCase):

    def test_001(self):
        # ...

    @depend("test_001")
    def test_002(self):
        # ...

    @depend("test_002")
    def test_003(self):
        # ...

if __name__ == '__main__':
    seldom.main(debug=True)
```

test_002 depends on *test_001*, and *test_003* depends on *test_002*.

if_depend

Customize the state of the use case, and the dependent use case chooses whether to skip.

```
import seldom
from seldom import if_depend

class TestIfDepend(seldom.TestCase):
    Test001 = True

    def test_001(self):
        self.open("https://www.baidu.com")
        TestIfDepend.Test001 = False  # Change Test001 to False

    @if_depend("Test001")
    def test_002(self):
        self.open("http://news.baidu.com/")


if __name__ == '__main__':
    seldom.main(debug=True)
```

1.5.6 Use case classification label

This function is implemented in seldom version 2.4.0.

demo

```
# test_label.py
import seldom
from seldom import label


class MyTest(seldom.TestCase):

    @label("base")
    def test_label_base(self):
        self.assertEqual(1+1, 2)

    @label("slow")
    def test_label_slow(self):
        self.assertEqual(1, 2)

    def test_no_label(self):
        self.assertEqual(2+3, 5)


if __name__ == '__main__':
    # seldom.main(debug=True, whitelist=["base"])  # whitelist
    seldom.main(debug=True, blacklist=["slow"])    # blacklist
```

If you only run the use cases labeled *base*, set the whitelist.

If you only want to block the use cases labeled *slow*, set a blacklist.

1.6 Other

1.6.1 Runs On More Browsers

seledom supports running automated tests on different browsers

```
import seldom

# ...

if __name__ == '__main__':
    seldom.main(browser="chrome") # chrome,The default
    seldom.main(browser="firefox") # firefox browser
    seldom.main(browser="opera") # opera browser
    seldom.main(browser="edge") # edge browser
    seldom.main(browser="safari") # safari browser
```

1.6.2 Mobile Web Mode

seldom also supports the Mobile Web model.

```
import seldom

# ...

if __name__ == '__main__':
    seldom.main(browser="iPhone 6") # iPhone 6
```

Type of device supported:

```
PHONE_LIST = [
    'iPhone 5', 'iPhone 6', 'iPhone 7', 'iPhone 8', 'iPhone 8 Plus',
    'iPhone X', 'Pixel 2', 'Pixel XL', "Galaxy S5"
]
PAD_LIST = ['iPad', 'iPad Pro']
```

1.6.3 Headless Mode

Firefox and Chrome support 'headless' mode, Enable headless mode for browsing.

```
import seldom
from seldom import ChromeConfig

#...

if __name__ == '__main__':
    ChromeConfig.headless = True
    seldom.main(browser="chrome")
```

The Firefox browser is configured similarly.

1.6.4 Browser configuration

In order to meet the personalized requirements, such as disabling the browser plug-in, setting the browser proxy, etc.So, open up these capabilities with the arguments of the ChromeConfig class.

```
import seldom
from seldom import ChromeConfig
from selenium.webdriver import ChromeOptions

# ...
if __name__ == '__main__':
    chrome_options = ChromeOptions()
    chrome_options.add_argument('--ignore-certificate-errors')
    ChromeConfig.options = chrome_options
    seldom.main(browser="chrome")
```

1.6.5 Selenium Grid

1. Install the Java environment
2. More configuration, Selenium Server.

```
> java -jar selenium-server-standalone-3.141.59.jar

12:30:37.138 INFO [GridLauncherV3.parse] - Selenium server version: 3.141.59,␣
↪revision: e82be7d358
12:30:37.204 INFO [GridLauncherV3.lambda$buildLaunchers$3] - Launching a standalone␣
↪Selenium Server on port 4444
2020-10-10 12:30:37.245:INFO::main: Logging initialized @301ms to org.seleniumhq.
↪jetty9.util.log.StdErrLog
```

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```
12:30:37.417 INFO [WebDriverServlet.<init>] - Initialising WebDriverServlet
12:30:37.497 INFO [SeleniumServer.boot] - Selenium Server is up and running on port␣
↪4444
```

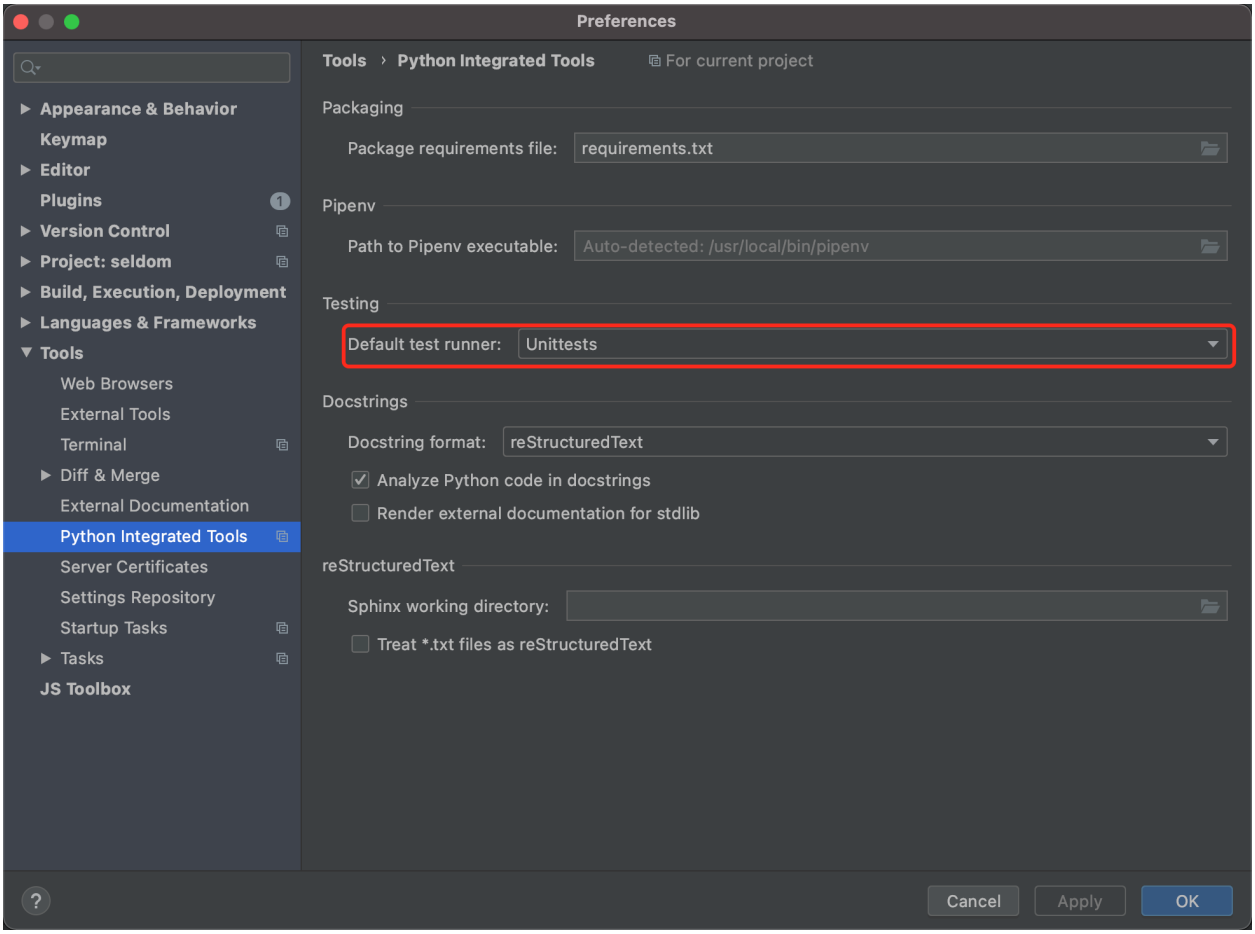
```
import seldom
from seldom import ChromeConfig

# ...
if __name__ == '__main__':
    ChromeConfig.command_executor = "http://127.0.0.1:4444/wd/hub"
    seldom.main(browser="chrome")
```

- More configuration, Selenium Grid doc.

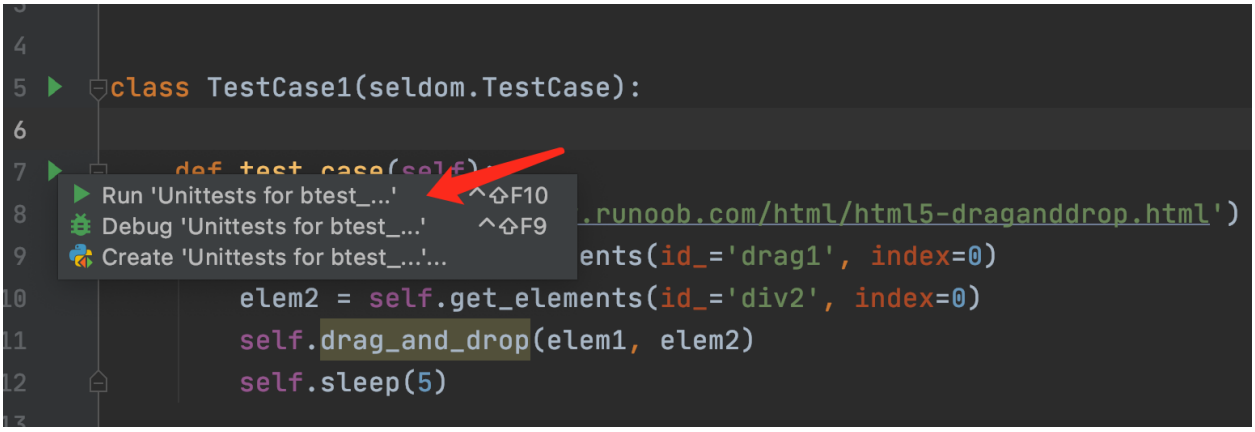
1.6.6 Run the test in PyCharm

1. Configure the test case to run through unittest.



2. Select the test class or use case execution in the file.

Warning: Running the browser that the use case opens requires manual closing, and *seldom* does not do the use case closing action.



1.7 HTTP Interface Testing

seldom has many advantages in doing interface testing.

- Support HTML/XML test reports
- Support parameterization
- Support generating random data

seldom 2.0 added support for automated testing of HTTP interfaces..

Seldom compatible Requests API.

seldom	requests
self.get()	requests.get()
self.post()	requests.post()
self.put()	requests.put()
self.delete()	requests.delete()

1.7.1 Seldom VS Request+unittest

Let's take a look at how unittest + requests automate interfaces:

```
import unittest
import requests


class TestAPI(unittest.TestCase):

    def test_get_method(self):
        payload = {'key1': 'value1', 'key2': 'value2'}
        r = requests.get("http://httpbin.org/get", params=payload)
        self.assertEqual(r.status_code, 200)


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

This is actually pretty neat.The same use case, implemented in *seldom*.

```
# test_req.py
import seldom


class TestAPI(seldom.TestCase):

    def test_get_method(self):
        payload = {'key1': 'value1', 'key2': 'value2'}
        self.get("http://httpbin.org/get", params=payload)
        self.assertStatusCode(200)


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

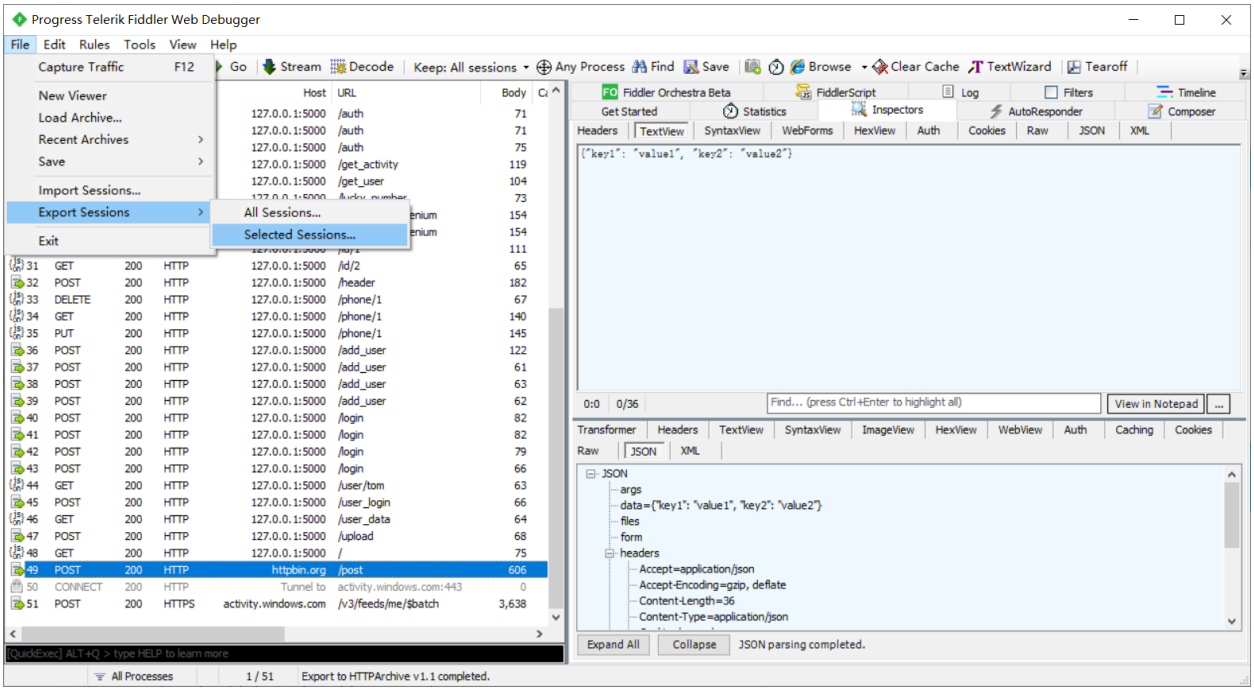
The advantages of *seldom* are assertions, logging, and reporting.

1.7.2 HAR TO CASE

For those unfamiliar with the Requests library, writing interface test cases through *seldom* can still be a bit difficult. Thus, Cement provided the order for *har* file to turn *case*.

First, open the Fiddler tool to grab the packet and select a particular request.

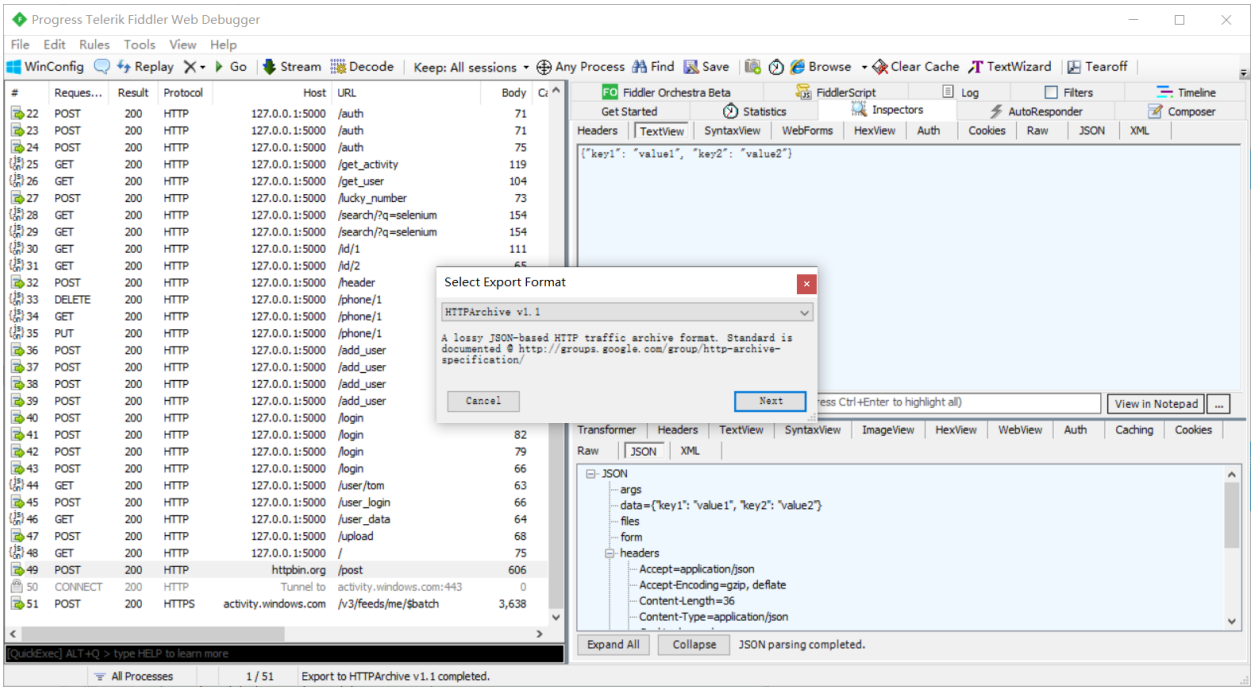
Then, select the menu bar:*file -> Export Sessions -> Selected Sessions...*



Select the file format to export.

Click on the *next* save as the *demo.har* file.

Finally, the script file *demo.py* is converted by 'seldom -h2c'.




```
> seldom -h2c .\demo.har
.\demo.py
2021-06-14 18:05:50 [INFO] Start to generate testcase.
2021-06-14 18:05:50 [INFO] created file: D:\.\demo.py
```

demo.py file.

```
import seldom


class TestRequest(seldom.TestCase):

    def start(self):
        self.url = "http://httpbin.org/post"

    def test_case(self):
        headers = {"User-Agent": "python-requests/2.25.0", "Accept-Encoding": "gzip,␣
↪deflate", "Accept": "application/json", "Connection": "keep-alive", "Host":
↪"httpbin.org", "Content-Length": "36", "Origin": "http://httpbin.org", "Content-Type
↪": "application/json", "Cookie": "lang=zh"}
        cookies = {"lang": "zh"}
        self.post(self.url, json={"key1": "value1", "key2": "value2"},␣
↪headers=headers, cookies=cookies)
        self.assertStatusCode(200)


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

1.7.3 Run Test

Open Debug mode `seldom.run(debug=True)` Run use cases.

```
> python .\test_req.py
2021-04-29 18:19:39 [INFO] A run the test in debug mode without generating HTML␣
↪report!
2021-04-29 18:19:39 [INFO]
                __    __
   _________   / /___/ /___  ____ ____
  / ___/ _ \/ / __  / __ \/ __ ` ___/
 (__  )  __/ / /_/ / /_/ / / / / / /
/____/\___/_/\__,_/\____/_/ /_/ /_/
------------------------------------------
                              @itest.info

test_get_method (test_req.TestAPI) ...
----------- Request  ---------------
url: http://httpbin.org/get         method: GET
----------- Response  -------------
type: json
{'args': {'key1': 'value1', 'key2': 'value2'}, 'headers': {'Accept': '*/*', 'Accept-
↪Encoding': 'gzip, deflate', 'Host': 'httpbin.org', 'User-Agent': 'python-requests/2.
↪25.0', 'X-Amzn-Trace-Id': 'Root=1-608d67ba-7948c8610ccaac8c77284b7e'}, 'origin':
↪'113.89.239.34', 'url': 'http://httpbin.org/get?key1=value1&key2=value2'}
ok

----------------------------------------------------------------------
Ran 1 test in 0.619s

OK
```

This can be clearly seen through the logs/reports. - The method requested - request url - Type of response - Data for the response

1.7.4 Assertion

Asserting the data returned by the interface is an important part of our work in interface automation.

assertJSON

The interface returns the result:

```
{
  "args": {
    "hobby": [
      "basketball",
      "swim"
    ],
    "name": "tom"
  }
}
```

My goal is to assert the values of the 'name' and 'hobby' parts..

```
import seldom
```

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```
class TestAPI(seldom.TestCase):

    def test_assert_json(self):
        payload = {'name': 'tom', 'hobby': ['basketball', 'swim']}
        self.get("http://httpbin.org/get", params=payload)
        assert_json = {'args': {'hobby': ['swim', 'basketball'], 'name': 'tom'}}
        self.assertJSON(assert_json)
```

Running logs

```
test_get_method (test_req.TestAPI) ...
----------- Request ---------------
url: http://httpbin.org/get         method: GET
----------- Response -------------
type: json
{'args': {'hobby': ['basketball', 'swim'], 'name': 'tom'}, 'headers': {'Accept': '*/*
↪', 'Accept-Encoding': 'gzip, deflate', 'Host': 'httpbin.org', 'User-Agent': 'python-
↪requests/2.22.0', 'X-Amzn-Trace-Id': 'Root=1-608a896d-48fac4f6139912ba01d2626f'},
↪'origin': '183.178.27.36', 'url': 'http://httpbin.org/get?name=tom&hobby=basketball&
↪hobby=swim'}
 Assert data has not key: headers
 Assert data has not key: origin
 Assert data has not key: url
ok

----------------------------------------------------------------------
Ran 1 test in 1.305s

OK
```

seldom will also prompt you for fields that have not been asserted.

assertPath

'assertPath' is an assertion method based on 'jmespath', very powerful.

jmespath:https://jmespath.org/specification.html

The interface returns the result:

```
{
  "args":{
    "hobby":
      ["basketball", "swim"],
    "name": "tom"
  }
}
```

Assertion using PATH:

```
import seldom


class TestAPI(seldom.TestCase):

    def test_assert_path(self):
        payload = {'name': 'tom', 'hobby': ['basketball', 'swim']}
```

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```
        self.get("http://httpbin.org/get", params=payload)
        self.assertPath("name", "tom")
        self.assertPath("args.hobby[0]", "basketball")
```

assertSchema

Sometimes you don't care what the data itself is, but you need to assert the type of the data. 'assertSchema' is an assertion method based on 'JSONSchema'.

jsonschema: https://json-schema.org/learn/

The interface returns the result:

```
{
  "args": {
    "hobby":
      ["basketball", "swim"],
    "name": "tom",
    "age": "18"
  }
}
```

Assertion using *assertSchema*:

```
import seldom


class TestAPI(seldom.TestCase):

    def test_assert_schema(self):
        payload = {"hobby": ["basketball", "swim"], "name": "tom", "age": "18"}
        self.get("/get", params=payload)
        schema = {
            "type": "object",
            "properties": {
                "args": {
                    "type": "object",
                    "properties": {
                        "age": {"type": "string"},
                        "name": {"type": "string"},
                        "hobby": {
                            "type": "array",
                            "items": {
                                "type": "string"
                            },
                        }
                    }
                }
            },
        }
        self.assertSchema(schema)
```

Again, the assertions provided by *seldom* are very flexible and powerful.

1.7.5 Interface Data Dependency

In scenario testing, we need to call the next interface using data from the previous interface.

Sample 1

```
import seldom

class TestRespData(seldom.TestCase):

    def test_data_dependency(self):
        """
        Test for interface data dependencies
        """
        headers = {"X-Account-Fullname": "bugmaster"}
        self.get("/get", headers=headers)
        self.assertStatusCode(200)

        username = self.response["headers"]["X-Account-Fullname"]
        self.post("/post", data={'username': username})
        self.assertStatusCode(200)
```

`self.response`Used to record the result returned by the last interface, just use it.

Sample 2

Defining common modules

```
# common.py
from seldom import HttpRequest


class Common(HttpRequest):

    def get_login_user(self):
        """
        Call the interface to get the user name
        """
        headers = {"X-Account-Fullname": "bugmaster"}
        self.get("http://httpbin.org/get", headers=headers)
        user = self.response["headers"]["X-Account-Fullname"]
        return user
```

Create classes that inherit *HttpRequest* class calls using Http request methods 'get/post/put/delete'.

Referencing public modules

```
import seldom
from common import Common


class TestRequest(seldom.TestCase):

    def start(self):
        self.c = Common()

    def test_case(self):
        #  get_login_user()
        user = self.c.get_login_user()
        print(user)
        self.post("http://httpbin.org/post", data={'username': user})
        self.assertStatusCode(200)
```

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```
if __name__ == '__main__':
    seldom.main(debug=True)
```

1.7.6 Data-Driver

seldom has a strong data-driven nature and is very convenient for interface testing.

@data

```
import seldom
from seldom import data


class TestDDT(seldom.TestCase):

    @data([
        ("key1", 'value1'),
        ("key2", 'value2'),
        ("key3", 'value3')
    ])
    def test_data(self, key, value):
        """
        Data-Driver Tests
        """
        payload = {key: value}
        self.post("/post", data=payload)
        self.assertStatusCode(200)
        self.assertEqual(self.response["form"][key], value)
```

@file_data

data file:

```
{
 "login":  [
    ["admin", "admin123"],
    ["guest", "guest123"]
 ]
}
```

code file:

```
import seldom
from seldom import file_data


class TestDDT(seldom.TestCase):

    @file_data("data.json", key="login")
    def test_data(self, username, password):
        """
        Data-Driver Tests
        """
        payload = {username: password}
        self.post("http://httpbin.org/post", data=payload)
```

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```
        self.assertStatusCode(200)
        self.assertEqual(self.response["form"][username], password)
```

More like data files(csv/excel/yaml),View

1.7.7 Random Test Data

SELDOM provides a method of randomly generating test data to generate some commonly used data.

```
import seldom
from seldom import testdata


class TestAPI(seldom.TestCase):

    def test_data(self):
        phone = testdata.get_phone()
        payload = {'phone': phone}
        self.get("http://httpbin.org/get", params=payload)
        self.assertPath("args.phone", phone)
```

For more types of test data, View

1.8 Database Operation

`seldom` supports simple operations of SQLite3 and MySQL database.

sqlite3	MySQL
execute_sql()	execute_sql()
query_sql()	query_sql()
delete()	delete()
insert()	insert()
select()	select()
update()	update()
init_table()	init_table()
close()	close()

1.8.1 Connecting DB

Connect to SQLit3 database

```
from seldom.db_operation import SQLiteDB

db = SQLiteDB(r"D:\learnAPI\db.sqlite3")
```

Connect to MySQL database

1. Install the PyMySQL driver

```
> pip install pymysql
```

2. connect to databases

```
from seldom.db\_operation import MySQLDB

db = MySQLDB(host="127.0.0.1", port="3306", user="root", password="123",
database="db_name")
```

1.8.2 Operation Method

- execute_sql

The SQL statement was executed, but no result was returned.

```
db.execute_sql("INSERT INTO table_name (id, name) VALUES (1, 'tom') ")
db.execute_sql("UPDATE table_name SET name = 'jack' WHERE id=1")
db.execute_sql("DELETE FROM table_name WHERE id = 1")
```

- query_sql

The query SQL statement is executed and the query result is returned.

```
ret = db.query_sql("select * from table_name")
print(ret)
```

- delete

Delete table data.

```
db.delete(table="user", where={"id":1})
```

- insert

Insert a data.

```
data = {'id': 1, 'username': 'admin', 'password': "123"},
db.insert(table="user", data=data)
```

- select

Query data in the table.

```
result = db.select(table="user", where={"id":1, "name": "tom"})
print(result)
```

- update

Update table data.

```
db.update(table="user", data={"name":"new tom"}, where={"name": "tom"})
```

- init_table

Bulk inserts, clearing table data before inserting.

```
datas = {
    'api_event': [
        {'id': 1, 'name': 'Redmi PRO launch1'},
        {'id': 2, 'name': 'Redmi2 PRO launch'},
```

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```
        {'id': 3, 'name': 'Redmi3 PRO launch'},
        {'id': 4, 'name': 'Redmi4 PRO launch'},
        {'id': 5, 'name': 'Redmi5 PRO launch'},
    ],
    'api_guest': [
        {'id': 1, 'real_name': 'alen'},
        {'id': 2, 'real_name': 'jack'},
        {'id': 3, 'real_name': 'tom'},
    ]
}

db.init_table(datas)
```

- close

Close the database connection.

```
db.close()
```

CHAPTER 2

Indices and tables

- genindex
- modindex
- search