0x11. Python - Network #1

**PythonScriptingBack-endAPI**

* By: Guillaume, CTO at Holberton School
* Weight: 1
* Project will start Dec 1, 2023 5:00 AM, must end by Dec 2, 2023 5:00 AM
* Checker will be released at Dec 1, 2023 11:00 AM
* An auto review will be launched at the deadline

Resources

**Read or watch**:

* [HOWTO Fetch Internet Resources Using urllib Package](https://intranet.alxswe.com/rltoken/KoRrs5dVWsb-B82e-M1TQQ)
* [Quickstart with Requests package](https://intranet.alxswe.com/rltoken/OGcRGPr7TSWtzypDd0ZibQ)
* [Requests package](https://intranet.alxswe.com/rltoken/dUNaNQrV2bMSstILitQbXQ)

Learning Objectives

At the end of this project, you are expected to be able to [explain to anyone](https://intranet.alxswe.com/rltoken/kn48lNAWMEoi1DysNqM6bg), **without the help of Google**:

General

* How to fetch internet resources with the Python package urllib
* How to decode urllib body response
* How to use the Python package requests #requestsiswaysimplerthanurllib
* How to make HTTP GET request
* How to make HTTP POST/PUT/etc. request
* How to fetch JSON resources
* How to manipulate data from an external service

Copyright - Plagiarism

* You are tasked to come up with solutions for the tasks below yourself to meet with the above learning objectives.
* You will not be able to meet the objectives of this or any following project by copying and pasting someone else’s work.
* You are not allowed to publish any content of this project.

- Any form of plagiarism is strictly forbidden and will result in removal from the program.

Requirements

General

* Allowed editors: vi, vim, emacs
* All your files will be interpreted/compiled on Ubuntu 20.04 LTS using python3 (version 3.8.5)
* All your files should end with a new line
* The first line of all your files should be exactly #!/usr/bin/python3
* A README.md file at the root of the repo, containing a description of the repository
* A README.md file, at the root of the folder of *this* project, is mandatory
* Your code should use the pycodestyle (version 2.8.\*)
* All your files must be executable
* The length of your files will be tested using wc
* All your modules should have a documentation (python3 -c 'print(\_\_import\_\_("my\_module").\_\_doc\_\_)')
* You must use [get](https://intranet.alxswe.com/rltoken/ddDVKG3F084DP9byugbABw) to access to dictionary value by key (it won’t throw an exception if the key doesn’t exist in the dictionary)
* A documentation is not a simple word, it’s a real sentence explaining what’s the purpose of the module, class or method (the length of it will be verified)
* Your code should not be executed when imported (by using if \_\_name\_\_ == "\_\_main\_\_":)

Tasks

0. What's my status? #0

**mandatory**

Write a Python script that fetches https://alx-intranet.hbtn.io/status

* You must use the package urllib
* You are not allowed to import any packages other than urllib
* The body of the response must be displayed like the following example (tabulation before -)
* You must use a with statement

guillaume@ubuntu:~/0x11$ ./0-hbtn\_status.py | cat -e

Body response:$

- type: <class 'bytes'>$

- content: b'OK'$

- utf8 content: OK$

guillaume@ubuntu:~/0x11$

**Repo:**

* GitHub repository: alx-higher\_level\_programming
* Directory: 0x11-python-network\_1
* File: 0-hbtn\_status.py

 Done? Help Get a sandbox

1. Response header value #0

**mandatory**

Write a Python script that takes in a URL, sends a request to the URL and displays the value of the X-Request-Id variable found in the header of the response.

* You must use the packages urllib and sys
* You are not allow to import packages other than urllib and sys
* The value of this variable is different for each request
* You don’t need to check arguments passed to the script (number or type)
* You must use a with statement

guillaume@ubuntu:~/0x11$ ./1-hbtn\_header.py https://alx-intranet.hbtn.io

ade2627e-41dd-4c34-b9d9-a0fa0f47b237

guillaume@ubuntu:~/0x11$

guillaume@ubuntu:~/0x11$ ./1-hbtn\_header.py https://alx-intranet.hbtn.io

6593e1f5-1b4b-4c9f-9c0e-72ab525b850f

guillaume@ubuntu:~/0x11$

**Repo:**

* GitHub repository: alx-higher\_level\_programming
* Directory: 0x11-python-network\_1
* File: 1-hbtn\_header.py

 Done? Help Get a sandbox

2. POST an email #0

**mandatory**

Write a Python script that takes in a URL and an email, sends a POST request to the passed URL with the email as a parameter, and displays the body of the response (decoded in utf-8)

* The email must be sent in the email variable
* You must use the packages urllib and sys
* You are not allowed to import packages other than urllib and sys
* You don’t need to check arguments passed to the script (number or type)
* You must use the with statement

Please test your script in the sandbox provided, using the web server running on port 5000

guillaume@ubuntu:~/0x11$ ./2-post\_email.py http://0.0.0.0:5000/post\_email hr@holbertonschool.com

Your email is: hr@holbertonschool.com

guillaume@ubuntu:~/0x11$

**Repo:**

* GitHub repository: alx-higher\_level\_programming
* Directory: 0x11-python-network\_1
* File: 2-post\_email.py

 Done? Help Get a sandbox

3. Error code #0

**mandatory**

Write a Python script that takes in a URL, sends a request to the URL and displays the body of the response (decoded in utf-8).

* You have to manage urllib.error.HTTPError exceptions and print: Error code: followed by the HTTP status code
* You must use the packages urllib and sys
* You are not allowed to import other packages than urllib and sys
* You don’t need to check arguments passed to the script (number or type)
* You must use the with statement

Please test your script in the sandbox provided, using the web server running on port 5000

guillaume@ubuntu:~/0x11$ ./3-error\_code.py http://0.0.0.0:5000

Index

guillaume@ubuntu:~/0x11$ ./3-error\_code.py http://0.0.0.0:5000/status\_401

Error code: 401

guillaume@ubuntu:~/0x11$ ./3-error\_code.py http://0.0.0.0:5000/doesnt\_exist

Error code: 404

guillaume@ubuntu:~/0x11$ ./3-error\_code.py http://0.0.0.0:5000/status\_500

Error code: 500

guillaume@ubuntu:~/0x11$

**Repo:**

* GitHub repository: alx-higher\_level\_programming
* Directory: 0x11-python-network\_1
* File: 3-error\_code.py

 Done? Help Get a sandbox

4. What's my status? #1

**mandatory**

Write a Python script that fetches https://alx-intranet.hbtn.io/status

* You must use the package requests
* You are not allow to import packages other than requests
* The body of the response must be display like the following example (tabulation before -)

guillaume@ubuntu:~/0x11$ ./4-hbtn\_status.py | cat -e

Body response:$

- type: <class 'str'>$

- content: OK$

guillaume@ubuntu:~/0x11$

**Repo:**

* GitHub repository: alx-higher\_level\_programming
* Directory: 0x11-python-network\_1
* File: 4-hbtn\_status.py

 Done? Help Get a sandbox

5. Response header value #1

**mandatory**

Write a Python script that takes in a URL, sends a request to the URL and displays the value of the variable X-Request-Id in the response header

* You must use the packages requests and sys
* You are not allow to import other packages than requests and sys
* The value of this variable is different for each request
* You don’t need to check script arguments (number and type)

guillaume@ubuntu:~/0x11$ ./5-hbtn\_header.py https://alx-intranet.hbtn.io

5e52e160-c822-4669-8b3a-8b3bbca7b090

guillaume@ubuntu:~/0x11$

guillaume@ubuntu:~/0x11$ ./5-hbtn\_header.py https://alx-intranet.hbtn.io

eaceaf35-bc0f-4f74-994a-7be0728ec654

guillaume@ubuntu:~/0x11$

**Repo:**

* GitHub repository: alx-higher\_level\_programming
* Directory: 0x11-python-network\_1
* File: 5-hbtn\_header.py

 Done? Help Get a sandbox

6. POST an email #1

**mandatory**

Write a Python script that takes in a URL and an email address, sends a POST request to the passed URL with the email as a parameter, and finally displays the body of the response.

* The email must be sent in the variable email
* You must use the packages requests and sys
* You are not allowed to import packages other than requests and sys
* You don’t need to error check arguments passed to the script (number or type)

Please test your script in the sandbox provided, using the web server running on port 5000

guillaume@ubuntu:~/0x11$ ./6-post\_email.py http://0.0.0.0:5000/post\_email hr@holbertonschool.com

Your email is: hr@holbertonschool.com

guillaume@ubuntu:~/0x11$

**Repo:**

* GitHub repository: alx-higher\_level\_programming
* Directory: 0x11-python-network\_1
* File: 6-post\_email.py

 Done? Help Get a sandbox

7. Error code #1

**mandatory**

Write a Python script that takes in a URL, sends a request to the URL and displays the body of the response.

* If the HTTP status code is greater than or equal to 400, print: Error code: followed by the value of the HTTP status code
* You must use the packages requests and sys
* You are not allowed to import packages other than requests and sys
* You don’t need to check arguments passed to the script (number or type)

Please test your script in the sandbox provided, using the web server running on port 5000

guillaume@ubuntu:~/0x11$ ./7-error\_code.py http://0.0.0.0:5000

Index

guillaume@ubuntu:~/0x11$ ./7-error\_code.py http://0.0.0.0:5000/status\_401

Error code: 401

guillaume@ubuntu:~/0x11$ ./7-error\_code.py http://0.0.0.0:5000/doesnt\_exist

Error code: 404

guillaume@ubuntu:~/0x11$ ./7-error\_code.py http://0.0.0.0:5000/status\_500

Error code: 500

guillaume@ubuntu:~/0x11$

**Repo:**

* GitHub repository: alx-higher\_level\_programming
* Directory: 0x11-python-network\_1
* File: 7-error\_code.py

 Done? Help Get a sandbox

8. Search API

**mandatory**

Write a Python script that takes in a letter and sends a POST request to http://0.0.0.0:5000/search\_user with the letter as a parameter.

* The letter must be sent in the variable q
* If no argument is given, set q=""
* If the response body is properly JSON formatted and not empty, display the id and name like this: [<id>] <name>
* Otherwise:
  + Display Not a valid JSON if the JSON is invalid
  + Display No result if the JSON is empty
* You must use the package requests and sys
* You are not allowed to import packages other than requests and sys

Please test your script in the sandbox provided, using the web server running on port 5000. All JSON generated by this server are random.

guillaume@ubuntu:~/0x11$ ./8-json\_api.py

No result

guillaume@ubuntu:~/0x11$ ./8-json\_api.py a

[8446] amnirqhtfjq

guillaume@ubuntu:~/0x11$ ./8-json\_api.py 2

No result

guillaume@ubuntu:~/0x11$ ./8-json\_api.py b

[7094] bmofakakhke

guillaume@ubuntu:~/0x11$

**Repo:**

* GitHub repository: alx-higher\_level\_programming
* Directory: 0x11-python-network\_1
* File: 8-json\_api.py

 Done? Help Get a sandbox

9. My GitHub!

**mandatory**

Write a Python script that takes your GitHub credentials (username and password) and uses the [GitHub API](https://intranet.alxswe.com/rltoken/LjPfW9hW_55YwijGVofyTQ" \o "GitHub API" \t "_blank) to display your id

* You must use [Basic Authentication](https://intranet.alxswe.com/rltoken/_UgCj47xv8jzRRVcOG7V4w) with a [personal access token as password](https://intranet.alxswe.com/rltoken/Kz4UM-V_bcwrcWajaCAVtQ) to access to your information (only read:user permission is needed)
* The first argument will be your username
* The second argument will be your password (in your case, a [personal access token as password](https://intranet.alxswe.com/rltoken/Kz4UM-V_bcwrcWajaCAVtQ))
* You must use the package requests and sys
* You are not allowed to import packages other than requests and sys
* You don’t need to check arguments passed to the script (number or type)

guillaume@ubuntu:~/0x11$ ./10-my\_github.py papamuziko cisfun

2531536

guillaume@ubuntu:~/0x11$ ./10-my\_github.py papamuziko wrong\_pwd

None

guillaume@ubuntu:~/0x11$

**Repo:**

* GitHub repository: alx-higher\_level\_programming
* Directory: 0x11-python-network\_1
* File: 10-my\_github.py

 Done? Help Get a sandbox

10. Time for an interview!

**#advanced**

The Holberton School staff evaluates candidates applying for a back-end position with multiple technical challenges, like this one:

Please list 10 commits (from the most recent to oldest) of the repository “rails” by the user “rails”

You must use the GitHub API, here is the documentation https://developer.github.com/v3/repos/commits/

Print all commits by: `<sha>: <author name>` (one by line)

Write a Python script that takes 2 arguments in order to solve this challenge.

* The first argument will be the repository name
* The second argument will be the owner name
* You must use the packages requests and sys
* You are not allowed to import packages other than requests and sys
* You don’t need to check arguments passed to the script (number or type)

Only 17% of applicants for a backend position at Holberton finished this task in less than 15 minutes.

guillaume@ubuntu:~/0x11$ ./100-github\_commits.py rails rails

3b5a6dfb18f33c373a89760c60d741f34206f23b: Jon Moss

f785ad786ae49dd6f7a2f1d77c44ea17008c6656: Jon Moss

bb13c37fefdc8b5699918b38eff84751c2899ad5: Rafael França

f5d880866917724217eae9785a3ccd3f806c5aaf: Rafael França

0da696a5e3cee87a996a020b664caa1eabd66220: Ryuta Kamizono

24eb450d7599bab1f5863e0578a21c65ca42a915: Matthew Draper

668f8691f1017042e238497d1a5b7b8bf1c43819: Matthew Draper

a76f5189f6cec4b3e6d9035e2b55dcda6050dfdb: Ryuta Kamizono

28079868d0e70bdac80c76cf806afd517edfe1e7: Rafael França

8f0d8551893789f26e5d6b82ccef00779296818f: Rafael Mendonça França

guillaume@ubuntu:~/0x11$

**Be careful: only 60 requests by hour by IP for unauthenticated requests**[**Rate limit**](https://intranet.alxswe.com/rltoken/S2DhgB0xP5IPy_93vBcRhw)

**Repo:**

* GitHub repository: alx-higher\_level\_programming
* Directory: 0x11-python-network\_1
* File: 100-github\_commits.py

 Done? Help Get a sandbox

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