

University of Essex

Masters in Cyber Security

Module-4: Secure Software Development November 2022

Unit-5: Developing an API for a Distributed Environment

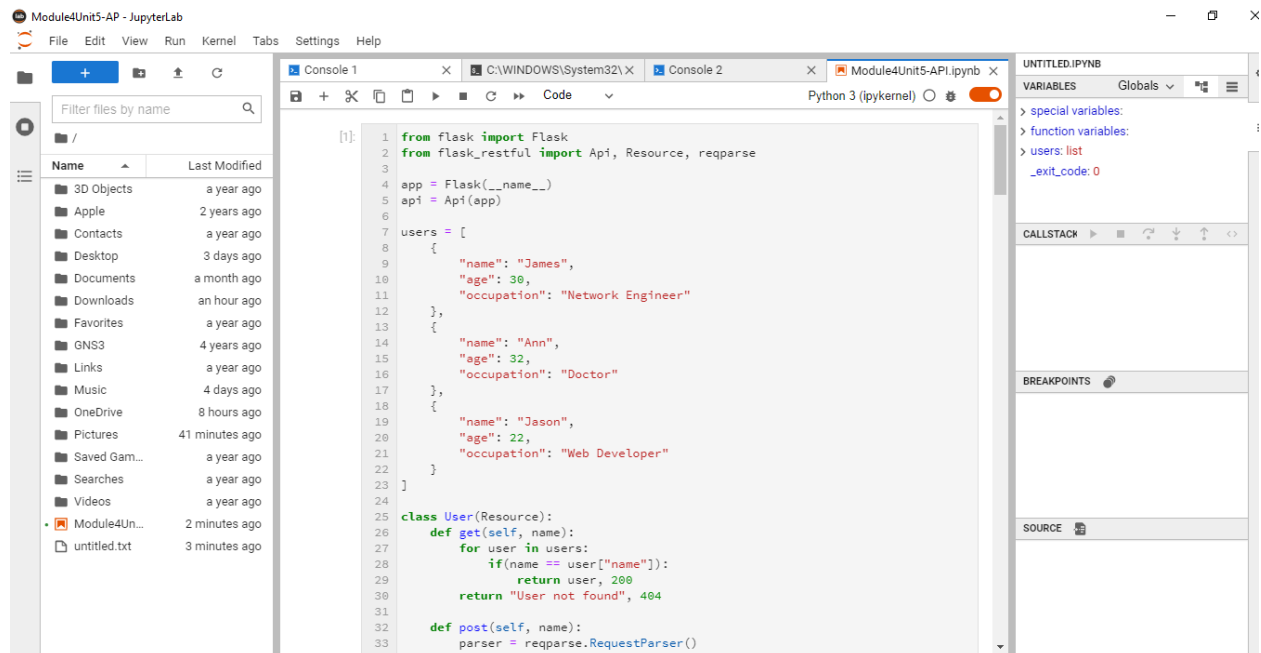
In this session, you will create a RESTful API which can be used to create and delete user records. Responses to the questions should be recorded in your e-portfolio.

You are advised to use these techniques to create an API for your team's submission in Unit 6. Remember that you can arrange a session with the tutor during office hours for more support if required.

Run the API.py code. Take a screenshot of the terminal output. What command did you use to run the code?

Ran the API and copied the command into the Jupiter app installed in my local machine. Installed PIP Flask and imported library. I got the below errors but was unable to fix them.

I tried my best with programming knowledge.



```
[1]: 1 from flask import Flask
2 from flask_restful import Api, Resource, reqparse
3
4 app = Flask(__name__)
5 api = Api(app)
6
7 users = [
8     {
9         "name": "James",
10        "age": 30,
11        "occupation": "Network Engineer"
12    },
13    {
14        "name": "Ann",
15        "age": 32,
16        "occupation": "Doctor"
17    },
18    {
19        "name": "Jason",
20        "age": 22,
21        "occupation": "Web Developer"
22    }
23 ]
24
25 class User(Resource):
26     def get(self, name):
27         for user in users:
28             if name == user["name"]:
29                 return user, 200
30             return "User not found", 404
31
32     def post(self, name):
33         parser = reqparse.RequestParser()
```

```

-----
ModuleNotFoundError                                Traceback (most recent call last)
~\AppData\Local\Temp\ipykernel_16224\3282222745.py in <module>
----> 1 from flask import Flask
      2 from flask_restful import Api, Resource, reqparse
      3
      4 app = Flask(__name__)
      5 api = Api(app)

ModuleNotFoundError: No module named 'flask'

```

```
[2]: 1 pip install flask
```

```

Collecting flask
  Using cached Flask-2.2.2-py3-none-any.whl (101 kB)
Collecting itsdangerous>=2.0
  Note: you may need to restart the kernel to use updated packages.
  Using cached itsdangerous-2.1.2-py3-none-any.whl (15 kB)
Requirement already satisfied: Jinja2>=3.0 in c:\jupyterlab\resources\jlab_server\lib\site-packages (from flask) (3.0.2)
Collecting Werkzeug>=2.2.2
  Using cached Werkzeug-2.2.2-py3-none-any.whl (232 kB)
Collecting click>=8.0
  Using cached click-8.1.3-py3-none-any.whl (96 kB)
Requirement already satisfied: importlib-metadata>=3.6.0 in c:\jupyterlab\resources\jlab_server\lib\site-packages (from flask) (4.8.1)
Requirement already satisfied: colorama in c:\jupyterlab\resources\jlab_server\lib\site-packages (from click>=8.0->flask) (0.4.4)
Requirement already satisfied: zipp>=0.5 in c:\jupyterlab\resources\jlab_server\lib\site-packages (from importlib-metadata>=3.6.0->flask) (3.6.0)
Requirement already satisfied: MarkupSafe>=2.0 in c:\jupyterlab\resources\jlab_server\lib\site-packages (from Jinja2>=3.0->flask) (2.1.1)
Installing collected packages: Werkzeug, itsdangerous, click, flask
Successfully installed Werkzeug-2.2.2 click-8.1.3 flask-2.2.2 itsdangerous-2.1.2

```

```
[3]: 1 from flask import Flask
     2
```

```
Console 1  C:\WINDOWS\System32\X  Console 2  Module4Unit5-API.ipynb X
Python 3 (ipykernel)

[3]: 1 from flask import Flask
     2

-----
ModuleNotFoundError                                Traceback (most recent call last)
~\AppData\Local\Temp\ipykernel_16224\437857318.py in <module>
----> 1 from flask import Flask

ModuleNotFoundError: No module named 'flask'

[4]: 1 app = Flask(__name__)
     2 api = Api(app)

-----
NameError                                Traceback (most recent call last)
~\AppData\Local\Temp\ipykernel_16224\2964400631.py in <module>
----> 1 app = Flask(__name__)
      2 api = Api(app)

NameError: name 'Flask' is not defined

[5]: 1 users = [
     2     {
     3         "name": "James",
     4         "age": 30,
     5         "occupation": "Network Engineer"
     6     },
     7     {
     8         "name": "Ann",
     9         "age": 32,
    10         "occupation": "Doctor"
    11     },
    12     {
    13         "name": "Jason",
```

```
Console 1  C:\WINDOWS\System32\X  Console 2  Module4Unit5-API.ipynb X
Python 3 (ipykernel)

18
19 class User(Resource):
20     def get(self, name):
21         for user in users:
22             if(name == user["name"]):
23                 return user, 200
24         return "User not found", 404
25
26     def post(self, name):
27         parser = reqparse.RequestParser()
28         parser.add_argument("age")
29         parser.add_argument("occupation")
30         args = parser.parse_args()
31
32         for user in users:
33             if(name == user["name"]):
34                 return "User with name {} already exists".format(name), 400
35
36         user = {
37             "name": name,
38             "age": args["age"],
39             "occupation": args["occupation"]
40         }
41         users.append(user)
42         return user, 201
43
44     def put(self, name):
45         parser = reqparse.RequestParser()
46         parser.add_argument("age")
47         parser.add_argument("occupation")
48         args = parser.parse_args()
49
50         for user in users:
51             if(name == user["name"]):
52                 user["age"] = args["age"]
```

Module4Unit5-AP - JupyterLab

File Edit View Run Kernel Tabs Settings Help

Filter files by name

Name	Last Modified
3D Objects	a year ago
Apple	2 years ago
Contacts	a year ago
Desktop	3 days ago
Documents	a month ago
Downloads	an hour ago
Favorites	a year ago
GNS3	4 years ago
Links	a year ago
Music	4 days ago
OneDrive	8 hours ago
Pictures	an hour ago
Saved Gam...	a year ago
Searches	a year ago
Videos	a year ago
Module4Un...	6 minutes ago
untitled.txt	13 minutes ago

Console 1 C:\WINDOWS\System32\X Console 2 Module4Unit5-API.ipynb X

Python 3 (ipykernel)

```
71 app.run(debug=True)
72

NameError                                Traceback (most recent call last)
~\AppData\Local\Temp\ipykernel_16224\1706462987.py in <module>
    17 ]
    18
----> 19 class User(Resource):
    20     def get(self, name):
    21         for user in users:

NameError: name 'Resource' is not defined

[6]: 1 import flask

ModuleNotFoundError                        Traceback (most recent call last)
~\AppData\Local\Temp\ipykernel_16224\1308660151.py in <module>
----> 1 import flask

ModuleNotFoundError: No module named 'flask'

[7]: 1 from werkzeug.wrappers import Request, Response
    2 from flask import Flask

ModuleNotFoundError                        Traceback (most recent call last)
~\AppData\Local\Temp\ipykernel_16224\3759235666.py in <module>
----> 1 from werkzeug.wrappers import Request, Response
    2 from flask import Flask

ModuleNotFoundError: No module named 'werkzeug'

[8]: 1
```

UNTITLED.IPYNB

VARIABLES Globals

> special variables:

> function variables:

> users: list

_exit_code: 0

CALLSTACK

BREAKPOINTS

SOURCE

```
Console 1  C:\WINDOWS\System32\X  Console 2  Module4Unit5-API.ipynb
Python 3 (ipykernel)

71 app.run(debug=True)
72

-----
NameError                                Traceback (most recent call last)
~\AppData\Local\Temp\ipykernel_16224\1706462987.py in <module>
    17 ]
    18
----> 19 class User(Resource):
    20     def get(self, name):
    21         for user in users:

NameError: name 'Resource' is not defined

[6]: 1 import flask

-----
ModuleNotFoundError                      Traceback (most recent call last)
~\AppData\Local\Temp\ipykernel_16224\1308660151.py in <module>
----> 1 import flask

ModuleNotFoundError: No module named 'flask'

[7]: 1 from werkzeug.wrappers import Request, Response
    2 from flask import Flask

-----
ModuleNotFoundError                      Traceback (most recent call last)
~\AppData\Local\Temp\ipykernel_16224\3759235666.py in <module>
----> 1 from werkzeug.wrappers import Request, Response
    2 from flask import Flask

ModuleNotFoundError: No module named 'werkzeug'

[]: 1
```

```
Console 1  C:\WINDOWS\System32\X  Console 2  Module4Unit5-API.ipynb
Python 3 (ipykernel)

ModuleNotFoundError: No module named 'werkzeug'

[8]: 1 pip install flask-restful

Collecting flask-restful
Note: you may need to restart the kernel to use updated packages.
Using cached Flask_RESTful-0.3.9-py2.py3-none-any.whl (25 kB)
Requirement already satisfied: six>=1.3.0 in c:\jupyterlab\resources\jlab_server\lib\site-packages (from flask-restful) (1.16.0)
Requirement already satisfied: Flask>=0.8 in c:\jupyterlab\resources\jlab_server\lib\site-packages (from flask-restful) (2.2.2)
Collecting aniso8601>=0.82
Using cached aniso8601-9.0.1-py2.py3-none-any.whl (52 kB)
Requirement already satisfied: pytz in c:\jupyterlab\resources\jlab_server\lib\site-packages (from flask-restful) (2021.3)
Requirement already satisfied: Jinja2>=3.0 in c:\jupyterlab\resources\jlab_server\lib\site-packages (from Flask>=0.8->flask-restful) (3.0.2)
Requirement already satisfied: Werkzeug>=2.2.2 in c:\jupyterlab\resources\jlab_server\lib\site-packages (from Flask>=0.8->flask-restful) (2.2.2)
Requirement already satisfied: itsdangerous>=2.0 in c:\jupyterlab\resources\jlab_server\lib\site-packages (from Flask>=0.8->flask-restful) (2.1.2)
Requirement already satisfied: importlib-metadata>=3.6.0 in c:\jupyterlab\resources\jlab_server\lib\site-packages (from Flask>=0.8->flask-restful) (4.8.1)

Requirement already satisfied: click>=8.0 in c:\jupyterlab\resources\jlab_server\lib\site-packages (from Flask>=0.8->flask-restful) (8.1.3)
Requirement already satisfied: colorama in c:\jupyterlab\resources\jlab_server\lib\site-packages (from click>=8.0->Flask>=0.8->flask-restful) (0.4.4)
Requirement already satisfied: zipp>=0.5 in c:\jupyterlab\resources\jlab_server\lib\site-packages (from importlib-metadata>=3.6.0->Flask>=0.8->flask-restful) (3.6.0)
Requirement already satisfied: MarkupSafe>=2.0 in c:\jupyterlab\resources\jlab_server\lib\site-packages (from Jinja2>=3.0->Flask>=0.8->flask-restful) (2.1.1)
Installing collected packages: aniso8601, flask-restful
Successfully installed aniso8601-9.0.1 flask-restful-0.3.9
```