

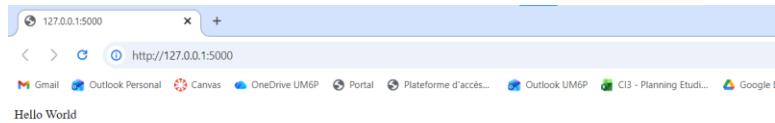
Lab 1

Adnane AIT MAGOURT

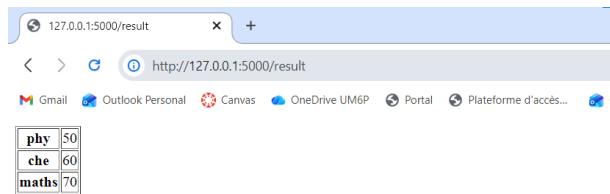
Github repository: <https://github.com/adnanemagourt/lab-mlops-1>

Flask Lab

Example 1:



Example 2:



Example 3:

127.0.0.1:5000

http://127.0.0.1:5000

Gmail Outlook Personal Canvas OneDrive UM6P Portal Plateforme d'accès...

Name

Physics

Chemistry

Maths

127.0.0.1:5000

http://127.0.0.1:5000

Gmail Outlook Personal Canvas OneDrive UM6P Portal Plateforme d'accès...

Name

Physics

Chemistry

Maths

localhost:5000/result

http://localhost:5000/result

Gmail Outlook Personal Canvas OneDrive UM6P Portal Plateforme d'accès... Outlook UM

Name	Adnane
Physics	12
chemistry	12
Mathematics	12

Furniture prediction:

Price furniture prediction

http://localhost:5000

Gmail Outlook Personal Canvas OneDrive UM6P Portal Plateforme d'accès... Outlook UM6P C13 - Planning Etudi... Google Drive GitHub Colaboratory Notion CVDesignR All Bookmarks

Predict furniture price

Category : Bar furniture

Sellable Online : Yes No
Other color : Yes No

Depth : 10

Length : 100

Width : 50

Reset Predict

Price furniture prediction

http://localhost:5000/predict

Gmail Outlook Personal Canvas OneDrive UM6P Portal Plateforme d'accès... Outlook UM6P C13 - Planning Etudi... Google Drive GitHub Colaboratory Notion CVDesignR All Bookmarks

Predict furniture price

Category : Bar furniture

Sellable Online : Yes No
Other color : Yes No

Depth : Depth cm

Length : Height cm

Width : Width cm

Reset Predict

Furniture prediction price is : \$ 272.75

Assignment:



Iris Species Prediction

Enter the four features and click **Predict**.

Sepal length (cm)

2.5

Sepal width (cm)

2

Petal length (cm)

3.5

Petal width (cm)

2.5

Predict



Prediction

Predicted species: virginica

Confidence: 92.96%

Input features

- Sepal length (cm): 2.5
- Sepal width (cm): 2.0
- Petal length (cm): 3.5
- Petal width (cm): 2.5

[Make another prediction](#)

Python Libraries FastAPI

1. Introduction to Pytest

```
(mllops) D:\OneDrive - Université Mohammed VI Polytechnique\..S5\MLOps\Assignments\Assignment1\Lab folder - FastAPI Pydantic>pytest
=====
platform win32 -- Python 3.14.0, pytest-8.4.2, pluggy-1.6.0
rootdir: D:\OneDrive - Université Mohammed VI Polytechnique\..S5\MLOps\Assignments\Assignment1\Lab folder - FastAPI Pydantic>Pytest
collected 1 item

test_my_module.py .

=====
1 passed in 0.02s =====
[100%]
```

After changing value 4 to 7:

```
(mllops) D:\OneDrive - Université Mohammed VI Polytechnique\..S5\MLOps\Assignments\Assignment1\Lab folder - FastAPI Pydantic>pytest
=====
platform win32 -- Python 3.14.0, pytest-8.4.2, pluggy-1.6.0
rootdir: D:\OneDrive - Université Mohammed VI Polytechnique\..S5\MLOps\Assignments\Assignment1\Lab folder - FastAPI Pydantic>Pytest
collected 1 item

test_my_module.py F
=====
1 failed in 0.12s =====
[100%]

def test_square_gives_correct_value():
    subject= square(2)
>     assert subject == 7
E     assert 4 == 7

test_my_module.py:5: AssertionError
=====
short test summary info =====
FAILED test_my_module.py::test_square_gives_correct_value - assert 4 == 7
1 failed in 0.12s =====
```

After using fixture:

```
(mllops) D:\OneDrive - Université Mohammed VI Polytechnique\..S5\MLOps\Assignments\Assignment1\Lab folder - FastAPI Pydantic>pytest
=====
platform win32 -- Python 3.14.0, pytest-8.4.2, pluggy-1.6.0
rootdir: D:\OneDrive - Université Mohammed VI Polytechnique\..S5\MLOps\Assignments\Assignment1\Lab folder - FastAPI Pydantic>Pytest
collected 1 item

test_my_module.py .

=====
1 passed in 0.01s =====
[100%]
```

After adding another test:

```
(mllops) D:\OneDrive - Université Mohammed VI Polytechnique\..S5\MLOps\Assignments\Assignment1\Lab folder - FastAPI Pydantic>pytest
=====
platform win32 -- Python 3.14.0, pytest-8.4.2, pluggy-1.6.0
rootdir: D:\OneDrive - Université Mohammed VI Polytechnique\..S5\MLOps\Assignments\Assignment1\Lab folder - FastAPI Pydantic>Pytest
collected 2 items

test_my_module.py .
test_my_module_again.py .

=====
2 passed in 0.02s =====
[ 50%]
[100%]
```

Using conftest.py:

```
(mllops) D:\OneDrive - Université Mohammed VI Polytechnique\..S5\MLOps\Assignments\Assignment1\Lab folder - FastAPI Pydantic>pytest
=====
platform win32 -- Python 3.14.0, pytest-8.4.2, pluggy-1.6.0
rootdir: D:\OneDrive - Université Mohammed VI Polytechnique\..S5\MLOps\Assignments\Assignment1\Lab folder - FastAPI Pydantic>pytest
collected 2 items

test_my_module.py .
test_my_module_again.py .

=====
 2 passed in 0.01s =====
```

[50%]
[100%]

Paramaterized test:

```
(mllops) D:\OneDrive - Université Mohammed VI Polytechnique\..S5\MLOps\Assignments\Assignment1>pytest
=====
platform win32 -- Python 3.14.0, pytest-8.4.2, pluggy-1.6.0
rootdir: D:\OneDrive - Université Mohammed VI Polytechnique\..S5\MLOps\Assignments\Assignment1
collected 4 items

Lab folder - FastAPI Pydantic>Pytest\test_my_module.py .
Lab folder - FastAPI Pydantic>Pytest\test_my_module_again.py ...

=====
 4 passed in 0.06s =====
```

[25%]
[100%]

2. Introduction to Pydantic

Example 1:

```
(mllops) D:\OneDrive - Université Mohammed VI Polytechnique\..S5\MLOps\Assignments\Assignment1\Lab folder - FastAPI Pydantic>python example1.py
123
datetime.datetime(2019, 6, 1, 12, 22)
[1, 2, 5]
D:\OneDrive - Université Mohammed VI Polytechnique\..S5\MLOps\Assignments\Assignment1\Lab folder - FastAPI Pydantic>Pydantic\example1.py:19: PydanticDeprecatedSince20: The `dict` method is deprecated; use `model_dump` instead. Deprecated in Pydantic v2.0 to be removed in V3.0. See Pydantic V2 Migration Guide at https://errors.pydantic.dev/2.12/migration/
print(user.dict())
{'id': 123, 'name': 'John Doe', 'signup_ts': datetime.datetime(2019, 6, 1, 12, 22), 'friends': [1, 2, 5]}
```

This converted types to pydantic types: id '123' → int 123, '5' → 5, signup_ts string → datetime

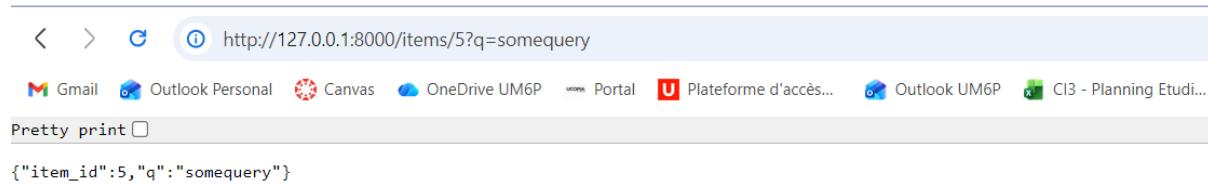
Example 2:

```
(mllops) D:\OneDrive - Université Mohammed VI Polytechnique\..S5\MLOps\Assignments\Assignment1\Lab folder - FastAPI Pydantic>python example2.py
foo=Foo(count=4, size=0.0) bars=[Bar(apple='x1', banana='y'), Bar(apple='x2', banana='y')]
D:\OneDrive - Université Mohammed VI Polytechnique\..S5\MLOps\Assignments\Assignment1\Lab folder - FastAPI Pydantic>Pydantic\example2.py:23: PydanticDeprecatedSince20: The `dict` method is deprecated; use `model_dump` instead. Deprecated in Pydantic v2.0 to be removed in V3.0. See Pydantic V2 Migration Guide at https://errors.pydantic.dev/2.12/migration/
print(m.dict())
{'foo': {'count': 4, 'size': 0.0}, 'bars': [{'apple': 'x1', 'banana': 'y'}, {'apple': 'x2', 'banana': 'y'}]}
```

Validator:

```
(mllops) D:\OneDrive - Université Mohammed VI Polytechnique\..55\MLOps\Assignments\Assignment1\Lab folder - FastAPI Pydantic\Pydantic>python validator.py
D:\OneDrive - Université Mohammed VI Polytechnique\..55\MLOps\Assignments\Assignment1\Lab folder - FastAPI Pydantic\Pydantic\validator.py:10: PydanticDeprecatedSince20: Pydantic V1 style `@validator` validators are deprecated. You should migrate to Pydantic V2 style `@field_validator` validators, see the migration guide for more details. Deprecated in Pydantic V2.0 to be removed in V3.0. See Pydantic V2 Migration Guide at https://errors.pydantic.dev/2.12/migration/
    @validator("name")
D:\OneDrive - Université Mohammed VI Polytechnique\..55\MLOps\Assignments\Assignment1\Lab folder - FastAPI Pydantic\Pydantic\validator.py:17: PydanticDeprecatedSince20: Pydantic V1 style `@validator` validators are deprecated. You should migrate to Pydantic V2 style `@field_validator` validators, see the migration guide for more details. Deprecated in Pydantic V2.0 to be removed in V3.0. See Pydantic V2 Migration Guide at https://errors.pydantic.dev/2.12/migration/
    @validator("password2")
D:\OneDrive - Université Mohammed VI Polytechnique\..55\MLOps\Assignments\Assignment1\Lab folder - FastAPI Pydantic\Pydantic\validator.py:24: PydanticDeprecatedSince20: Pydantic V1 style `@validator` validators are deprecated. You should migrate to Pydantic V2 style `@field_validator` validators, see the migration guide for more details. Deprecated in Pydantic V2.0 to be removed in V3.0. See Pydantic V2 Migration Guide at https://errors.pydantic.dev/2.12/migration/
    @validator("username")
name='samuel colvin' username='scolvin' password1='zxcvbn' password2='zxcvbn'
```

3. Introduction à FastAPI



The screenshot shows the FastAPI documentation page. At the top, it says "FastAPI 0.1.0 OAS 3.1". Below that is a link to "openapi.json". The main content area has a heading "default". Under "default", there is a "GET /" button followed by a dropdown menu containing "/ Read Root". Below this is another "GET /items/{item_id}" button with a dropdown menu containing "/ Read Item". At the bottom, there is a section titled "Schemas" which lists "HTTPValidationError > Expand all object" and "ValidationError > Expand all object".

The screenshot shows the FastAPI documentation interface at <http://localhost:8080/docs/>. The top navigation bar includes links to various services like Gmail, Outlook Personal, Canvas, OneDrive UM6P, Portal, Plateforme d'accès..., Outlook UM6P, C3 - Planning Etudi..., Google Drive, GitHub, Colaboratory, Notion, CVDesignR, and All Books.

FastAPI 0.1.0 (GAS 3.1)

[/openapi.json](#)

default

GET / Home

POST /make_predictions Make Predictions

Schemas

- HTTPValidationError > Expand all `object`
- ValidationError > Expand all `object`
- Iris > Expand all `object`

POST /make_predictions Make Predictions

Try it out

No parameters

Request body `required`

application/json

Example Value | Schema:

```
{}
```

Responses

Code	Description	Links
200	Successful Response	No links
422	Validation Error	No links

Media type: application/json

Content-Type header:

Example Value | Schema:

```
"string"
```

Media type: application/json

Example Value | Schema:

```
{"detail": [{"loc": ["msg"], "msg": "string", "type": "string"}]}
```

Todo:

Furniture Price Predictor

Category

Sellable Online

Other Colors

Depth

Height

Width

Prediction Result

Predicted price: 69.0

[Back](#)