

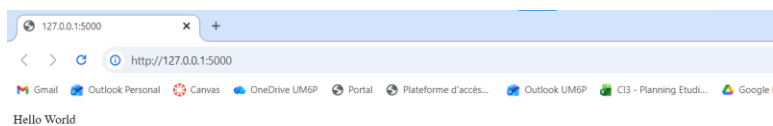
Lab 1

Adnane AIT MAGOURT

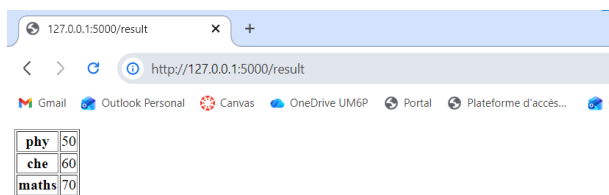
Github repository: <https://github.com/adnanemagourt/lab-mlops-1>

Flask Lab

Example 1:



Example 2:



Example 3:

127.0.0.1:5000 x +

< > 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 x +

< > http://127.0.0.1:5000

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

Name

Physics

Chemistry

Maths

localhost:5000/result x +

< > http://localhost:5000/result

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Name	Adnan
Physics	12
chemistry	12
Mathematics	12

Furniture prediction:

Price furniture prediction

http://localhost:5000

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

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

http://127.0.0.1:5000

Gmail

Outlook Personal

Canvas

OneDrive UM6P

Portal

Plateforme d'accès...

Outlook UM6P

C13 - Planning Etudi...

Google Drive

GitHub

Colaboratory

Notion

CVDesignR

»

All Bookmarks

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 Result

http://127.0.0.1:5000/predict

Gmail

Outlook Personal

Canvas

OneDrive UM6P

Portal

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Outlook UM6P

C13 - Planning Etudi...

Google Drive

GitHub

Colaboratory

Notion

CVDesignR

»

All Bookmarks

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

```
(mlops) D:\OneDrive - Université Mohammed VI Polytechnique\..S5\MLOps\Assignments\Assignment1\Lab folder - FastAPI Pydantic\Pytest>pytest
===== test session starts =====
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 . [100%]

===== 1 passed in 0.02s =====
```

After changing value 4 to 7:

```
(mlops) D:\OneDrive - Université Mohammed VI Polytechnique\..S5\MLOps\Assignments\Assignment1\Lab folder - FastAPI Pydantic\Pytest>pytest
===== test session starts =====
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 [100%]

===== FAILURES =====
_____ test_square_gives_correct_value _____

    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:

```
(mlops) D:\OneDrive - Université Mohammed VI Polytechnique\..S5\MLOps\Assignments\Assignment1\Lab folder - FastAPI Pydantic\Pytest>pytest
===== test session starts =====
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 . [100%]

===== 1 passed in 0.01s =====
```

After adding another test:

```
(mlops) D:\OneDrive - Université Mohammed VI Polytechnique\..S5\MLOps\Assignments\Assignment1\Lab folder - FastAPI Pydantic\Pytest>pytest
===== test session starts =====
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 . [ 50%]
test_my_module_again.py . [100%]

===== 2 passed in 0.02s =====
```

Using conftest.py:

```
(mlops) D:\OneDrive - Université Mohammed VI Polytechnique\..S5\MLOps\Assignments\Assignment1\Lab folder - FastAPI Pydantic\Pytest>pytest
===== test session starts =====
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 . [ 50%]
test_my_module_again.py . [100%]

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

Paramaterized test:

```
(mlops) D:\OneDrive - Université Mohammed VI Polytechnique\..S5\MLOps\Assignments\Assignment1>pytest
===== test session starts =====
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 . [ 25%]
Lab folder - FastAPI Pydantic\Pytest\test_my_module_again.py ... [100%]

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

2. Introduction to Pydantic

Example 1:

```
(mlops) D:\OneDrive - Université Mohammed VI Polytechnique\..S5\MLOps\Assignments\Assignment1\Lab folder - FastAPI Pydantic\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

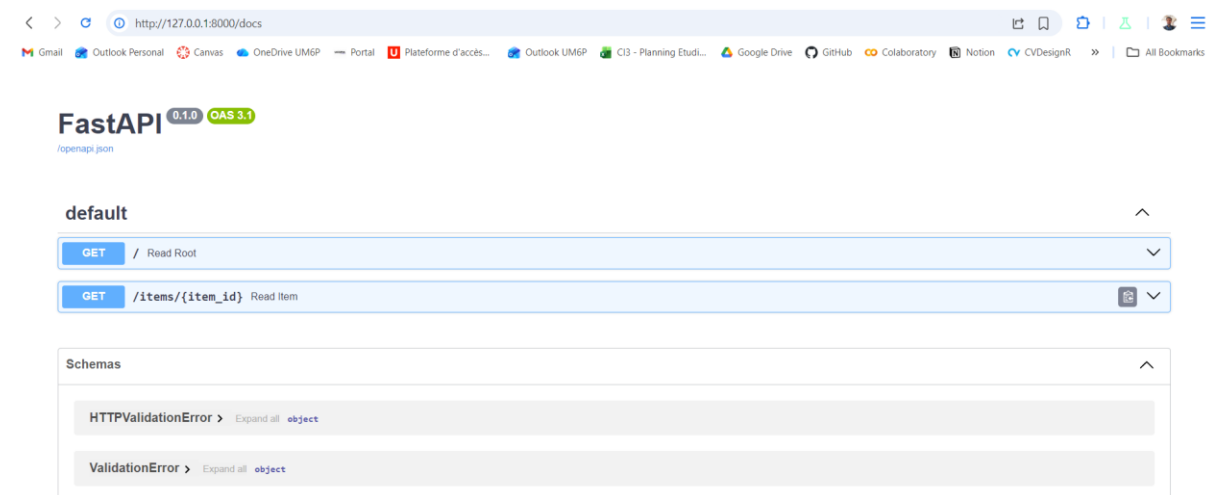
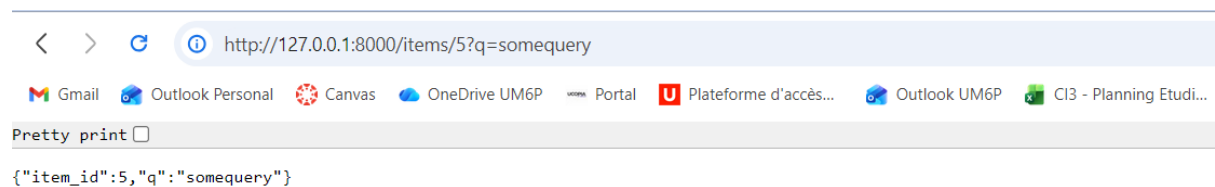
Example 2:

```
(mlops) D:\OneDrive - Université Mohammed VI Polytechnique\..S5\MLOps\Assignments\Assignment1\Lab folder - FastAPI Pydantic\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:

```
(mlops) D:\OneDrive - Université Mohammed VI Polytechnique\..S5\MLops\Assignments\Assignment1\Lab folder - FastAPI Pydantic\Pydantic>python validator.py
D:\OneDrive - Université Mohammed VI Polytechnique\..S5\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 Py
dantic 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\..S5\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 Py
dantic 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\..S5\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 Py
dantic 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



FastAPI 0.1.0 OAS 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

Parameters Try it out

No parameters

Request body **required** application/json

Example Value Schema

```
{
  "pet": 1,
  "quantity": 1,
  "species": "cat"
}
```

Responses

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

Media type: application/json

Controls Accept header

Example Value Schema

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

Todo:

Furniture Price Predictor

Category
Beds

Sellable Online
False

Other Colors
No

Depth
200

Height
30

Width
50

Predict

Prediction Result

Predicted price: 69.0

[Back](#)