

Why We Need Schema



- It's a pain to get all the values from the body
- The client can send whatever data they want
- The data isn't getting validated
- We ultimately want to force the client to send data in a schema that we expect



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main.py - fastapi - Visual Studio Code

Python API Development - Comprehensive Course for Beginners

OPEN EDITORS 1 UNSAVED

FASTAPI

- > _pycache_
- venv
- > Include
- > Lib
- > Scripts
- pyvenv.cfg
- main.py

```
1 from fastapi import FastAPI
2 from fastapi.params import Body
3 from pydantic import BaseModel
4
5 app = FastAPI()
6
7
8 # request Get method url: "/"
9
10
11 @app.get("/")
12 def root():
13     return {"message": "Hello World"}
```

class BaseModel()

TERMINAL

```
INFO: Waiting for application startup.
INFO: Application startup complete.
{'title': 'top beaches in florida', 'content': 'check out these awesome beaches'}
INFO: 127.0.0.1:53290 - "POST /createposts HTTP/1.1" 200 OK
WARNING: WatchGodReload detected file change in '['C:\\Users\\sanje\\Documents\\Courses\\fastapi\\main.py.4d1dca43f362bd42d8b85c486f089f1c.tmp']'. Reloading...
WARNING: WatchGodReload detected file change in '['C:\\Users\\sanje\\Documents\\Courses\\fastapi\\main.py.4d1dca43f362bd42d8b85c486f089f1c.tmp', 'C:\\Users\\sanje\\Documents\\Courses\\fastapi\\main.py']'. Reloading...
INFO: Started server process [1032]
INFO: Waiting for application startup.
INFO: Application startup complete.
{'title': 'top beaches in florida', 'content': 'check out these awesome beaches'}
INFO: 127.0.0.1:63528 - "POST /createposts HTTP/1.1" 200 OK
```

cmd

Python

Ln 3, Col 31 Spaces: 4 UTF-8 CRLF Python

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74°F Cloudy

Request Body - FastAPI | 127.0.0.1:8000 | POST - HTTP | MON | Download Postman | Try Postman | Field Types - pydantic | Guest

pydantic-docs.helpmanual.io/usage/types/

pydantic

Search

Samuelcolvin/pydantic
7.1k Stars · 643 Forks

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Field Types

Clubhouse.io
Get all the functionality you need to ship quickly without the complexity that can make work a slog.

Mailchimp
Supercharge your marketing across design, automations, analytics, and more, using our marketing smarts.

Where possible *pydantic* uses [standard library types](#) to define fields, thus smoothing the learning curve. For many useful applications, however, no standard library type exists, so *pydantic* implements [many commonly used types](#).

If no existing type suits your purpose you can also implement your [own pydantic-compatible types](#) with custom properties and validation.

Standard Library Types

pydantic supports many common types from the python standard library. If you need stricter processing see [Strict Types](#); if you need to constrain the values allowed (e.g. to require a positive int) see [Constrained Types](#).

`None`, `type(None)` or `Literal[None]` (equivalent according to [PEP 484](#))
allows only `None` value

`bool`
see [Booleans](#) below for details on how bools are validated and what values are permitted

`int`
pydantic uses `int(v)` to coerce types to an `int`; see [this](#) warning on loss of information during data conversion

`float`
similarly, `float(v)` is used to coerce values to floats

`str`
strings are accepted as-is, `float` and `Decimal` are coerced using `str(v)`, `bytes` and `bytearray` are converted using `v.decode()`, enums inheriting from `str` are converted using `v.value`, and all other types cause an error

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EXPLORER ... main.py X

OPEN EDITORS main.py > ...

FASTAPI _pycache_ venv Include Lib Scripts pyvenv.cfg main.py

```
4
5 app = FastAPI()
6
7
8 class Post(BaseModel):
9     title: str
10    content: str
11
12
13 @app.get("/")
14 def root():
15     return {"message": "Hello World"}
16
```

TERMINAL SQL CONSOLE PROBLEMS OUTPUT DEBUG CONSOLE + ^ x

```
\Courses\fastapi\main.py']. Reloading...
INFO: Started server process [1032]
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INFO: 127.0.0.1:63528 - "POST /createposts HTTP/1.1" 200 OK
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WARNING: WatchGodReload detected file change in '['C:\Users\sanje\Documents\Course s\fastapi\main.py.4d1dca43f362bd42d8b85c486f089f1c.tmp', 'C:\Users\sanje\Documents \Courses\fastapi\main.py']'. Reloading...
INFO: Started server process [17780]
INFO: Waiting for application startup.
INFO: Application startup complete.
```

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OUTLINE

Python 3.9.5 64-bit ('venv': venv) 0 △ 0 Connect

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allows list tuple set frozenset deque or generators and casts to a frozen set: see

Windows 10 74°F Cloudy 10:56 PM 8/14/2021

File Edit Selection View Go Run Terminal Help main.py - fastapi - Visual Studio Code

EXPLORER ... main.py X

OPEN EDITORS main.py X

main.py > create_posts

```
18 @app.get("/posts")
19 def get_posts():
20     return {"data": "This is your posts"}
21
22
23 @app.post("/createposts")
24 def create_posts(new_post: Post):
25     print(new_post)
26     return {"data": "new post"}
27 # title str, content str
28
```

TERMINAL SQL CONSOLE PROBLEMS OUTPUT DEBUG CONSOLE + ^ X

```
WARNING: WatchGodReload detected file change in '[C:\\Users\\sanje\\Documents\\Courses\\fastapi\\main.py.4d1dca43f362bd42d8b85c486f089f1c.tmp', 'C:\\Users\\sanje\\Documents\\Courses\\fastapi\\main.py]'. Reloading...
INFO: Started server process [17780]
INFO: Waiting for application startup.
INFO: Application startup complete.
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WARNING: WatchGodReload detected file change in '[C:\\Users\\sanje\\Documents\\Courses\\fastapi\\main.py.4d1dca43f362bd42d8b85c486f089f1c.tmp', 'C:\\Users\\sanje\\Documents\\Courses\\fastapi\\main.py]'. Reloading...
INFO: Started server process [4396]
INFO: Waiting for application startup.
INFO: Application startup complete.
```

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OUTLINE

Python 3.9.5 64-bit ('venv': venv) 0 △ 0 Connect

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EXPLORER Postman File Edit View Help

Home Workspaces Reports Explore Search Postman Invite Upgrade

My Workspace New Import GET http://127.0.0.1:8... POST http://127.0.0.1:8... + ... No Environment

Collections APIs Environments Mock Servers Monitors History

You don't have any collections Collections let you group related requests, making them easier to access and run.

Create Collection

http://127.0.0.1:8000/createposts

POST http://127.0.0.1:8000/createposts

Params Authorization Headers (9) Body Pre-request Script Tests Settings Cookies Beautify

Body (none) form-data x-www-form-urlencoded raw binary GraphQL JSON

```
1 {
2   "title": "top beaches in florida",
3   "content": "check out these awesome beaches"
4 }
```

Status: 200 OK Time: 18 ms Size: 144 B Save Response

Body Cookies Headers (4) Test Results

Pretty Raw Preview Visualize JSON

```
1 {
2   "new_post": "title top beaches in florida content: check out these awesome beaches"
3 }
```

Find and Replace Console OUTLINE Python 3.9.5 64-bit ('venv': venv) 0 ▲ 0 Connect

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Status: 200 OK Time: 18 ms Size: 144 B Save Response

Body Cookies Headers (4) Test Results

Pretty Raw Preview Visualize JSON

```
1 [
2   "data": "new post"
3 ]
```

Find and Replace Console OUTLINE Python 3.9.5 64-bit ('venv': venv) 0 ▲ 0 Connect

allows list tuple set frozenset deque or generators and casts to a frozen set; see

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EXPLORER ... main.py X

OPEN EDITORS main.py > main.py > create_posts

FASTAPI > __pycache__ venv > Include > Lib > Scripts pyvenv.cfg main.py

```
18 @app.get("/posts")
19 def get_posts():
20     return {"data": "This is your posts"}
21
22
23 @app.post("/createposts")
24 def create_posts(new_post: Post):
25     print(new_post)
26     return {"data": "new post"}
27 # title str, content str
28
```

TERMINAL SQL CONSOLE PROBLEMS OUTPUT DEBUG CONSOLE + ^ x

```
\Courses\fastapi\main.py']. Reloading...
INFO: Started server process [17780]
INFO: Waiting for application startup.
INFO: Application startup complete.
WARNING: WatchGodReload detected file change in '['C:\Users\sanje\Documents\Course s\fastapi\main.py.4d1dca43f362bd42d8b85c486f089f1c.tmp']'. Reloading...
WARNING: WatchGodReload detected file change in '['C:\Users\sanje\Documents\Course s\fastapi\main.py.4d1dca43f362bd42d8b85c486f089f1c.tmp', 'C:\Users\sanje\Documents \Courses\fastapi\main.py']'. Reloading...
INFO: Started server process [4396]
INFO: Waiting for application startup.
INFO: Application startup complete.
title='top beaches in florida' content='check out these awesome beaches'
INFO: 127.0.0.1:54716 - "POST /createposts HTTP/1.1" 200 OK
```

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OUTLINE

Python 3.9.5 64-bit ('venv': venv) 0 △ 0 Connect

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allows list tuple set frozenset deque or generators and casts to a frozen set: see

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File Edit Selection View Go Run Terminal Help main.py - fastapi - Visual Studio Code

EXPLORER ... main.py x

OPEN EDITORS main.py x

main.py > create_posts > new_post

```
18 @app.get("/posts")
19 def get_posts():
20     return {"data": "This is your posts"}
21
22
23 @app.post("/createposts")
24 def create_posts(new_post: Post):
25     print(new_post.title)
26     return {"data": "new post"}
27 # title str, content str
28
```

TERMINAL SQL CONSOLE PROBLEMS OUTPUT DEBUG CONSOLE + ^ x

```
INFO: Waiting for application startup.
INFO: Application startup complete.
title='top beaches in florida' content='check out these awesome beaches'
INFO: 127.0.0.1:54716 - "POST /createposts HTTP/1.1" 200 OK
WARNING: WatchGodReload detected file change in '['C:\\Users\\sanje\\Documents\\Courses\\fastapi\\main.py.4d1dca43f362bd42d8b85c486f089f1c.tmp']'. Reloading...
WARNING: WatchGodReload detected file change in '['C:\\Users\\sanje\\Documents\\Courses\\fastapi\\main.py.4d1dca43f362bd42d8b85c486f089f1c.tmp', 'C:\\Users\\sanje\\Documents\\Courses\\fastapi\\main.py']'. Reloading...
INFO: Started server process [20080]
INFO: Waiting for application startup.
INFO: Application startup complete.
top beaches in florida
INFO: 127.0.0.1:57398 - "POST /createposts HTTP/1.1" 200 OK
```

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OUTLINE

Python 3.9.5 64-bit ('venv': venv) 0 0 Connect

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allows list tuple set frozenset deque or generators and casts to a frozen set: see

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My Workspace New Import GET http://127.0.0.1:8... POST http://127.0.0.1:8... + ... No Environment Save

Collections APIs Environments Mock Servers Monitors History

You don't have any collections Collections let you group related requests, making them easier to access and run. Create Collection

http://127.0.0.1:8000/createposts

POST http://127.0.0.1:8000/createposts

Params Authorization Headers (9) Body Pre-request Script Tests Settings Cookies Beautify

Body (Pretty, Raw, Preview, Visualize, JSON) Status: 422 Unprocessable Entity Time: 17 ms Size: 232 B Save Response

```
1 [  
2   "content": "check out these awesome beaches"  
3 ]
```

```
1 {  
2   "detail": [  
3     {  
4       "loc": [  
5         "body",  
6         "title"  
7       ],  
8       "msg": "field required",  
9       "type": "value_error.missing"  
10    }  
11  ]
```

Find and Replace Console OUTLINE Python 3.9.5 64-bit ('venv': venv) 0 ▲ 0 Connect Ln 28, Col 1 Spaces: 4 UTF-8 CRLF Python SUBSCRIBE

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EXPLORER ... main.py X

OPEN EDITORS main.py X main.py > Post

FASTAPI _pycache_ venv Include Lib Scripts pyvenv.cfg main.py

```
5
6 app = FastAPI()
7
8
9 class Post(BaseModel):
10     title: str
11     content: str
12     published: bool = True
13     rating: Optional[int] = None
14
15
16 @app.get("/")
17 def root():
```

TERMINAL SQL CONSOLE PROBLEMS OUTPUT DEBUG CONSOLE + ^ x

```
INFO: 127.0.0.1:51695 - "POST /createposts HTTP/1.1" 200 OK
WARNING: WatchGodReload detected file change in '['C:\\\\Users\\\\sanje\\\\Documents\\\\Courses\\\\fastapi\\\\main.py.4d1dca43f362bd42d8b85c486f089f1c.tmp']'. Reloading...
WARNING: WatchGodReload detected file change in '['C:\\\\Users\\\\sanje\\\\Documents\\\\Courses\\\\fastapi\\\\main.py.4d1dca43f362bd42d8b85c486f089f1c.tmp', 'C:\\\\Users\\\\sanje\\\\Documents\\\\Courses\\\\fastapi\\\\main.py']'. Reloading...
INFO: Started server process [10984]
INFO: Waiting for application startup.
INFO: Application startup complete.
None
INFO: 127.0.0.1:55007 - "POST /createposts HTTP/1.1" 200 OK
4
INFO: 127.0.0.1:56605 - "POST /createposts HTTP/1.1" 200 OK
INFO: 127.0.0.1:51523 - "POST /createposts HTTP/1.1" 422 Unprocessable Entity
```

cmd Python

OUTLINE

Python 3.9.5 64-bit ('venv': venv) 0 ▲ 0 Connect

Ln 13, Col 21 (4 selected) Spaces: 4 UTF-8 CRLF Python 🔍 SUBSCRIBE

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allows list tuple set frozenset deque or generators and casts to a frozen set: see

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EXPLORER OPEN EDITORS main.py main.py > ...

FASTAPI _pycache_ venv Include Lib Scripts pyvenv.cfg main.py

```
21 @app.get("/posts")
22 def get_posts():
23     return {"data": "This is your posts"}
24
25
26 @app.post("/createposts")
27 def create_posts(new_post: Post):
28     print(new_post)
29     print(new_post.dict())
30     return {"data": new_post}
31 # title str, content str
32
```

TERMINAL SQL CONSOLE PROBLEMS OUTPUT DEBUG CONSOLE + ^ x

```
INFO: Started server process [30796]
INFO: Waiting for application startup.
INFO: Application startup complete.
INFO: 127.0.0.1:63412 - "POST /createposts HTTP/1.1" 422 Unprocessable Entity
title='top beaches in florida' content='something soemthing beaches' published=True rating=4
{'title': 'top beaches in florida', 'content': 'something soemthing beaches', 'published': True, 'rating': 4}
INFO: 127.0.0.1:63413 - "POST /createposts HTTP/1.1" 200 OK
WARNING: WatchGodReload detected file change in '['C:\\Users\\sanje\\Documents\\Courses\\fastapi\\main.py.4d1dca43f362bd42d8b85c486f089f1c.tmp']'. Reloading...
WARNING: WatchGodReload detected file change in '['C:\\Users\\sanje\\Documents\\Courses\\fastapi\\main.py.4d1dca43f362bd42d8b85c486f089f1c', 'C:\\Users\\sanje\\Documents\\Courses\\fastapi\\main.py']'. Reloading...
```

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OUTLINE

Python 3.9.5 64-bit ('venv': venv) 0 △ 0 Connect

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allows list tuple set frozenset deque or generators and casts to a frozen set: see

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My Workspace New Import GET http://127.0.0.1:8... POST http://127.0.0.1:8... + ... No Environment Save

Collections APIs Environments Mock Servers Monitors History

You don't have any collections Collections let you group related requests, making them easier to access and run.

Create Collection

http://127.0.0.1:8000/createposts

POST http://127.0.0.1:8000/createposts

Params Authorization Headers (9) Body Cookies

Body Beautify

none form-data x-www-form-urlencoded raw binary GraphQL JSON

1 ... "title": "top beaches in florida",
2 ... "content": "something soemthing beaches",
3 ... "rating": 4
4
5

Body Cookies Headers (4) Test Results Status: 200 OK Time: 17 ms Size: 237 B Save Response

Pretty Raw Preview Visualize JSON

1 {
2 "data": {
3 "title": "top beaches in florida",
4 "content": "something soemthing beaches",
5 "published": true,
6 "rating": 4
7 }
8 }

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Python 3.9.5 64-bit ('venv': venv) 0 ▲ 0 Connect Line 31, Col 25 Spaces: 4 UTF-8 CRLF Python

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