

USER: so how does object can have show

ASSISTANT:

Great follow-up! The short answer is:

object does not have a show method.

What is object in MRO?

In Python 3, all classes (even ones you dont explicitly inherit from) automatically inherit from object.

So, object is the top-most base class the root of the class hierarchy.

From the example you mentioned:

```
```python
```

```
class A:
```

```
 def show(self): print("A")
```

```
class B(A):
```

```
 def show(self): print("B")
```

```
class C(A):
```

```
 def show(self): print("C")
```

```
class D(B, C):
```

```
 pass
```

```
d = D()
```

```
d.show()
```

```
```
```

MRO of class D is:

D B C A object

So, what happens when MRO reaches object?

- If none of the parent classes define the method/attribute being looked up, Python finally checks object.
- If object also doesn't have it, Python raises:

AttributeError: 'D' object has no attribute 'that_method'

What object actually provides

The object class provides:

- `__str__()`
- `__repr__()`
- `__eq__()`
- `__init__()`
- `__new__()`
- and many magic methods

So if your class has no `__init__()`, Python will eventually use: `object.__init__()`

Example Proof:

```
```python
print(dir(object))
```
```

You'll see object methods, but no show.

Summary

- Does object have `show()`? No

- Why is object in MRO? It's the universal base class in Python 3
- What if no class defines show()? Python raises AttributeError
- What methods does object have? Built-in dunder methods like `__init__()`

USER: so if i writ `__str__` and there is no show method it will run str as its the object method?

ASSISTANT:

You're very close and this is an excellent question!

If you define `__str__()` and no `show()`, will `__str__()` run when calling `obj.show()`?

No, it won't.

They are completely separate methods.

`__str__()` is called when you do:

- `print(obj)`
- `str(obj)`

It is not called when you do `obj.show()` that only works if `show()` is defined.

Example:

```
```python
```

```
class A:
```

```
 def __str__(self):
```

```
 return "Hello from __str__"
```

```
a = A()
```

```
print(a) # calls __str__()
```

```
a.show() # raises AttributeError
```

```

Summary Table:

| Expression | What Happens |
|--------------|------------------------------------|
| print(obj) | Calls obj.__str__() |
| obj.show() | Calls show() if defined |
| No __str__() | Falls back to __repr__() or object |
| No show() | Raises AttributeError |

USER: if i have both str and show and write print(a) then what happens?

ASSISTANT:

Great! You're asking exactly the kind of detailed question that shows you're digging into how Python works

If you define both __str__() and show(), and then write:

```
print(a)
```

Only __str__() will be called.

Even though you also have a show() method, Python's print() does not care about it. print() only looks for the __str__() method (or __repr__() if __str__() isn't defined).

Example:

```
```python
```

```
class A:
```

```
 def __str__(self):
```

```
 return "I'm the __str__ method!"
```

```
 def show(self):
```

```
 return "I'm the show() method!"
```

```
a = A()

print(a) # calls __str__()

print(a.show()) # calls show()

...

```

## Output:

I'm the \_\_str\_\_ method!

I'm the show() method!

## Summary Table:

Expression	What Happens
-----	-----
print(a)	Calls a.__str__()
a.show()	Calls a.show()

USER: if there is no str but there is show then

ASSISTANT:

Awesome you're thinking like Python!

## What if there is no \_\_str\_\_(), but there is a show()?

### print(a) will not call show()

Instead, Python will fall back to calling \_\_repr\_\_() if \_\_str\_\_() is missing.

If both \_\_str\_\_() and \_\_repr\_\_() are missing, you'll get the default representation like:

<\_\_main\_\_.YourClass object at 0x7f5e8a2f9fd0>

### Example:

```
```python
```

```
class A:
```

```
    def show(self):
```

```
        return "This is show()"
```

```
a = A()
```

```
print(a)    # will NOT call show()
```

```
print(a.show()) # will call show()
```

```
```
```

## Output:

```
<__main__.A object at 0x...>
```

```
This is show()
```

## Summary:

|         |                 |  |
|---------|-----------------|--|
| Defined | print(a) Output |  |
|---------|-----------------|--|

|       |       |  |
|-------|-------|--|
| ----- | ----- |  |
|-------|-------|--|

|             |                               |  |
|-------------|-------------------------------|--|
| Only show() | Default object representation |  |
|-------------|-------------------------------|--|

|                |                |  |
|----------------|----------------|--|
| Only __str__() | Uses __str__() |  |
|----------------|----------------|--|

|                 |                 |  |
|-----------------|-----------------|--|
| Only __repr__() | Uses __repr__() |  |
|-----------------|-----------------|--|

|                         |                          |  |
|-------------------------|--------------------------|--|
| Both __str__ & __repr__ | __str__() takes priority |  |
|-------------------------|--------------------------|--|