

# Membership operators (boolean result)

in

not in

in → val1, val2  
          ↑  
      Sequential  
      str

val2 = 'PYTHON'

val1 = 'P'

True = val1 in val2  
False = val1 not in val2

→ Sequential

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```
s1 = 'python'
s2 = s1.lower()
print(s1, id(s1))
print(s2, id(s2))
```

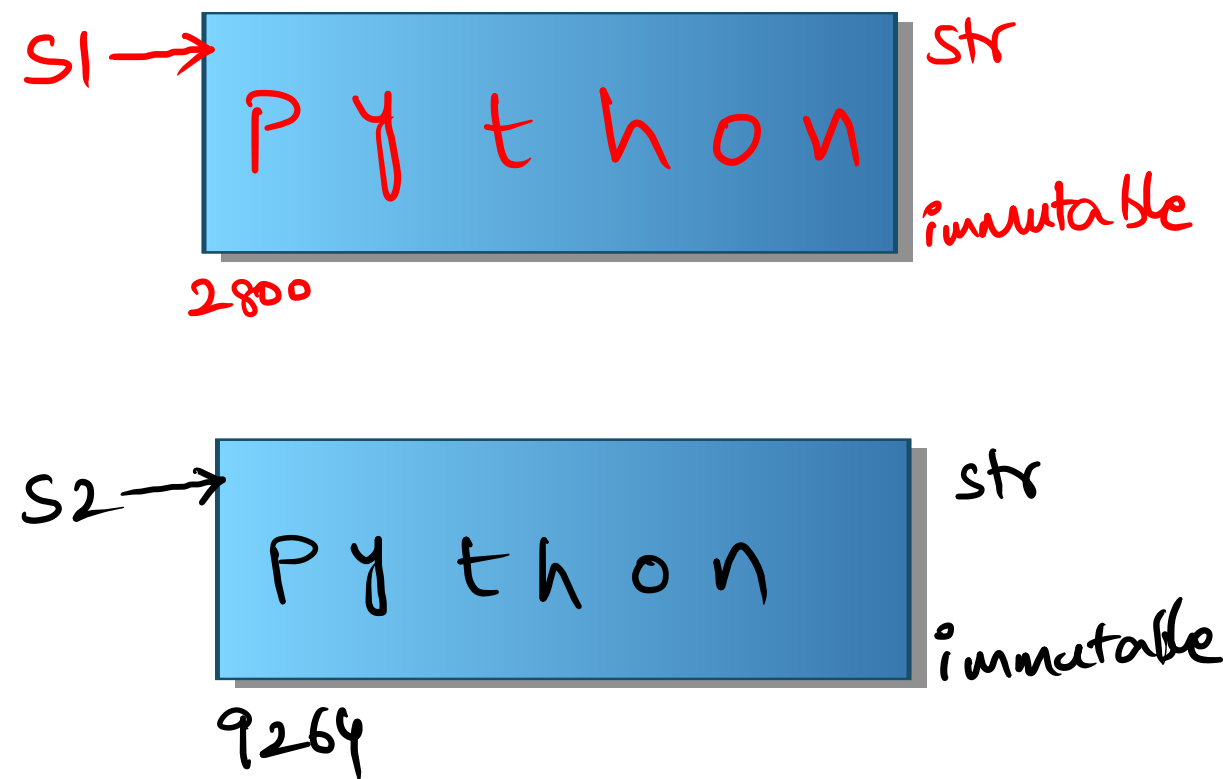
```
python 139695536122800
python 139695183249264
```

`==` will consider data

True

`is` will consider memory id

False



```
s1 = 'hyderabad'
s2 = s1
print(s1, id(s1))
print(s2, id(s2))
```

```
hyderabad 139695260142896
hyderabad 139695260142896
```



$S1 == S2$  True

$S1 \text{ is } S2$  True

OR

val1 is True, result is val1  
val1 is False, result is val2

Val1	Val2	Result
<span style="border: 1px solid yellow; padding: 2px;">True</span>	True	<span style="border: 1px solid yellow; padding: 2px;">True</span>
<span style="border: 1px solid yellow; padding: 2px;">True</span>	False	<span style="border: 1px solid yellow; padding: 2px;">True</span>
False	<span style="border: 1px solid black; padding: 2px;">True</span>	<span style="border: 1px solid black; padding: 2px;">True</span>
False	<span style="border: 1px solid black; padding: 2px;">False</span>	<span style="border: 1px solid black; padding: 2px;">False</span>

val1 is success, result is val1  
val1 is Failure, result is val2

Val1	Val2	Result
<span style="border: 1px solid yellow; padding: 2px;">Success</span>	Success	<span style="border: 1px solid yellow; padding: 2px;">Success</span>
<span style="border: 1px solid yellow; padding: 2px;">Success</span>	Failure	<span style="border: 1px solid yellow; padding: 2px;">Success</span>
Failure	<span style="border: 1px solid black; padding: 2px;">Success</span>	<span style="border: 1px solid black; padding: 2px;">Success</span>
Failure	<span style="border: 1px solid black; padding: 2px;">Failure</span>	<span style="border: 1px solid black; padding: 2px;">Failure</span>

and

val1 is True, result is val2  
val1 is False, result is val1

Val1	Val2	Result
True	True	True
True	False	False
False	True	False
False	False	False

val1 is Success, result is val2  
val1 is Failure, result is val1

Val1	Val2	Result
Success	Success	Success
Success	Failure	Failure
Failure	Success	Failure
Failure	Failure	Failure

not (boolean) →

Val	Result
Success	False
Failure	True

Success	Failure
True +ve -ve 'python'	False 0 None '' ↓ Empty string

162 and 'sai' or 'python' or 0.2

val1

val2

val1

162

and

val2

'sai'

'sai'



<sup>val1</sup> 162 and 'sai' or 'python' or <sup>val2</sup> 0.2

↓  
<sup>val1</sup> 162 and 'sai' or <sup>val2</sup> 'Python'

<sup>val1</sup> 162 and <sup>val2</sup> 'sai'

<sup>val1</sup> 'sai' or <sup>val2</sup> 'Python'

→ 'sai' or 0.2 ←