

Python OOP 101

Class => Blue print (template)

```
In [10]: class Student:  
         pass
```

for creating students

Objects => specific instance of a class

```
In [11]: s1 = Student() # creates the object
```

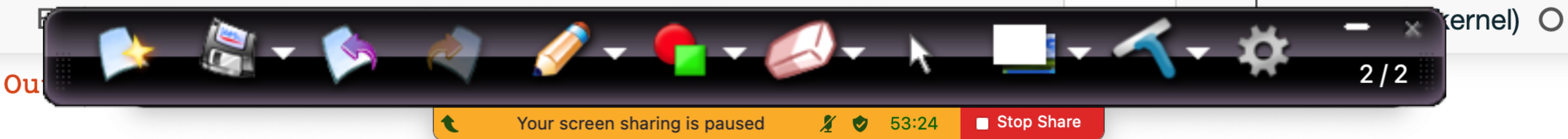
```
In [12]: type(s1)
```

```
Out[12]: __main__.Student
```

object of int class

```
In [4]: a = 3  
type(a)
```

```
Out[4]: int
```



Encapsulation

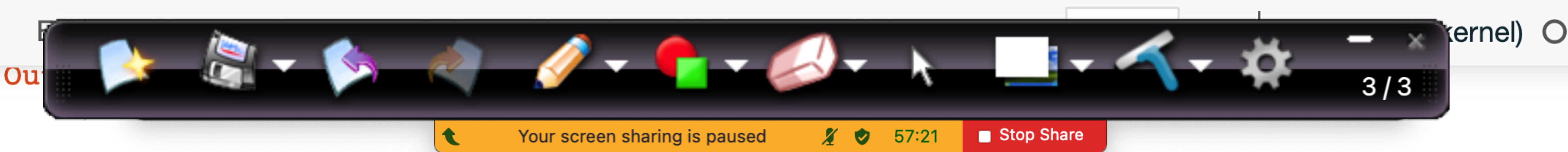
```
In [16]: class Student:  
    def study(time):  
        print(f'I am studying for {time} hours!! Yeah!!')
```

```
In [17]: s = Student()
```

```
In [ ]: # data for the object  
s.name = 'Rahul'
```

```
In [ ]:
```

Name='Rahul'?
S



Encapsulation

```
In [16]: class Student:  
    def study(time):  
        print(f'I am studying for {time} hours!! Yeah!!')
```

ce, time

```
In [17]: s = Student()
```

```
In [ ]: # data for the object  
s.name = 'Rahul'
```

```
In [18]: # call method  
s.study(2)
```

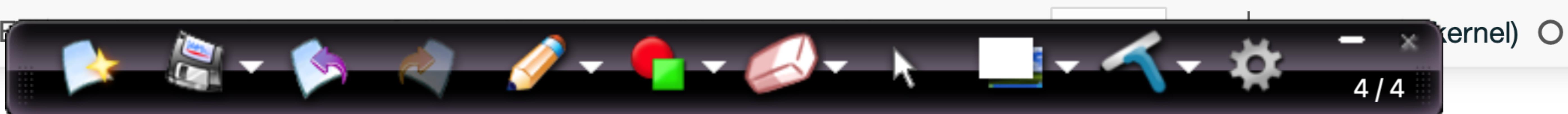
Self Study

```
--  
TypeError  
t)  
Input In [18], in <cell line: 2>()  
  1 # call method  
----> 2 s.study(2)
```

Traceback (most recent call last)

```
TypeError: study() takes 1 positional argument but 2 were given
```

study()



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```
In [26]: class Student:  
    def study(a, time):  
        print(a)  
        print(f'I am studying for {time} hours!! Yeah!!')
```

```
In [27]: s = Student()
```

```
In [28]: s.name = 'Pradeep'
```

```
In [29]: print(s.name)
```

Pradeep

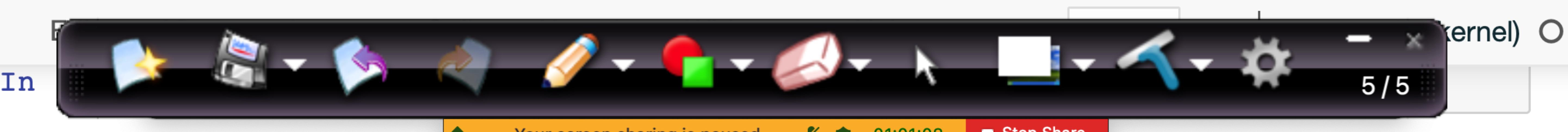
```
In [30]: s.study(1)
```

<__main__.Student object at 0x7fde70d39cd0>
I am studying for 1 hours!! Yeah!!

```
In [31]: print(s)
```

<__main__.Student object at 0x7fde70d39cd0>

```
In [ ]:
```



```
In [28]: s.name = 'Pradeep'
```

```
In [29]: print(s.name)
```

Pradeep

```
In [30]: s.study(1)
```

```
<__main__.Student object at 0x7fde70d39cd0>
I am studying for 1 hours!! Yeah!!
```

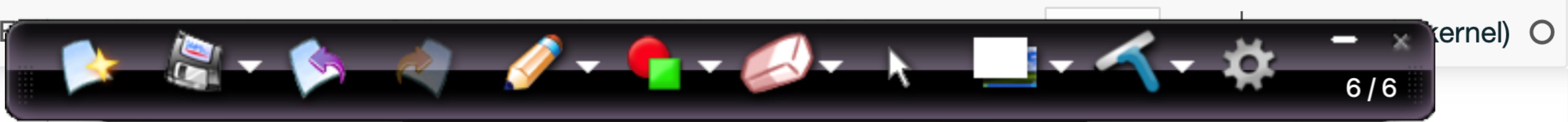
```
In [31]: print(s)
```

```
<__main__.Student object at 0x7fde70d39cd0>
```

```
In [33]: Student.study(s, 1)
```

```
<__main__.Student object at 0x7fde70d39cd0>
I am studying for 1 hours!! Yeah!!
```

```
In [ ]:
```



In [74]: ~~class Student:~~ *S2, 3*
~~def study(self, time):~~
~~print(self)~~
~~# self is the object that is calling this method~~
~~print(f'{self.name} ({self.age}) is studying for {time} hours!! Yeah!!')~~

In [75]: s = Student()

In [76]: s.name = 'Annivarya'
s.age = 27

In [77]: s.study(5) # Student.study(s, 5)

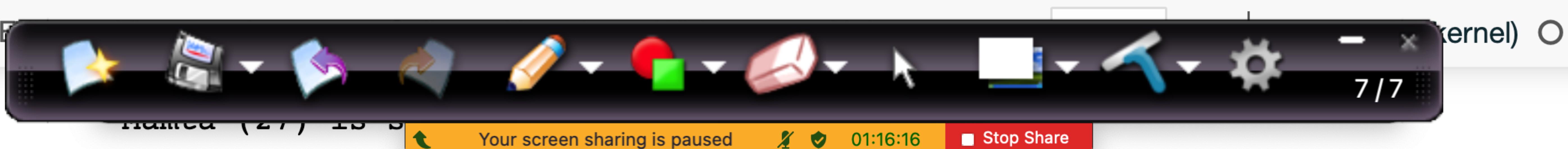
<__main__.Student object at 0x7fdea06fde20>
Annivarya (27) is studying for 5 hours!! Yeah!!

In [81]: s2 = Student()

In [83]: s2.name = "Mamta"
s2.age = 27

In [84]: s2.study(3) # Student.study(s2, 3)

<__main__.Student object at 0x7fde70f442b0>
Mamta (27) is studying for 3 hours!! Yeah!!



Quiz - 2

In [85]:

```
class Counter:  
    def call(self):  
        print(self.count)
```

In [86]:

```
c = Counter()
```

In [87]:

```
c.count = 5
```

In []:



In

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01:43:38

Stop Share

In [87]: `c.count = 5`In [88]: `c.call()`

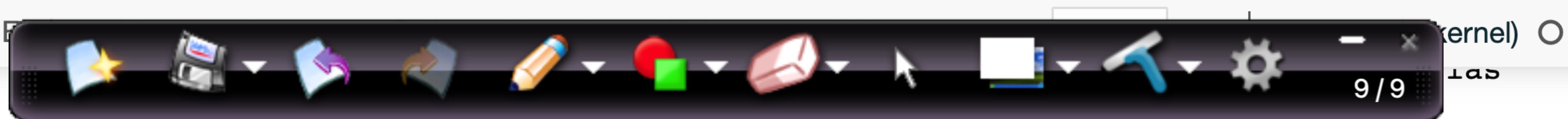
5

Construction and Initialisation

In [89]: `class Student:`
 `pass`① In [92]: `s = Student()` # the object is createdIn [91]: `print(s)``<__main__.Student object at 0x7fde809eec10>`

In []:

In []:



Input In [96], Your screen sharing is paused 01:46:57 Stop Share
----> 1 print(s2.name)

AttributeError: 'Student' object has no attribute 'name'

__init__ initialiser

```
In [ ]: class Student:  
         def __init__(self, n, a):  
             # assign the values  
             self.name = n  
             self.age = a
```

In []:

In []:

In []:

In []:

In [135]: pri

23

In [137]: s.study(1)

Rama is studying for 1 hours

In [138]: s2.study(2)

Nikhil is studying for 2 hours

Quiz

```
In [ ]: class Counter:  
    def __init__(self):  
        self.count=5  
        self.count=count+1  
  
    c = Counter()  
    print(c.count)
```

