

what is Closure's:

-----

a closure is a function,we can treat any function as a closure function,that function to follow the some rules,

rule1:

-----

the function must be defined as a nested function.

rule2:

-----

the inner function must refer to a value that is defined in the enclosing/outer function.

rule3:

-----

the outer/enclosing function must return a nested function.

ex:

---

```
def f1(x): #enclosing function
    def f2(): #inner function
        print("hai")
        print(x)
        print("good evening")
    return f2
a=f1("siva krishna")
a()
print("bye")
```

output:

-----

```
hai
siva krishna
good evening
bye
```

what is Decorator's?

-----

a Decorator is a function,it is same like as a Closure function but it will takes the input as either function or method,to add some properties to that function/method and return that function/method.

the builtin decorators are classmethod,staticmethod,property,...

ex1:

---

```
def f1(x):
    def f2():
        print("hai")
```

```

        x()
        print("good evening")
    return f2
def f3():
    print("siva krishna")
a=f1(f3)
a()
print("bye")

```

output:

```

-----
hai
siva krishna
good evening
bye

```

ex2:

```

---
def f1(x):
    def f2():
        print("hai")
        x()
        print("good evening")
    return f2
@f1
def f3():
    print("siva krishna")
f3()
print("bye")

```

output:

```

-----
hai
siva krishna
good evening
bye

```

ex3:

```

----
        sample.py
        -----
def f1(x):
    def f2():
        print("hai")
        x()
        print("good evening")
    return f2

        demo.py
        -----

```

```
import sample
@sample.f1
def f3():
    print("siva krishna")
f3()
print("bye")
```

output

-----

```
hai
siva krishna
good evening
bye
```