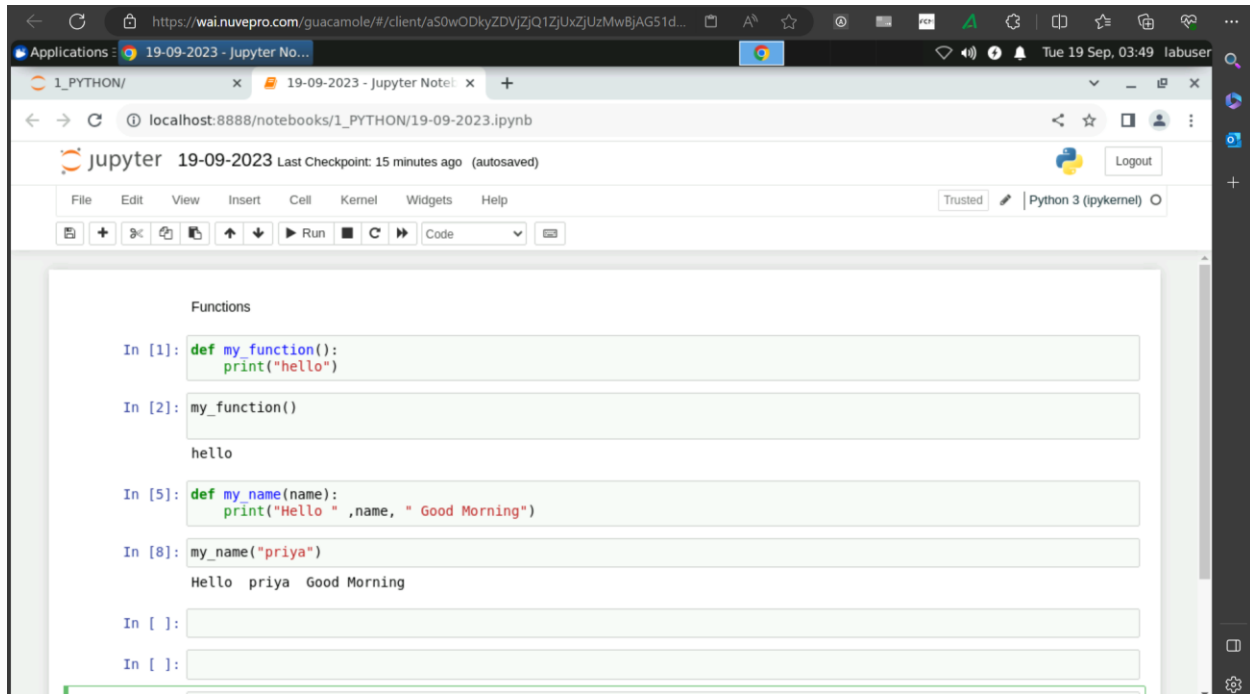


# PYTHON



The screenshot shows a Jupyter Notebook interface in a web browser. The browser address bar shows the URL: `https://wai.nuvepro.com/guacamole/#/client/a50wODkyZDVjZjQ1ZjUxZjUzMwBjAG51d...`. The notebook title is "19-09-2023 - Jupyter No...". The notebook content shows a Python function `my_function()` that prints "hello". The function is called, and the output is "hello". The notebook also shows a function `my_name(name)` that prints "Hello " followed by the name and " Good Morning". The function is called with the argument "priya", and the output is "Hello priya Good Morning".

```
Functions

In [1]: def my_function():
        print("hello")

In [2]: my_function()

hello

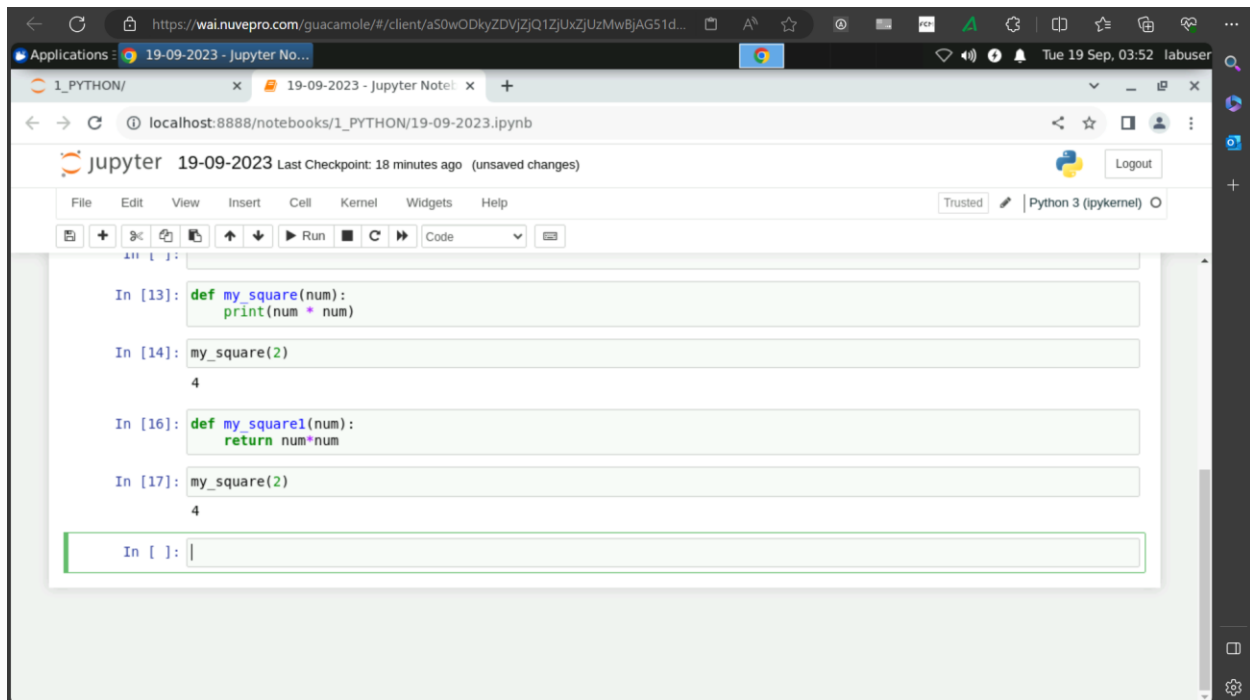
In [5]: def my_name(name):
        print("Hello " ,name, " Good Morning")

In [8]: my_name("priya")

Hello priya Good Morning

In [ ]:

In [ ]:
```



The screenshot shows a Jupyter Notebook interface in a web browser. The browser address bar shows the URL: `https://wai.nuvepro.com/guacamole/#/client/a50wODkyZDVjZjQ1ZjUxZjUzMwBjAG51d...`. The notebook title is "19-09-2023 - Jupyter No...". The notebook content shows a function `my_square(num)` that prints the square of the input number. The function is called with the argument 2, and the output is 4. The notebook also shows a function `my_square1(num)` that returns the square of the input number. The function is called with the argument 2, and the output is 4.

```
In [13]: def my_square(num):
        print(num * num)

In [14]: my_square(2)

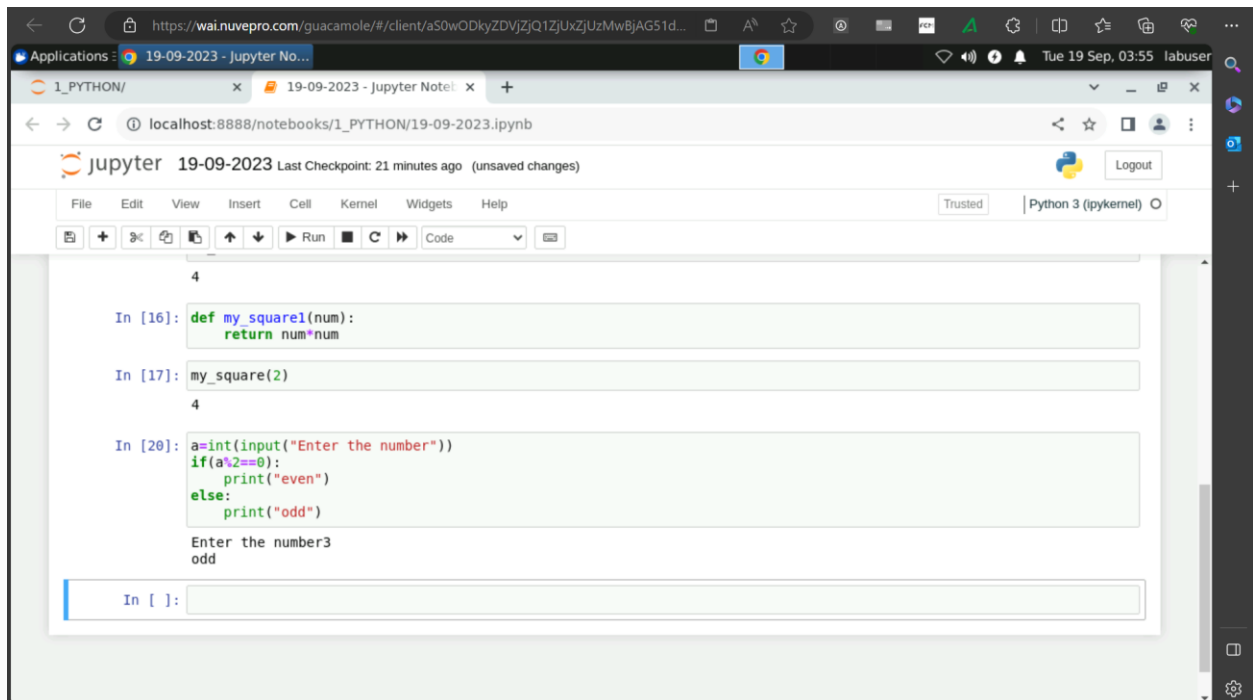
4

In [16]: def my_square1(num):
        return num*num

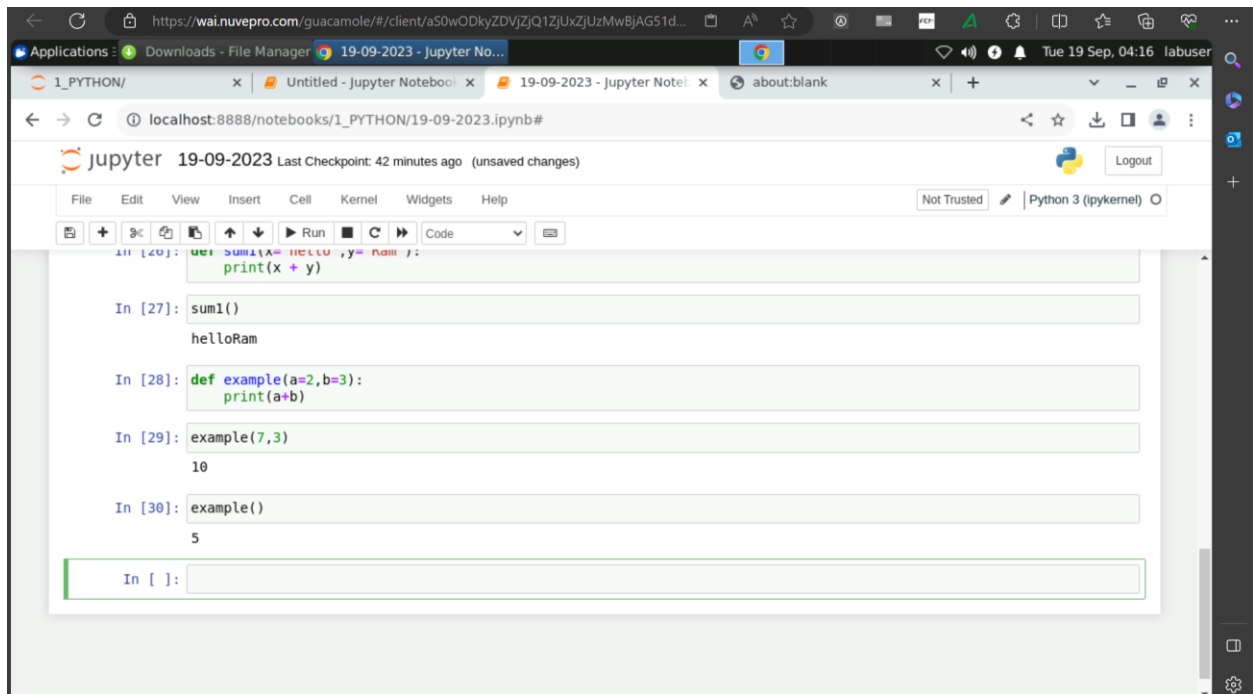
In [17]: my_square(2)

4

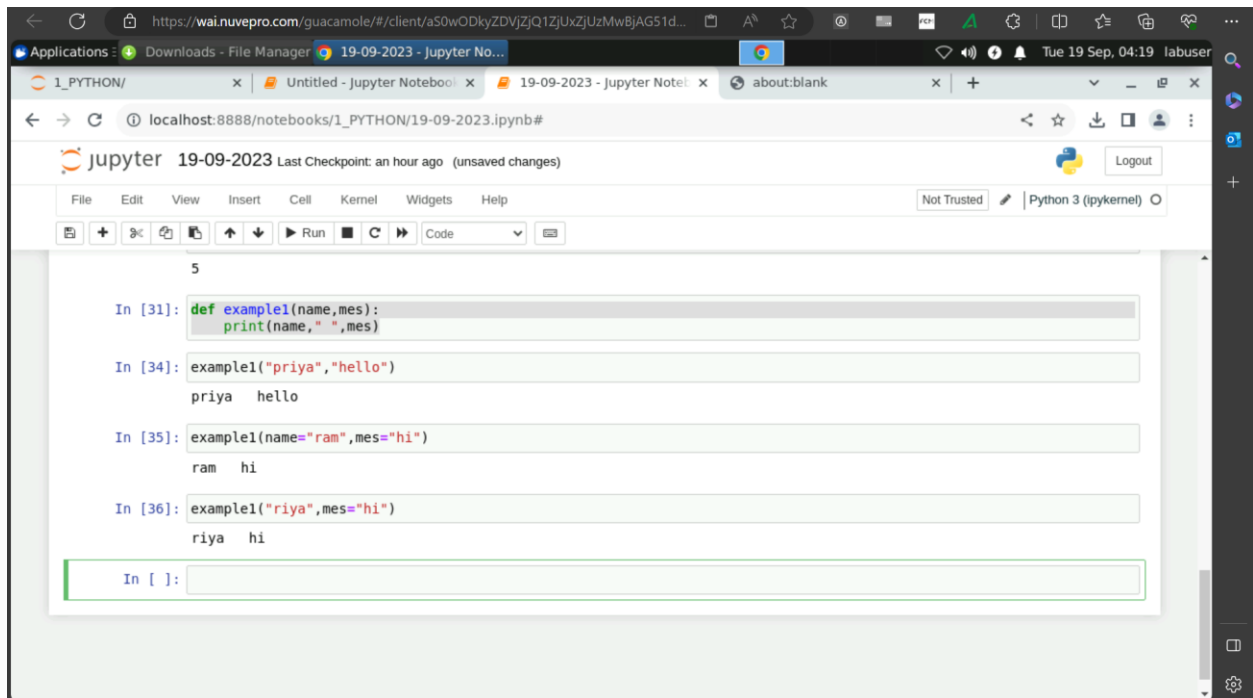
In [ ]:
```



Default Argument:



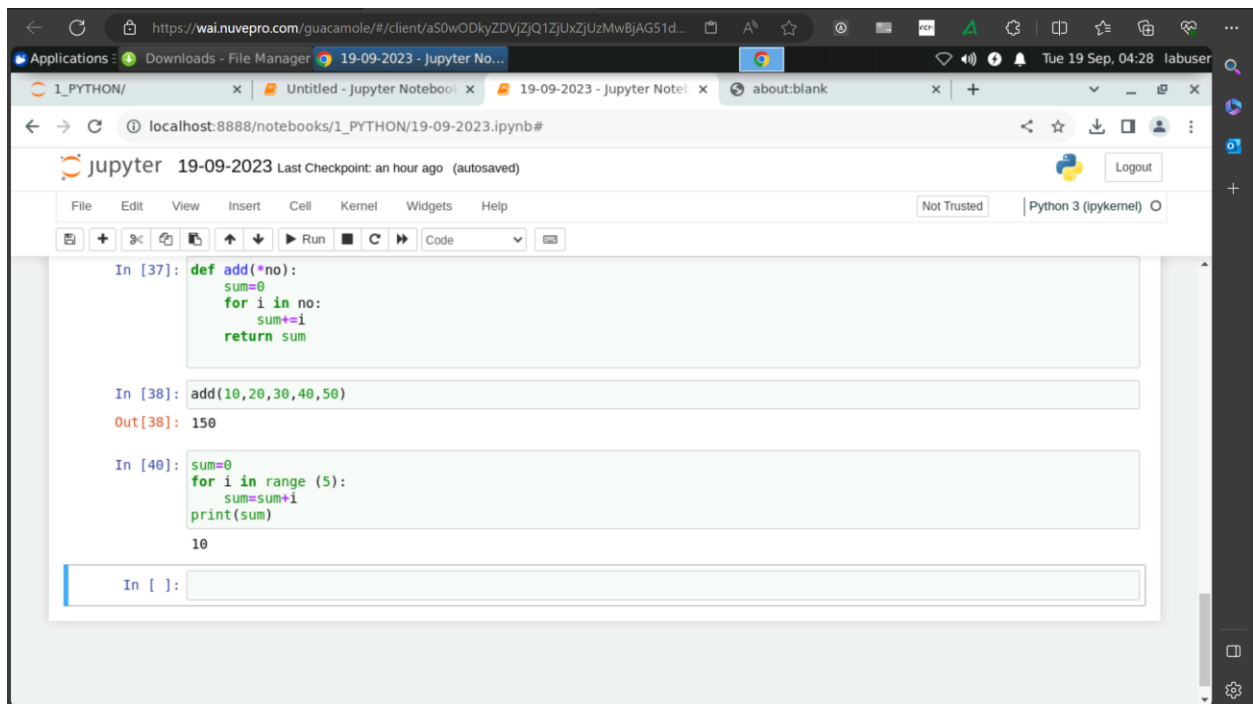
## Positional Argument and Keyword Argument:



The screenshot shows a Jupyter Notebook interface with the following code and output:

```
In [31]: def example1(name,mes):  
         print(name," ",mes)  
  
In [34]: example1("priya","hello")  
priya hello  
  
In [35]: example1(name="ram",mes="hi")  
ram hi  
  
In [36]: example1("riya",mes="hi")  
riya hi  
  
In [ ]:
```

## Variable length Argument:



The screenshot shows a Jupyter Notebook interface with the following code and output:

```
In [37]: def add(*no):  
         sum=0  
         for i in no:  
             sum+=i  
         return sum  
  
In [38]: add(10,20,30,40,50)  
Out[38]: 150  
  
In [40]: sum=0  
         for i in range (5):  
             sum=sum+i  
         print(sum)  
10  
  
In [ ]:
```

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File Edit View Insert Cell Kernel Widgets Help Not Trusted Python 3 (ipykernel)

In [46]: 

```
def info(**ex):
    for i,j in ex.items():
        print(i, ":", j)
```

In [48]: 

```
info(name="priya",age=10,city="chennai")
info(name="riya",age=12,city="Bangalore",dept="IT")
```

name : priya  
age : 10  
city : chennai  
name : riya  
age : 12  
city : Bangalore  
dept : IT

In [ ]:

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age : 10  
city : chennai  
name : riya  
age : 12  
city : Bangalore  
dept : IT

In [52]: 

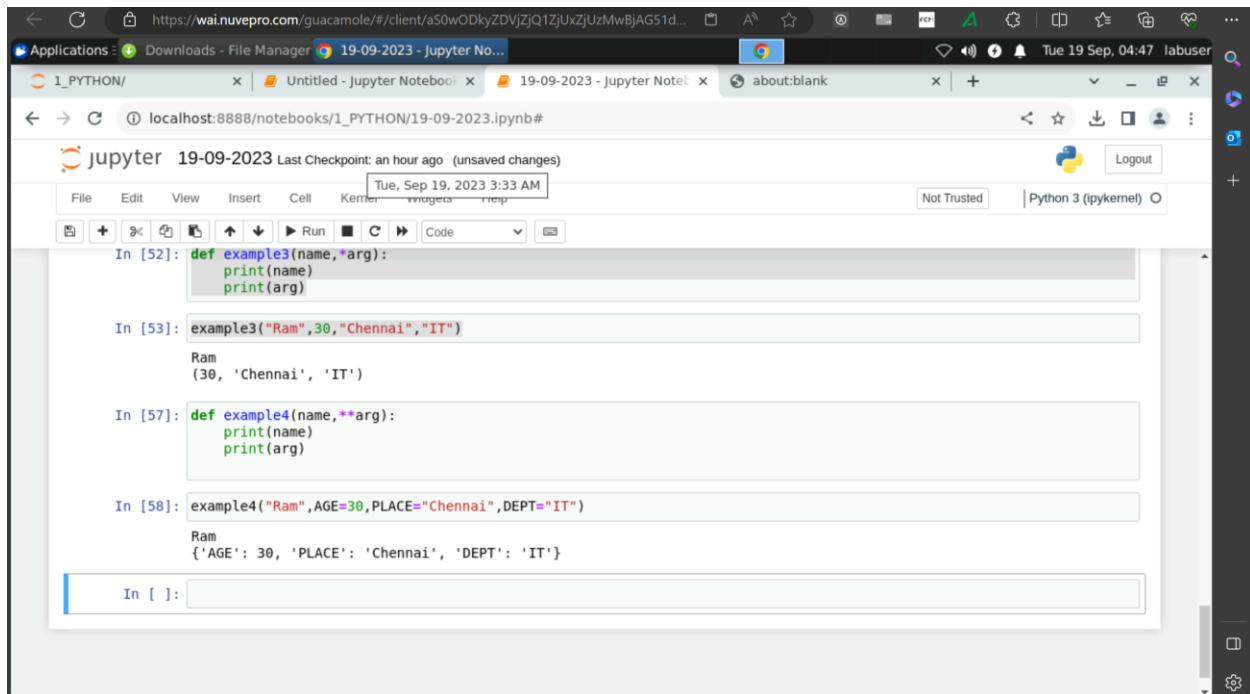
```
def example3(name,*arg):
    print(name)
    print(arg)
```

In [53]: 

```
example3("Ram",30,"Chennai","IT")
```

Ram  
(30, 'Chennai', 'IT')

In [ ]:



## Activity:

### Task: Oil and Gas Equipment and Drilling Site Management System

You are tasked with developing a Python program for an oil and gas company to manage their drilling equipment and drilling sites. The program should use `*args` and `**kwargs` to provide flexibility in adding and searching for equipment and sites. Here are the tasks you need to complete:

Create a Python script that defines empty lists for drilling equipment and drilling sites.

Implement a function `add_equipment` that takes the following parameters:

`equipment_type` (string): The type of equipment being added.

`*args` (tuple): Additional details about the equipment (e.g., model, power, capacity).

`**kwargs` (dictionary): Additional attributes of the equipment (e.g., vendor, power source).

The function should create a dictionary representing the equipment, including its type, details (from `*args`), and attributes (from `**kwargs`). Then, it should append this dictionary to the `drilling_equipment` list.

The screenshot shows a Jupyter Notebook running in a web browser. The browser's address bar shows the URL `https://wainuvelpro.com/guacamole/#/client/as0wODkyZDVjZjQ1ZjUxZjUzMwBjAG51d...`. The notebook's title bar indicates it is a Python 3 (ipykernel) environment. The code in the notebook includes a dictionary `Ram` with keys `'AGE'`, `'PLACE'`, and `'DEPT'`. It also shows the initialization of `drilling_equipment` and `drilling_sites` as empty lists. A function `add_equipment` is defined, which takes `equipment_type` and variable arguments `*args` and `**kwargs`. The function prints the `equipment_type`, `args`, and `kwargs`. In cell [73], the function is called with `equipment_type` as `"Type111"`, `args` as `(1, 100, 500)`, and `kwargs` as `vendor="Priya", power_source="eb"`. Cell [74] prints the `drilling_equipment` list, which now contains a dictionary with keys `'equipments'`, `'details'`, and `'attributes'`. The `'details'` key has a value of `(1, 100, 500)`, and the `'attributes'` key has a value of `{'vendor': 'Priya', 'power_source': 'eb'}`.

```
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Logout

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Not Trusted Python 3 (ipykernel)

In [59]: drilling_equipment=[]
drilling_sites=[]

In [70]: def add_equipment(equipment_type, *args, **kwargs):
print(equipment_type)
print(args)
print(kwargs)

In [73]: def add_equipment(equipment_type, *args, **kwargs):
dict={"equipments":equipment_type,"details":args,"attributes":kwargs}
drilling_equipment.append(dict)

In [74]: add_equipment("Type111",1,100,500,vendor="Priya",power_source="eb")

In [75]: print(drilling_equipment)

[{'equipments': 'Type111', 'details': (1, 100, 500), 'attributes': {'vendor': 'Priya', 'power_source': 'eb'}}]

In [ ]:
```

Implement a function `add_drilling_site` with similar parameters:

`site_name` (string): The name of the drilling site being added.

`*args` (tuple): Additional details about the site (e.g., location, depth, terrain).

`**kwargs` (dictionary): Additional attributes of the site (e.g., status, operator).

The function should create a dictionary representing the site, including its name, details (from `*args`), and attributes (from `**kwargs`). Then, it should append this dictionary to the `drilling_sites` list.

The screenshot shows a Jupyter Notebook interface with the following code and output:

```
drilling_equipment.append(dict)

In [74]: add_equipment("Type111",1,100,500,vendor="Priya",power_source="eb")

In [75]: print(drilling_equipment)
[{'equipments': 'Type111', 'details': (1, 100, 500), 'attributes': {'vendor': 'Priya', 'power_source': 'eb'}}]

In [76]: def add_drilling_site(site_name, *args, **kwargs):
          dict={"name":site_name,"details":args,"attributes":kwargs}
          drilling_sites.append(dict)

In [77]: add_drilling_site("Type111", "Chennai", 100, "Grassland", Status="Pass", Operator="ll")

In [78]: print(drilling_sites)
[{'name': 'Type111', 'details': ('Chennai', 100, 'Grassland'), 'attributes': {'Status': 'Pass', 'Operator': 'll'}}]

In [ ]:
```

The screenshot shows a Jupyter Notebook interface with the following code and output:

```
In [77]: add_drilling_site("Type111", "Chennai", 100, "Grassland", Status="Pass", Operator="ll")

In [78]: print(drilling_sites)
[{'name': 'Type111', 'details': ('Chennai', 100, 'Grassland'), 'attributes': {'Status': 'Pass', 'Operator': 'll'}}]

In [79]: def factorial(n):
          if(n==0):
              return 1
          else:
              return n*factorial(n-1)

In [80]: factorial(5)
Out[80]: 120

In [ ]:
```

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```
return n*factorial(n-1)
```

In [80]: `factorial(5)`

Out[80]: 120

In [87]: `def fibonacci(n):  
 if n<=1:  
 return n  
 else:  
 return fibonacci(n-1)+fibonacci(n-2)`

In [89]: `k=6  
for i in range(k):  
 print(fibonacci(i))`

0  
1  
1  
2  
3  
5

In [83]: `def fibonacci(n):  
 a = 0`

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```
def div(a,b):  
    c=a/b  
    return c
```

In [91]: `def smart_div(func):  
 def inner(a,b):  
 if a<b:  
 a,b=b,a  
 return func(a,b)  
 return inner`

In [92]: `result=smart_div(div)`

In [93]: `result(10,5)`

Out[93]: 2.0

In [ ]:



19-09-2023 - Jupyter No...

localhost:8888/notebooks/1\_PYTHON/19-09-2023.ipynb#

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Not Trusted Python 3 (ipykernel)

Out[93]: 2.0

```
In [100]: def wishes(name):
          print("Hello" ,name,"Good morning")

In [101]: wishes("John")

Hello John Good morning

In [102]: def decor(func):
          def inner(name):
              if name=="Robert":
                  print("Bad Morning")
              else:
                  func(name)
              return inner
          result=decor(wishes)

In [103]: wishes("John")
          wishes("Robert")

Hello John Good morning
Hello Robert Good morning
```

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localhost:8888/notebooks/1\_PYTHON/19-09-2023.ipynb#

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Not Trusted Python 3 (ipykernel)

```
In [104]: def count_up_to(n):
          i=1
          while i<=n:
              yield i
              i=i+1

In [105]: count_up_to(10)

Out[105]: <generator object count_up_to at 0x7f390821f2a0>

In [106]: for i in count_up_to(10):
          print(i)

1
2
3
4
5
6
7
8
9
10
```

19-09-2023 - Jupyter No...

19-09-2023 - Jupyter Note...

localhost:8888/notebooks/1\_PYTHON/19-09-2023.ipynb

jupyter 19-09-2023 Last Checkpoint: 5 hours ago (unsaved changes)

File Edit View Insert Cell Kernel Widgets Help

Not Trusted Python 3 (ipykernel)

In [1]:

```
num=[1,2,3,4,5]
result=[x**2 for x in num]
print(result)
```

[1, 4, 9, 16, 25]

In [2]:

```
num=[1,2,3,4,5]
result=[x for x in num if x%2==0]
print(result)
```

[2, 4]

In [3]:

```
num=[1,2,3,4,5]
result=[x*2 for x in num]
print(result)
```

[2, 4, 6, 8, 10]

In [5]:

```
list=["Python","SQL","Power BI","Azure"]
l=[i[0] for i in list]
print(l)
```

['P', 'S', 'P', 'A']

In [ ]:

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19-09-2023 - Jupyter Note...

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File Edit View Insert Cell Kernel Widgets Help

Not Trusted Python 3 (ipykernel)

```
result=[x*2 for x in num]
print(result)
```

[2, 4, 6, 8, 10]

In [5]:

```
list=["Python","SQL","Power BI","Azure"]
l=[i[0] for i in list]
print(l)
```

['P', 'S', 'P', 'A']

In [9]:

```
list=["python","sql","power BI","azure"]
l=[i[0].upper()+i[1:] for i in list]
print(l)
```

['Python', 'Sql', 'Power BI', 'Azure']

In [ ]:

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File Edit View Insert Cell Kernel Widgets Help Not Trusted Python 3 (ipykernel)

```
print()
```

```
['Python', 'Sql', 'Power BI', 'Azure']
```

```
In [27]: words="The quick brown fox jumps over the lazy dog"
output=[i for i in words.split()]
result=[i.upper() for i in output]
print(result)
result1=[len(i) for i in result]
print(result1)

['THE', 'QUICK', 'BROWN', 'FOX', 'JUMPS', 'OVER', 'THE', 'LAZY', 'DOG']
[3, 5, 5, 3, 5, 4, 3, 4, 3]
```

```
In [28]: s=lambda a,b:a+b
print(s(10,30))

40
```

```
In [ ]: s1=lambda a,b:|
print(m=11,12)
```

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File Edit View Insert Cell Kernel Widgets Help Not Trusted Python 3 (ipykernel)

```
print()
```

```
['Python', 'Sql', 'Power BI', 'Azure']
```

```
In [27]: words="The quick brown fox jumps over the lazy dog"
output=[i for i in words.split()]
result=[i.upper() for i in output]
print(result)
result1=[len(i) for i in result]
print(result1)

['THE', 'QUICK', 'BROWN', 'FOX', 'JUMPS', 'OVER', 'THE', 'LAZY', 'DOG']
[3, 5, 5, 3, 5, 4, 3, 4, 3]
```

```
In [28]: s=lambda a,b:a+b
print(s(10,30))

40
```

```
In [ ]: s1=lambda a,b:|
print(m=11,12)
```



The screenshot shows a Jupyter Notebook in a web browser. The address bar indicates the URL is `https://wainuupro.com/guacamole/#/client/as0wODkyZDVjZjQ1ZjUxZjUzMwBjAG51d...`. The notebook title is "19-09-2023 - Jupyter No...". The interface includes a menu bar (File, Edit, View, Insert, Cell, Kernel, Widgets, Help) and a toolbar with icons for file operations, running, and code execution. The code area shows the following cells:

```
In [10]: sq = list(map(lambda a: a**2, l))

In [11]: print(sq)
[100, 121, 144, 169, 196, 225]

In [14]: sq = list(map(lambda a: a**2, l))
print(sq)
[100, 121, 144, 169, 196, 225]

In [17]: words = ["hello", "world", "lambda", "exercise"]

In [21]: s1 = list(map(lambda word: word.upper(), words))
print(s1)
['HELLO', 'WORLD', 'LAMBDA', 'EXERCISE']

In [ ]:
```

The screenshot shows the same Jupyter Notebook interface, but with different code cells. The code area shows the following cells:

```
In [21]: s1 = list(map(lambda word: word.upper(), words))
print(s1)
['HELLO', 'WORLD', 'LAMBDA', 'EXERCISE']

In [22]: people = [{'name': 'Alice', 'age': 30},
                  {'name': 'Bob', 'age': 25},
                  {'name': 'Charlie', 'age': 35}]

In [23]: s = sorted(people, key=lambda item: item['age'])

In [24]: print(s)
[{'name': 'Bob', 'age': 25}, {'name': 'Alice', 'age': 30}, {'name': 'Charlie', 'age': 35}]

In [ ]:
```

Class:

class Computer:

```
    def config(self):
        print("i5,16Gb")
```

comp1=Computer()

comp1.config()