In [ ]:
```
# What is the difference between a function and a method in Python?
 In pythan,the term"function"and "method"are aften used interchangeable,but there i
FUNCTION:
            1>a standalone block of code that can be called independently
 2>not bound to any specific object or class
 3>can be defined inside pr outside class
 4>typically takes arguments and returns a values
 example:def greet(name):
 print("hello,{name}!")
 METHOD:

 1>A function that is bound to a specific object or class
 2>called on an instance of a class (or the class itself for class metho  3>has
access to the object attribubtes and other method
  4>typically takes self as the first argument ,(a reference to the insta
5>EXAMPLE:class person:def_init_(self,name):self.name=name;def greet9se
```

In [ ]:
```
# Explain the concept of function arguments and parameters in Python
 In pythan,function have teo releted but distinct concept:arguments and parameters.
PARAMETERS:
 1>are the names listed in the function definition
 2>act as placeholders for the values that will be passed to the function  3>are
used to difined in the function interface
 4>are typically defined in the function signature,e.g., def greet9name,
 arguments:
 1>are the actual values passed to the function when its called  2>are assigned to
the carresponding parameters
                    3>are passed to the function when its invoked,e.g, greet9"john"
```

In [ ]:
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#. What are the different ways to define and call a function in Python?

In pythan,there are several ways to define and cell function.here some of the duffe
DEFINING FUNCTION:
 1>standard function definition:def function_name(parametrs):
            2>lambda function:lambda arguments:expressiom(anonymous function)
 3>nested function:function defined inside another function
            4>generator function:function that use yeild to generate values
 5>async function:function defined with async def for asynchronous progr
 calling function:
 1>standard function call:function_name(argements)
 2>keywords arguments:unction_name9keywords=arguments)
 3>positional arguments: function_name(aruments_name(*args) or funct  some
addotional ways
 1>higher-order
 2>closurs
                                                        3>decorators
                                                        4>partial function
```

In [ ]:#What is the purpose of the `return` statement in a Python function?
The Python return statement marks the end of a function and specifies the value or

In [ ]:#. What are iterators in Python and how do they differ from iterables?
in pythan an iterable is an object that can be iterated over,meaning it can be loo
or other iteration tools.example of iterables include lists,tuples,dictionaries
An iterator,on the otherhand, is an object that keeps track of its position in
from it one at a time.in other words,an iterator is an object that allows you t
key difference:
1>iterable: the object being iterated over(e.g.,a list ,tuple,etc.).
2>iteraor:the object that does the iterating (e.g.,the one that keeps t yields
values.

In [ ]:#. Explain the concept of generators in Python and how they are defined In pythan ,a
genereators is a special type of function that can be used to generate of computing
them all at ones and return them in a list, it yields them one at a t how
gererators are defined:
1>a generators function is defined using the def keyword,just like a reguka
2>inside the function you use the yield keyword to produce a valouse.
3>when the function is called,it returns a gereratos object.
4>the genertor object can be iterated over, and each iteratiuon will call t
function untill it reavhes a yield statements.
5>the function execution is resumed from where it left off when the next va In [

]:#What are the different ways to define and call a function in Python?

They are more efficient than loops for data processing or calculations. Generators

In [ ]:#. What is a lambda function in Python and when is it typically used?

in oythan a lambda function is a small,anonymous function that can be defined inli
to create a function without declaring it with a def statement.
the general syntax for a lambda function is:
lambda arguments:expression
where:
. arguments is a comma-separated list of varible that will be passed to th =
expression is the code that will be excuted when the function is called.

In [ ]:# Explain the purpose and usage of the `map()` function in Python.

Map in Python is a function that works as an iterator to return a result after app
It is used when you want to apply a single transformation function to all the itera

In [ ]:#. What is the difference between `map()`, `reduce()`, and `filter()` functions in

Python's reduce() function doesn't return a new sequence like map() and filter().
Instead, it returns a single value. The syntax is similar to the other two functio
sequence, from left to right, starting with the first two elements in the seque

In [ ]: