1. What is the relationship between def statements and lambda expressions ?

Ans: the def statements are used to write a full-fledged function. A function may contain any line of code performing multiple operations.

A function is usually created so that same set of operations a can be performed again and again and we do not have to write repetitive code for each call.

Lambda function also has the similar function, only difference being is the lambda is used to create simple functions, which usually has 1 set of operations.

2. What is the benefit of lambda?

Ans: Lambda function, also known as anonymous function, are used to create a simple function which can be written in a single line. Lambda function is usually created to reduce the line of code which is performing some easy task

1. Compare and contrast map, filter, and reduce.

Ans:

|  |  |  |
| --- | --- | --- |
| Map | filter | reduce |
| Map(function, list) | filter() | from functools import reduce Reduce() |
| Map considers the function for each if the element in the list. the elements are iterated over to the function, the operations are then performed and then displayed for each of the element.  Functions usually contain some operations | Filter is used to filter out elements from the list based on condition mentioned in the function  filter returns only those elements for which the function returned true | Reduce works as a summation function. Where each element of the list is taken into the function. The result of the function is then merged with the next item in the list |
| Function needs 1 parameter | Function needs 1 parameter | Function needs 2 parameter |
| fruit = ["Apple", "Banana", "Pear", "Apricot", "Orange"]  return s[0] == "A"  result [True, False, False, True, False] | fruit = ["Apple", "Banana", "Pear", "Apricot", "Orange"]  return s[0] == "A"  Result [‘Apple’, ‘Pear’] | fruit = [1,2,3,4]  return (a+b)  result= 10 |

4. What are function annotations, and how are they used?

Ans: Function annotation is used to give some description about the parameter/ return value . we can mention which type of parameter is the function expecting. It is like the docstring which we use for writing a function

5. What are recursive functions, and how are they used?

Ans: When the function calls itself during execution of the function . Best used when we don’t know to what level deep we want a particular function to work

6. What are some general design guidelines for coding functions?

Ans: 1. Indentation are very important for the functions. Inside the function , we should mention the code maintaining 4 spaces

1. Use of Docstrings, which gives the description of the function, what is the function expecting, what operations are performed, what is the output that it will generate
2. We should maintain proper naming convention

7. Name three or more ways that functions can communicate results to a caller.

Ans: return statement:

Print statement: