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

**Ans:** Def statement is used to define a function through a normal standard way but in a lambda function declaration def keyword is not required.

1. What is the benefit of lambda?

**Ans:** A lambda function is a short and nameless function which allows you to create a function without having to write a long code.

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

**Ans:** map is used to apply any function to all the elements of a list through iteration. Filter is used to compare the Boolean value and returns only True values. Reduce takes two arguments function and iterates over to the elements of an iterable.

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

**Ans**: function annotations are used to add metadata to the function parameters and return values. they can be used by adding annotation next to the function parameters and return values like below:

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Function annotations are useful when someone else is to use the function to be able to understand the input parameters and return value.

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

**Ans:** recursive functions are the ones that are used within themselves. The method of using them is to call the same function inside the same function.

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

**Ans**: firstly, def keyword must be used to define a function. Secondly, to make the function understandable to the other users, doc string and annotations should be used. Additionally, if the code is going to occupy a lot of space in memory then it should be converted into a generator.

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

**Ans**: the results can be passed onto the called with the help of the following keywords/code

1. Return: recommended as it allows you to perform primitive operations.
2. Print(): not recommended though due to its None type.
3. List.append(): it appends the list by saving results in the list.
4. Yield: it is used in generators.