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

Def statements is a statement producing a function whereas lambda is an expression producing a function.def statements are easy to interpret and can consists of any number of execution statements inside the function definition.

1. What is the benefit of lambda?

A lambda keyword in python provides a shortcut for declaring small anonymous functions and such functions can be used when we need to a function for a shorter period of time.

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

All these are higher order functions as they take user defined functions as parameters.

Map: returns an array of pieces of information from the original array.

Filter returns a subset of the original array based on custom criteria.

Reduce function will transform a given list into a single value by applying a given function continuously to all the elements.

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

Function annotations are arbitrary python expressions that are associated with various part of functions.

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

It is a function in a code that refers to itself for execution.

1. What are some general design guidelines for coding functions?
2. use 4 spaces instead of tab
3. 2 blank lines between classes and functions
4. 1 blank line within class between class methods
5. No blank line following a def line
6. No whitespaces inside parenthesis, brackets, or braces.

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

We can return a value to a calling function by capturing the value in a variable. second using keyword arguments, function name inside the parenthesis.