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

As an expression, lambda returns a value that can optionally be assigned a name. In contrast, the def statement always assigns the new function to the name in the header, instead of returning is as a result. lambda's body is a single expression, not a block of statements.

1. What is the benefit of lambda?

Fewer Lines of Code. One of the benefits of using lambda expression is the reduced amount of code. ...

Sequential and Parallel Execution Support by passing behavior in methods. ...

Higher Efficiency (Utilizing Multicore CPU's)

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

All three functions take function to apply on iterator and iterator as input.

(function\_to\_apply, list\_of\_inputs)

MAP function to each element of iterator and collects result.

FILTER applies function to each element of iterator and collect those elements for which function returns true. For this function need to return boolean value.

REDUCE applies rolling computation to sequential pair of elements in iterator. Initially it takes two elements from iterator in sequence, applies function, collect result, then take next element in sequence from iterator, applies function and repeat this untill list has single value.

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

Function annotations are completely optional both for parameters and return value. Function annotations provide a way of associating various parts of a function with arbitrary python expressions at compile time.

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

A recursive function is a function that calls itself during its execution. The process may repeat several times, outputting the result and the end of each iteration.

Below count is recursive function

function Count (integer N)

if (N <= 0) return "Must be a Positive Integer";

if (N > 9) return "Counting Completed";

else return Count (N+1);

end function

1. What are some general design guidelines for coding functions?
2. Use 4-space indentation and no tabs.
3. Use docstrings
4. Wrap lines so that they don’t exceed 79 characters :
5. Use of regular and updated comments are valuable to both the coders and users
6. Name three or more ways that functions can communicate results to a caller.

Return statement