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

In [ ]:

```
1 The def keyword and the lambbda keyword both are used to define the funtions in python.
2 But def needs function name and lamda does not require function name.
3 The function with def keyword will contain block of code.
4 The function with lambda will be completed in single line.
5 Both will return the value to the variables to which they are assigned.
```

2. What is the benefit of lambda?

In [ ]:

```
1 The lambda function does not require function names.
2 The lambda functions are faster
3 The lambda functions can be used anywhere
4 these are very helpful to do smaller operations fastly
```

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

In [ ]:

```
1 Compare:
2 The Three functions are performed on the sequences.
3 These three functions are capable of using lambda functions
4 These Three functions will apply a specific funtion on sequences like list
5
6 Contrast:
7 The map() function will return the map sequeces after applying the given funtion on each and evry el
8 Thw filter() function will return the sequence elements which satisfy the condtioin in the function
9 the reduce() function will appy the given function internally on sequence and returnd a single valu
```

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

In [ ]:

```
1 Function annotations will provide the additional information about the arguments and return vales o
2 that is  the data types of arguments and retrun values
3
4 This will help the programmer to unserstnd what datatypes should he provide to the function and the
5 return vakue he may get when he seeing the funtion for first time
```

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

In [ ]:

```
1  The function calling itself is Known as recursive funtions
2
3  They are used to perform the repetative tasks with out incrasing the time complexity
4  They are used to resolve the problems caused by long itraatiions
5
```

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

In [ ]:

```
1  Using the 4-space indentation and no tabs.
2  Using docstrings to provide information about function
3  Wraping the  lines so that they don't exceed 79 characters
4  Useage of regular comments which are valuable to both the coders and users
```

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

In [ ]:

```
1  The funtion will return the information using return keyword to caller
2  The funtion will print the information to understand to caller
3  By changing the sequences passed to it
4  the function will modify the sequnces passed to since the function will change the sequnces which a
5  the function also
6  By updating the global values
```