Predefined Functions Used With Lists

Required

Type the following code in Python and record the results in the appropriate location. As well, write the purpose of the function.

1. Initializing lists

```
stringList = ["aaa","bbb","ccc","ddd","eee"]        # Creates a list of strings with 5 elements
intList = [4, 15, -7, 11, 24, 6]                    # Creates a list of integers with 6 elements
```

2. Outputting an entire list

```
print (stringList)      # Outputs the lists as a whole.
print (intList)         # Note that this is used for testing but not often not used in programs because usually
                        # programmers want to process or output the value of only a single element. Use a loop to
                        # output all values, one per line
```

3. Finding the number of elements in a list

```
print (len (stringList) )       # Output is 5
print (len (intList) )          # Output is6
                                # The len (list) function returns the number of elements in the list
```

4. Dealing with a partial list

```
print (stringList [1:3])    # Output is  ['bbb', 'ccc']
                            # [1:3] is the “slice” or part of the list starting at element 1 and ending but not
                            # including element 3
print (stringList [3:])     # Output is ['ddd', 'eee']
                            # [3:] is slice of the list starting at element 3 and including all of the elements until the end
```

5. Appending (adding) a value to the end of a list

```
stringList.append("aaa")
stringList.append("yyy")
print (stringList)      ## Output is ['aaa', 'bbb', 'ccc', 'ddd', 'eee', ' 'aaa', yyy' ]
                        # The .append (value ) function adds an element at the end of the list (increase the size by 1)
```

6. Inserting a value into a list

stringList.**insert** (2, "zzz")

print (stringList) *# Output is* [' aaa', ' bbb', ' zzz', ' ccc', ' ddd', ' eee', ' aaa', ' yyy']

 # The ***.insert*** *(index, item) function inserts an element at the specified index moving all*

 # subsequent elements

7. Deleting a value from a list

stringList**.remove** ("ccc")

stringList.**pop** (6)

print (stringList) *# Output is* ['aaa', 'bbb', 'zzz', 'ddd', 'eee', 'aaa']

 # The ***.remove*** *(value) function removes the element containing the specified item from the list.*

 # An error # occurs if the items is not found

 # The ***.pop*** *(subscript) function removes the data in the element with the subscript specified*

8. Counting the occurrence of a value in a list

print (stringList.**count** ("ddd")) *# Output is* 1

print (stringList.**count** ("aaa")) *# Output is* 2

print (stringList.**count** ("xxx")) *# Output is* 0

print (intList.**count** (11)) *# Output is* 1

print (stringList) *# Output is* ['aaa', 'bbb', 'zzz', 'ddd', 'eee', 'aaa']

 # The ***.count*** *(item) function returns the number times the item appears in the list*

9. Finding the position of a value in a list

print (stringList**.index** ("ddd")) *# Output is* 3

print (stringList**.index** ("aaa")) *# Output is* 0

print (stringList) *# Output is* ['aaa', 'bbb', 'zzz', 'ddd', 'eee', 'aaa']

 # The ***.index*** *(value) function returns the index of the occurrence of the first instance of the*

 # specified item

print (stringList.**index**("xxx")) *# Output is an error message*

 # Why? 'xxx' is not found on the list

10. Reversing the position of values in a list

stringList.**reverse** ()

intList.**reverse** ()

print (stringList) *# Output is* ['aaa', 'eee', 'ddd', 'zzz', 'bbb', 'aaa']

print (intList) *# Output is* [6, 24, 11, -7, 15, 4]

*# The .**reverse**() function returns the list in reverse order*

11. Sorting the values in a list

stringList.**sort** ()

print (stringList) *# Output is* ['aaa', 'aaa', 'bbb', 'ddd', 'eee', 'zzz']

*# The .**sort** () function returns the list sorted in ascending (alphabetical) order*

newSortedList = **sorted (**intList**)**

print (newSortedList) *# Output is* [-7, 4, 6, 11, 15, 24]

print (intList) *# Output is* [6, 24, 11, -7, 15, 4]

*# The .**sorted** () function returns a new list which is sorted leaving the original list the same*

*# When might a programmer user **.sorted ()** instead of **.sort ()**? If the programmer needs the*

 # original list unsorted later in the program.

12. Math with the values in a list

print (**sum** (intList)) *# Output is* 67

 # The sum (nameOfList) function returns the sum of all the numbers in the list

print (**max** (intList)) *# Output is* 24

 # The max (nameOfList) function outputs the maximum value in the list

print (**min** (intList)) *# Output is* -7

 # The min (nameOfList) function outputs the minimum value in the list

13. Concatenating Lists

bigMixedList = intList + stringList

bigIntList = intList * 3

print (bigMixedList) *# Output is* [4, 6, 7, 11, 15, 24, 'aaa', 'aaa', 'bbb', 'ddd', 'eee', 'zzz']

print (bigIntList) *# Output is* [6, 24, 11, -7, 15, 4, 6, 24, 11, -7, 15, 4, 6, 24, 11, -7, 15, 4]