Q1\_A

Function QuickSort(listOfItems)

If listOfItems is null or empty

Return listOfItems

End If

For each innerList in listOfItems

Call IterativeQuickSort(innerList)

Update listOfItems with the sorted innerList

End For

Return listOfItems

End Function

Function IterativeQuickSort(innerList)

low = 0

high = size of innerList - 1

Create an empty stack

Push low and high to the stack

While stack is not empty

Pop high and low from the stack

If low < high

pivotIndex = Partition(innerList, low, high)

Push low and pivotIndex - 1 to the stack

Push pivotIndex + 1 and high to the stack

End If

End While

End Function

Function Partition(innerList, low, high)

pivot = innerList[high]

i = low - 1

For j = low to high - 1

If innerList[j] <= pivot

i = i + 1

Swap(innerList, i, j)

End If

End For

Swap(innerList, i + 1, high)

Return i + 1

End Function

Function Swap(innerList, i, j)

temp = innerList[i]

innerList[i] = innerList[j]

innerList[j] = temp

End Function