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# Fahmi Omer
# ICS 4U1
# Sorts

#Bubble Sort
def bubbleSort(list):
    # Iterate through the list multiple times
    for j in range(len(list) - 1):
        # Compare elements beside each other and swap if necessary
        for i in range(len(list) - 1):
            if list[i] > list[i+1]:
                temp = list[i+1]
                list[i+1] = list[i]
                list[i] = temp
    return list

#Quick Sort
def quickSort(list):
    # If the list has 0 or 1 element, it's already sorted
    if len(list) <= 1:
        return list
    else:
        # Choose the first element as the pivot
        pivot = list[0]
        left = []
        right = []
        # Split the list into two sublists
        for i in list[1:]:
            if i < pivot:
                left.append(i)
            else:
                right.append(i)
        # Recursively sort the sublists and combine them with the pivot
        return quickSort(left) + [pivot] + quickSort(right)

#Insertion Sort
def insertionSort(list):
    # Iterate through the list starting from the second element
    for i in range(1, len(list)):
        temp = list[i]
        j = i-1
        # Move elements that are greater than temp to the right
        while j >= 0 and temp < list[j]:
            list[j + 1] = list[j]
            j -= 1
        # Insert the temp value at the correct position
        list[j + 1] = temp

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return list
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