**Week 3 Studio**

**Assessed Preparation**

Problem 1:

def countSort(num\_list, exp, b):

    number\_of\_items = len(num\_list)

    output = [0] \* number\_of\_items

    item\_c = [0] \* (b)

    for items in range(0, number\_of\_items

        index = (num\_list[items] / exp)

        item\_c[int(index % b)] += 1

    for digit in range(1, b):

        item\_c[digit] += item\_c[digit - 1]

    i = number\_of\_items - 1

    while i >= 0:

        index = (num\_list[i] / exp)

        output[item\_c[int(index % b)] - 1] = num\_list[i]

        item\_c[int(index % b)] -= 1

        i -= 1

    i = 0

    for i in range(0, len(num\_list)):

        num\_list[i] = output[i]

    return num\_list

Problem 2:

Initial list Sorting on rightmost digit moving right to left

4329 4321 4321 2099 2099

5169 2121 2121 2121 2121

4321 -> 4329 -> 4329 -> 5169 -> 3369

3369 5169 5169 4321 4321

2121 3369 3369 4329 4329

2099 2099 2099 3369 5169

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1st digit 2nd digit 3rd digit 4th digit