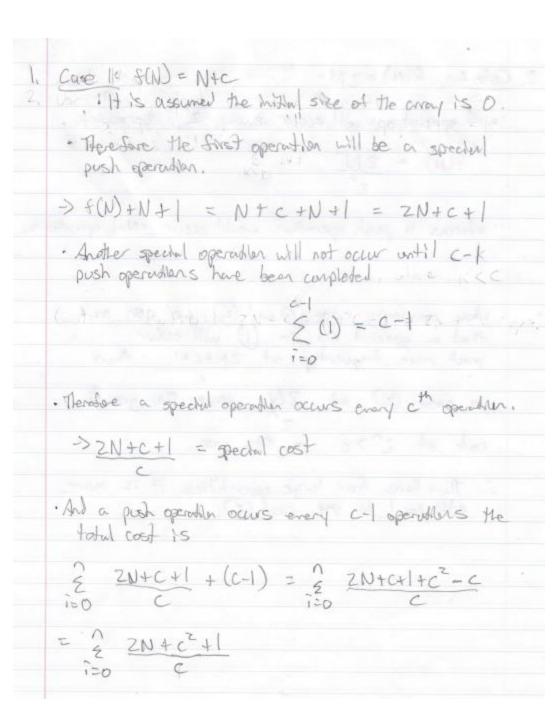
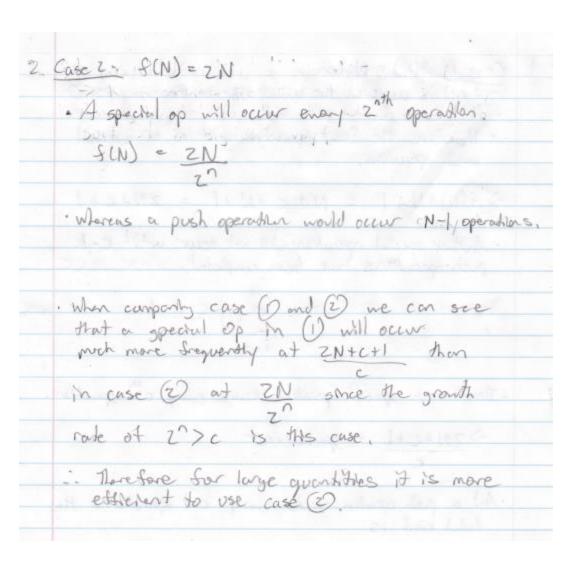
## Assignment 2 – Written CSC 225

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2. arouf A = n keys, k inversions.

• K occurs when a pair of endries are out at order in the array.

• If there are n keys, and k inversions then insertion part is

K • \( \frac{2}{2} (n-1) = k \cdot (n-1+1)(n-1) = kn^2 - kn \)

i=1 \( 2 \) \( \frac{7}{2} \) \( \frac{7}{2} \) \( \frac{7}{2} \) \( \frac{1}{2} \) \( \

Algorithm: inversion Count input: an array of integers output: the number of inversions in the array. O temp Array & army //copy original array so no charges are made. Emerse ( tang Array, mt[] tett, int[] right) & Inti, j, cant 60 while ( i < left Longth or j < nght longth) if (i == lett length) &

tong Array [it] Conght[j]

J G j tl else if (5 == roht knoth) & temptony [i ti] E lett [i] else it ( lett [] < MATES]) & temporary [its] = letting else & temp Array Eito JE MIN Es] count ( cont + left length -i; . This is essentially more sort without modifying the original array and with a counter,

$$\frac{1}{2} = \frac{1}{2} + \frac{1$$

5,	sequence S of n elements integers in range [0]n-1]
	"integers in range 20 jn-1]
	. Create a separate integer array of n2-1 elements in length, each element set to zero.
	· bo though the original array of a chamerts,
	while (i (n) 2 new Array Edd Array []] ++ 3
- 6	3 3 5 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7
	. Therefore when each index is suitable "on" in the
	new Array we can simply than use another while
	loop to roset the old array,
	while (1 < n2-1) 2
	it ( new Array [i]!=0)
	011 Aray [5] = 1
	3 5 14
	3