Homework Set #7

1. Exercise 8.2-1 (page	196) (20 points)
Ans:	

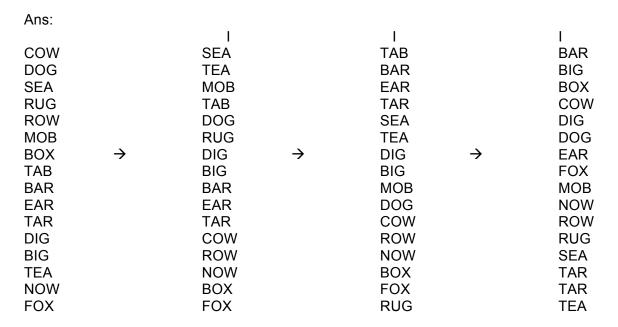
	1	2	3	4	5	6	7	8	9	10	11
Α	6	0	2	0	1	3	4	6	1	3	2
	0		1	2		3		4	5	6	
С	2		2	2		2		1	0	2	
			•			•	•		•	•	
	0		1	2		3		4	5	6	
С	C 2		4	6		8	9		9	11	
	1	2	3	4	5	6	7	8	9	10	11
В						2					
	L	l	I				I .			I	
	0		1	2		3		4	5	6	
С	2		4	5		8		9	9	1	
Like	shown lik										
	1	2	3	4	5	6	7	8	9	10	11
В	0	0	1	1	2	2	3	3	4	6	6
	2. Exercise 8.2-3 (page 196) (20 points)										
Ans:											
FIRST	we show	tnat a	goritnm v 3	vorks pr 4	operiy. 5	6	7	8	9	10	11
٨	1										
Α	6	0	2	0	1	3	4	6	1	3	2
	0		1	2		3		4	5	6	
С	2		2	2		2		1	0	2	
	0		1	2		3		4	5	6	
С	2		4	6		8		9	9	1	1

	1	2	3	4	5	6	7	8	9	10	11
В											6
	0		1	2		3	4		5	6	
С	2		4	6		8	9		9	10	
Like shown like 8.2, we do not show more example step. Continue this process, finally we get											

В

The modified algorithm is unstable, cause we change to j from 1 to length, and the line 12, C[A[j]] = C[A[j]] - 1, this statement will make the element with bigger j get prior position which decorates the stability.

3. Exercise 8.3-1 (page 199) (20 points)



4. Exercise 8.4-1 (page 204) (20 points) Ans:

5. Exercise 8.4-2 (page 204) (20 points)

Ans:

If all the element locate in one bucket, the algorithm run line 8 insertion sort for all element. So the worst case is $\Theta(n^2)$. Change the insertion sort to nlgn algorithm like Merge sort will make its worst-case running time $O(n \lg n)$.