Course: CSC340.03

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Instructor: Duc Ta

Assignment Number: 04

Due Date & Time: 12-10-2019 at 11:55 PM

Assignment 04

1. Selection Sort

Selection Sort (Smallest to Final Position)

1	9	-6	3	9	2	5	-5	-8	3
-8	9	-6	3	9	2	5	-5	1	3
	-6	9	3	9	2	5	-5	1	3
		-5	3	9	2	5	9	1	3
			1	9	2	5	9	3	3
				2	9	5	9	3	3
					3	5	9	9	3
						3	9	9	5
							5	9	9
								9	9
-8	-6	-5	1	2	3	3	5	9	9

2. Insertion Sort

Insertion Sort (Sorted Sublist)

1	9	-6	3	9	2	5	-5	-8	3
1	9								
1	9	-6							
-6	1	9	3						
-6	1	3	9	9					
-6	1	3	9	9	2				
-6	1	2	3	9	9	5			
-6	1	2	3	5	9	9	-5		
-6	-5	1	2	3	5	9	9	-8	
-8	-6	-5	1	2	3	5	9	9	3
-8	-6	-5	1	2	3	3	5	9	9

3. Shell Sort

Shell Sort (Almost Sorted Sublist)

1	9	-6	3	9	2	5	-5	-8	3	10/2=5
1					2					
	5					9				
		-6					-5			
			-8					3		
				3					9	
1	5	-6	-8	З	2	9	-5	3	9	5/2=2
-6		1		3		3		9		
	-8		-5		2		5		9	
-6	-8	1	-5	З	2	3	5	9	9	2/2=1
-6	-8									
-8	-6	1								
-8	-6	1	-5							
-8	-5	-5	1	თ						
-8	-5	-5	1	З	2					
-8	-5	-5	1	2	3	3				
-8	-5	-5	1	2	3	3	5			
-8	-5	-5	1	2	3	3	5	9		
-8	-5	-5	1	2	3	3	5	9	9	

4. Bubble Sort

Bubble Sort (Highest Neighbor to Final Position)

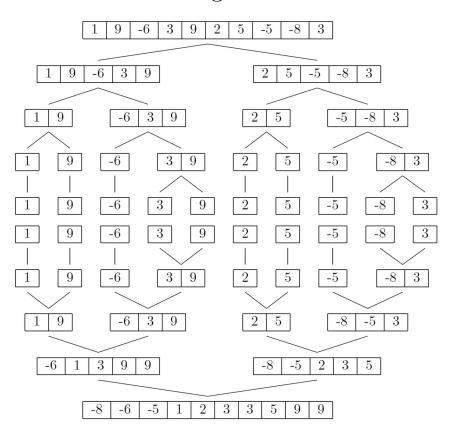
	Babble 301t (Highest Heighbor to Hilari Osition)									
				1st P	ass					
1	9	-6	3	9	2	5	-5	-8	3	
1	9	-6	3	9	2	5	-5	-8	3	
1	-6	9	3	9	2	5	-5	-8	3	
1	-6	3	9	9	2	5	-5	-8	3	
1	-6	3	9	9	2	5	-5	-8	3	
1	-6	3	9	2	9	5	-5	-8	3	
1	-6	3	9	2	5	9	-5	-8	3	
1	-6	3	9	2	5	-5	9	-8	3	
1	-6	3	9	2	5	-5	-8	9	3	
1	-6	3	9	2	5	-5	-8	3	9	
				2nd P	ass					
1	-6	3	9	2	5	-5	-8	3	9	
-6	1	3	9	2	5	-5	-8	3	9	
-6	1	3	9	2	5	-5	-8	3	9	
-6	1	3	9	2	5	-5	-8	3	9	
-6	1	3	2	9	5	-5	-8	3	9	
-6	1	3	2	5	9	-5	-8	3	9	

-6	1	3	2	5	-5	9	-8	3	9
-6	1	3	2	5	-5	-8	9	3	9
-6	1	3	2	5	-5	-8	3	9	9
				3rd P					ı
-6	1	3	2	5	-5	-8	3	9	9
-6	1	3	2	5	-5	-8	3	9	9
-6	1	3	2	5	-5	-8	3	9	9
-6	1	2	3	5	-5	-8	3	9	9
-6	1	2	3	5	-5	-8	3	9	9
-6	1	2	3	-5	5	-8	3	9	9
-6	1	2	3	-5	-8	5	3	9	9
-6	1	2	3	-5	-8	3	5	9	9
			•	4th P	ass				
-6	1	2	3	-5	-8	3	5	9	9
-6	1	2	3	-5	-8	3	5	9	9
-6	1	2	3	-5	-8	3	5	9	9
-6	1	2	3	-5	-8	3	5	9	9
-6	1	2	-5	3	-8	3	5	9	9
-6	1	2	-5	-8	3	3	5	9	9
-6	1	2	-5	-8	3	3	5	9	9
				5th P	ass				
-6	1	2	-5	-8	3	3	5	9	9
-6	1	2	-5	-8	3	3	5	9	9
-6	1	2	-5	-8	3	3	5	9	9
-6	1	-5	2	-8	3	3	5	9	9
-6	1	-5	-8	2	3	3	5	9	9
-6	1	-5	-8	2	3	3	5	9	9
				6th P	ass				
-6	1	-5	-8	2	3	3	5	9	9
-6	1	-5	-8	2	3	3	5	9	9
-6	-5	1	-8	2	3	3	5	9	9
-6	-5	-8	1	2	3	3	5	9	9
-6	-5	-8	1	2	3	3	5	9	9
				7th P	ass				
-6	-5	-8	1	2	3	3	5	9	9
-6	-5	-8	1	2	3	3	5	9	9
-6	-8	-5	1	2	3	3	5	9	9
-6	-8	-5	1	2	3	3	5	9	9
		1		8th P	ass				ı
-6	-8	-5	1	2	3	3	5	9	9
-8	-6	-5	1	2	3	3	5	9	9
-8	-6	-5	1	2	3	3	5	9	9
				9th P	ass				

-8	-6	-5	1	2	3	3	5	9	9
-8	-6	-5	1	2	3	3	5	9	9

5. Merge Sort

Merge Sort



Merge Sort (Recursive Dividing to Merge)

1	9	-6	3	9	2	5	-5	-8	3
1	9	-6	3	9	2	5	-8	-5	3
-6	1	3	9	9	-8	-5	2	3	5
-8	-5	-5	1	2	3	3	5	9	9

6. Quick Sort

Quick Sort (Pivot)

\Q									
	9								
1	9	-6	3	9	2	5	-5	-8	3

								\Diamond	
-8	9	-6	3	9	2	5	-5	1	3

\$\limes\$ \begin{array}{c c c c c c c c c c c c c c c c c c c										
-8	-8	9	-6	3	9	2	5	-5	1	3
-8		◊								
S	-8	1	-6	3	9	2	5	-5	9	3
-8	-8	1	-6	3	9	2	5	-5	9	3
-8								♦		
-8	-8	-5	-6	3	9	2	5	1	9	3
√ -8 -5 -6 1 9 2 5 3 9 3 -8 -5 -6 1 9 2 5 3 9 3 -8 -5 -6 1 9 2 5 3 9 3 -8 -5 -6 1 9 2 5 3 9 3 -8 -5 -6 1 9 2 5 3 9 3 -8 -5 -6 1 9 2 5 3 9 3 -8 -5 -6 1 9 2 5 3 9 3 -8 -5 -6 1 9 2 5 3 9 3 -8 -6 -5 1 9 2 5 3 9 3 -8 -6 -5 1 9 2 5 3 9 3 -8 -6 -5 1 <td>-8</td> <td>-5</td> <td>-6</td> <td>3</td> <td>9</td> <td>2</td> <td>5</td> <td>1</td> <td>9</td> <td>3</td>	-8	-5	-6	3	9	2	5	1	9	3
-8	-8	-5	-6	3	9	2	5	1	9	3
-8				◊						
-8	-8	-5	-6	1	9	2	5	3	9	3
-8	-8	-5	-6	1	9	2	5	3	9	3
-8	-8	-5	-6	1	9	2	5	3	9	3
0 -8 -5 -6 1 9 2 5 3 9 3 -8 -5 -6 1 9 2 5 3 9 3 -8 -5 -6 1 9 2 5 3 9 3 -8 -6 -5 1 9 2 5 3 9 3 -8 -6 -5 1 9 2 5 3 9 3 -8 -6 -5 1 9 2 5 3 9 3	-8	-5	-6	1	9	2	5	3	9	3
-8	-8	-5	-6	1	9	2	5	3	9	3
-8	\									
-8	-8	-5	-6	1	9	2	5	3	9	3
-8	-8	-5	-6	1	9	2	5	3	9	3
-8	-8		-6	1	9	2	5	3	9	3
◇ -8 -6 -5 1 9 2 5 3 9 3 -8 -6 -5 1 9 2 5 3 9 3 -8 -6 -5 1 9 2 5 3 9 3 -8 -6 -5 1 9 2 5 3 9 3 -8 -6 -5 1 9 2 5 3 9 9 -8 -6 -5 1 3 2 5 3 9 9 -8 -6 -5 1 3 2 5 3 9 9 -8 -6 -5 1 3 2 5 3 9 9 -8 -6 -5 1 3 2 5 3 9 9 -8 -6 -5 1 3 2 5 3 9 9 -8		◊								
-8	-8	-5	-6	1	9	2	5	3	9	3
-8			◊							
◇ -8 -6 -5 1 9 2 5 3 9 3 -8 -6 -5 1 9 2 5 3 9 3 -8 -6 -5 1 3 2 5 3 9 9 -8 -6 -5 1 3 2 5 3 9 9 -8 -6 -5 1 3 2 5 3 9 9 -8 -6 -5 1 3 2 5 3 9 9 -8 -6 -5 1 3 2 5 3 9 9 -8 -6 -5 1 3 2 5 3 9 9 -8 -6 -5 1 3 2 5 3 9 9 -8 -6 -5 1 3 2 5 3 9 9 -8 -6 -5 1 <td>-8</td> <td>-6</td> <td>-5</td> <td>1</td> <td>9</td> <td>2</td> <td>5</td> <td>3</td> <td>9</td> <td>3</td>	-8	-6	-5	1	9	2	5	3	9	3
-8	-8	-6	-5	1	9	2	5	3	9	3
-8		◊								
-8	-8	-6	-5	1	9	2	5	3	9	3
-8 -6 -5 1 3 2 5 3 9 9 -8 -6 -5 1 3 2 5 3 9 9 -8 -6 -5 1 3 2 5 3 9 9 -8 -6 -5 1 3 2 5 3 9 9 -8 -6 -5 1 3 2 5 3 9 9					◊					
-8 -6 -5 1 3 2 5 3 9 9 -8 -6 -5 1 3 2 5 3 9 9 -8 -6 -5 1 3 2 5 3 9 9 -8 -6 -5 1 3 2 5 3 9 9 -8 -6 -5 1 3 2 5 3 9 9	-8	-6	-5	1	9	2	5	3	9	3
-8 -6 -5 1 3 2 5 3 9 9 -8 -6 -5 1 3 2 5 3 9 9 -8 -6 -5 1 3 2 5 3 9 9 -8 -6 -5 1 3 2 5 3 9 9										
-8 -6 -5 1 3 2 5 3 9 9 -8 -6 -5 1 3 2 5 3 9 9	-8	-6	-5	1	3	2	5	3	9	9
-8 -6 -5 1 3 2 5 3 9 9 -8 -6 -5 1 3 2 5 3 9 9								3	9	
-8 -6 -5 1 3 2 5 3 9 9									9	
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	-8	-6	-5	1	3	2	5	3	9	9
-8 -6 -5 1 3 2 5 3 9 9	-8	-6	-5	1	3	2	5	3	9	9

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-8	-6	-5	1	3	2	5	3	9	9
-8	-6	-5	1	3	2	5	3	9	9
-8	-6	-5	1	3	2	5	3	9	9
-8	-6	-5	1	3	2	5	3	9	9
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-8	-6	-5	1	2	3	5	3	9	9
-8	-6	-5	1	2	3	5	3	9	9
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-8	-6	-5	1	2	3	5	3	9	9
						◊			
-8	-6	-5	1	2	3	5	3	9	9
-8	-6	-5	1	2	3	5	3	9	9
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-8	-6	-5	1	2	3	3	5	9	9
-8	-6	-5	1	2	3	3	5	9	9
						◊			
-8	-6	-5	1	2	3	3	5	9	9
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-8	-6	-5	1	2	3	3	5	9	9
-8	-6	-5	1	2	3	3	5	9	9