

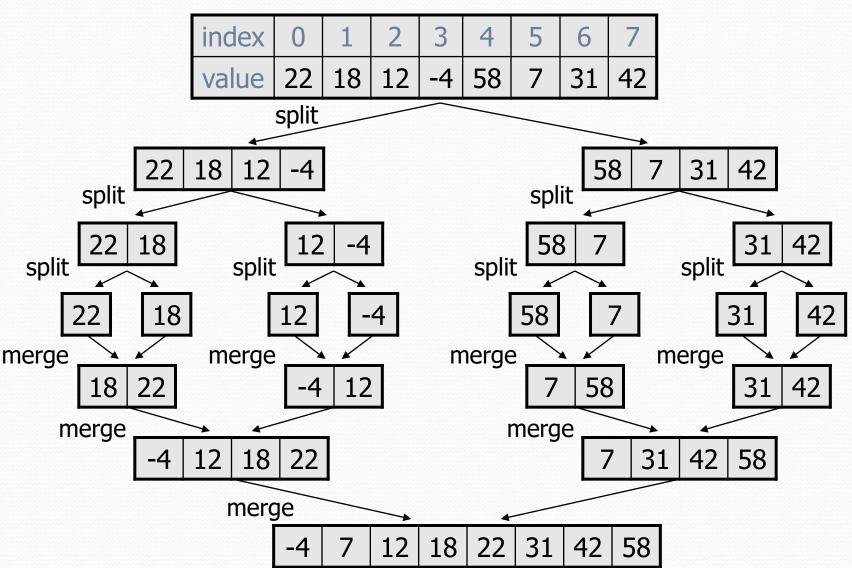
Merge sort

 merge sort: Repeatedly divides the data in half, sorts each half, and combines the sorted halves into a sorted whole.

The algorithm:

- Divide the list into two roughly equal halves.
- Sort the left half.
- Sort the right half.
- Merge the two sorted halves into one sorted list.
- An example of a "divide and conquer" algorithm.
 - Invented by John von Neumann in 1945

Merge sort example



Merging sorted halves

	_	•		arrays			8000	Next include	Merged array							
0	1	2	3	0	1	2	3		0	1	2	3	4	5	6	7
14	32	67	76	23	41	58	85	I 4 from left	14							
il				i2				•	i							
14	32	67	76	23	41	58	85	23 from right	14	23						
	il			i2				•		i						
14	32	67	76	23	41	58	85	32 from left	14	23	3 2					
	il				i2			'			i					
14	32	67	76	23	41	58	85	41 from right	14	23	32	41				
		il			i2							i				
14	32	67	76	23	41	58	85	58 from right	14	23	32	41	58			
		il				i2							i			
14	32	67	76	23	41	58	85	67 from left	14	23	32	41	58	67		
		iÌ					i2							i		
14	32	67	76	23	41	58	85	76 from left	14	23	32	41	58	67	76	
			il				i2								i	
14	32	67	76	23	41	58	85	85 from right	14	23	32	41	58	67	76	85
							i2									i

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