

Radix Sort

Intensive Programming in Linux
CS288-006 Spring 2018

Basic Idea

A least significant digit (LSD) radix sort is a fast stable sorting algorithm which can be used to sort keys in integer representation order. Keys may be a string of characters, or numerical digits in a given "radix". The processing of the keys begins at the least significant digit, and proceeds to the most significant digit.

An LSD radix sort operates in $O(nw)$ time, where n is the number of keys, and w is key length.

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Preparation

170	45	375	90	404	802	3	66
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170	045	375	090	404	802	003	066
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9	8	7	6	5	4	3	2	1	0

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1st Pass

170	045	375	090	404	802	003	066
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				375					090
			066	045	404	003	802		170
9	8	7	6	5	4	3	2	1	0

170	090	802	003	404	045	375	066
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2nd Pass

170	090	802	003	404	045	375	066
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		375							404
090		170	066		045				003
									802
9	8	7	6	5	4	3	2	1	0

802	003	404	045	066	170	375	090
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3rd Pass

802	003	404	045	066	170	375	090
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									090
									066
									045
	802				404	375		170	003
9	8	7	6	5	4	3	2	1	0

003	045	066	090	170	375	404	802
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