



# RadixSort Algorithm



How does it work?

# Algorithm

input: List  $L = \{a_1, a_2, \dots, a_n\}$ ,  $k = \#$  of digits

output:  $L$  sorted  $\uparrow$

For  $j \leftarrow 1$  to  $k$

prepare 10 empty lists  $L_0, L_1, \dots, L_9$

while  $L$  is not empty

$a \leftarrow$  next elt. in  $L$ ;      delete  $a$  from  $L$

$i \leftarrow$   $j$ -th digit in  $a$ ;    append  $a$  to list  $L_i$

end while

$L \leftarrow L_0$

for  $i \leftarrow 1$  to  $9$        $L \leftarrow L, L_i$     end for

end for

Return  $L$

# Example of Radix Sort

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7456

1234

6792

9187

1543

5632

3444

4545

9836

5362

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7456	6792
1234	5632
6792	5362
9187	1543
1543	1234
5632	3444
3444	4545
4545	7456
9836	9836
5362	9187

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9187

6792

9187

1234

5362

3444

7456

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4545

5632

6792

9836

# Example of Radix Sort

7456	6792	5632	9187	1234
1234	5632	1234	1234	1543
6792	5362	9836	5362	3444
9187	1543	1543	3444	4545
1543	1234	3444	7456	5362
5632	3444	4545	1543	5632
3444	4545	7456	4545	6792
4545	7456	5362	5632	7456
9836	9836	9187	6792	9187
5362	9187	6792	9836	9836