Radix is a Latin word for "***root***".

Root can be considered a synonym for ***base***, in the arithmetical sense.

Can we sort such an array in linear time? Yes, via Radix Sort. The idea of Radix Sort is to do digit-by-digit sort starting from least significant digit to most significant digit.

Radix sort uses counting sort as a subroutine to sort.

It is a type of counting sort.

For example, an unsorted list:

The last digit of each element will be used...

… and this will be the array so far:

...notice how 53, 633, 233 are in the same order... why?.... because Radix is a Stable Sort.

Next, we use the next digit of each element:

… and this will be the array so far:

Next, we use the 1st digit of each element:

… and this will be the array so far: