Radix Sort

Radix Sort

For n numbers with d digits (digit has k values):

```
1: arr ← input
2: for i from 0 to d do
3:     arr ← stable sort arr on digit in place i from right
4: return arr
```

Radix Sort

For n numbers with d digits (digit has k values):

```
1: arr ← input
2: for i from 0 to d do
3:         arr ← stable sort arr on digit in place i from right
4: return arr
```

Stable Digit Sort

Input array A contains n numbers with digits in the range 0 to k. Counting takes place using relevant digit only, but the whole value is preserved.

STABLEDIGITSORT$(A, digit)$

```
1: for all input number x do
2:     increment count[digit(x)]
3: for x from 0 to k do
4:     set pos[x] to number of items < x
5: for each input number x (in order) do
6:     write x in output array at index pos[digit(x)]
7:     increment pos[digit(x)]
```

Analysis

Correctness

What is the invariant property of radix sort?

Complexity

What is the time complexity?
What is the space complexity?

Limitations

Why isn’t radix sort implemented more?