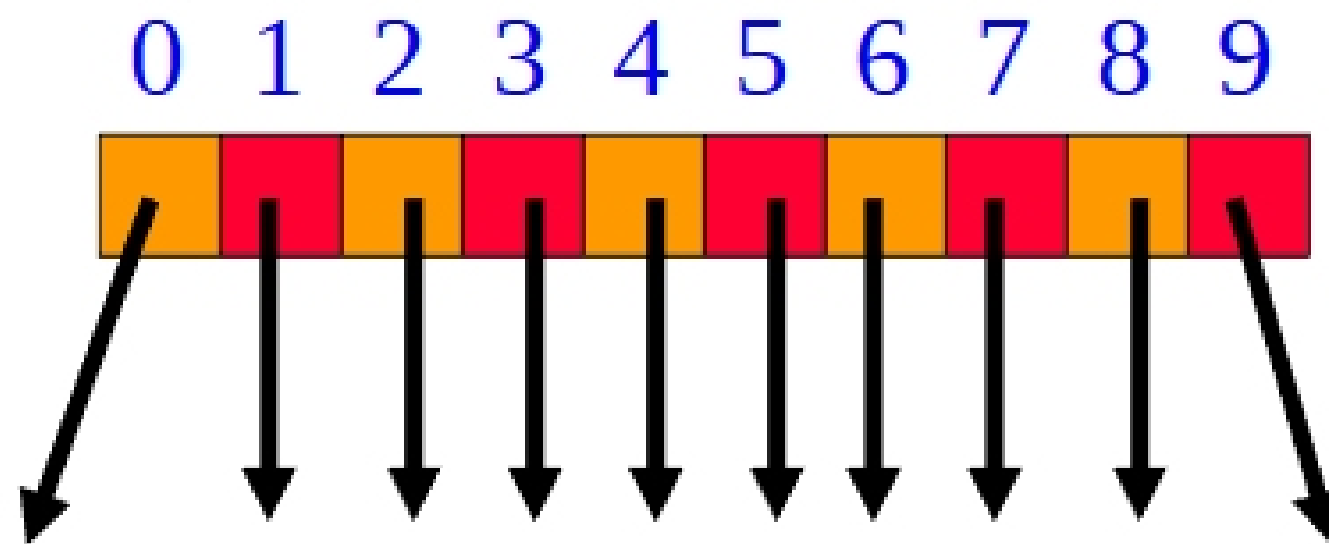


# Higher Order Tries

- Key = Social Security Number.
  - 441-12-1135
  - 9 decimal digits.
- 10-way trie (order 10 trie).



Height  $\leq 10$ .

# Social Security Trie

- 10-way trie
  - Height  $\leq 10$ .
  - Search  $\Rightarrow \leq 9$  branches on digits plus 1 compare.
- 100-way trie
  - 441-12-1135
  - Height  $\leq 6$ .
  - Search  $\Rightarrow \leq 5$  branches on digits plus 1 compare.

# Social Security AVL & Red-Black

- Red-black tree
  - Height  $\leq 2\log_2 10^9 \sim 60$ .
  - Search  $\Rightarrow \leq 60$  compares of 9 digit numbers.
- AVL tree
  - Height  $\leq 1.44\log_2 10^9 \sim 40$ .
  - Search  $\Rightarrow \leq 40$  compares of 9 digit numbers.
- Best binary tree.
  - Height  $= \log_2 10^9 \sim 30$ .