

Union by Ranks and Find with Path Compression

The following shows tree representations of the resulting sets after the execution a sequence of operations of union-by-ranks and find-with-path-compression on the singleton sets $\{1\}, \{2\}, \dots, \{10\}$.

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|----------------|----------------|---------------|---------------|
| 1) Union(1,2) | 2) Union(3,4) | 3) Union(5,6) | 4) Union(7,8) |
| 5) Union(9,10) | 6) Union(1,3) | 7) Union(5,7) | 8) Union(7,9) |
| 9) Find(1) | 10) Union(5,4) | 11) Find(7) | |

