External Multipass Sorting Algorithm visualizer

github.com/dp1/external-multipass-sort-visualization

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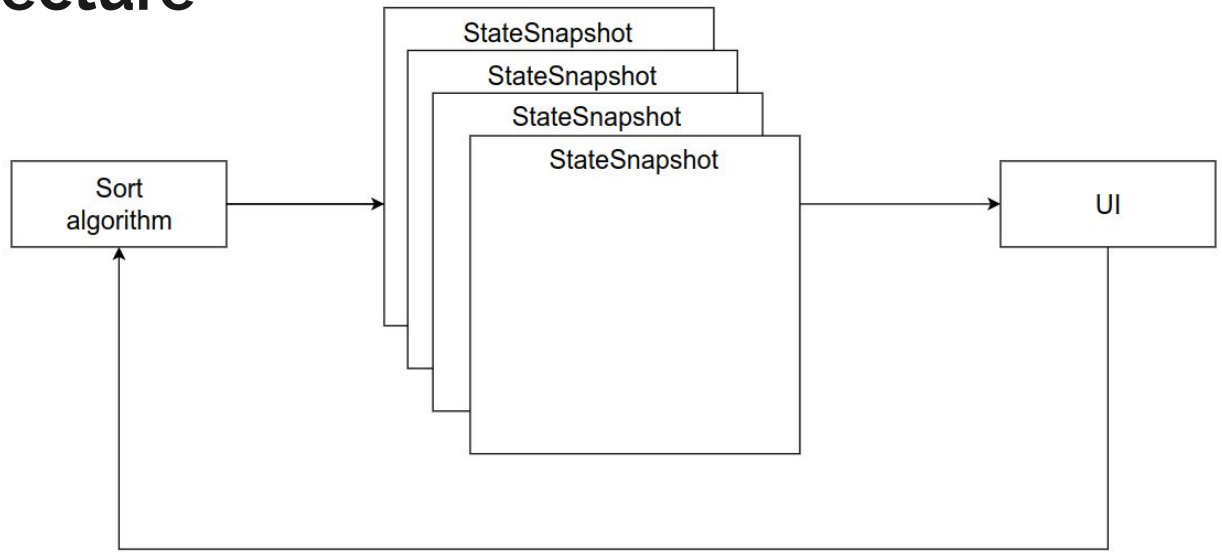
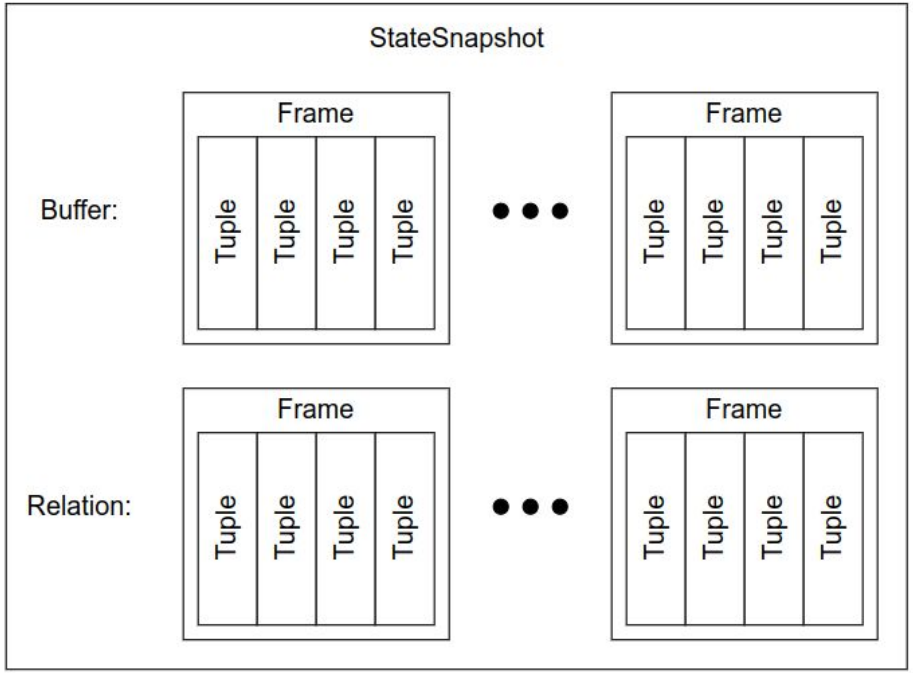
Architecture



Data structures

`StateSnapshot`:
Full state snapshot
`Frame`:
Represents frames and pages
`Tuple`:
Relation tuple, or possibly an empty slot



TUI

```
B, F = 4 3
relation=[[0, 7, 13, 15], [5, 9, 6, 8], [12, 1, 4, 10], [3, 2, 14, 11]]
buffer=[[-, -, -, -], [-, -, -, -], [-, -, -, -]]
 (Step 1: Create runs)

relation=[[-, -, -, -], [-, -, -, -], [-, -, -, -], [3, 2, 14, 11]]
buffer=[[0, 7, 13, 15], [5, 9, 6, 8], [12, 1, 4, 10]]
 (Load 3 frames)

relation=[[-, -, -, -], [-, -, -, -], [-, -, -, -], [3, 2, 14, 11]]
buffer=[[0, 1, 4, 5], [6, 7, 8, 9], [10, 12, 13, 15]]
 (Sort frames)

relation=[[0, 1, 4, 5], [6, 7, 8, 9], [10, 12, 13, 15], [3, 2, 14, 11]]
buffer=[[-, -, -, -], [-, -, -, -], [-, -, -, -]]
 (Store sorted run 0)

relation=[[0, 1, 4, 5], [6, 7, 8, 9], [10, 12, 13, 15], [-, -, -, -]]
buffer=[[3, 2, 14, 11], [-, -, -, -], [-, -, -, -]]
 (Load 1 frames)

relation=[[0, 1, 4, 5], [6, 7, 8, 9], [10, 12, 13, 15], [-, -, -, -]]
buffer=[[2, 3, 11, 14], [-, -, -, -], [-, -, -, -]]
 (Sort frames)

relation=[[0, 1, 4, 5], [6, 7, 8, 9], [10, 12, 13, 15], [2, 3, 11, 14]]
buffer=[[-, -, -, -], [-, -, -, -], [-, -, -, -]]
 (Store sorted run 1)
```

- Shows all snapshots generated by the algorithm
- No real interaction, but useful as a debugging tool and to understand the data structures

Frontend