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Assignment 5

```
Enter state initials:
IL
Enter start date (yyyy-MM-dd):
2022-09-08
Number of reports on and after 2022-09-08 in state IL: 6773
6.057E-6 seconds to count reports using fields.
Number of reports on and after 2022-09-08 in state IL: 6773
0.001308537 seconds to count reports using no fields, recursively.
Number of reports on and after 2022-09-08 in state IL: 6773
0.101930121 seconds to count reports using array.
```

```
Enter state initials:
CA
Enter start date (yyyy-MM-dd):
2022-10-20
Number of reports on and after 2022-10-20 in state CA: 65792
1.3E-5 seconds to count reports using fields.
Number of reports on and after 2022-10-20 in state CA: 65792
0.009493468 seconds to count reports using no fields, recursively.
Number of reports on and after 2022-10-20 in state CA: 65792
0.114366472 seconds to count reports using array.
```

Our method to search for the amount of reports after a given date for both recursive methods were of order N, since their worst case scenarios result in the same amount of iterations, with the worst case being all reports on one branch with only the most recent report being included.

However, I would still recommend using the recursive method which utilizes the fields of the node, since in general that method is much faster (as seen above).

Our non recursive method to find reports after a given date is of order N.

Our add method had an order of N^2, since the add method gets slower as the tree grows in height, as it must search more entries to add a new entry as the tree grows.