

```
Run: Analyzer x
"/Applications/IntelliJ IDEA CE.app/Contents/jbr/Contents/Home/bin/java" "-javaagent:/Applications/IntelliJ IDEA CE.app/Contents/lib/idea_rt.jar=54479:/Applications/IntelliJ IDEA CE.app/Cont
Initiating linear and binary searches
*****
Total time for LINEAR search of not here: 111205391 ns.
Total time for BINARY search of not here: 95167 ns.
*****
Total time for LINEAR search of mzzzz: 188287118 ns.
Total time for BINARY search of mzzzz: 3952 ns.
*****
Total time for LINEAR search of aaaaa: 47032 ns.
Total time for BINARY search of aaaaa: 31832 ns.
*****

DISPLAYING REPORT QUESTIONS
*****
1) Why is a search for "not here" the worst-case for linear search and binary search?
Because it doesnt exist in the dataSet, so the algorithm goes through the entire set before returning a result.

2) Why is a search for "mzzzz" the average-case for linear search?
Because it is in the middle of the array, making it quite average.

3) Why is a search for "aaaaa" the best-case for linear search?
Becuae it is close to the beginning of the array, making it one of the first results.

4) How do the results you saw compare to the Big-O complexity for these algorithms?
They seem to vary widely. The average complexity for a linear search =  $O(n)$  & the worst complexity also =  $O(n)$ , i would expect the results to be similar, but they are distinct.

5) Why do the binary search results appear so similar, while the linear search results are so divergent?
Because binary search is able to get to the answer much faster in general, meaning that the results are going to be closer together. Especially "not_here" and "aaaaa", they're at endpoints.

Process finished with exit code 0
```

4: Run 5: Debug 6: TODO Terminal 0: Messages Event Log