

Analysis Document for assignment #3

1. Michelle Nguyen is my partner and she will submit the assignment.
2. My partner and I switched roles almost every 30 minutes. There were times I spent a little more time being a driver and less time navigating and vice versa. I would prefer to be a driver more if I knew how to tackle problems, but sometimes I don't so I would switch to navigating.
3. Michelle was good to work with. She put in a lot of effort into the assignment and did the best that she could. Yes, I will work with her again in the future.
4.
 - 1) Java list has built in add and remove methods however, you would still have to shift the values over manually. But that would mean I would not need to implement the add and remove method.
 - 2) Java list has a built in sort method to sort the list which means I would not need to implement the binarySearch method.
 - 3) Java list has its own iterator class so the class would not need to be implemented.

It mainly depends on the programmer what he or she is trying to achieve, however, I believe the running time may suffer in being less efficient, but the programming development time would be improve if the Java list was implemented. The running time could be slower because the built in sort method for Java list may use a selection sort style while the basic array would undergo binary search, which is faster. The programming development time would be more efficient because the programmer would not have to spend time writing the iterator class and implement the add, remove, and other methods. All in all, I feel that using the basic array would be more dynamic than java list, but the java list would have a faster development time.

5. The Big-O behavior of the contains method is Log N because of the implementation of binary search. Binary

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search invokes a divide and conquer concept, which requires log base n with base equaling 2. Thus, having a Log n behavior.

6. Yes, it does match the Big-O behavior after implementing the experiment classes.

7. In worst case, time would be measured in $O(\log N)$

8. About 20 hours