ArrayListExercise

1.
   a) O(n^2)
   b) O(n)
   c) O(n^2)
   d) O(n^2)

2.
First loop:
anArray = {0, 1, 2, 3, 3, 4, 5, 7}
Second loop:
anArray = [0, 1, 2, 3, 3, 4, 5, 6}

3.
   a) T(n)=1+(2n)+1=2n+2, O(n)
   b) T(n)=O(rl×c2×cl×4), O(rl×c2×cl)
   c) T(n)=2n+2n+2n=6n, O(n)
   d) T(n)=O(log2(n)), O(log2(n))

4. O(log n) - Binary Search

5. Abstract data type is a collection of codes and methods that only shows for the user to pick from, but not implement to the actual code. Implementations like Stack, Queue, and List.

6.

Array List	List
The implementation of the list	Behaviour of a data structure
Can be use dynamically	Can be used in different data structures
Higher memory	Lower memory
Shows less options of methods	shows many different options of methods

7.

```java
import java.util.ArrayList;
import java.util.Arrays;

public class test {
    public static void main(String[] args) {
        ArrayList<Integer> arrayList = new ArrayList<>();
        Integer[] elementsToAdd = {12,25,34,46};
        arrayList.addAll(Arrays.asList(elementsToAdd));

        System.out.println(arrayList);

        int element_remove = arrayList.indexOf(25);
        arrayList.remove(element_remove);

        System.out.println(arrayList);
    }
}
```

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