

Quiz 2

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1. Consider an implementation of the **ArrayList** ADT which uses an array to store the items in a particular order. Give the steps of an algorithm which will implement the method **add(i,e)**. Recall that this method adds a new item e to the list such that the index of the new item is i . If i is not an appropriate choice of index for this list, you can just say "**throw exception**" in your algorithm. You can assume that the class stores the items in an array named **A**. The class also maintains an integer variable n denoting the number of items currently stored in the list.

```
Algorithm add( i, e )  
{
```

```
}
```

2. Consider an implementation of the **ArrayList** ADT which uses an array to store items in a particular order. Suppose we use an extendable array which doubles the size of the array every time the capacity of the current array is exceeded. What is the cost (using big-Oh notation) of starting with an empty list and adding an item to the end of the list n times? You should express the total running time of doing all n operations.