

Dynamic and Static Arrays

Static Arrays

- fixed length container containing n elements indexable from $[0, n-1]$
- Complexity

	Static Array	Dynamic Array
Access	$O(1)$	$O(1)$
Search	$O(n)$	$O(n)$
Insertion	N/A	$O(n)$
Appending	N/A	$O(1)$
Deletion	N/A	$O(n)$

N/A \Rightarrow it does not make sense to perform these operations since static arrays are fixed

Dynamic Array

- Can grow and shrink in size
- creating a Dynamic Array:
 - Create a static array w/ an initial capacity
 - Add elements to the underlying static array, keeping track of the number of elements
 - If adding another element will exceed capacity, then create a new static array w/ twice the capacity & copy the original elements into it

