

Linear Search

Look at each element of array in range [first, last) until the target is found or run out of elements. Return index of target or last.

Analysis

Objects	Type	Kind	Movement	Name
array of values	int[]	varying	received	arr
index of lower bound	int	varying	received	first
index of upper bound	int	varying	received	last
search target	int	varying	received	target
index of target	int	varying	returned	position

Algorithm

1. For position from first to last-1 do
 - 1.1 If arr[position] = target then
 - 1.1.1 Return position
2. Return last

Code

```
// Precondition: first <= last
int LinearSearch (const int arr[], int first, int last, int target)
{
    // scan indices from first <= position < last for a match
    for (int position = first; position < last; position++)
        if (arr[position] == target) // found target
            return position;
    return last; // target not found
} // end LinearSearch
```