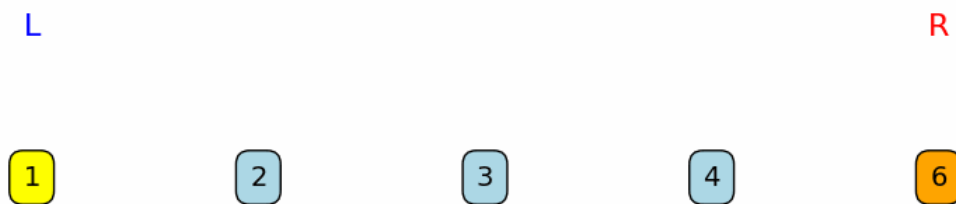


Two Pointers: Inward Traversal

A pointer is a variable that represents an index or position within a data structure, such as an Array or Linked List. With Two pointers we can make comparisons, with a pointer at two different positions, and infer a decision based on that.



Target: 6. Start: L at index 0 (1), R at index 4 (6)

When to use:

- Data Structure: Linear such as Array, Linked List
- Sorted Array or Palindrome
- Result asks for Pair of Values
- One Result is decided by a Pair of Values

Real-World Example:

- Garbage Collection Algorithm

```
def pair_sum_sorted(nums: List[int], target: int) -> List[int]:
    left, right = 0, len(nums)-1
    while left < right:
        sums = nums[left] + nums[right]
        # if the sum is smaller, increment the left pointer, aiming
        # to increase the sum towards the target value
        if sums < target:
            left += 1
```

```
# if the sum is larger, decrement the right pointer, aiming
# to decrease the sum towards the target value
elif sums > target:
    right -=1
# If target pair is found return its indices
else:
    return [left,right]
return []
```

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