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Binary Search Template I

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Template #1:

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```java
int binarySearch(int[] nums, int target){
  if(nums == null || nums.length == 0)
    return -1;

  int left = 0, right = nums.length - 1;
  while(left <= right){
    // Prevent (left + right) overflow
    int mid = left + (right - left) / 2;
    if(nums[mid] == target){ return mid; }
    else if(nums[mid] < target) { left = mid + 1; }
    else { right = mid - 1; }
  }

  // End Condition: left > right
  return -1;
}
```

Template #1 is the most basic and elementary form of Binary Search. It is the standard Binary Search Template that most high schools or universities use when they first teach students computer science. Template #1 is used to search for an element or condition which can be determined by *accessing a single index* in the array.

Key Attributes:

- Most basic and elementary form of Binary Search
- Search Condition can be determined without comparing to the element's neighbors (or use specific elements around it)
- No post-processing required because at each step, you are checking to see if the element has been found. If you reach the end, then you know the element is not found

Distinguishing Syntax:

- Initial Condition: `left = 0, right = length-1`
- Termination: `left > right`
- Searching Left: `right = mid-1`
- Searching Right: `left = mid+1`