

Binary Search: Recursive Method

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#include <stdio.h>
#include<conio.h>
// A recursive binary search function. It returns location of x in
// given array arr[l..r] is present, otherwise -1
int binarySearch(int arr[], int l, int r, int x)
{
    if (r >= l)
    {
        int mid = l + (r - l)/2;

        // If the element is present at the middle itself
        if (arr[mid] == x) return mid;

        // If element is smaller than mid, then it can only be present
        // in left subarray
        if (arr[mid] > x) return binarySearch(arr, l, mid-1, x);

        // Else the element can only be present in right subarray
        return binarySearch(arr, mid+1, r, x);
    }

    // We reach here when element is not present in array
    return -1;
}

int main(void)
{
    int arr[] = {2, 3, 4, 10, 40};
    int n = sizeof(arr)/ sizeof(arr[0]);
    int x = 10;
    int result = binarySearch(arr, 0, n-1, x);
    (result == -1)? printf("Element is not present in array")
                  : printf("Element is present at index %d", result);
    return 0;
}
```