DAY 9

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Searching an item in an Array.

Searching Algorithms

- Linear Searching - O(n)

- Binary Search - O(log n)

Note: Prerequisite for Binary Search is that the array should be sorted.

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import java.util.Scanner;

class Search {

static Scanner sc = new Scanner(System.in);

static void input(int arr[]) {

System.out.print("Enter the array elements: ");

for(int i = 0; i < arr.length; i++) {

arr[i] = sc.nextInt();

}

}

static int lin\_search(int arr[], int x) {

for(int i = 0; i < arr.length; i++) {

if(x == arr[i])

return i;

}

return -1;

}

static int bin\_search(int arr[], int x) {

int beg = 0, end = arr.length - 1, mid;

while(beg <= end) {

mid = (beg + end) / 2;

if(x == arr[mid])

return mid;

else if(x > arr[mid])

beg = mid + 1;

else

end = mid - 1;

}

return -1;

}

public static void main(String[] args) {

int array[], n, x, pos;

System.out.print("Enter the array size: ");

n = sc.nextInt();

array = new int[n];

input(array);

System.out.print("Enter the item to search: ");

x = sc.nextInt();

// pos = lin\_search(array, x);

pos = bin\_search(array, x);

if(pos != -1)

System.out.println("Item present at " + pos + " index.");

else

System.out.println("Item not found.");

}

}