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Algorithm

1. Define n, size of array
2. Read n, array elements from user (ascending order)
   [for binary search, array should be sorted]
3. Read x, number to search
4. call binary_search ( ) if left < right → return -1
   mid = (left + right) / 2
   if mid == x → return mid
   if x > arr[mid]
   call binary_search(right_half)
   else
   Call binary_search (left_half)
5. Stop

Code

```
#include <stdio.h>
int binary_search(int arr[], int left, int right, int x){
    if (left< right) return -1;
    int mid = (left+right)/2;
    if (arr[mid]==x) return mid;
    if (arr[mid]>x) return binary_search(arr, left, mid-1, x);
    else return binary_search(arr, mid+1, right, x);
}

int main(){
int n=10; int x; int arr[10];
printf("please enter 10 elements (ascending order)\n");
for(int i=0; i<n; i++) scanf("%d", &arr[i]);
printf("Enter the number to search: ");
scanf("%d", &x);

int result = binary_search(arr, 0, n-1, x);
if(result==-1) printf("Element Not present!");
else printf("Element found at index %d", result);
return 0;
```

Sample Input/Output

```
Please enter 10 elements (ascending order):
 20
 69
142
235
344
593
595
597
598
599
600
Enter number to search: 595
Element found at index: 6
```