



**SIMATS**  
ENGINEERING



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Saveetha Institute of Medical And Technical Sciences  
(Declared as Deemed to be University under Section 3 of UGC Act 1956)

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**COURSE NAME : DATA STRUCTURES FOR MODERN COMPUTING SYSTEMS**

**COURSE CODE : CSA0302**

**6. WRITE A C PROGRAM TO PERFORM BINARY SEARCH  
IN AN ARRAY**

**C PROGRAMMING CODE:**

```
#include <stdio.h>
int main() {
int a[100], n, i, key, low, high, mid, found=0;
printf("Enter number of elements: ");
scanf("%d", &n);
printf("Enter %d elements (in ascending order):\n", n);
for(i=0;i<n;i++) scanf("%d",&a[i]);
printf("Enter element to search: ");
scanf("%d",&key);
low=0; high=n-1;
while(low<=high){
mid=(low+high)/2;
if(a[mid]==key){
printf("Element found at position %d\n", mid+1);
found=1;
break;
}
else if(a[mid]<key) low=mid+1;
else high=mid-1;
}
if(!found) printf("Element not found\n");
return 0;
}
```

## OUTPUT:

main.c	Output
<pre>1 #include &lt;stdio.h&gt; 2 int main() { 3     int a[100], n, i, key, low, high, mid, found=0; 4     printf("Enter number of elements: "); 5     scanf("%d", &amp;n); 6     printf("Enter %d elements (in ascending order):\n", n); 7     for(i=0;i&lt;n;i++) scanf("%d",&amp;a[i]); 8     printf("Enter element to search: "); 9     scanf("%d",&amp;key); 10    low=0; high=n-1; 11    while(low&lt;=high){ 12        mid=(low+high)/2; 13        if(a[mid]==key){ 14            printf("Element found at position %d\n", mid+1); 15            found=1; 16            break; 17        } 18        else if(a[mid]&lt;key) low=mid+1; 19        else high=mid-1; 20    } 21    if(!found) printf("Element not found\n"); 22    return 0; 23 }</pre>	<pre>Enter number of elements: 4 Enter 4 elements (in ascending order): 10 20 30 40 Enter element to search: 30 Element found at position 3  === Code Execution Successful ===</pre>