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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

Share Run

```c
#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

```
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 ===
```