

DATA STRUCTURES-CSA0396

9. Write a C program to search a number using Binary Search method

CODING:

```
#include<stdio.h>

void main()
{

    int a[10],i,n,item,flag=0,low,high,mid;

    printf("\n Enter the size of an array: ");
    scanf("%d",&n);

    printf("\n Enter the elements in ascending order: ");
    for(i=0;i<n;i++)
    {
        scanf("%d",&a[i]);
    }

    printf("\n Enter the number to be search: ");
    scanf("%d",&item);

    low=0,high=n-1;
    while(low<=high)
    {
        mid=(low+high)/2;
        if(item==a[mid])
        {
            flag=1;
            break;
        }
    }
```

```

        else if(item<a[mid])
        {
            high=mid-1;
        }

        else

            low=mid+1;
    }

    if(flag==0)

        printf("\n The number is not found");

    else

        printf("\n The number is found and its position is: %d",mid+1);
}

```

OUTPUT:

main.c	Output
<pre> 1 #include<stdio.h> 2 void main() 3 { 4 5 int a[10],i,n,item,flag=0,low,high,mid; 6 printf("\n Enter the size of an array: "); 7 scanf("%d",&n); 8 9 printf("\n Enter the elements in ascending order: "); 10 for(i=0;i<n;i++) 11 { 12 scanf("%d",&a[i]); 13 } 14 15 printf("\n Enter the number to be search: "); 16 scanf("%d",&item); 17 18 low=0,high=n-1; 19 while(low<=high) 20 { 21 mid=(low+high)/2; 22 if(item==a[mid]) 23 { 24 flag=1; </pre>	<pre> /tmp/c9yUKMoYtC.o Enter the size of an array: 5 Enter the elements in ascending order: 10 20 30 40 50 Enter the number to be search: 50 The number is found and its position is: 5 </pre>