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#include<stdio.h>
void sort(int a[],int n)
{
    int i,j,temp;
    for(i=0;i<n;i++)
        for(j=i+1;j<n;j++)
            if(a[i]>a[j])
            {
                temp=a[i];
                a[i]=a[j];
                a[j]=temp;
            }
}
int linear(int a[],int n,int k)
{
    for(int i=0;i<n;i++)
        if(a[i]==k)
            return i;
    printf("element not found");
    return -1;
}
int binary(int ar[],int n,int k)
{
    int a,b,i,l;
    a=0;
    b=n;
    l=n;
    int c,count=0;
    while(l!=0)
    {
        count++;
        i=(b-a)/2;
        c=a+i;
        if(ar[a+i]==k)
        {
            printf("\nthe no of times the loop has been run is %d",count);
            return c;
        }
        else if(ar[a+i]<k)
            a=a+i+1;
        else
            b=a+i-1;
        l--;
    }
    printf("element not found");
    return -1;
}
void main()
{
    int n,index,e;

    int a[n],k;
    int ch=1;
    while (1)
    {
        printf("\nenter 1 if you want to search an element else 0");
        scanf("%d",&e);
        if(e==0)
            break;
        printf("\nenter no of elements");
```

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scanf("%d",&n);
printf("\nenter the elements of the array");
for(int i=0;i<n;i++)
{
    scanf("%d",&a[i]);
}

printf("\nenter the element to be searched");
scanf("%d",&k);
printf("\nenter your choice 1.linear search 2.binary search ");
scanf("%d",&ch);
if(ch==1)
{
    index=linear(a,n,k);
    printf("\nthe index of searched element is %d ",index+1);
}
else
{
    sort(a,n);
    printf("\nthe sorted array is");
    for(int k=0;k<n;k++)
        printf("%d ",a[k]);
    index=binary(a,n,k);
    if(index!=-1)
        printf("\nthe index of searched element is %d ",index+1);
}
}

```

/* SAMPLE I/O

gml8:gayathri csea61\$./a.out

enter 1 if you want to search an element else 0
1

enter no of elements9

enter the elements of the array
9 6 13 4 7 5 8 19 56

enter the element to be searched
5

enter your choice 1.linear search 2.binary search 1

the index of searched element is 6
enter 1 if you want to search an element else 0
1

enter no of elements
6

enter the elements of the array
3 6 5 4 8 9

enter the element to be searched
5

enter your choice 1.linear search 2.binary search 2

the sorted array is3 4 5 6 8 9
the no of times the loop has been run is 3
the index of searched element is 3
enter 1 if you want to search an element else 00*/