COMPUTER LAB

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SEC: CSE-49

YEAR: 2023-24

ASSIGNMENT – 11

1. *WAP to read an array of integers and search for an element using linear search.*

```
#include<stdio.h>
#include<stdlib.h>
void lsrch(int[],int,int);
int main()
{
int n,i,a[20],key;
printf("Enter size of array\n");
scanf("%d",&n);
printf("Enter values in the array\n");
for(i=0;i<n;i++)
{
scanf("%d",&a[i]);
}
printf("Enter element to be searched\n");
scanf("%d",&key);
lsrch(a,n,key);
return 0;
}
void lsrch(int a[],int n,int k)
{
int i;
for(i=0;i<n;i++)
{
if(a[i]==k)
{
printf("Element found\n");
return;
}
}
printf("element not found\n");
}
```

2. *WAP to read an array of integers and search for an element using binary search.*

```
#include<stdio.h>
void bsrch(int[],int,int,int);
void sort(int*,int);
int main()
{
int i,a[20],key,n;
printf("enter size of array\n");
scanf("%d",&n);
printf("Enter elements in the array\n");
for(i=0;i<n;i++)
scanf("%d",&a[i]);
```

```
printf("enter element to be searched\n");
scanf("%d",&key);
int* p=a;
sort(p,n);
bsrch(a,0,n,key);
return 0;
}
void sort(int *a,int n)
{
int i,j;
for(i=0;i<n;i++)
{
for(j=0;j<n-1-i;j++)
{
if(*(a+j)>*(a+j+1))
{
int t=*(a+j);
*(a+j)=*(a+j+1);
*(a+j+1)=t;
}
}
}
}
void bsrch(int a[],int lb,int ub,int key)
{if(lb>ub)
{
printf("element not found\n");
return;
}
else
{
int m=(lb+ub)/2;
if(a[m]==key)
{
printf("Element found\n");
return;
}
if(key<a[m])
bsrch(a,lb,m-1,key);
else
bsrch(a,m+1,ub,key);
}
}
```

3. Given an array "container[]" and integer "hunt". WAP to find whether "hunt" is present in container[] or not. If present, then triple the value of "hunt" and search again. Repeat these steps until "hunt" is not found. Finally return the value of "hunt".
Input : container[] = {1, 2, 3} and hunt = 1 then Output : 9
Explanation: Start with hunt = 1. Since it is present in array, it becomes 3. Now 3 is present in array and hence hunt becomes 9 . Since 9 is not present, program returns 9.

```
#include<stdio.h>
int bsrch(int[],int,int,int,int);
void sort(int*,int);
void sort(int *a,int n)
{
int i,j;
for(i=0;i<n;i++)
{
for(j=0;j<n-1-i;j++)
{
if(*(a+j)>*(a+j+1))
{
int t=*(a+j);
*(a+j)=*(a+j+1);
*(a+j+1)=t;
}
}
}
}
int bsrch(int a[],int lb,int ub,int key,int size)
{
if(lb<=ub)
{
int m=(lb+ub)/2;
if(a[m]==key)
{
return bsrch(a,0,size-1,3*key,size);
}
if(key<a[m])
return bsrch(a,lb,m-1,key,size);
else
return bsrch(a,m+1,ub,key,size);
}
else
{
return key;}
}
int main()
{
```

```
int i,container[20],hunt,n;
printf("enter size of container\n");
scanf("%d",&n);
printf("Enter elements in the container\n");
for(i=0;i<n;i++)
scanf("%d",&container[i]);
printf("enter element to be hunted\n");
scanf("%d",&hunt);
int* p=container;
sort(p,n);
printf("%d", bsrch(container,0,n,hunt,n));
return 0;
}
```