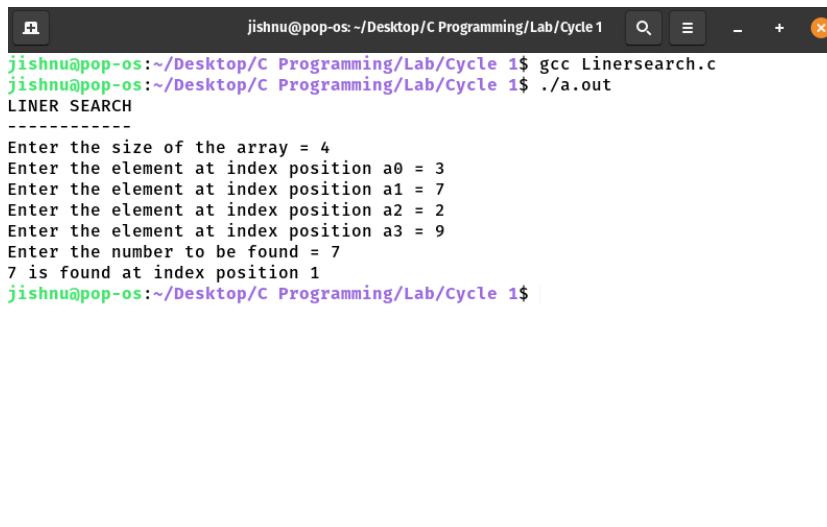
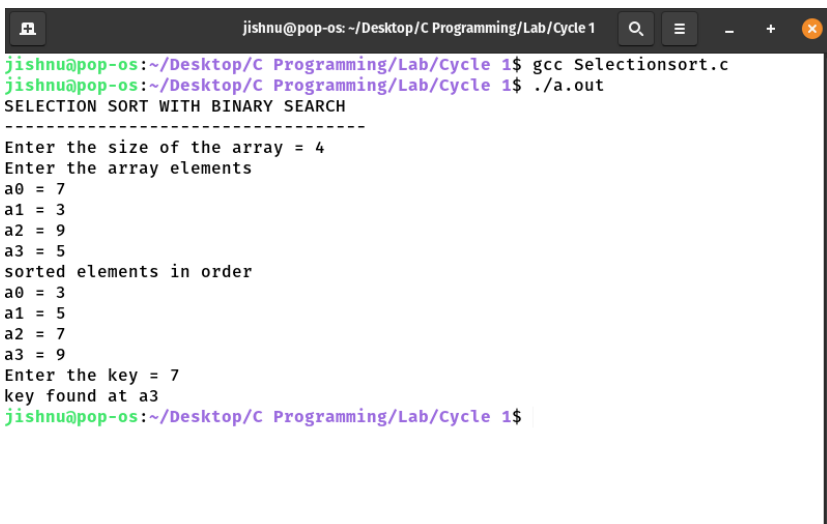


(1) LINEAR SEARCH

```
#include<stdio.h>
void main(){
    int a[100],n,i,j,key;
    printf("LINER SEARCH\n");
    for(int k=0;k<12;k++){
        printf("%c",' ');
    }printf("\n");
    printf("Enter the size of the array = ");
    scanf("%d",&n);
    for(i=0;i<n;i++){
        printf("Enter the element at index position a%d = ",i);
        scanf("%d",&a[i]);
    }
    printf("Enter the number to be found = ");
    scanf("%d",&key);
    for(i=0;i<n;i++){
        if(key==a[i]){
            printf("%d is found at index position %d\n",key,i);
            break;
        }
    }
    if(i==n){
        printf("%d is not present in the array\n",key);
    }
}
```



```
jishnu@pop-os: ~/Desktop/C Programming/Lab/Cycle 1
jishnu@pop-os:~/Desktop/C Programming/Lab/Cycle 1$ gcc Linersearch.c
jishnu@pop-os:~/Desktop/C Programming/Lab/Cycle 1$ ./a.out
LINER SEARCH
-----
Enter the size of the array = 4
Enter the element at index position a0 = 3
Enter the element at index position a1 = 7
Enter the element at index position a2 = 2
Enter the element at index position a3 = 9
Enter the number to be found = 7
7 is found at index position 1
jishnu@pop-os:~/Desktop/C Programming/Lab/Cycle 1$
```



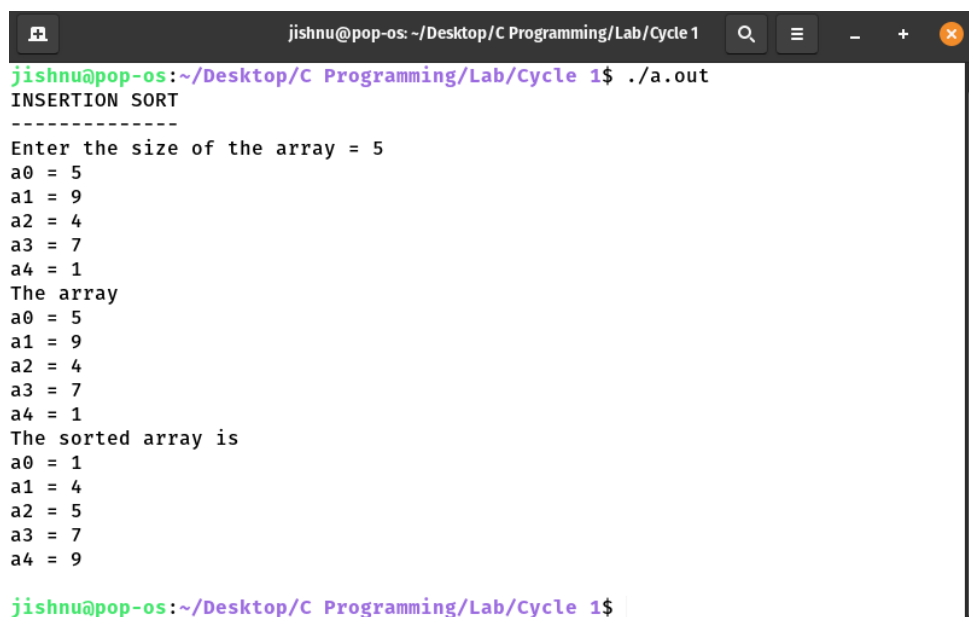
```
jishnu@pop-os:~/Desktop/C Programming/Lab/Cycle 1$ gcc Selectionsort.c
jishnu@pop-os:~/Desktop/C Programming/Lab/Cycle 1$ ./a.out
SELECTION SORT WITH BINARY SEARCH
-----
Enter the size of the array = 4
Enter the array elements
a0 = 7
a1 = 3
a2 = 9
a3 = 5
sorted elements in order
a0 = 3
a1 = 5
a2 = 7
a3 = 9
Enter the key = 7
key found at a3
jishnu@pop-os:~/Desktop/C Programming/Lab/Cycle 1$
```

(2) SELECTION SORT

```
#include<stdio.h>
#include<stdlib.h>
void main(){
    printf("SELECTION SORT WITH BINARY SEARCH\n");
    for(int k=0;k<35;k++){
        printf("%c",'-');
    }printf("\n");
    int a[100],n,i,j,small,swap,mid,key,flag=0;
    printf("Enter the size of the array = ");
    scanf("%d",&n);
    printf("Enter the array elements\n");
    for(i=0;i<n;i++){
        printf("a%d = ",i);
        scanf("%d",&a[i]);
    }
    for(i=0;i<n;i++){
        small=i;
        for(j=i+1;j<n;j++){
            if(a[small]>a[j]){
                small=j;
            }
        }
        if(small != i){
            swap=a[i];
            a[i]=a[small];
            a[small]=swap;
        }
    }
    printf("sorted elements in order\n");
    for(i=0;i<n;i++){
        printf("a%d = %d\n",i,a[i]);
    }
    int low=0,high=n-1;
    printf("Enter the key = ");
    scanf("%d",&key);
    while((low<=high) && (flag==0)){
        mid=(low+high)/2;
        if(key<a[mid]){
            high=mid-1;
        }else if(key>a[mid]){
            low=mid+1;
        }else{
            flag=1;
            exit;
        }
    }
    if(flag==1){
        printf("key found at a%d\n",mid+1);
    }else{
        printf("key not found\n");
    }
}
```

(3) INSERTION SORT

```
#include<stdio.h>
void main(){
    printf("INSERTION SORT\n");
    for(int k=0;k<14;k++){
        printf("%c",'-');
    }printf("\n");
    int a[30],n,key,i=0;
    printf("Enter the size of the array = ");
    scanf("%d",&n);
    for(int i=0; i<n; i++){
        printf("a%d = ", i);
        scanf("%d",&a[i]);
    }
    printf("The array\n");
    for(int i=0; i<n; i++){
        printf("a%d = %d\n",i,a[i]);
    }
    for(int j=1;j<=n-1;j++){
        key=a[j];
        i=j-1;
        while(i>=0 && a[i]>=key){
            a[i+1]=a[i];
            i=i-1;
        }
        a[i+1]=key;
    }
    printf("The sorted array is\n");
    for(int i=0; i<n; i++){
        printf("a%d = %d\n",i,a[i]);
    }
    printf("\n");
}
```



```
jishnu@pop-os: ~/Desktop/C Programming/Lab/Cycle 1
jishnu@pop-os:~/Desktop/C Programming/Lab/Cycle 1$ ./a.out
INSERTION SORT
-----
Enter the size of the array = 5
a0 = 5
a1 = 9
a2 = 4
a3 = 7
a4 = 1
The array
a0 = 5
a1 = 9
a2 = 4
a3 = 7
a4 = 1
The sorted array is
a0 = 1
a1 = 4
a2 = 5
a3 = 7
a4 = 9
jishnu@pop-os:~/Desktop/C Programming/Lab/Cycle 1$
```