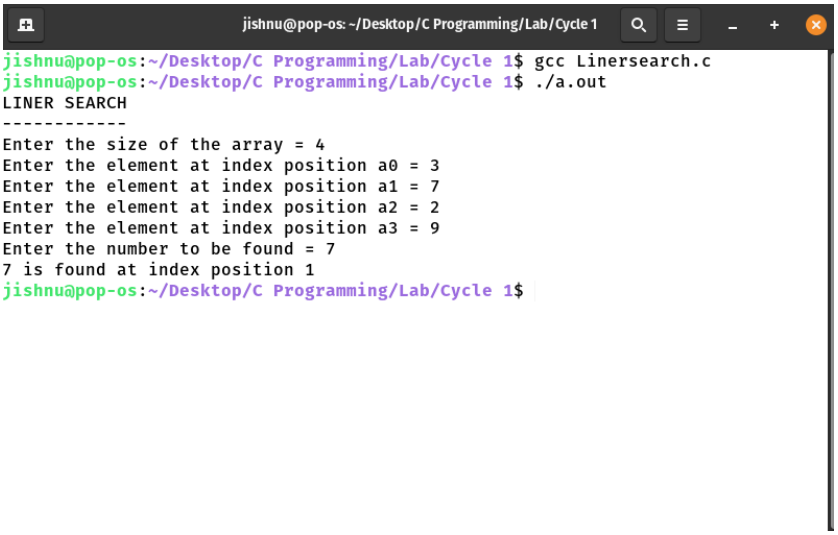
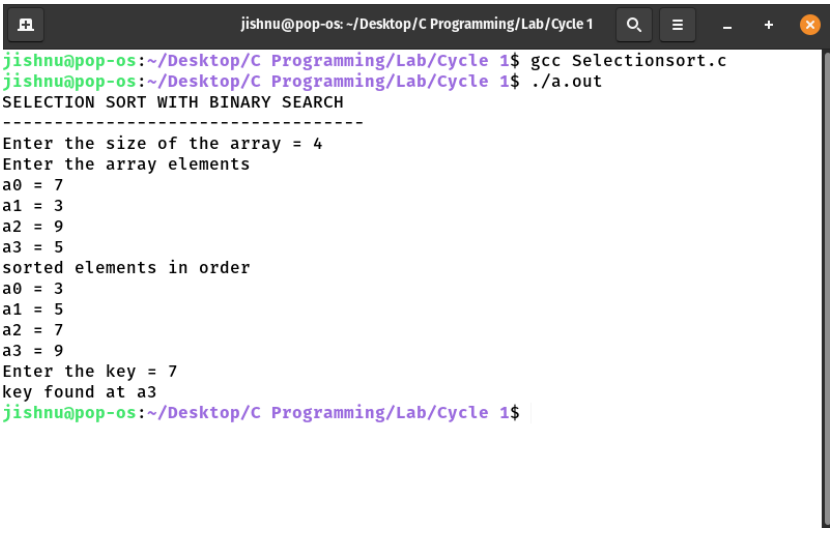
(1) LINEAR SEARCH

```
#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);
        }
}
```





(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");
}
```