/*bubble sort,insertion sort,selection sort*/

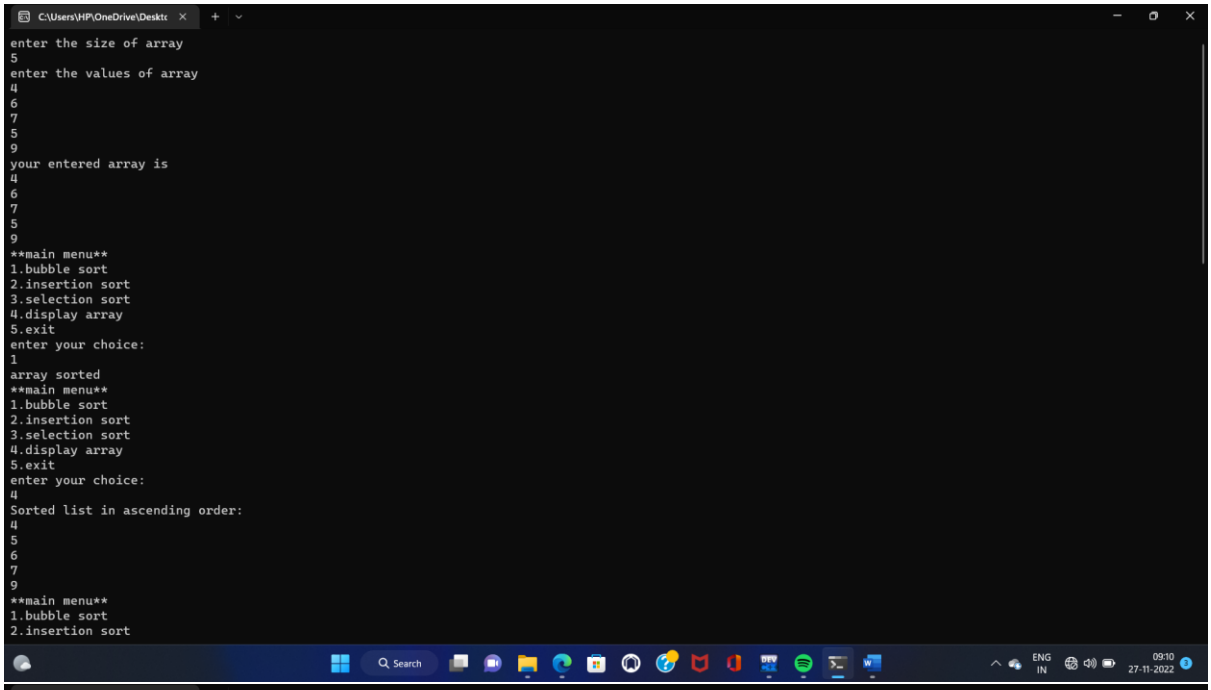
```
#include<stdio.h>
#include<stdlib.h>
void bubble_sort(int a[],int n);
void insertion_sort(int a[],int n);
void selection_sort(int a[],int n);
void display(int a[],int n);
int main()
{
	int n,i,ch;
	printf("enter the size of array\n");
	scanf("%d",&n);
	int a[n];
	printf("enter the values of array\n");
	for(i=0;i<n;i++)
	{
		scanf("%d",&a[i]);
	}
	printf("your entered array is\n");
	for(i=0;i<n;i++)
	{
		printf("%d\n",a[i]);
	}
	while(ch!=5)
	{
		printf("**main menu**\n");
		printf("1.bubble sort\n2.insertion sort\n3.selection sort\n4.display
array\n5.exit\n");
		printf("enter your choice:\n");
		scanf("%d",&ch);
		switch(ch)
```

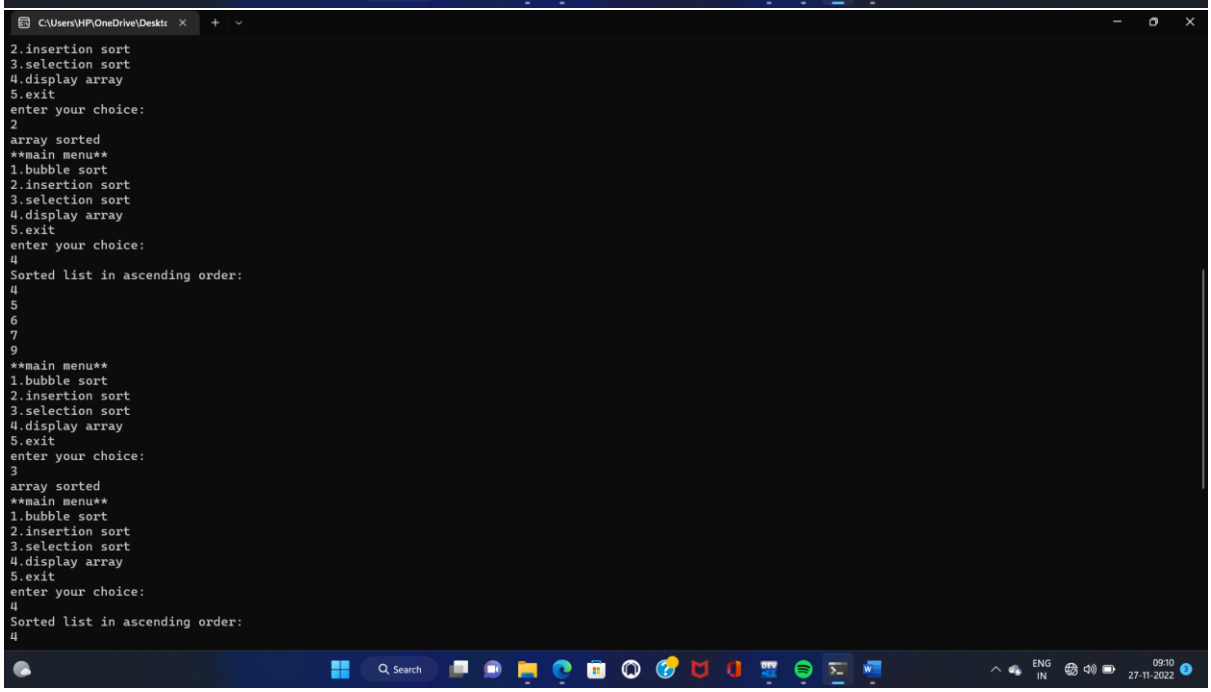
```
		{
			case 1:bubble_sort(a,n);
			break;
			case 2:insertion_sort(a,n);
			break;
			case 3:selection_sort(a,n);
			break;
			case 4:display(a,n);
			break;
			case 5:exit(0);
			default:
				printf("invalid ch\n");
		}
	}
}
void bubble_sort(int a[],int n)
{
	int i,j,temp;  //sorting using 3rd variable
	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;
		}
		}
	}
```

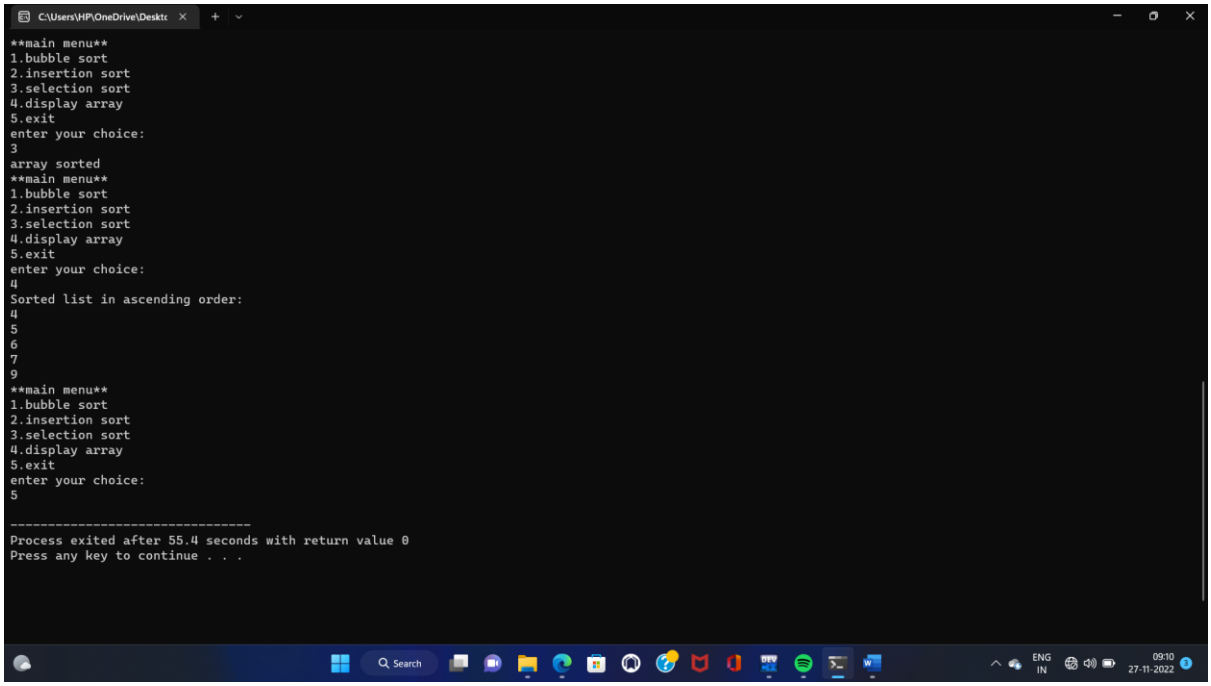
```
        printf("array sorted\n");
        /*
        without using 3rd variable
        for(i=0;i<n;i++)
        {
                for(j=i+1;j<n;j++)
                {
                        if(a[i]>a[j])
                        {

                        a[i]=a[i]+a[j];
                        a[j]=a[i]-a[j];
                        a[i]=a[i]-a[j];
                }
                }
        }
        */
}
void insertion_sort(int a[],int n)
{
        int i,j,temp;
        for(i=1;i<n;i++)
   {
      j=i-1;
      while(j>=0 && a[j]>a[i])
      {
         temp=a[j];
         a[j]=a[i];
         a[i]=temp;
         j--;
      }
```

```
    }
    printf("array sorted\n");
}
void selection_sort(int a[],int n)
{
        int i,j,temp,min;
        min=a[0];
        for(j=i+1;j<n;j++)
        {
        for(i=1;i<n;i++)
        {
                if(a[i]<=min)
                {
                        min=a[i];
                }
        }
        for(i=0;i<n;i++)
        {
                if(a[i]!=min)
                {
                        temp=a[i];
                        a[i]=min;
                        min=temp;
                }
        }
 }
        printf("array sorted\n");
}
void display(int a[],int n)
{
        printf("Sorted list in ascending order:\n");
```

```
    for (int i=0;i<n;i++)
    {
        printf("%d\n",a[i]);
    }
}
```


C:\Users\HP\OneDrive\Deskto
enter the size of array
5
enter the values of array
4
6
7
5
9
your entered array is
4
6
7
5
9
main menu
1.bubble sort
2.insertion sort
3.selection sort
4.display array
5.exit
enter your choice:
1
array sorted
main menu
1.bubble sort
2.insertion sort
3.selection sort
4.display array
5.exit
enter your choice:
4
Sorted list in ascending order:
4
5
6
7
9
main menu
1.bubble sort
2.insertion sort
Search
ENG
IN
09:10
27-11-2022


C:\Users\HP\OneDrive\Deskto
2.insertion sort
3.selection sort
4.display array
5.exit
enter your choice:
2
array sorted
main menu
1.bubble sort
2.insertion sort
3.selection sort
4.display array
5.exit
enter your choice:
4
Sorted list in ascending order:
4
5
6
7
9
main menu
1.bubble sort
2.insertion sort
3.selection sort
4.display array
5.exit
enter your choice:
3
array sorted
main menu
1.bubble sort
2.insertion sort
3.selection sort
4.display array
5.exit
enter your choice:
4
Sorted list in ascending order:
4
Search
ENG
IN
09:10
27-11-2022


C:\Users\HP\OneDrive\Desktc
main menu
1.bubble sort
2.insertion sort
3.selection sort
4.display array
5.exit
enter your choice:
3
array sorted
main menu
1.bubble sort
2.insertion sort
3.selection sort
4.display array
5.exit
enter your choice:
4
Sorted list in ascending order:
4
5
6
7
9
main menu
1.bubble sort
2.insertion sort
3.selection sort
4.display array
5.exit
enter your choice:
5

Process exited after 55.4 seconds with return value 0
Press any key to continue . . .
Search
ENG
IN
09:10
27-11-2022