PRACTICAL :-03

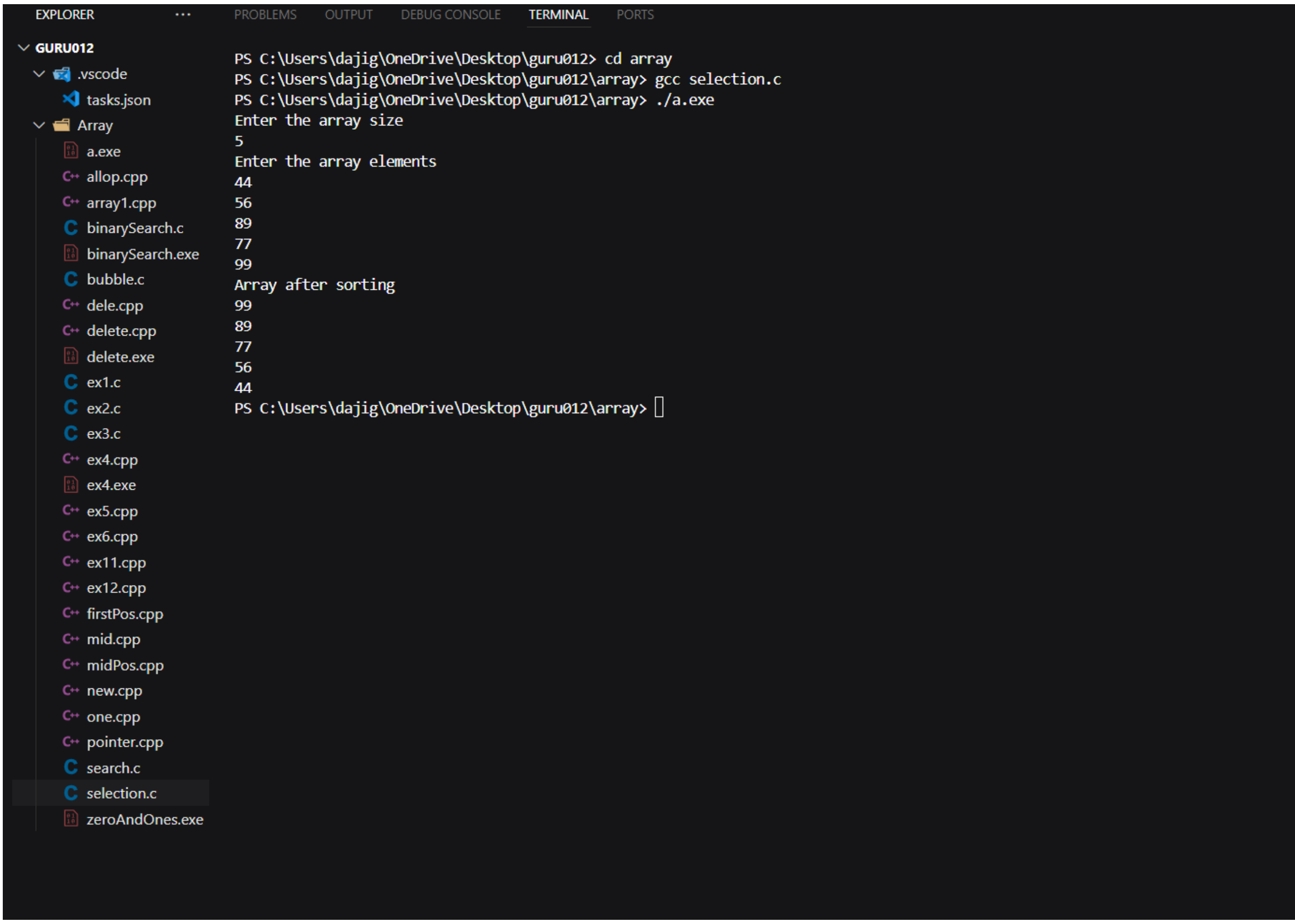
AIM:- : Create an array of size n and write a program to sort a given array by selection sort and bubble sort.

PROGRAM:-   (selection sort)

```
#include<stdio.h>
void main()
{
   int arr[100],m,temp;
   printf("Enter the array size\n");
   scanf("%d",&m);
   printf("Enter the array elements\n");
   for(int i=0; i<m; i++)
   {
      scanf("%d",&arr[i]);
   }
   for(int i=0; i<m; i++)
   {
      for(int j=0; j<=m; j++)
      {
         if(arr[i]>arr[j])
         {
            temp=arr[i];
            arr[i]=arr[j];
            arr[j]=temp;
         }
      }
   }
   printf("Array after sorting \n");
```

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

[OUTPUT]



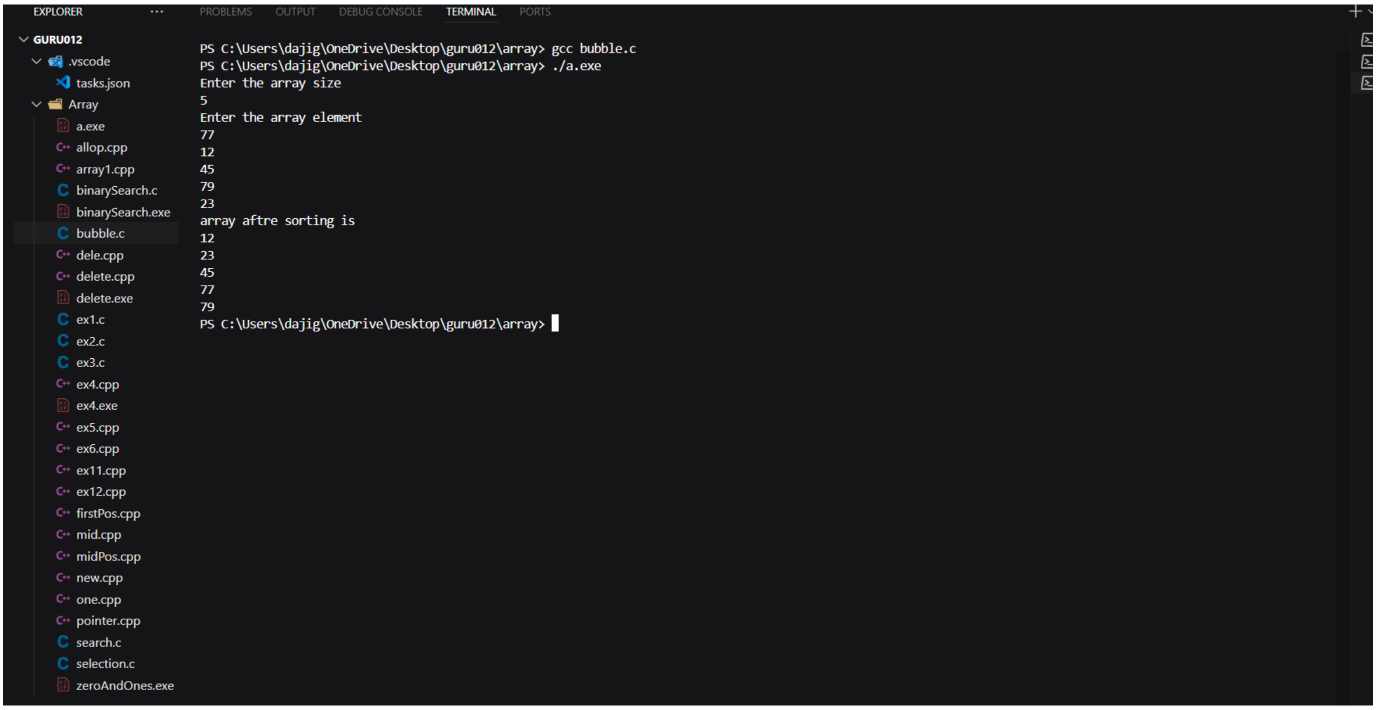
```
PS C:\Users\dajig\OneDrive\Desktop\guru012> cd array
PS C:\Users\dajig\OneDrive\Desktop\guru012\array> gcc selection.c
PS C:\Users\dajig\OneDrive\Desktop\guru012\array> ./a.exe
Enter the array size
5
Enter the array elements
44
56
89
77
99
Array after sorting
99
89
77
56
44
PS C:\Users\dajig\OneDrive\Desktop\guru012\array> 
```

[Bubble Sort]

PROGRAM:-

```
#include<stdio.h>
void main()
{
    int a[100],n,temp;
    printf("Enter the array size\n");
    scanf("%d",&n);
    printf("Enter the array element\n");
    for(int i=0; i<n; i++)
    {
        scanf("%d",&a[i]);
    }
    for(int i=0; i<n; i++)
    {
        for(int j=0; j<=n; j++)
        {
            if(a[j]>a[j+1])
            {
                temp=a[j];
                a[j]=a[j+1];
                a[j+1]=temp;
            }
        }
    }
    printf("array aftre sorting is\n");
    for(int i=0; i<n; i++)
    {
        printf("%d\n",a[i]);
    }
}
```

[OUTPUT]



```
PS C:\Users\dajig\OneDrive\Desktop\guru012\array> gcc bubble.c
PS C:\Users\dajig\OneDrive\Desktop\guru012\array> ./a.exe
Enter the array size
5
Enter the array element
77
12
45
79
23
array aftre sorting is
12
23
45
77
79
PS C:\Users\dajig\OneDrive\Desktop\guru012\array>
```

[B]: Write a program to search any integer in your array using binary search concept.

PROGRAM:-

```
#include<stdio.h>
void main()
{
   int i, j, n, mid, low, high, item, found = 0;

   printf("Enter the size of array\n");
   scanf("%d", &n);
   int a[n];

   printf("Enter %d elements:\n", n);
```

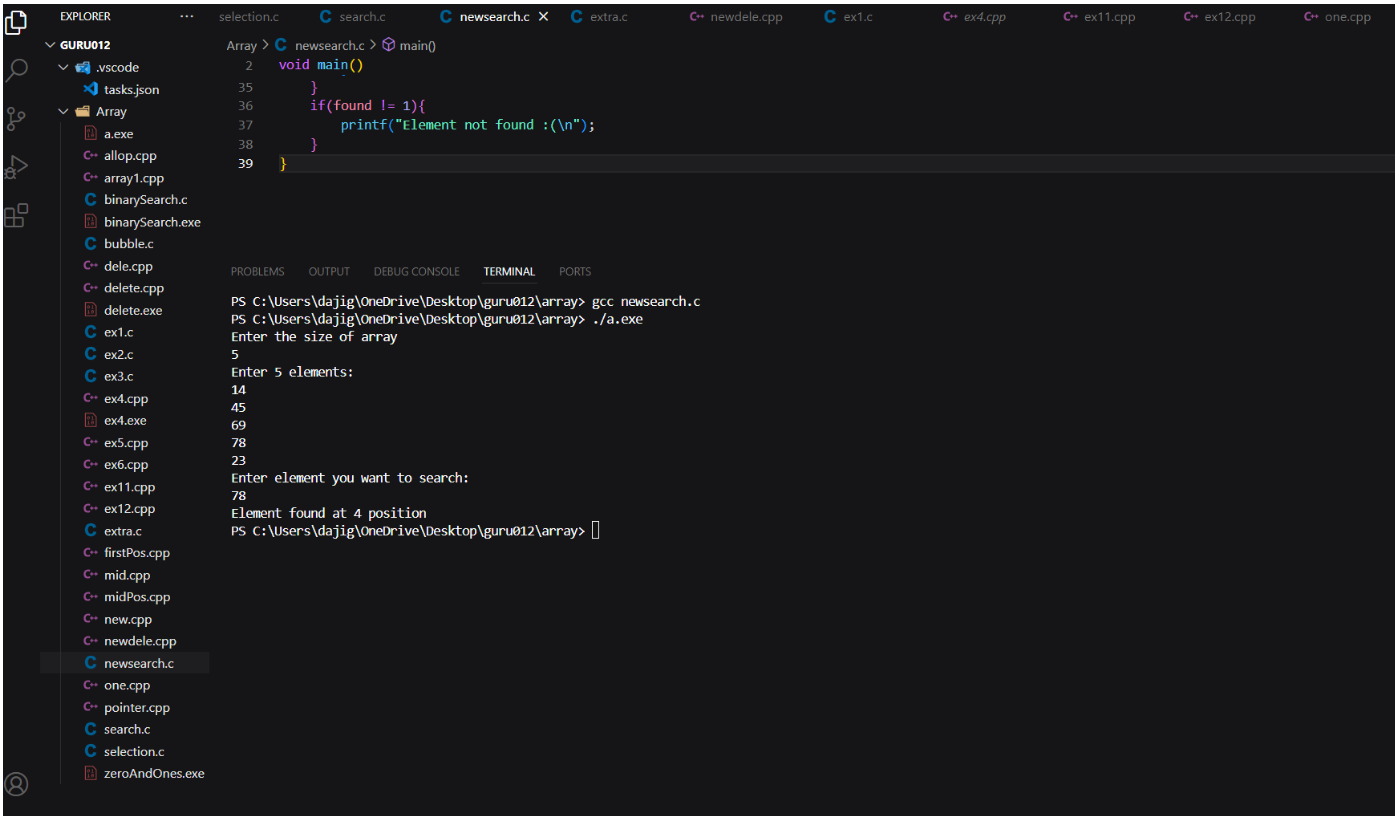
```
    for (i = 0; i < n; i++)
    {
        scanf("%d", &a[i]);
    }

    printf("Enter element you want to search: \n");
    scanf("%d",&item);

    low = 0,high = n-1;

    for(i=0;i<(n+1)/2;i++){
        mid=(low + high)/2;
        if(item == a[mid]){
            printf("Element found at %d position\n",mid+1);
            found = 1;
            break;
        }
        else if(item < a[mid]){
            high = mid -1;
        }
        else if(item > a[mid]){
            low = mid + 1;
        }
    }
    if(found != 1){
        printf("Element not found :(\n");
    }
}
```

[OUTPUT]



```c
void main()
    }
    if(found != 1){
        printf("Element not found :(\n");
    }
}
```

```
PS C:\Users\dajig\OneDrive\Desktop\guru012\array> gcc newsearch.c
PS C:\Users\dajig\OneDrive\Desktop\guru012\array> ./a.exe
Enter the size of array
5
Enter 5 elements:
14
45
69
78
23
Enter element you want to search:
78
Element found at 4 position
PS C:\Users\dajig\OneDrive\Desktop\guru012\array> 
```

Github Link:- https://github.com/guru24961/Data-Stracture-practical.git