DS PRACTICAL NO : 3

[ARRAY SEARCHING AND SORTING]

[A] : Create an array of size n and write a program to sort given array by selection sort and bubble sort

[SELECTION SORT]

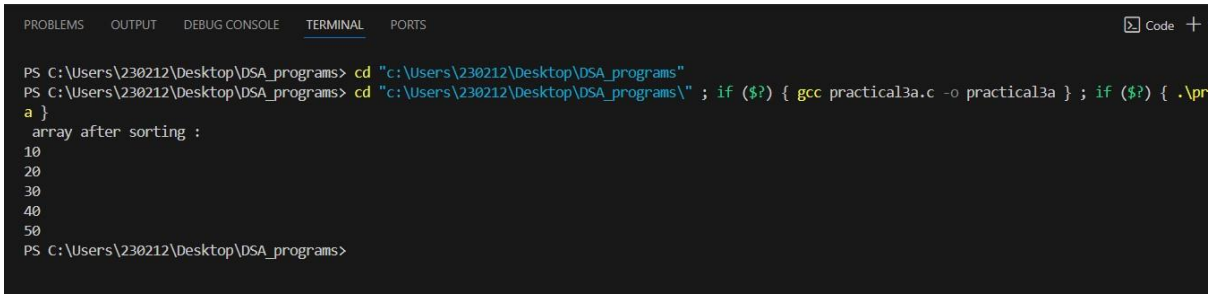
Program :-

```
#include<stdio.h> int
main() {     int arr[5] = {10, 30, 50,
40, 20};     int n = 5;     int i, j, pos,
swap;

   for (i = 0; i < n - 1; i++) {
pos = i;        for (j = i + 1; j <
n; j++) {           if (arr[pos]
> arr[j])               pos = j;
      }
      if (pos != i) {
swap = arr[i];
arr[i] = arr[pos];
arr[pos] = swap;
      }
   }

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

```
    return 0;
}
```



[BUBBLE SORT]

Program :-

```
#include
<stdio.h>

int main() {    int a[10] = {10, 30,
50, 40, 20};    int temp;
    int i, j;

    printf("Array before bubble sorting:\n");
for (i = 0; i < 5; i++) {       printf("%d   ", a[i]);
    }
    printf("\n");

   for (i = 0; i < 5; i++) {
        for (j = 0; j < 4; j++)
{           if (a[j] > a[j + 1])
{               temp = a[j];
```

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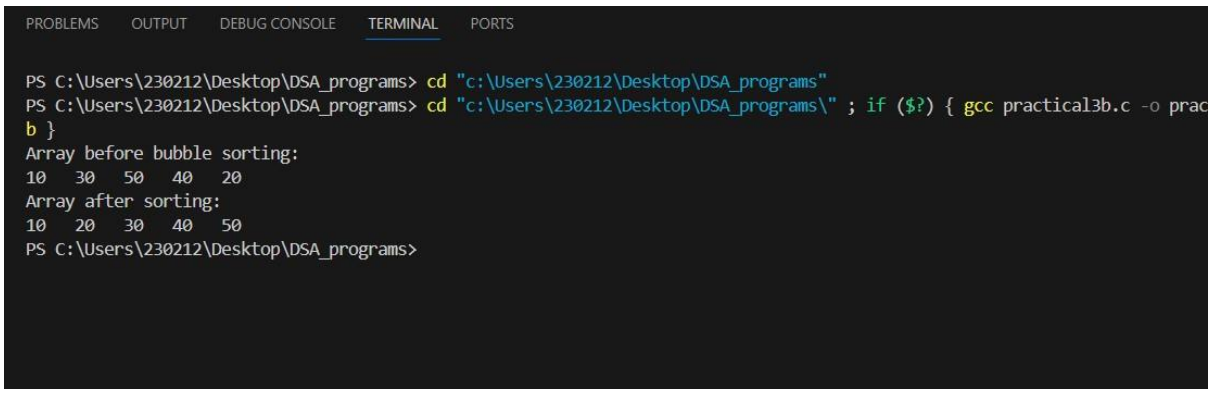
```
a[j] = a[j + 1];
a[j + 1] = temp;
        }
      }
   }

   printf("Array after sorting:\n");
for (i = 0; i < 5; i++) {      printf("%d
", a[i]);
   }
   printf("\n");

   return 0;
}
```



[B] : Write a program to search any integer in array by using binary seach

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[BINARY SEARCH]

Program :-

```
#include<stdio.h> int
main()
 {
   int a[10] = {10, 15, 20, 25, 30, 35, 40,45,50,55};
int low, high, mid, target, found = 0;

   for(int i = 0; i < 7; i++) {
printf("%d ", a[i]);
   }
   printf("\n");

   low = 0;
high = 6;

   printf("Enter the element you want to search: ");
scanf("%d", &target);

   while(low <= high) {
mid = (low + high) / 2;

      if(a[mid] == target) {           found = 1;
printf("Element is found at %d position\n", mid + 1);
break;

      } else if(a[mid] < target) {
low = mid + 1;
```

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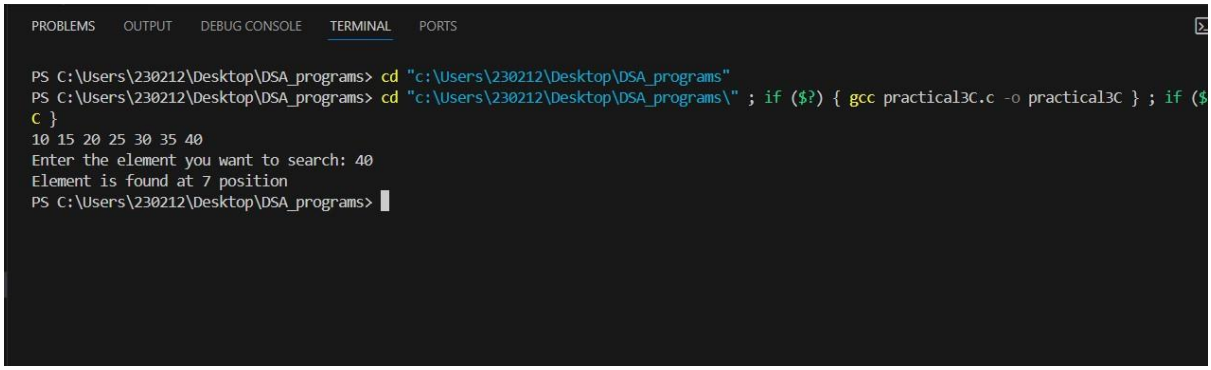
```
        } else {
high = mid - 1;
        }
    }

    if(!found) {        printf("Element
not found\n");
    }

    return 0;
}
```



GITHUB LINK OF PRACTICAL NO 3 :

https://github.com/AmolNagargoje04/Data-Structure-practical