

DATA STRUCTURES:

ASSIGNMENT- 1

Q1) Write a C program to find maximum element in array.

Code:-

```
{
#include<stdio.h>

int main()
{
    int a[1000],i,n,min,max;

    printf("Enter size of the array : ");

    scanf("%d",&n);

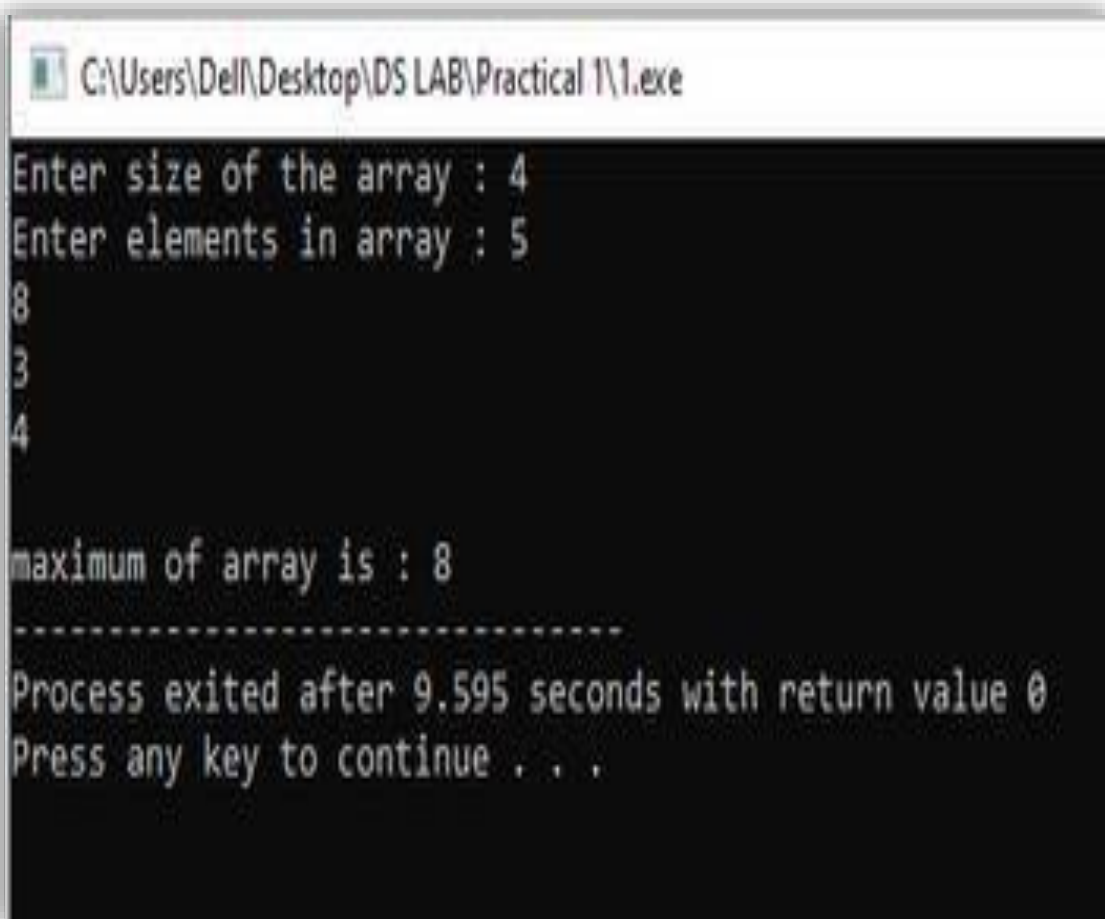
    printf("Enter elements in array : ");

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

    min=max=a[0];

    for(i=1; i<n; i++)
```

```
{  
    if(max<a[i]);  
    max=a[i];  
}  
printf("\nmaximum of array is : %d",max);  
return 0;  
}
```



The screenshot shows a Windows command prompt window titled "C:\Users\Del\\Desktop\DS LAB\Practical 1\1.exe". The program prompts the user to "Enter size of the array : 4" and "Enter elements in array : 5". The user enters the elements 8, 3, and 4. The program then outputs "maximum of array is : 8". Below this, it shows "Process exited after 9.595 seconds with return value 0" and "Press any key to continue . . .".

Q2) Write a C program to find minimum element in array.

Code:-

```
#include<stdio.h>

int main()
{
    int a[1000],i,n,min,max;
    printf("Enter size of the array : ");
    scanf("%d",&n);
    printf("Enter elements in array : ");
    for(i=0; i<n; i++)
    {
        scanf("%d",&a[i]);
    }
    min=max=a[0];
    for(i=1; i<n; i++)
    {
        if(min>a[i])
            min=a[i];
    }
    printf("minimum of array is : %d",min);
    return 0;
}
```

```
C:\Users\Dell\Desktop\DS LAB\Practical 1\2.exe
Enter size of the array : 4
Enter elements in array : 2
6
8
1
minimum of array is : 1
-----
Process exited after 4.268 seconds with return value 0
Press any key to continue . . .
```

Q3) Write a C program to find second maximum element in array.

Code:-

```
#include <stdio.h>

void main ()
{
    int number[30];
    int i, j, a, n;
    printf("Enter the value of N\n");
    scanf("%d", &n);
```

```
printf("Enter the numbers \n");
```

```
for (i = 0; i < n; ++i)
```

```
    scanf("%d", &number[i]);
```

```
for (i = 0; i < n; ++i)
```

```
{
```

```
    for (j = i + 1; j < n; ++j)
```

```
    {
```

```
        if (number[i] < number[j])
```

```
        {
```

```
            a = number[i];
```

```
            number[i] = number[j];
```

```
            number[j] = a;
```

```
        }
```

```
    }
```

```
}
```

```
printf("The numbers arranged in descending order are given  
below\n");
```

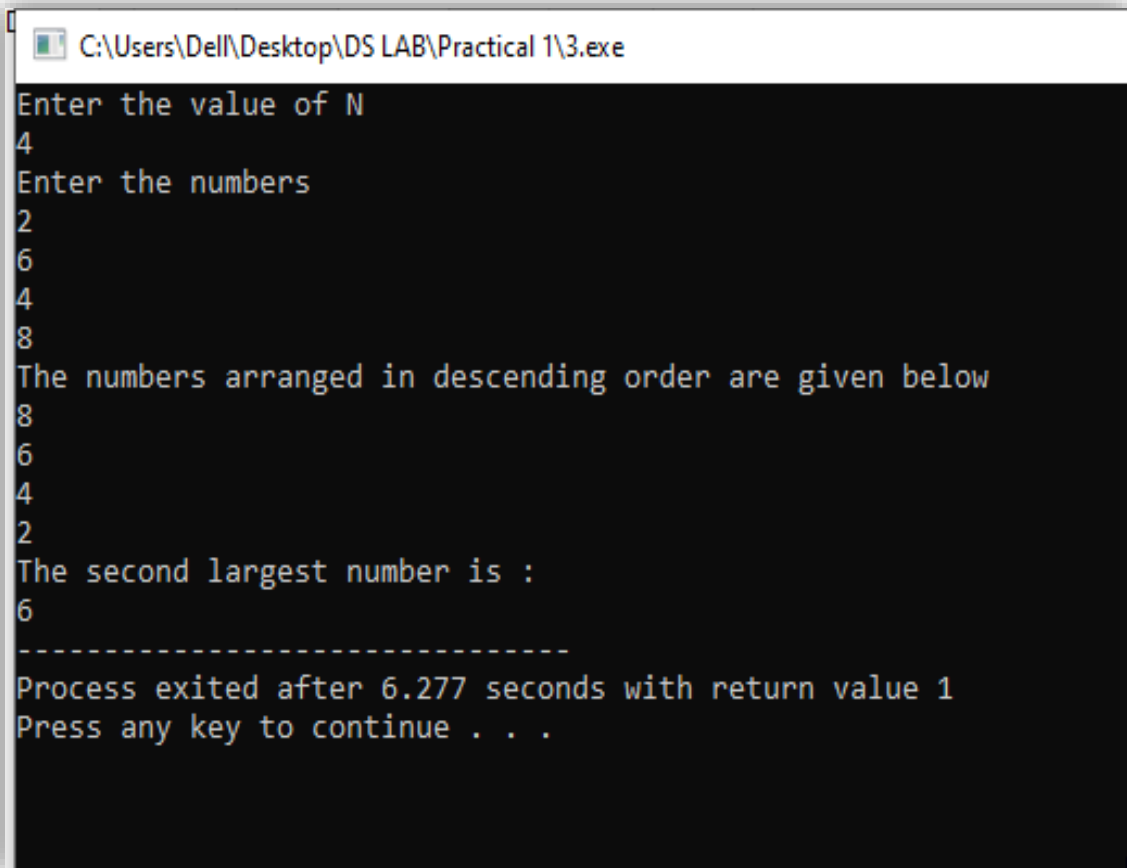
```
for (i = 0; i < n; ++i)
```

```
{
```

```
    printf("%d\n", number[i]);
```

```
}
```

```
printf("The second largest number is :\n");  
printf("%d", number[1]);  
}
```



```
C:\Users\Dell\Desktop\DS LAB\Practical 1\3.exe  
Enter the value of N  
4  
Enter the numbers  
2  
6  
4  
8  
The numbers arranged in descending order are given below  
8  
6  
4  
2  
The second largest number is :  
6  
-----  
Process exited after 6.277 seconds with return value 1  
Press any key to continue . . .
```

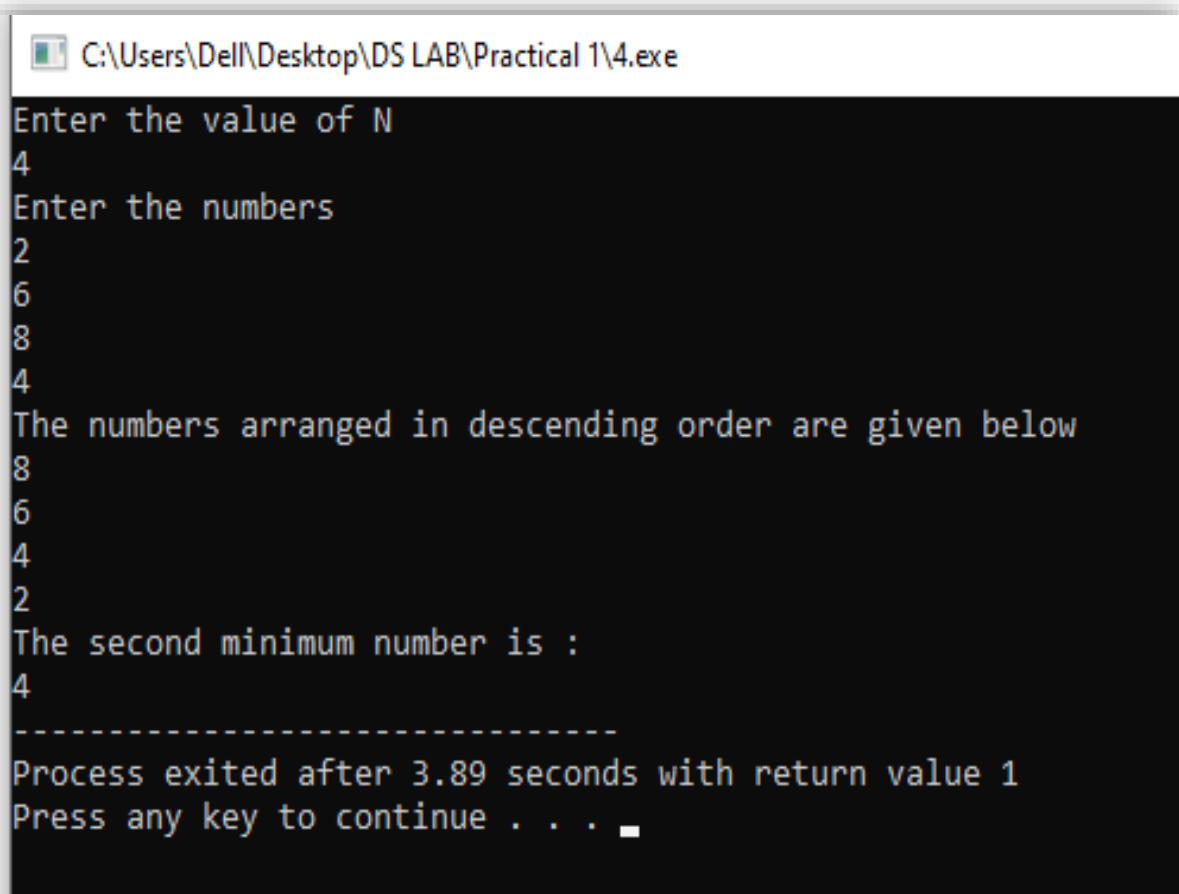
Q4) Write a C program to find second minimum element in array.

Code:-

```
#include<stdio.h>  
  
void main ()  
{
```

```
int number[30];  
  
int i, j, a, n;  
  
printf("Enter the value of N\n");  
scanf("%d", &n);  
  
printf("Enter the numbers \n");  
for (i = 0; i < n; ++i)  
    scanf("%d", &number[i]);  
  
for (i = 0; i < n; ++i)  
{  
    for (j = i + 1; j < n; ++j)  
    {  
        if (number[i] < number[j])  
        {  
            a = number[i];  
            number[i] = number[j];  
            number[j] = a;  
        }  
    }  
}
```

```
printf("The numbers arranged in descending order are given  
below\n");  
for (i = 0; i < n; ++i)  
{  
    printf("%d\n", number[i]);  
}  
printf("The second minimum number is :\n");  
printf("%d", number[n-2]);  
}
```



```
C:\Users\DeI\Desktop\DS LAB\Practical 1\4.exe  
Enter the value of N  
4  
Enter the numbers  
2  
6  
8  
4  
The numbers arranged in descending order are given below  
8  
6  
4  
2  
The second minimum number is :  
4  
-----  
Process exited after 3.89 seconds with return value 1  
Press any key to continue . . .
```


Q5) Write a C Program to copy an array to another array in reverse.

Code:-

```
#include<stdio.h>

int main()
{
    int a[100], b[100], i,n;
    printf("Enter the number of elements:\n");
    scanf("%d", &n);
    printf("Enter the elements:\n");
    for (i = 0; i<n; i++)
    {
        scanf("%d", &a[i]);
    }
    for (i = 0; i<n; i++)
    {
        b[i]=a[n-i-1];
    }
    printf("\nArray after Copying in Reverse Order : ");
    for (i=0; i<n; i++)
    {
        printf("%d ", b[i]);
    }
}
```

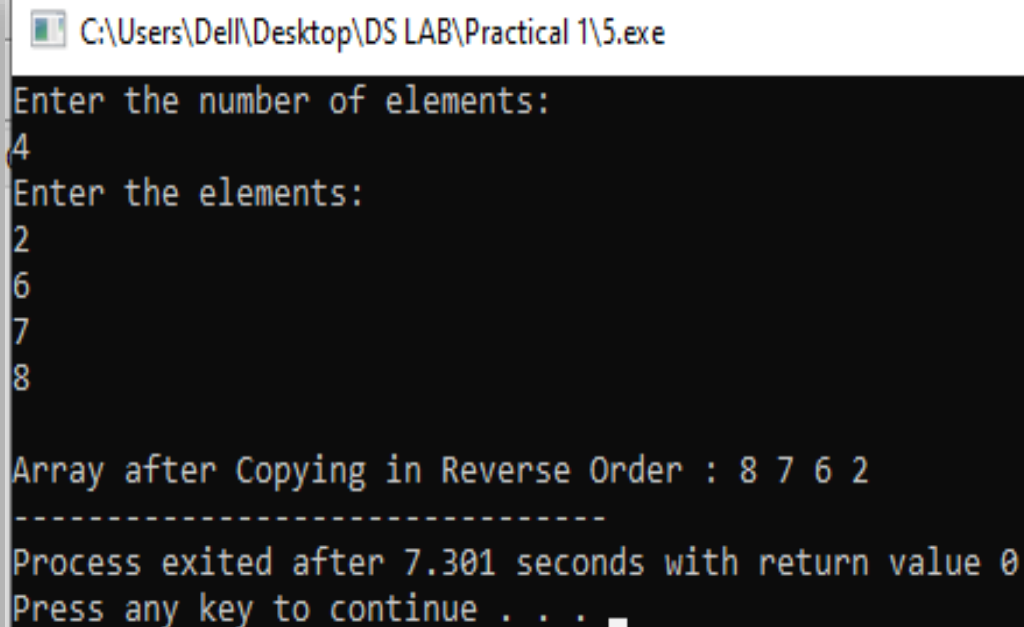
```

}

return 0;

}

```



The screenshot shows a Windows command prompt window titled "C:\Users\Dell\Desktop\DS LAB\Practical 1\5.exe". The program prompts the user to "Enter the number of elements:" and the user enters "4". It then prompts "Enter the elements:" and the user enters "2", "6", "7", and "8" on separate lines. The program outputs "Array after Copying in Reverse Order : 8 7 6 2". Below this, a dashed line separates the output from the exit message: "Process exited after 7.301 seconds with return value 0". The prompt "Press any key to continue . . ." is shown at the bottom with a cursor.

Q6) Write a C Program to concatenate arrays.

Code:-

```

#include<stdio.h>

int main()
{
    int n, m, r, i, j;

    int a[10], b[10], Merged[20];

    printf(" Please Enter the First Array Size :: \n");

    scanf("%d", &n);

```

```
printf("Please Enter the First Array Elements : \n");
for(i = 0; i < n; i++)
{
    scanf("%d", &a[i]);
}

printf("\n Please Enter the Second Array Size :\n");
scanf("%d", &m);

printf("\nPlease Enter the Second Array Elements :\n");
for(i = 0; i < m; i++)
{
    scanf("%d", &b[i]);
}

for(i = 0; i < n; i++)
{
    Merged[i] = a[i];
}

r = n + m;
for(i = 0, j = n; j < r && i < m; i++, j++)
{
    Merged[j] = b[i];
}
```

```

printf("Array Elements After Merging \n");

for(i = 0; i < r; i++)
{
printf(" %d \t ",Merged[i]);
}

return 0;
}

```

The screenshot shows a Windows command prompt window with the title bar "C:\Users\Dell\Desktop\DS LAB\Practical 1\6.exe". The program prompts the user to enter the first array size (4) and its elements (1, 2, 3, 4). It then prompts for the second array size (4) and its elements (5, 6, 7, 8). The output displays the merged array elements: 1, 2, 3, 4, 5, 6, 7, 8. The program concludes by stating it exited after 8.266 seconds with a return value of 0 and prompts the user to press any key to continue.

```

C:\Users\Dell\Desktop\DS LAB\Practical 1\6.exe
Please Enter the First Array Size :
4
Please Enter the First Array Elements :
1
2
3
4

Please Enter the Second Array Size :
4
Please Enter the Second Array Elements :
5
6
7
8
Array Elements After Merging
1      2      3      4      5      6      7      8
-----
Process exited after 8.266 seconds with return value 0
Press any key to continue . . .

```