Assignment-6

Code:

```c
// Q16. Write C Program to Find the Largest Element in an Array.
#include <stdio.h>
int main()
{
    int n;
    printf("Enter Size of an Array: ");
    scanf("%d",&n);
    int A[n];
    for (int i=0;i<n;i++)
    {
        printf("Enter Element %d: ",i+1);
        scanf("%d",&A[i]);
    }
    int t;
    for (int i=0;i<n;i++)
    {
        for (int j=i+1;j<n;j++)
        {
            if (A[i] < A[j])
            {
                t=A[i];
                A[i]=A[j];
                A[j]=t;
            }
        }
    }
    printf("The Largest Element in Array is %d.",A[0]);
}
```

Output:

```
Enter Size of an Array: 6
Enter Element 1: 3
Enter Element 2: 2
Enter Element 3: -1
Enter Element 4: 2
Enter Element 5: 9
Enter Element 6: 8
The Largest Element in Array is 9.
```

Code:

```c
// Q17. Write a C Program to Find the Maximum and Minimum in an Array.
#include <stdio.h>
int main()
{
    int n;
    printf("Enter Size of an Array: ");
    scanf("%d",&n);
    int A[n];
    for (int i=0;i<n;i++)
    {
        printf("Enter Element %d: ",i+1);
        scanf("%d",&A[i]);
    }
    int t;
    for (int i=0;i<n;i++)
    {
        for (int j=i+1;j<n;j++)
        {
            if (A[i] < A[j])
            {
                t=A[i];
                A[i]=A[j];
                A[j]=t;
            }
        }
    }
    printf("The Largest Element in an Array is %d.\n",A[0]);
    printf("The Smallest Element in an Array is %d.\n",A[n-1]);
}
```

Output:

```
Enter Size of an Array: 5
Enter Element 1: 2
Enter Element 2: -5
Enter Element 3: -6
Enter Element 4: 7
Enter Element 5: 10
The Largest Element in an Array is 10.
The Smallest Element in an Array is -6.
```

Code:

```c
// Q18. Write C Program to Search an Element in an Array (Binary search)
#include <stdio.h>
int main()
{
    int a,b,t;
    printf("Enter Size of Array: ");
    scanf("%d",&a);
    int A[a];
    for (int i=0;i<a;i++)
    {
        printf("Enter Element %d: ",i+1);
        scanf("%d",&A[i]);
    }
    printf("Enter Number to search: ");
    scanf("%d",&b);
    int found=0;
    for (int i=0;i<a;i++)
    {
        if (b==A[i])
        {
            printf("Element %d Found at Index %d.\n",b,i);
            found=1;
        }
    }
    if (!found)
        printf("Element %d NOT Found.",b);
}
```

Output:

```
Enter Size of Array: 6
Enter Element 1: 1
Enter Element 2: 3
Enter Element 3: 6
Enter Element 4: -7
Enter Element 5: 13
Enter Element 6: 9
Enter Number to search: 6
Element 6 Found at Index 2.
```

Code:

```c
// Q19. Write a C Program to find all pairs in array of integers whose sum is equal to given number.
#include <stdio.h>
int main()
{
    int A[] = {0,1,2,3,4,5,6,7,8,9};
    int n,c=0;
    printf("Enter Element Number: ");
    scanf("%d",&n);
    for (int i=0;i<9;i++)
    {
        for (int j=i+1;j<9;j++)
        {
            if (n == A[i]+A[j])
            {
                printf("The pair whose sum is %d are %d and %d.\n",n,A
                [i],A[j]);
                c++;
            }
        }
    }
    if (c == 0)
        printf("No pairs found.");
    return 0;
}
```

Output:

```
Enter size of an array: 5
Enter Element 1: 6
Enter Element 2: 3
Enter Element 3: -4
Enter Element 4: 2
Enter Element 5: 7
Enter Element Number: 9
The pair whose sum is 9 are 6 and 3.
The pair whose sum is 9 are 2 and 7.
```

Code:

```c
// Q20. Write a C program for calculating the factorial of a number.
#include <stdio.h>
int main()
{
    int n,f=1;
    printf("Enter Number: ");
    scanf("%d",&n);
    for (int i=n;i>=2;i--)
        f=f*i;
    printf("Factorial of %d is %d.",n,f);
    return 0;
}
```

Output:

```
Enter Number: 6
Factorial of 6 is 720.
```