Green University of Bangladesh
Department of Computer Science and Engineering(CSE)

Faculty of Sciences and Engineering

Semester: (Spring, Year:2021), B.Sc. in CSE (Day)

Course Title: Structured Programming

Course Code: CSE 104 Section: DE

Submission Date : 25-Jul-22

Course Teacher's Name : **Md. Atikuzzaman**

Student Details

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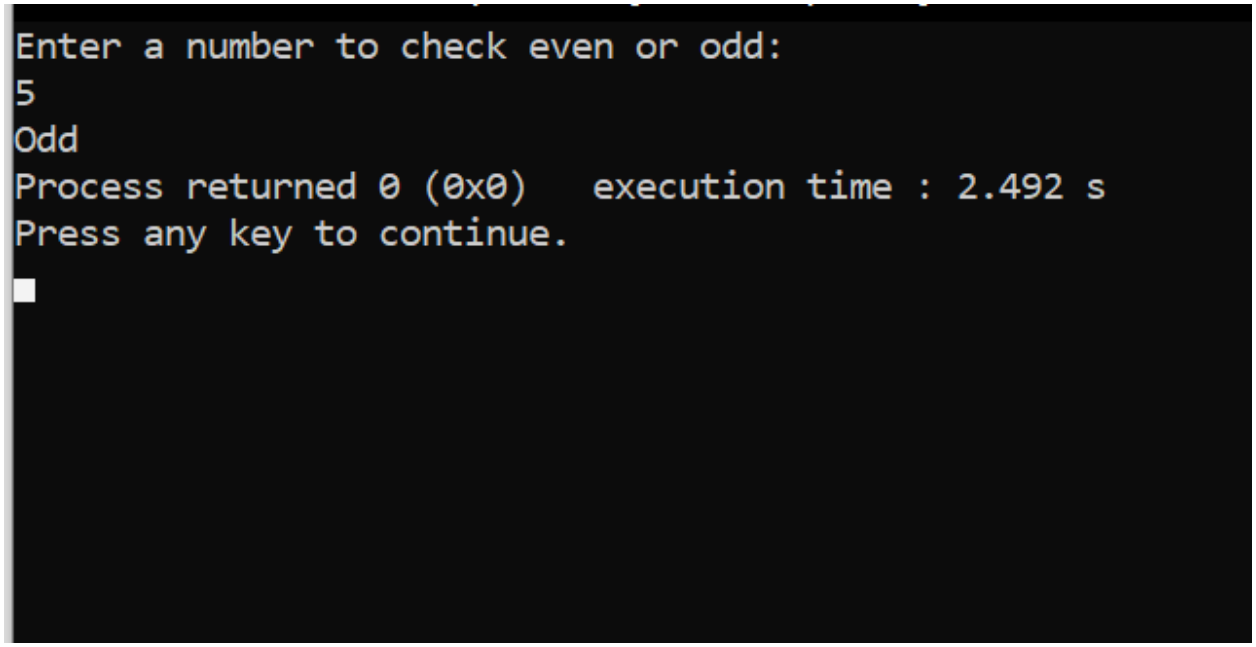
Problems:

1. **C Program to Check Whether a Number is Even or Odd.**

   Code:

```c
#include<stdio.h>
int main()
{
    int n;
    printf("Enter a number to check even or odd:\n");
    scanf("%d",&n);
    if(n%2==0)
    {
        printf("Even");
    }
    else

    {
       printf("Odd");
    }
    return 0;
}
```

   Output:

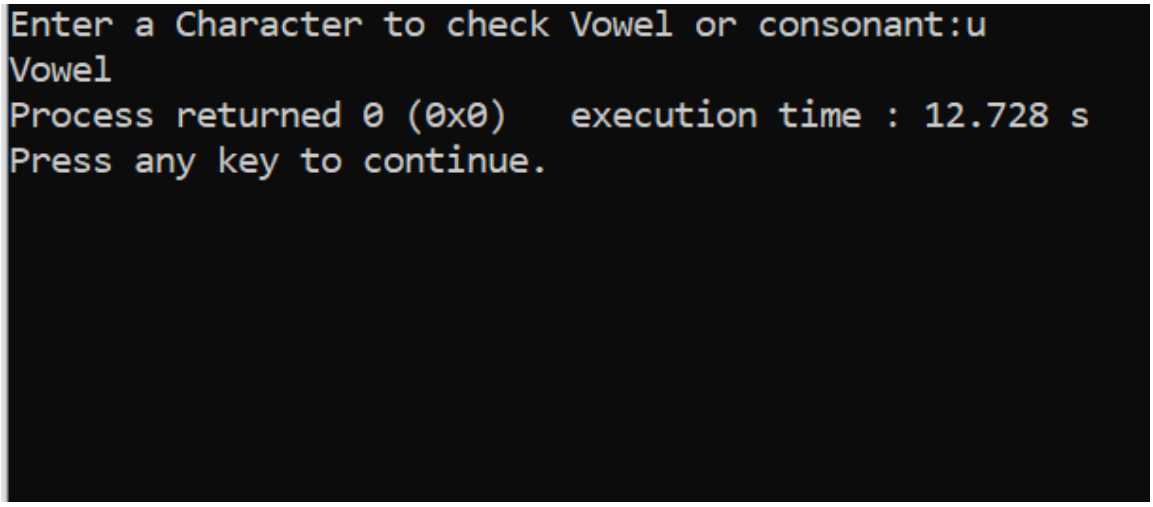


2. C Program to Check Whether a Character is a Vowel or Consonant.

Code:

```c
#include<stdio.h>
int main()
{
    char ch;
    printf("Enter a Character to check Vowel or consonant:");
    scanf("%c",&ch);
    switch(ch)
    {
        case 'a':
        case 'e':
        case 'i':
        case 'o':
        case 'u':
        case 'A':
        case 'E':
        case 'I':
        case 'O':
        case 'U':
                printf("Vowel");
                break;
        default:
                printf("Consonant");
    }

        return 0;
}
```

Output:

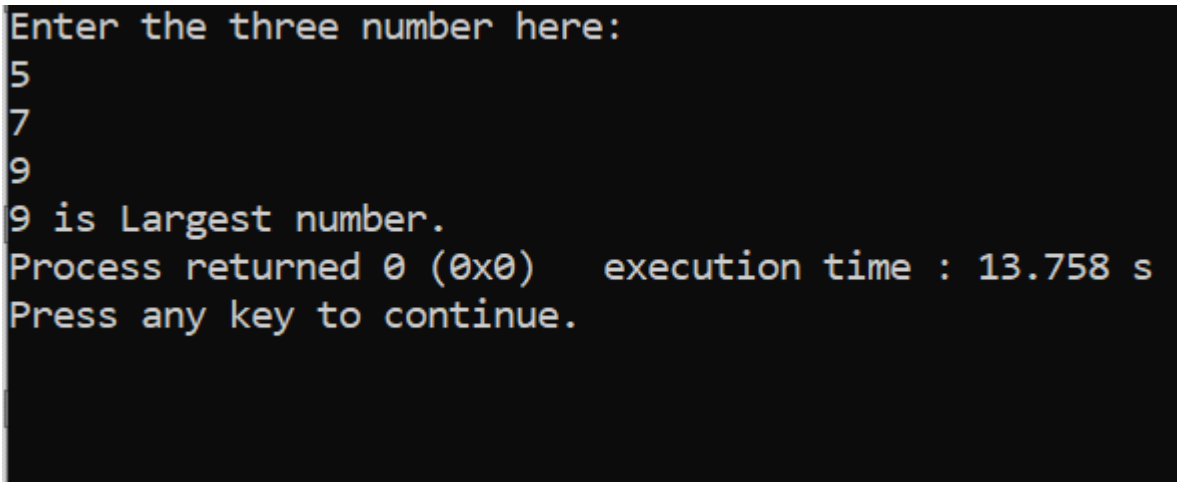


3. C Program to Find the Largest Number Among Three Numbers.

Code:

```c
#include<stdio.h>
int main()
{
    int num1,num2,num3;
    printf("Enter the three number here:\n");
    scanf("%d%d%d",&num1,&num2,&num3);
    if((num1>num2) &&(num1>num2)int main::num3
    {
        printf("%d is Largest number.",num1);
    }
    if ((num2>num3) && (num2>num1))
    {
        printf("%d is Largest number.",num2);
    }
    if ((num3>num2) && (num3>num1))
    {
        printf("%d is Largest number.",num3);
    }
    else
    {

        printf("There are equal number");

    }
    return 0;
}
```

Output:



4. C Program to Find the Roots of a Quadratic Equation.

Code:

```c
#include <stdio.h>
#include <math.h>
int main()
{
   int a,b,c,d;
   float x1,x2;
    printf("Input the value of a,b & c :\n ");
   scanf("%d%d%d",&a,&b,&c);
   d=b*b-4*a*c;
   if(d==0)
   {
     printf("Enter the roots\n");
     x1=-b/(2.0*a);
     x2=x1;
     printf("1st  root = %f\n",x1);
     printf("2nd root= %f\n",x2);
   }
   else if(d>0)
    {
       x1=(-b+sqrt(d))/(2*a);
       x2=(-b-sqrt(d))/(2*a);
       printf("1st  root = %f\n",x1);
       printf("2nd root= %f\n",x2);
    }
    else
        printf("Root are imeainary;\nNo Solution.");
return 0;
}
```

Output:

```
Input the value of a,b & c :
 1
-5
6
1st  root = 3.000000
2nd root= 2.000000

Process returned 0 (0x0)   execution time : 11.899 s
Press any key to continue.
```

5. C Program to Check Leap Year.

Code:

```c
#include<stdio.h>
int main()
{
    int year;
    printf("Enter a Year to check Leap or not Leap year:\n");
    scanf("%d",&year);
    if(((year%4==0)&(year%100!=0))||(year%400==0))
    {
        printf("Leap Year");
    }
    else
    {
        printf("Not Leap Year");
    }
    return 0;
}

```

Output:

```
Enter a Year to check Leap or not Leap year:
2016
Leap Year
Process returned 0 (0x0)   execution time : 4.577 s
Press any key to continue.
```

6. C Program to Check Whether a Number is Positive or Negative.

Code:

```c
#include<stdio.h>
int main()
{
    int num;
    printf("Enter a number to check Positive or Negative:\n");
    scanf("%d",&num);
    if(0<=num)  /*zero is positive number*/
    {
        printf("%d is a positive number.",num);
    }
    else
    {
        printf("%d is a negative number.",num);
    }
    return 0;
}
```

Output:

```
Enter a number to check Positive or Negative:
6
6 is a positive number.
Process returned 0 (0x0)   execution time : 38.897 s
Press any key to continue.
```

```
Enter a number to check Positive or Negative:
-4
-4 is a negative number.
Process returned 0 (0x0)   execution time : 4.096 s
Press any key to continue.
```

7. C Program to Check Whether a Character is an Alphabet or not.

Code:

```c
#include<stdio.h>
int main()
{
    char ch;
    printf("Enter a character to check alphabet or not:");
    scanf("%c",&ch);
    if(('a'<=ch && 'z'>=ch) || ('A'<=ch && 'Z'>=ch))
    {
        printf("%c is an alphabet",ch);
    }
    else
    {
     printf("%c is not an alphabet",ch);
    }

    return 0;
}
```

Output:

```
Enter a character to check alphabet or not:a
a is an alphabet
Process returned 0 (0x0)   execution time : 7.140 s
Press any key to continue.
```

```
Enter a character to check alphabet or not:&
& is not an alphabet
Process returned 0 (0x0)   execution time : 2.724 s
Press any key to continue.
```

8. C Program to Calculate the Sum of Natural Numbers.

Code:

```c
#include<stdio.h>
int main()
{
    int num,i,sum=0;
    printf("Enter a integer :");
    scanf("%d",&num);
    for(i=1;i<=num;i=i+1)
    {
    sum=sum+i;
    }
    printf("Sum=%d",sum);
    return 0;
}
```

Output:

```
Enter a integer :3
Sum=6
Process returned 0 (0x0)   execution time : 4.166 s
Press any key to continue.
```

```
Enter a integer :9
Sum=45
Process returned 0 (0x0)   execution time : 5.058 s
Press any key to continue.
```

9. C Program to Find Factorial of a Number.

Code:

```c
#include<stdio.h>
int main()
{
    int num,i,fact=1;
    printf("Enter a number to find the Factorial:");
    scanf("%d",&num);
    for(i=1;i<=num;i++)
    {
        fact=fact*i;
    }

    printf("%d Factorial = %d",num,fact);

    return 0;
}
```

Output:

```
Enter a number to find the Factorial:5
5 Factorial = 120
Process returned 0 (0x0)   execution time : 1.716 s
Press any key to continue.
```

```
Enter a number to find the Factorial:7
7 Factorial = 5040
Process returned 0 (0x0)   execution time : 1.092 s
Press any key to continue.
```

10. C Program to Generate Multiplication Table.

Code:

```c
#include<stdio.h>
int main()
{
    int i,num;
    printf("Enter a number:");
    scanf("%d",&num);
    for(i=1;i<=10;i++)
    {

        printf("%d*%d=%d\n",num,i,num*i);
    }
    return 0;
}

```

Output:

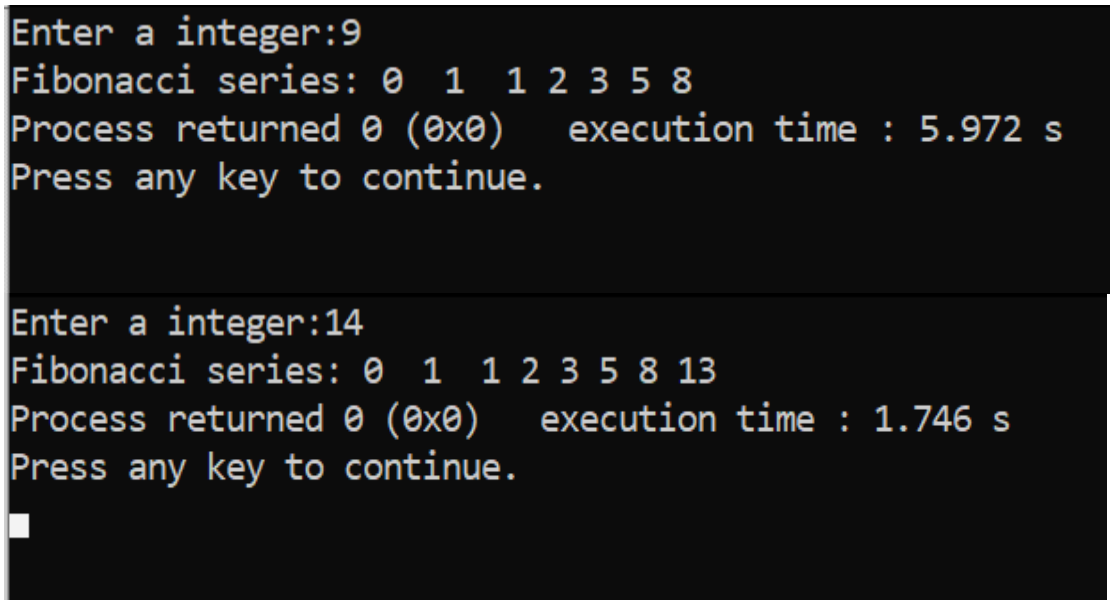
```
Enter a number:5
5*1=5
5*2=10
5*3=15
5*4=20
5*5=25
5*6=30
5*7=35
5*8=40
5*9=45
5*10=50

Process returned 0 (0x0)   execution time : 22.365 s
Press any key to continue.
```

11. C Program to Display Fibonacci Sequence.

Code:

```c
#include<stdio.h>
int main()
{
    int t1=0,t2=1,n,sum=0;
    printf("Enter a integer:");
    scanf("%d",&n);
    printf("Fibonacci series: %d  %d  ",t1,t2);
    sum=t1+t2;
    while (sum<=n)
    {
        printf("%d ",sum);
        t1=t2;
        t2=sum;
        sum=t1+t2;
    }
return 0;
}
```

Output:

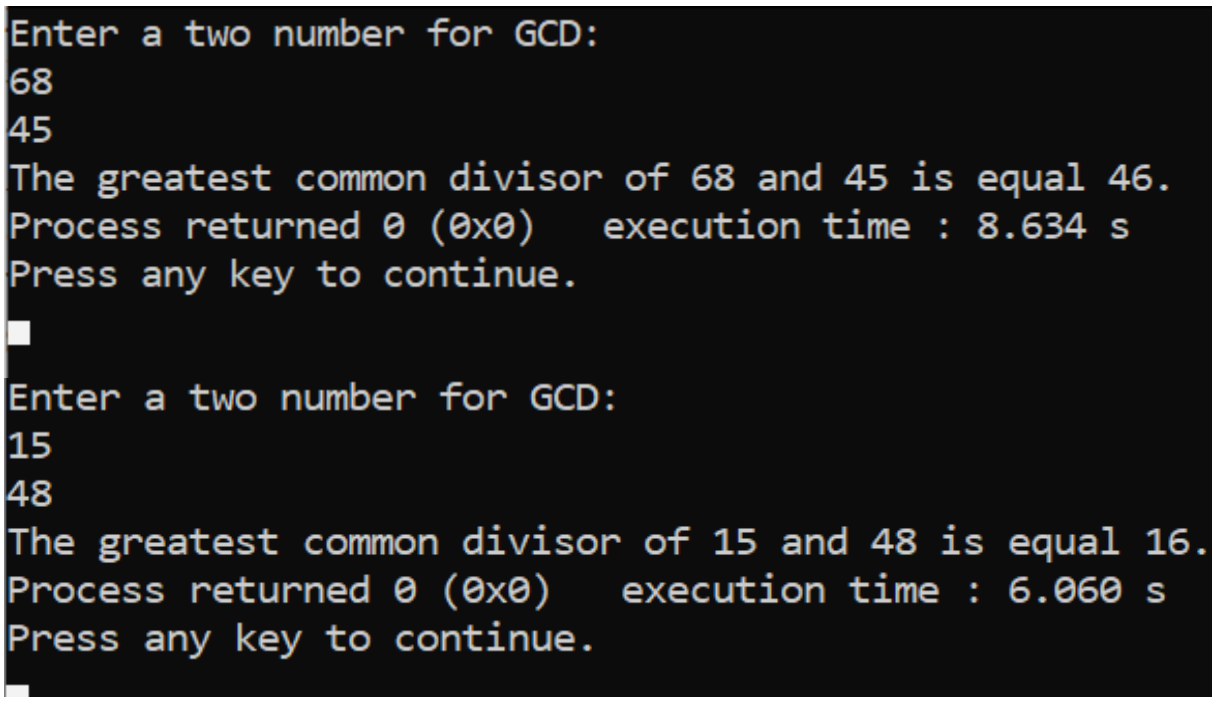


12. C Program to Find GCD of two Numbers.

Code:

```c
#include<stdio.h>
int main()
{
    int num1,num2,i;
    printf("Enter a two number for GCD:");
    scanf("%d%d",&num1,&num2);
    for (i=1;((i<=num1) && (i<=num2));i++)
    {
        if((num1%i==0)&&(num2%i==0));
    }
    printf("The greatest common divisor of %d and %d is equal %d.",num1,num2,i);
    return 0;
}
```

Output:



13. C Program to Find LCM of two Numbers.

Code:

```c
#include<stdio.h>
int main()
{
    int num1,num2,i,gcd,lmc;
    printf("Enter a two number for LCM:\n");
    scanf("%d%d",&num1,&num2);
    for(i=1;i<=num1 && i<=num2;i++)
    {
     if((num1%i==0)   && (num2%i==0));
        gcd=i;
    }
    lmc=(num1*num2)/gcd;
     printf("%d",lmc);
    return 0;
}
```

Output:

```
Enter a two number for LCM:
4
4
LCM =4
Process returned 0 (0x0)   execution time : 2.442 s
Press any key to continue.
```

14. C Program to Display Characters from A to Z Using Loop.

Code:

```c
#include<stdio.h>
int main()
{
    char ch;
    for(ch='A';ch<='Z';ch++)
    {
        printf("%c  ",ch);
    }
    return 0;
}

```

Output:

```
A  B  C  D  E  F  G  H  I  J  K  L  M  N  O  P  Q  R  S  T  U  V  W  X  Y  Z
Process returned 0 (0x0)   execution time : 6.085 s
Press any key to continue.
```

15. C Program to Count Number of Digits in an Integer.

Code:

```c
#include<stdio.h>
int main()
{
    int num,count=0;
    printf("Enter a positive number : ");
    scanf("%d",&num);
    while(num !=0)
    {
        num=num/10;
        count=count+1;
    }
    printf("Total Digits: %d",count);
    return 0;
}
```

Output:

```
Enter a positive number : 461
Total Digits: 3
Process returned 0 (0x0)   execution time : 2.567 s
Press any key to continue.
```

```
Enter a positive number : 1456
Total Digits: 4
Process returned 0 (0x0)   execution time : 3.049 s
Press any key to continue.
```

16. C Program to Reverse a Number.

Code:

```c
#include<stdio.h>
int main()
{
    int num, rem,rev=0;
    printf("Enter a number to Reverse:");
    scanf("%d",&num);
    while(num!=0)
    {
        rem=num%10;
        rev=rev*10+rem;
        num=num/10;
    }
    printf("Reverse is :%d",rev);

    return 0;
}
```

Output:

```
Enter a number to Reverse:6483
Reverse is :3846
Process returned 0 (0x0)   execution time : 39.125 s
Press any key to continue.
```

```
Enter a number to Reverse:4614
Reverse is :4164
Process returned 0 (0x0)   execution time : 2.427 s
Press any key to continue.
```

17. C Program to Calculate the Power of a Number

Code:

```c
#include<stdio.h>
#include<math.h>
int main()
{
    int a,b,c;
    printf("Enter the base :");
    scanf("%d",&a);
    printf("Enter the power:");
    scanf("%d",&b);
    c=pow(a,b);
    printf("%d^%d=%d",a,b,c);
    return 0;
}
```

Output:

```
Enter the base :4
Enter the power:2
4^2=16
Process returned 0 (0x0)   execution time : 7.253 s
Press any key to continue.
```

```
Enter the base :3
Enter the power:2
3^2=9
Process returned 0 (0x0)   execution time : 4.906 s
Press any key to continue.
```

18. C Program to Check Whether a Number is Palindrome or Not.

Code:

```c
#include<stdio.h>
int main()
{
    int x,num,rem,rev=0;
    printf("Enter a integer:");
    scanf("%d",&num);
    x=num;
    while(num!=0)
    {
        rem=num%10;
        rev=rev*10+rem;
        num=num/10;
    }

    if(x==rev)
    {
        printf("Palindrome");
    }
    else
    {
      printf("Not Palindrome");
    }

    return 0;
}

```

Output:

```
Enter a integer:550055
Palindrome
Process returned 0 (0x0)   execution time : 3.416 s
Press any key to continue.
Enter a integer:416
Not Palindrome
Process returned 0 (0x0)   execution time : 3.130 s
Press any key to continue.
```

19. C Program to Check Whether a Number is Prime or Not.

Code:

```c
#include<stdio.h>
int main()
{
    int num,i,count=0;
    printf("Enter a number :");
    scanf("%d",&num);
    for(i=2;i<num;i++)
    {
        if(num%i==0)
            count=count+1;
    }
    if(count!=0)
    {
        printf("Not Prime");
    }
    else
    {
        printf("Prime");
    }
    return 0;
}
```

Output:

```
Enter a number :13
Prime
Process returned 0 (0x0)   execution time : 3.660 s
Press any key to continue.
```

```
Enter a number :14
Not Prime
Process returned 0 (0x0)   execution time : 2.691 s
Press any key to continue.
```

20. C Program to Check Armstrong Number.

Code:

```c
#include<stdio.h>
int main()
{
    int x,num,rem,sum=0;
    printf("Enter a number:");
    scanf("%d",&num);
    x=num;
    while(x!=0)
    {
        rem=x%10;
        sum+=rem*rem*rem;
        x=x/10;
    }
    if(sum==num)
    {
        printf("Armstrong");
    }
    else
    {
        printf("Not Armstrong");
    }
    return 0;
}
```

Output:

```
Enter a number:153
Armstrong
Process returned 0 (0x0)   execution time : 4.000 s
Press any key to continue.
```

```
Enter a number:54
Not Armstrong
Process returned 0 (0x0)   execution time : 1.222 s
Press any key to continue.
```

21. C Program to Display Factors of a Number.

Code:

```c
#include<stdio.h>
int main()
{
    int num,i;
    printf("Enter an integer:\n");
    scanf("%d",&num);
    for (i=1;i<=num;i=i+1)
    {
        if(num%i==0)
        {
            printf(" %d",i);
        }
    }


    return 0;
}
```

Output:

```
Enter an integer:
12
 1 2 3 4 6 12
Process returned 0 (0x0)   execution time : 2.023 s
Press any key to continue.
```

22. C Program to Make a Simple Calculator Using switch...case.

Code:

```c
#include <stdio.h>
int main()
{
    char op;
    float num1, num2, result=0.0f;
    printf("Enter 1st (number) operator [+ - * /] 2nd number :\n");
    scanf("%f %c %f", &num1, &op, &num2);
    switch(op)
    {
        case '+':
            result = num1 + num2;
            break;
        case '-':
            result = num1 - num2;
            break;
        case '*':
            result = num1 * num2;
            break;
        case '/':
            result = num1 / num2;
            break;
    default:
            printf("Invalid operator");
    }
    printf("%.2f %c %.2f = %.2f", num1, op, num2, result);
    return 0;
}
```

Output:

```
Enter 1st (number) then operator [+ - * /] 2nd (number) :
5+6
5.00 + 6.00 = 11.00
Process returned 0 (0x0)   execution time : 2.166 s
Press any key to continue.
```

```
Enter 1st (number) then operator [+ - * /] 2nd (number) :
5*6
5.00 * 6.00 = 30.00
Process returned 0 (0x0)   execution time : 7.865 s
Press any key to continue.
```

23. C Program to Print Pyramids and Patterns.

Code:

```c
#include<stdio.h>
int main()
{
    int i,j,num;
    printf("Enter a number:");
    scanf("%d",&num);
    for(i=1;i<=num;i=i+1)
    {
        for(j=1;j<=i;j=j+1)
        {
        printf(" *");
        }
        printf("\n");
    }
    return 0;
}
```

Output:

```
Enter a number:7
 *
 * *
 * * *
 * * * *
 * * * * *
 * * * * * *
 * * * * * * *

Process returned 0 (0x0)   execution time : 26.463 s
Press any key to continue.
```

24. Write a C program to accept a coordinate point in an XY coordinate system and determine which quadrant the coordinate point lies.

Code:

```c
#include<stdio.h>
int main()
{
    int x,y;
    printf("Enter a the X coordinate value:");
    scanf("%d",&x);
    printf("Enter a the Y coordinate value:");
    scanf("%d",&y);
    if((x>0) && (y>0))
        printf("First quandrant");
    else if((x<0) && (y>0))
        printf("Second quandrant");
    else if ((x<0) && (y<0))
        printf("Third quandrant");
    else if ((x>0) &&(y<0))
        printf("Fourth quandrant");
    return 0;
}
```

Output:

```
Enter a the X coordinate value:4
Enter a the Y coordinate value:6
First quandrant
Process returned 0 (0x0)   execution time : 5.535 s
Press any key to continue.
```

```
Enter a the X coordinate value:-4
Enter a the Y coordinate value:6
Second quandrant
Process returned 0 (0x0)   execution time : 4.262 s
Press any key to continue.
```

```
Enter a the X coordinate value:-4
Enter a the Y coordinate value:-6
Third quandrant
Process returned 0 (0x0)   execution time : 5.597 s
Press any key to continue.
```

25. Write a program in C to read n number of values in an array and display it in reverse order.

Code:

```c
#include<stdio.h>
int main()
{
    int i,n,a[100];
    printf("Enter the size of Array :");
    scanf("%d",&n);
    for(i=0;i<n;i++)
    {
        printf("Enter element:");
        scanf("%d",&a[i]);

    }
    printf("Entered Array:");
    for(i=0;i<n;i++)
        {
            printf("%2d",a[i]);
        }
    printf("\nReverse Array :");
    for(i=n-1;i>=0;i--)
    {
        printf("%2d",a[i]);
    }
    return 0;
}

```

Output:

```
Enter the size of Array :5
Enter element:1
Enter element:2
Enter element:3
Enter element:4
Enter element:5
Entered Array: 1 2 3 4 5
Reverse Array : 5 4 3 2 1
Process returned 0 (0x0)   execution time : 4.258 s
Press any key to continue.
```

26. Write a program in C to find the sum of all elements of the array.

Code:

```c
#include<stdio.h>
int main()
{
    int i,arr[100],sum=0,size;
    printf("Enter the size of array:\n");
    scanf("%d",&size);
    printf("Enter the elements:\n");
    for(i=0;i<size;i++)
    {
        scanf("%d",&arr[i]);
    }
    for(i=0;i<size;i++)
        sum=sum+arr[i];
    printf("Sum of array=%d",sum);
    return 0;
}
```

Output:

```
Enter the size of array:
5
Enter the elements:
3
4
5
6
7
Sum of array=25
Process returned 0 (0x0)   execution time : 23.890 s
Press any key to continue.
```

27.Write a program in C to count the total number of duplicate elements in an array.

Code:

```c
#include<stdio.h>
int main()
{
    int arr[100],i,j,count=0,size;
    printf("Enter the size of array:");
    scanf("%d",&size);
    printf("Enter the element:\n");
    for(i=0;i<size;i++)
    {
        scanf("%d",&arr[i]);
    }
    for(i=0;i<size;i++)
    {
        for(j=i+1;j<size;j++)
        {
            if(arr[j]==arr[i])
            {
            count++;
            break;
            }
        }
    }
    printf("Duplicate element : %d",count);
    return 0;
}
```

Output:

```
Enter the size of array:5
Enter the element:
2
2
3
3
8
Duplicate element : 2
Process returned 0 (0x0)   execution time : 7.759 s
Press any key to continue.
```

28.Write a program in C to find an array's maximum and minimum elements.

Code:

```c
#include<stdio.h>
int main()
{
    int arr[100],i,size;
     int max,min;
    printf("Enter of size array:");
    scanf("%d",&size);
    printf("Enter the elements:\n");
    for(i=0;i<size;i++)
    {
        scanf("%d",&arr[i]);
    }
    max=arr[0];
    min=arr[0];
    for(i=1;i<size;i++)
    {
        if(max<arr[i])
        {
           max=arr[i];
        }
       if(min>arr[i])
        {
            min=arr[i];
        }
    }

    printf("Max value :%d\n",max);
    printf("Min value :%d",min);
    return 0;
}
```

Output:

```
Enter of size array:5
Enter the elements:
6
9
4
8
2
Max value :9
Min value :2
Process returned 0 (0x0)   execution time : 8.397 s
Press any key to continue.
```

29. Write a program in C to insert a new value in the array (unsorted list).

Code:

```c
#include <stdio.h>

int main()
{
    int arr1[100],i,size,po,in;
        printf("Input the size of array : ");
        scanf("%d", &size);
        printf("Input %d elements in the array:\n",size);
        for(i=0;i<size;i++)
         {
           printf("element -%d : ",i);
           scanf("%d",&arr1[i]);
         }


    printf("Input insert value: ");
    scanf("%d",&in);
    printf("Input the Position:");
    scanf("%d",&po);
    printf("The current array :");
    for(i=0;i<size;i++)
       printf("% 5d",arr1[i]);
    for(i=size;i>=po;i--)
       arr1[i]= arr1[i-1];
       arr1[po-1]=in;
       printf("\n\nAfter Insert the element the new list is :");
    for(i=0;i<=size;i++)
       printf("% 5d",arr1[i]);
       printf("\n\n");
       return 0;
}
```

Output:

```
Input the size of array : 5
Input 5 elements in the array:
element -0 : 6
element -1 : 4
element -2 : 8
element -3 : 4
element -4 : 3
Input insert value: 10
Input the Position:2
The current array :    6    4    8    4    3

After Insert the element the new list is :    6   10    4    8    4    3


Process returned 0 (0x0)   execution time : 27.805 s
Press any key to continue.
```

30.Write a program in C to delete an element at the desired position from an array.

Code:

```c
#include<stdio.h>
int main()
{
    int a[100],i,n,pos;
    printf("Enter the size of Array:");
    scanf("%d",&n);
    printf("Enter the elements:\n");
    for (i=0;i<n;i++)
    {
        scanf("%d",&a[i]);
    }
    printf("Elements of array are:\n");
    for(i=0;i<n;i++)
    {
        printf("a[%d] = %d\n",i,a[i]);
    }
    printf("Deleted Position:\n");
    scanf("%d",&pos);
    for(i=pos;i<n-1;i++)
    {
        a[i]=a[i+1];
    }
    n=n-1;
    printf("New array we get is:\n");
    for(i=0;i<n;i++)
    {
        printf("a[%d] = %d\n",i,a[i]);
    }
    return 0;
}
```

Output:

```
Enter the size of Array:5
Enter the elements:
9
7
5
8
2
Elements of array are:
a[0] = 9
a[1] = 7
a[2] = 5
a[3] = 8
a[4] = 2
Deleted Position:
2
New array we get is:
a[0] = 9
a[1] = 7
a[2] = 8
a[3] = 2

Process returned 0 (0x0)   execution time : 21.795 s
Press any key to continue.
```

```
Enter the size of Array:4
Enter the elements:
5
8
4
9
Elements of array are:
a[0] = 5
a[1] = 8
a[2] = 4
a[3] = 9
Deleted Position:
3
New array we get is:
a[0] = 5
a[1] = 8
a[2] = 4

Process returned 0 (0x0)   execution time : 8.346 s
Press any key to continue.
```

31. Write a program in C to find an element in a given array (Linear search).

Code:

```c
#include<stdio.h>

int main()
{
    int a[100],i,x,n;
    printf("Size of array:");
    scanf("%d",&n);

    printf("Enter array elements:\n");
    for(i=0;i<n;++i)
        scanf("%d",&a[i]);

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

    for(i=0;i<n;++i)
        if(a[i]==x)
            break;

    if(i<n)
        printf("Element found at index:  %d",i);
    else
        printf("Element not found !");

    return 0;
}
```

Output:

```
Size of array:4
Enter array elements:
6
7
9
5
Enter element to search:
7
Element found at index:  1
Process returned 0 (0x0)   execution time : 53.920 s
Press any key to continue.
```

32. Write a program in C to display the sum of the series [1+x+x^2/2!+x^3/3!+....].

Code:

```c
#include<stdio.h>
int main()
{
    float sum=1,x,y=1;
    int i,n ;
    printf("Enter the value of X:");
    scanf("%f",&x);
    printf("Enter the terms:");
    scanf("%d",&n);
    for(i=1;i<n;i++)
    {
       y=y*x/i;
       sum=sum+y;
    }
    printf("The sum =%2f",sum);
    return 0;

}

```

Output:

```
Enter the value of X:3
Enter the terms:4
The sum =13.000000
Process returned 0 (0x0)   execution time : 8.457 s
Press any key to continue.
Enter the value of X:6
Enter the terms:7
The sum =244.600006
Process returned 0 (0x0)   execution time : 5.261 s
Press any key to continue.
```

33. C Program to Convert Binary Number to Decimal and vice-versa.

Code:

Binary number to Decimal number:

```c
#include<stdio.h>
int main()
{
    int bi,de=0,rem,base=1;
    printf("Enter the binary number :");
    scanf("%d",&bi);
    while(bi>0)
    {
        rem=bi%10;
        de=de+rem*base;
        bi=bi/10;
        base=base*2;
    }
    printf("Decimal :%d",de);
    return 0;
}
```

Output:

```
Enter the binary number :1101
Decimal :13
Process returned 0 (0x0)   execution time : 8.024 s
Press any key to continue.
```

Decimal number to Binary number :

Code:

```c
#include <stdio.h>
int main()
{
    int a[10], n, i, j;
    printf("Decimal Number:");
    scanf("%d",&n);
    for(i=0;n>0;i++)
    {
        a[i]=n%2;
        n=n/2;
    }
    printf("\n Binary Number :");
    for(j = i-1;j>=0;j--)
    {
        printf("%2d", a[j]);
    }
    printf("\n");
    return 0;
}
```

Output:

```
Decimal Number:12

 Binary Number : 1 1 0 0

Process returned 0 (0x0)   execution time : 11.598 s
Press any key to continue.
```

34. C Program to Convert Octal Number to Decimal and vice-versa.

Code:

Octal Number to Decimal number :

```c
#include<stdio.h>
int main()
{
    int oc,de=0,rem,base=1;
    printf("Enter the Octal number :");
    scanf("%d",&oc);
    while(oc>0)
    {
        rem=oc%10;
        de=de+rem*base;
        oc=oc/10;
        base=base*8;
    }
    printf("Decimal number :%d",de);
    return 0;
}
```

Output:

```
Enter the Octal number :10
Decimal number :8
Process returned 0 (0x0)   execution time : 1.900 s
Press any key to continue.
```

```
Enter the Octal number :94
Decimal number :76
Process returned 0 (0x0)   execution time : 8.143 s
Press any key to continue.
```

Decimal number to Octal number:

Code :

```c
#include <stdio.h>
#include <math.h>
int main()
{
    int i=0,octal,decimal=0;
    printf("Enter octal number: ");
    scanf("%d",&octal);
    while (octal!=0)
    {
        decimal=decimal+(octal%10)*pow(8,i++);
        octal=octal/10;
    }
    printf("Equivalent decimal value: %ld",decimal);
    return 0;
}
```

Output:

```
Enter octal number: 15
Equivalent decimal value: 13
Process returned 0 (0x0)   execution time : 15.097 s
Press any key to continue.
```

```
Enter octal number: 41
Equivalent decimal value: 33
Process returned 0 (0x0)   execution time : 2.279 s
Press any key to continue.
```

35. C Program to Convert Binary Number to Octal and vice-versa.

Binary Number to Octal number:

Code:

```c
#include <stdio.h>
int main()
{
     int bi,oct=0,j=1,rem;

    printf("Enter binary number: ");
    scanf("%d",&bi);
    while (bi!=0)
    {
        rem=bi%10;
        oct=oct+rem*j;
        j=j*2;
        bi=bi/10;
    }
    printf("Octal value: %d",oct);
    return 0;
}
```

Output:

```
Enter binary number: 101
Octal value: 5
Process returned 0 (0x0)   execution time : 3.209 s
Press any key to continue.
```

```
Enter binary number: 10011
Octal value: 19
Process returned 0 (0x0)   execution time : 3.790 s
Press any key to continue.
```

Octal number to Binary number :

Code:

```c
#include <stdio.h>
#include <math.h>
int main()
{
    int  j,i=0,octal,decimal=0,a[100];
    printf("Enter octal number: ");
    scanf("%d",&octal);
    while (octal!=0)
    {
        decimal=decimal+(octal%10)*pow(8,i++);
        octal=octal/10;
    }
    for(i=0;decimal>0;i++)
    {
        a[i]=decimal%2;
        decimal=decimal/2;
    }
    printf("\nBinary Number :");
    for(j = i-1;j>=0;j--)
    {
        printf("%2d", a[j]);
    }
    return 0;
}
```

Output:

```
Enter octal number: 65

Binary Number : 1 1 0 1 0 1
Process returned 0 (0x0)   execution time : 8.566 s
Press any key to continue.
```