

## Assignment-3

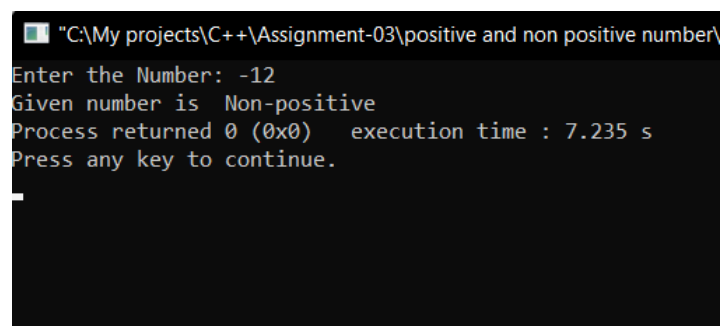
### Decision control statements

1. A program to check whether a given number is positive or non-positive.

```
#include <stdio.h>
```

```
int main()
{
    int x;
    printf("Enter the Number: ");
    scanf("%d",&x);
    printf("Given number is ");
    if(x>0)
    {
        printf("Positive");
    }
    else
    {
        printf("Non-positive");
    }
    return 0;
}
```

OUTPUT:

A screenshot of a Windows command prompt window. The title bar shows the file path: "C:\My projects\C++\Assignment-03\positive and non positive number\". The command prompt displays the following text: "Enter the Number: -12", "Given number is Non-positive", "Process returned 0 (0x0) execution time : 7.235 s", and "Press any key to continue.". A cursor is visible on the line "Press any key to continue.".

```
"C:\My projects\C++\Assignment-03\positive and non positive number\"
Enter the Number: -12
Given number is Non-positive
Process returned 0 (0x0) execution time : 7.235 s
Press any key to continue.
```

2. program to check whether a given number is divisible by 5 or not.

```
#include <stdio.h>
```

```
int main()
```

```
{
```

```
    int x;
```

```
    printf("ENter the Number: ");
```

```
    scanf("%d",&x);
```

```
    printf("Given number is ");
```

```
    if(x%5==0)
```

```
    {
```

```
        printf("Divisible by 5");
```

```
    }
```

```
    else
```

```
    {
```

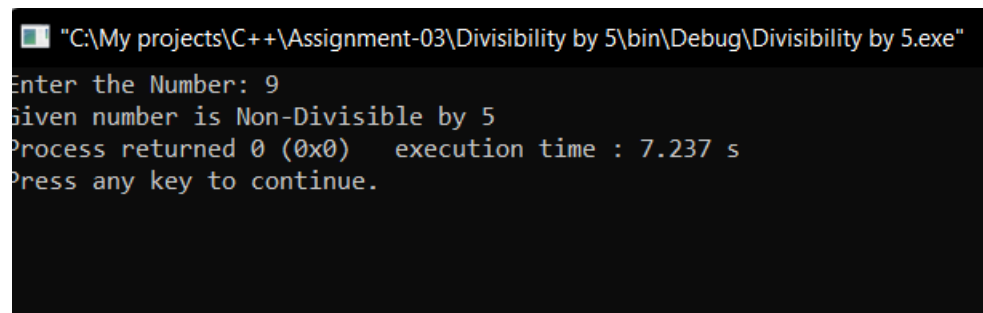
```
        printf("Non-Divisible by 5");
```

```
    }
```

```
    return 0;
```

```
}
```

OUTPUT:



```
"C:\My projects\C++\Assignment-03\Divisibility by 5\bin\Debug\Divisibility by 5.exe"
Enter the Number: 9
Given number is Non-Divisible by 5
Process returned 0 (0x0)   execution time : 7.237 s
Press any key to continue.
```

3. program to check whether a given number is an even number or an odd number.

```
#include <stdio.h>
```

```
int main()
```

```
{
```

```

int x;

printf("ENter the Number: ");

scanf("%d",&x);

printf("Given no. is: ");

if(x%2==0)
{
    printf("Even");
}
else
{
    printf("Odd");
}

return 0;
}

```

OUTPUT:

```

C:\My projects\C++\ASSIGNMENT-3\bin\Debug\ASSIGNMENT-3.exe
Enter the Number: 101
Given no. is: Odd
Process returned 0 (0x0)   execution time : 2.191 s
Press any key to continue.

```

4. A program to check whether a given number is a three-digit number or not.

```

#include<stdio.h>
int main()
{
    int x,y;
    printf("Enter the number: ");
    scanf("%d",&x);
    printf("Given number is: ");
    if(x/100)
    {
        y=x/100;
    }
}

```

```

        if(y>9)
        {printf("Not Three-digit number.");}
        else
        {
            printf("Three-digit number.");
        }
    }

    else
    {
        printf("Not Three-digit number");
    }
    return 0;

}

```

OUTPUT:

```

C:\My projects\C++\Assignment-3 part2\bin\Debug\Assignment-3 part2.exe
Enter the number: 2133
Given number is: Not Three-digit number.
Process returned 0 (0x0) execution time : 5.895 s
Press any key to continue.

```

5. Program to print greater between two numbers. Print one number if both are the same.

```

#include<stdio.h>
int main()
{
    int x,y;
    printf("Enter the value of x: ");
    scanf("%d",&x);
    printf("\n Enter the value of y: ");
    scanf("%d",&y);
    printf("The greater number: %d",x>y?x:y);

}

```

OUTPUT:

```
"C:\My projects\C++\Assignment-3 part2\bin\Debug\Assignment-3 part2.exe"
Enter the value of x: 123

Enter the value of y: 321
The greater number is: 321
Process returned 0 (0x0)   execution time : 5.140 s
Press any key to continue.
```

6. Write a program to check whether roots of a given quadratic equation are real & distinct, real & equal or imaginary roots.

```
#include<stdio.h>
int main()
{
    int a,b,c,D;
    printf("Enter the value of a: ");
    scanf("%d",&a);
    printf("\nEnter the value of b: ");
    scanf("%d",&b);
    printf("\n Enter the value of c: ");
    scanf("%d",&c);
    D=b*b-4*a*c;
    D==0?printf("Roots are Real and equal"):D>0?printf("Roots are Real and
distinct"):printf("Roots are imaginary");
    return 0;
}
OUTPUT:
```

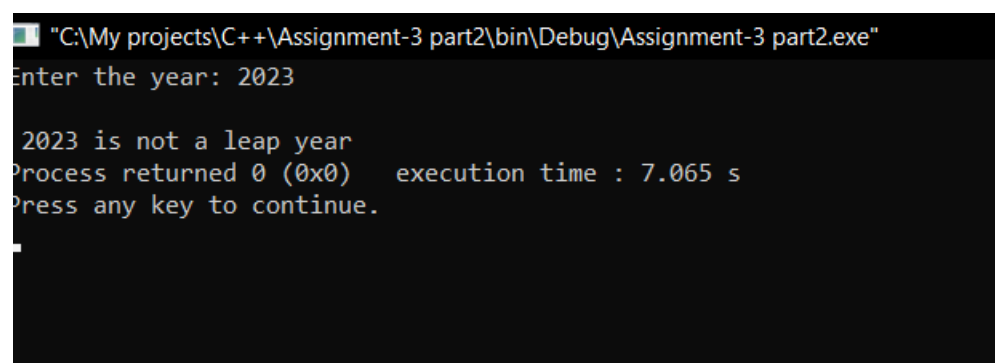
```
"C:\My projects\C++\Assignment-3 part2\bin\Debug\Assignment-3 part2.exe"
Enter the value of a: 9

Enter the value of b: 8

Enter the value of c: 7
Roots are imaginary
Process returned 0 (0x0)   execution time : 4.286 s
Press any key to continue.
```

7. Write a program to check whether a given year is a leap year or not.

```
#include<stdio.h>
int main()
{
    int y,leap;
    printf("Enter the year: ");
    scanf("%d",&y);
    leap=y%4;
    if(leap) printf("\n %d is not a leap year",y);
    else printf("\n %d is a leap year",y);
    return 0;
}OUTPUT:
```



```
"C:\My projects\C++\Assignment-3 part2\bin\Debug\Assignment-3 part2.exe"
Enter the year: 2023

2023 is not a leap year
Process returned 0 (0x0)   execution time : 7.065 s
Press any key to continue.
```

8. program to check whether a given number is an even number or an odd number without using % operator.

```
#include <stdio.h>

int main()
{
    int x,q,r;
    printf("Enter the number: ");
    scanf("%d",&x);
    printf("Given number is ");
    q=x/2;
    r=x-2*q;
    if(r) printf("Odd");
    else printf("Even");
    return 0;
}
Output:
```

```
"C:\My projects\C++\Assignment-03\odd and even without mdulus\bin\Debug\odd and even without m
Enter the number: 3
Given number is Odd
Process returned 0 (0x0)   execution time : 4.880 s
Press any key to continue.
```

9. Write a program to find the greatest among three given numbers. Print number once if the greatest number appears two or three times.

```
#include<stdio.h>
int main()
{
    int x,y,z;
    printf("Enter the value of x: ");
    scanf("%d",&x);
    printf("Enter the value of y: ");
    scanf("%d",&y);
    printf("Enter the value of z: ");
    scanf("%d",&z);
    printf("The greater number is ");
    if(x>y&& x>z) printf("%d",x);
    else if(y>z) printf("%d",y);
    else        printf("%d",z);

    return 0;
}
```

OUTPUT:

```
"C:\My projects\C++\Assignment-03\greater among three\bin\Debug\greater among three.exe"
Enter the value of x: 12
Enter the value of y: 21
Enter the value of z: 12
The greater number is 21
Process returned 0 (0x0)   execution time : 12.658 s
Press any key to continue.
```

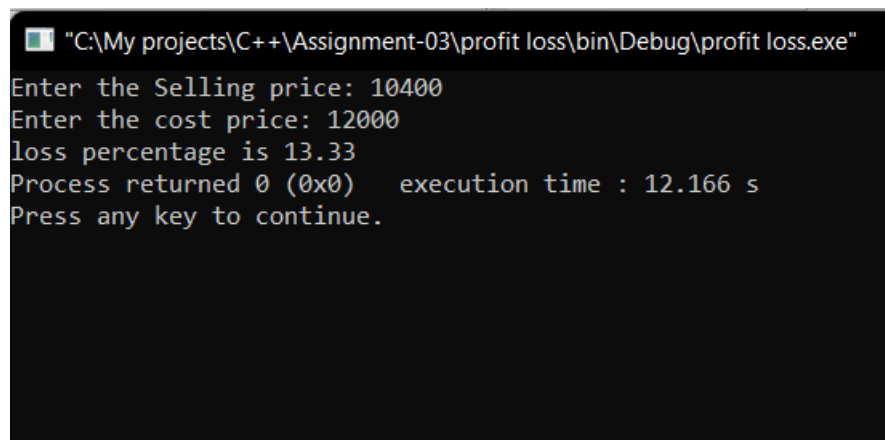
10. Write a program which takes the cost price and selling price of a product from the user.  
Now calculate and print profit or loss percentage.

```
#include <stdio.h>

int main()
{
    float sp,cp,pl,per;
    printf("Enter the Selling price: ");
    scanf("%f",&sp);
    printf("Enter the cost price: ");
    scanf("%f",&cp);
    pl=sp-cp;
    per=pl/cp*100;
    if(pl>0) printf("Profit percentage is %.2f",per);
    else    printf("loss percentage is %.2f",-1*per);

    return 0;
}
```

OUTPUT:



```
"C:\My projects\C++\Assignment-03\profit loss\bin\Debug\profit loss.exe"
Enter the Selling price: 10400
Enter the cost price: 12000
loss percentage is 13.33
Process returned 0 (0x0)   execution time : 12.166 s
Press any key to continue.
```

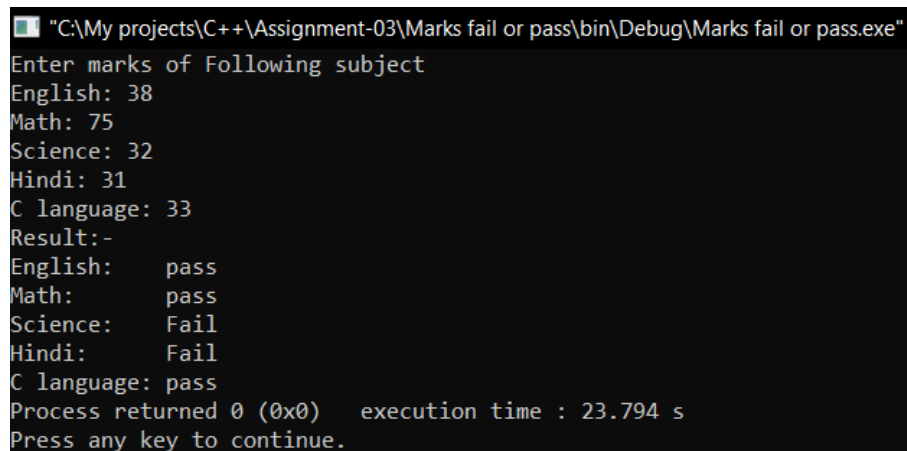


11. Write a program to take marks of 5 subjects from the user. Assume marks are given out of 100 and passing marks is 33. Now display whether the candidate passed the examination or failed.

```
#include<stdio.h>

int main()
{
    int e,m,s,h,c;
    printf("Enter marks of Following subject");
    printf("\nEnglish: ");scanf("%d",&e);
    printf("Math: "); scanf("%d",&m);
    printf("Science: ");scanf("%d",&s);
    printf("Hindi: "); scanf("%d",&h);
    printf("C language: ");scanf("%d",&c);
    printf("Result:-\n");
    printf("English:  ");   e>=33?printf("pass"):printf("Fail");
    printf("\nMath:    ");   m>=33?printf("pass"):printf("Fail");
    printf("\nScience:  ");   s>=33?printf("pass"):printf("Fail");
    printf("\nHindi:    ");   h>=33?printf("pass"):printf("Fail");
    printf("\nC language: "); c>=33?printf("pass"):printf("Fail");
    return 0;
}
```

OUTPUT:



```
"C:\My projects\C++\Assignment-03\Marks fail or pass\bin\Debug\Marks fail or pass.exe"
Enter marks of Following subject
English: 38
Math: 75
Science: 32
Hindi: 31
C language: 33
Result:-
English:   pass
Math:      pass
Science:   Fail
Hindi:     Fail
C language: pass
Process returned 0 (0x0)   execution time : 23.794 s
Press any key to continue.
```

12. Write a program to check whether a given alphabet is in uppercase or lowercase.

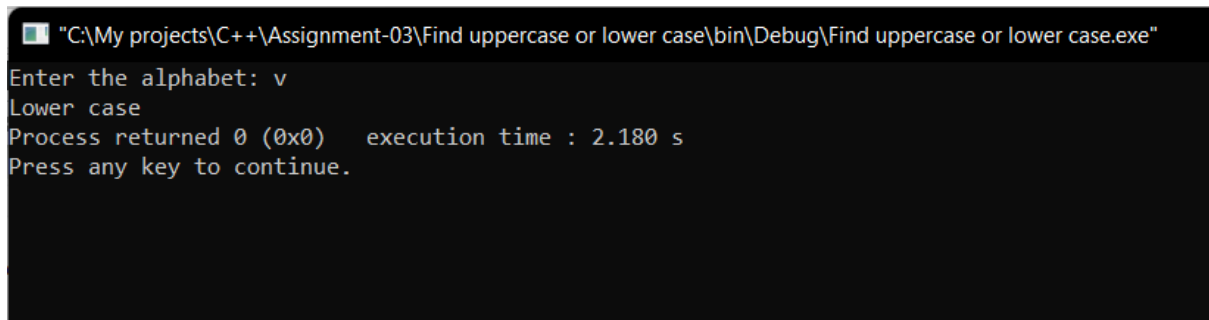
```
#include<stdio.h>

int main()
{
    char x;

    printf("Enter the alphabet: ");
    scanf("%c",&x);

    if('a'<=x&&x<='z') printf("Lower case");
    if('A'<=x&&x<='Z') printf("Upper case");

    return 0;
}
```



```
"C:\My projects\C++\Assignment-03\Find uppercase or lower case\bin\Debug\Find uppercase or lower case.exe"
Enter the alphabet: v
Lower case
Process returned 0 (0x0)   execution time : 2.180 s
Press any key to continue.
```

13. Write a program to check whether a given number is divisible by 3 and divisible by 7.

```
#include <stdio.h>

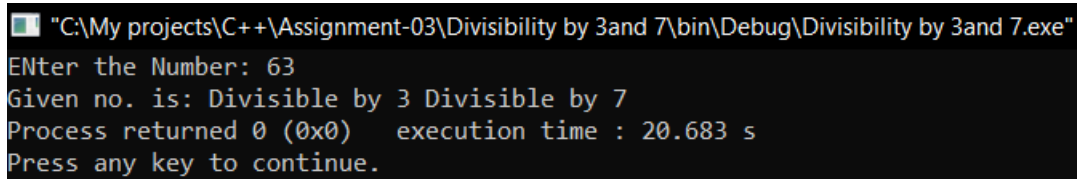
int main()
{
    int x;

    printf("ENter the Number: ");
    scanf("%d",&x);

    printf("Given no. is: ");
    if(x%3==0) printf("Divisible by 3 ");
    if(x%7==0) printf("Divisible by 7");
    else if(x%3) printf("Neither by 3 nor divisible by 7");

    return 0;
}
```

```
}
```

A screenshot of a Windows command prompt window. The title bar reads "C:\My projects\C++\Assignment-03\Divisibility by 3and 7\bin\Debug\Divisibility by 3and 7.exe". The output shows the user entering the number 63, followed by the program output: "Given no. is: Divisible by 3 Divisible by 7", "Process returned 0 (0x0) execution time : 20.683 s", and "Press any key to continue.".

```
"C:\My projects\C++\Assignment-03\Divisibility by 3and 7\bin\Debug\Divisibility by 3and 7.exe"
Enter the Number: 63
Given no. is: Divisible by 3 Divisible by 7
Process returned 0 (0x0) execution time : 20.683 s
Press any key to continue.
```

14. Write a program to check whether a given number is divisible by 2 or divisible by 3.

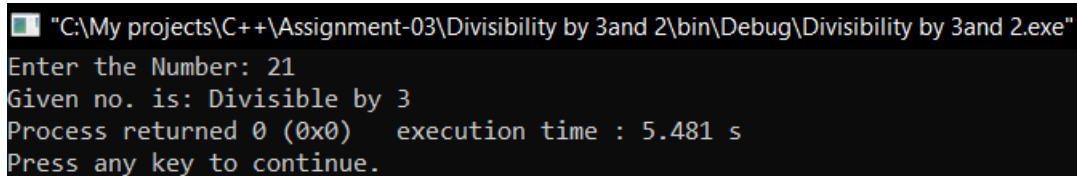
```
#include <stdio.h>

int main()
{
    int x;

    printf("Enter the Number: ");
    scanf("%d",&x);

    printf("Given no. is: ");
    if(x%2==0) printf("Divisible by 2 ");
    if(x%3==0) printf("Divisible by 3");
    else if(x%2) printf("Neither by 3 nor divisible by 2");

    return 0;
}
```

A screenshot of a Windows command prompt window. The title bar reads "C:\My projects\C++\Assignment-03\Divisibility by 3and 2\bin\Debug\Divisibility by 3and 2.exe". The output shows the user entering the number 21, followed by the program output: "Given no. is: Divisible by 3", "Process returned 0 (0x0) execution time : 5.481 s", and "Press any key to continue.".

```
"C:\My projects\C++\Assignment-03\Divisibility by 3and 2\bin\Debug\Divisibility by 3and 2.exe"
Enter the Number: 21
Given no. is: Divisible by 3
Process returned 0 (0x0) execution time : 5.481 s
Press any key to continue.
```

15. Write a program to check whether a given number is positive, negative or zero.

```
#include <stdio.h>
```

```
int main()
```

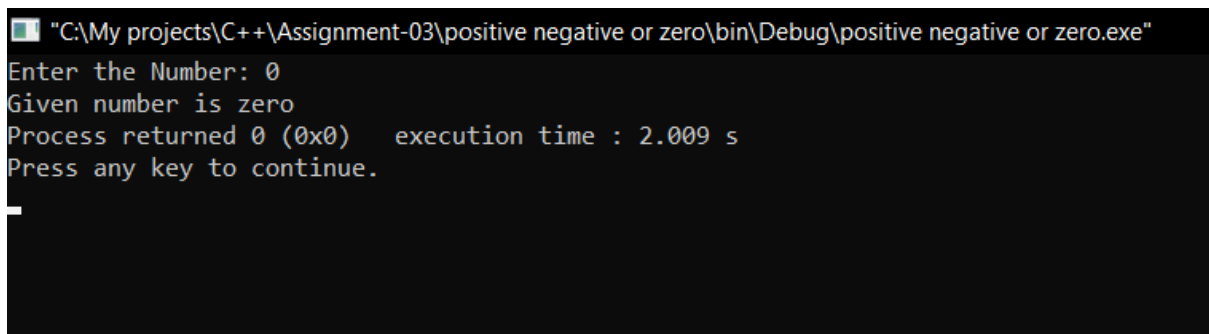
```

{
    int x;

    printf("Enter the Number: ");
    scanf("%d",&x);
    printf("Given number is ");
    if(x>0) printf("Positive");
    else if(x<0) printf("Negative");
    else printf("zero");

    return 0;
}

```



```

"C:\My projects\C++\Assignment-03\positive negative or zero\bin\Debug\positive negative or zero.exe"
Enter the Number: 0
Given number is zero
Process returned 0 (0x0)   execution time : 2.009 s
Press any key to continue.

```

16. Write a program to check whether a given character is an alphabet (uppercase), an alphabet (lower case), a digit or a special character.

```

#include<stdio.h>

int main()
{
    char x;

    printf("Enter any character: ");
    scanf("%c",&x);
    if('a'<=x&&x<='z') printf("Lower case");
    else if('A'<=x&&x<='Z') printf("Upper case");
    else if('0'<=x&&x<='9') printf("digit");
    else printf("Special character");

    return 0;
}

```

OUTPUT:

```
"C:\My projects\C++\Assignment-03\identify character type\bin\Debug\identify character type.exe"
Enter any character: &
Special character
Process returned 0 (0x0)    execution time : 6.540 s
Press any key to continue.
```

17. Write a program which takes the length of the sides of a triangle as an input. Display whether the triangle is valid or not.

```
#include<stdio.h>

int main()
{
    int a,b,c;

    printf("Enter sides of Triangle: ");
    scanf("%d%d%d",&a,&b,&c);

    if(a+b>c&&b+c>a&&a+c>b) printf("Valid Triangle");
    else printf("Invalid Triangle");

    return 0;
}
```

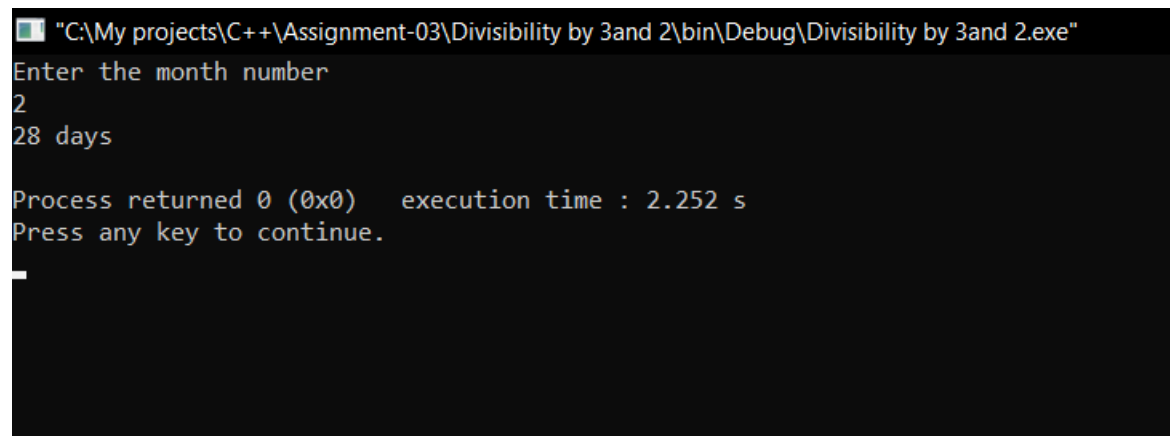
OUTPUT:

```
"C:\My projects\C++\Assignment-03\valid or invalid triangle\bin\Debug\valid or invalid triangle.exe"
Enter sides of Triangle: 3
4
6
Valid Triangle
Process returned 0 (0x0)    execution time : 5.209 s
Press any key to continue.
```

18. Write a program which takes the month number as an input and display number of days in that month\*/

```
#include<stdio.h>

int main()
{
    int x;
    printf("Enter the month number\n");
    scanf("%d",&x);
    if(x%2)
    {
        if(x<=7) printf("31 days"); else printf("30 days");printf("\n");
    }
    else
    {
        if(x>=8) printf("31 days \n"); else if(x>2) printf("30 days \n");
        else printf("28 days \n");
    }
    return 0;
}OUTPUT :
```



```
"C:\My projects\C++\Assignment-03\Divisibility by 3and 2\bin\Debug\Divisibility by 3and 2.exe"
Enter the month number
2
28 days

Process returned 0 (0x0)   execution time : 2.252 s
Press any key to continue.
```