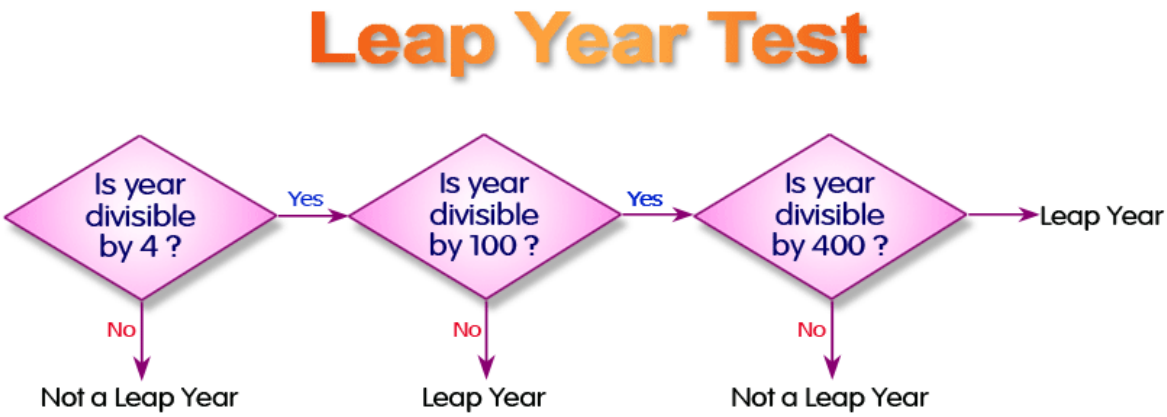
Final Exer

1. Write a C program to find whether a given year is a leap year or not.

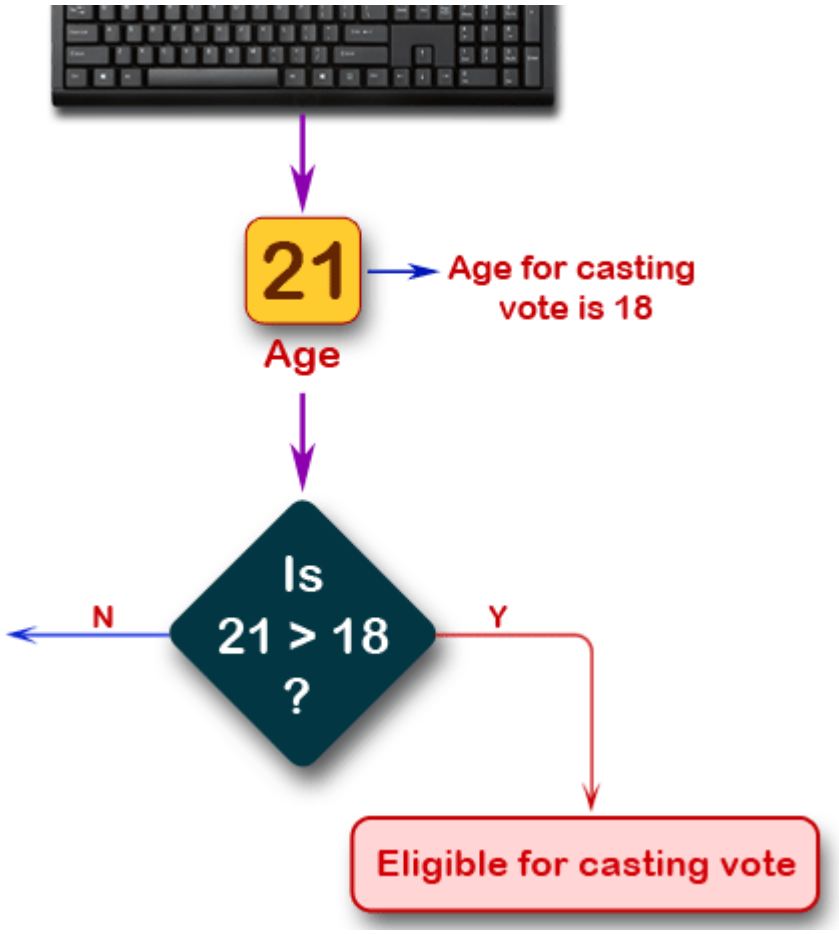


Sol:

```c
#include <stdio.h>
void main()
{
    int chk_year;

    printf("Input a year :");
    scanf("%d", &chk_year);
    if ((chk_year % 400) == 0)
        printf("%d is a leap year.\n", chk_year);
    else if ((chk_year % 100) == 0)
        printf("%d is a not leap year.\n", chk_year);
    else if ((chk_year % 4) == 0)
        printf("%d is a leap year.\n", chk_year);
    else
        printf("%d is not a leap year \n", chk_year);
}
```

2. Write a C program to read the age of a candiadte and detrermine whether it is eligible for casting his/her own vote.



Sol:

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

  printf("Input the age of the candidate : ");
  scanf("%d",&vote_age);
  if (vote_age<18)
     {
       printf("Sorry, You are not eligible to caste your vote.\n");
       printf("You would be able to caste your vote after %d year.\n",18-
vote_age);
     }
  else
     printf("Congratulation! You are eligible for casting your vote.\n");
}
```

3. Write a C program to read the value of an integer m and display the value of n is 1 when m is larger than 0, 0 when m is 0 and -1 when m is less than 0.
   Sol:

```
#include <stdio.h>
void main()
{
   int m,n;
   printf("Input the  value of m :");
   scanf("%d",&m);
   if(m!=0)
     if(m>0)
        n=1;
     else
        n=-1;
   else
     n=0;
   printf("The value of m = %d \n",m);
   printf("The value of n = %d \n",n);
}
```

4. Write a C program to find the largest of three numbers.
   Sol:

```
#include <stdio.h>
void main()
{
    int num1, num2, num3;

    printf("Input the values of three numbers : ");
    scanf("%d %d %d", &num1, &num2, &num3);
    printf("1st Number = %d,\t2nd Number = %d,\t3rd Number = %d\n", num1,
num2, num3);
    if (num1 > num2)
    {
        if (num1 > num3)
        {
            printf("The 1st Number is the greatest among three. \n");
        }
        else
        {
            printf("The 3rd Number is the greatest among three. \n");
        }
    }
    else if (num2 > num3)
        printf("The 2nd Number is the greatest among three \n");
    else
        printf("The 3rd Number is the greatest among three \n");
}
```

OR

```
#include <stdio.h>
void main() {
    int num1, num2, num3;

    printf("Input the values of three numbers : ");
    scanf("%d %d %d", &num1, &num2, &num3);
    printf("1st Number = %d,\t2nd Number = %d,\t3rd Number = %d\n", num1,
num2, num3);

   if ((num1 > num2) && (num1 > num3))
            printf("The 1st Number is the greatest among three. \n");

   if ((num2 > num3) && (num2 > num1))
        printf("The 2nd Number is the greatest among three \n");

   if ((num3 > num1) && (num3 > num2))
           printf("The 3rd Number is the greatest among three. \n");

}
```

5. Write a C program to find the eligibility of admission for a professional course based on the following criteria:
   Marks in Maths >=65
   Marks in Phy >=55
   Marks in Chem>=50
   Total in all three subject >=180
   or
   Total in Math and Subjects >=140
   Sol:

```
#include <stdio.h>
void main()
{  int p,c,m,t,mp;

   printf("Eligibility Criteria :\n");
   printf("Marks in Maths >=65\n");
   printf("and Marks in Phy >=55\n");
   printf("and Marks in Chem>=50\n");
   printf("and Total in all three subject >=180\n");
   printf("or Total in Maths and Physics >=140\n");
   printf("-------------------------------------\n");

   printf("Input the marks obtained in Physics :");
   scanf("%d",&p);
   printf("Input the marks obtained in Chemistry :");
```

```
   scanf("%d",&c);
   printf("Input the marks obtained in Mathematics :");
   scanf("%d",&m);
   printf("Total marks of Maths, Physics and Chemistry : %d\n",m+p+c);
   printf("Total marks of Maths and  Physics : %d\n",m+p);

   if (m>=65)
         if(p>=55)
             if(c>=50)
                if((m+p+c)>=180||(m+p)>=140)
                   printf("The  candidate is eligible for admission.\n");
                else
                  printf("The candidate is not eligible.\n");
             else
            printf("The candidate is not eligible.\n");
         else
           printf("The candidate is not eligible.\n");
    else
     printf("The candidate is not eligible.\n");
}
```

6.

Write a C program to read temperature in centigrade and display a suitable message according to temperature state below :
Temp < 0 then Freezing weather
Temp 0-10 then Very Cold weather
Temp 10-20 then Cold weather
Temp 20-30 then Normal in Temp
Temp 30-40 then Its Hot
Temp >=40 then Its Very Hot

Sol:

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

    printf("Input days temperature : ");
    scanf("%d",&tmp);
   if(tmp<0)
             printf("Freezing weather.\n");
   else if(tmp<10)
            printf("Very cold weather.\n");
            else if(tmp<20)
                        printf("Cold weather.\n");
                   else if(tmp<30)
```

```
                        printf("Normal in temp.\n");
                    else if(tmp<40)
                                printf("Its Hot.\n");
                            else
                                   printf("Its very hot.\n");

}
```

6. Write a program in C to read any day number in integer and display day name in the word.
   Test Data :
   4
   Expected Output :
   Thursday
   Sol:

```
#include <stdio.h>
void main()
{
   int dayno;
   printf("Input Day No : ");
   scanf("%d",&dayno);
   switch(dayno)
   {
        case 1:
               printf("Monday \n");
               break;
        case 2:
               printf("Tuesday \n");
               break;
        case 3:
               printf("Wednesday \n");
               break;
        case 4:
               printf("Thursday \n");
               break;
        case 5:
               printf("Friday \n");
               break;
        case 6:
               printf("Saturday \n");
               break;
        case 7:
               printf("Sunday  \n");
               break;
        default:
               printf("Invalid day number. \nPlease try again ....\n");
```

```
                break;
        }
}
```

7. Write a program in C to read any digit, display in the word.

Sol:

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

   printf("Input Digit(0-9) : ");
   scanf("%d",&cdigit);
   switch(cdigit)
   {
         case 0:
               printf("Zero\n");
               break;

         case 1:
               printf("one\n");
               break;
        case 2:
               printf("Two\n");
               break;
        case 3:
               printf("Three\n");
               break;
        case 4:
               printf("Four\n");
               break;
        case 5:
               printf("Five\n");
               break;
        case 6:
               printf("Six\n");
               break;
        case 7:
               printf("Seven\n");
               break;
        case 8:
               printf("Eight\n");
               break;
        case 9:
               printf("Nine\n");
               break;
```

```
        default:
               printf("invalid digit. \nPlease try again ....\n");
               break;
      }
}
```

8.

Write a program in C to display n terms of natural number and their sum.
Test Data : 7
Expected Output :
The first 7 natural number is :
1 2 3 4 5 6 7
The Sum of Natural Number upto 7 terms : 28

```
#include <stdio.h>
void main()
{
   int i,n,sum=0;
   printf("Input Value of terms : ");
   scanf("%d",&n);
   printf("\nThe first %d natural numbers are:\n",n);
   for(i=1;i<=n;i++)
   {
     printf("%d ",i);
     sum+=i;
   }
   printf("\nThe Sum of natural numbers upto %d terms : %d \n",n,sum);

}
```

9.

Write a program in C to display the cube of the number upto given an integer. Test Data :
Input number of terms : 5
Expected Output :
Number is : 1 and cube of the 1 is :1
Number is : 2 and cube of the 2 is :8
Number is : 3 and cube of the 3 is :27
Number is : 4 and cube of the 4 is :64
Number is : 5 and cube of the 5 is :125

```
#include <stdio.h>
void main()
 {
    int i,ctr;
    printf("Input number of terms : ");
    scanf("%d", &ctr);
    for(i=1;i<=ctr;i++)
    {
```

```
        printf("Number is : %d and cube of the %d is :%d \n",i,i,
(i*i*i));
    }
 }
```

10. Write a program in C to display the multipliaction table vertically from 1 to n.

Test Data :
Input upto the table number starting from 1 : 8
Expected Output :
Multiplication table from 1 to 8
1x1 = 1, 2x1 = 2, 3x1 = 3, 4x1 = 4, 5x1 = 5, 6x1 = 6, 7x1 = 7, 8x1 = 8
...
1x10 = 10, 2x10 = 20, 3x10 = 30, 4x10 = 40, 5x10 = 50, 6x10 = 60, 7x10 = 70, 8x10 = 80

```
include <stdio.h>
void main()
{
   int j,i,n;
   printf("Input upto the table number starting from 1 : ");
   scanf("%d",&n);
   printf("Multiplication table from 1 to %d \n",n);
   for(i=1;i<=10;i++)
   {
     for(j=1;j<=n;j++)
     {
       if (j<=n-1)
           printf("%dx%d = %d, ",j,i,i*j);
          else
            printf("%dx%d = %d",j,i,i*j);

      }
     printf("\n");
```

11. Write a program in C to make such a pattern like a pyramid with numbers increased by 1

```
   1
  2 3
 4 5 6
7 8 9 10
Sol:
#include <stdio.h>
void main()
{
   int i,j,spc,rows,k,t=1;
   printf("Input number of rows : ");
   scanf("%d",&rows);
```

```
   spc=rows+4-1;
   for(i=1;i<=rows;i++)
   {
         for(k=spc;k>=1;k--)
            {
              printf(" ");
            }
           for(j=1;j<=i;j++)
           printf("%d ",t++);
        printf("\n");
    spc--;
   }
}
```

12.

Write a C program to calculate the factorial of a given number

Test Data :

Input the number : 5

Expected Output :

The Factorial of 5 is: 120

```
#include <stdio.h>
void main(){
  int i,f=1,num;

  printf("Input the number : ");
  scanf("%d",&num);

  for(i=1;i<=num;i++)
      f=f*i;

  printf("The Factorial of %d is: %d\n",num,f);
}
```

13.

Write a program in C to print the Floyd's Triangle.

```
1
01
101
0101
10101
#include <stdio.h>

void main()
{
```

```
   int i,j,n,p,q;
   printf("Input number of rows : ");
   scanf("%d",&n);
   for(i=1;i<=n;i++)
   {
     if(i%2==0)
     { p=1;q=0;}
     else
     { p=0;q=1;}
      for(j=1;j<=i;j++)
         if(j%2==0)
            printf("%d",p);
         else
            printf("%d",q);
     printf("\n");
   }
}
```

14.Trace the following c prog

r=5

```
#include <stdio.h>

void main()
{
   int i,j,r;
   printf("Input number of rows (half of the diamond) :");
   scanf("%d",&r);
   for(i=0;i<=r;i++)
   {
     for(j=1;j<=r-i;j++)
     printf(" ");
     for(j=1;j<=2*i-1;j++)
       printf("*");
     printf("\n");
   }

   for(i=r-1;i>=1;i--)
   {
     for(j=1;j<=r-i;j++)
     printf(" ");
     for(j=1;j<=2*i-1;j++)
       printf("*");
     printf("\n");
   }
}
```