58 Easter Day

"Whoever makes himself great will be made humble."

Easter is one of the important celebrations for Christians. Easter day is always a Sunday. So it is not celebrated on certain date like Christmas or New Year. In the Gregorian calendar, the date of Easter is defined to occur on the Sunday following the ecclesiastical Full Moon that falls on or next after March 21.

58.1 Oudin's Algorithm

Oudin has developed an algorithm to find out the 'Easter day'. Perhaps it is one of the greatest 'mysterious' algorithms.

58.2 Easter Day Program

The following program implements Oudin's algorithm to find Easter day. It works for almost all Gregorian years. For a given year, it gives you the Easter day in Month-Day format.

```
char *Month_Tbl[12] =  {
                    "January", "February", "March", "April", "May",
                    "June", "July", "August", "September",
                    "October", "November", "December"
                  };

void Easter( int *d, int *m, int y )
{
    int c, n, k, i, j, l;
    c = y/100;
    n = y - 19*(y/19);
    k = (c - 17)/25;
    i = c - c/4 - (c - k)/3 + 19*n + 15;
    i = i - 30*(i/30);
    i = i - (i/28)*(1 - (i/28)*(29/(i + 1))*((21 - n)/11));
    j = y + y/4 + i + 2 - c + c/4;
    j = j - 7*(j/7);
    l = i - j;
    *m = 3 + (l + 40)/44;
    *d = l + 28 - 31*(*m/4);
} /*--Easter( )--------*/
```

```
int main( void )
{
    int d, m, y;
    printf( "Enter the year (Gregorian year): " );
    scanf( "%d", &y );
    Easter( &d, &m, y );
    printf( "Easter in the year %d is %s %d \n",
                        y, Month_Tbl[m-1], d );
    return(0);
} /*--main( )------*/
```