

## Algorithms Level 4



26+ Years  
of Experience

# PROGRAMMING ADVICES

LEARN THE  
RIGHT WAY

**Mohammed Abu-Hadhoud**

MBA, PMOC, PgMP®, PMP®, PMI-RMP®, CM, ITIL®, MCPD, MCSD



حقوق النشر محفوظة، أسعار الكورسات في المنصة هي أسعار  
رمزية جدا، ارجو عدم نشر هذه الوثيقة لان نشرها سيمنعنا من  
الاستمرار في تقديم العلم للآخرين

ارجو عدم استخدام هذه الوثيقة من غير وجه حق لأنك ستحرم الاف  
الناس من التعلم

**[ProgrammingAdVICES.com](https://ProgrammingAdVICES.com)**



## Problem # 11/4 Solution Using C++

```
#include <iostream>
using namespace std;

bool isLeapYear(short Year)
{
    return (Year % 4 == 0 && Year % 100 != 0) || (Year % 400 == 0);
}

short NumberOfDaysInAMonth(short Month, short Year)
{
    if (Month < 1 || Month > 12)
        return 0;

    int days[12] = { 31, 28, 31, 30, 31, 30, 31, 31, 30, 31, 30, 31 };
    return (Month == 2) ? (isLeapYear(Year) ? 29 : 28) :
days[Month - 1];
}

short NumberOfDaysFromTheBeginningOfTheYear(short Day, short Month,
short Year)
{
    short TotalDays = 0;

    for (int i = 1; i <= Month - 1; i++)
    {
        TotalDays += NumberOfDaysInAMonth(i, Year);
    }

    TotalDays += Day;

    return TotalDays;
}

struct sDate
{
    short Year;
    short Month;
    short Day;
};
```



## Problem # 11/4 Solution Using C++

```
sDate GetDateFromDayOrderInYear(short DateOrderInYear, short Year)
{
    sDate Date;
    short RemainingDays = DateOrderInYear;
    short MonthDays = 0;

    Date.Year = Year;
    Date.Month = 1;

    while (true)
    {
        MonthDays = NumberOfDaysInAMonth(Date.Month, Year);

        if (RemainingDays > MonthDays)
        {
            RemainingDays -= MonthDays;
            Date.Month++;
        }
        else
        {
            Date.Day = RemainingDays;
            break;
        }
    }

    return Date;
}

short ReadDay()
{
    short Day;
    cout << "\nPlease enter a Day? ";
    cin >> Day;
    return Day;
}

short ReadMonth()
{
    short Month;
    cout << "\nPlease enter a Month? ";
    cin >> Month;
    return Month;
}
```



## Problem # 11/4 Solution Using C++

```
short ReadYear()
{
    short Year;
    cout << "\nPlease enter a Year? ";
    cin >> Year;
    return Year;
}

int main()
{
    short Day = ReadDay();
    short Month = ReadMonth();
    short Year = ReadYear();
    short DaysOrderInYear =
        NumberOfDaysFromTheBeginingOfTheYear(Day, Month, Year);

    cout << "\nNumber of Days from the begining of the year is "
         << DaysOrderInYear << "\n\n";

    sDate Date;
    Date = GetDateFromDayOrderInYear(DaysOrderInYear, Year);
    cout << "Date for [" << DaysOrderInYear << "] is: ";
    cout << Date.Day << "/" << Date.Month << "/" << Date.Year;

    system("pause>0");
    return 0;
}
```