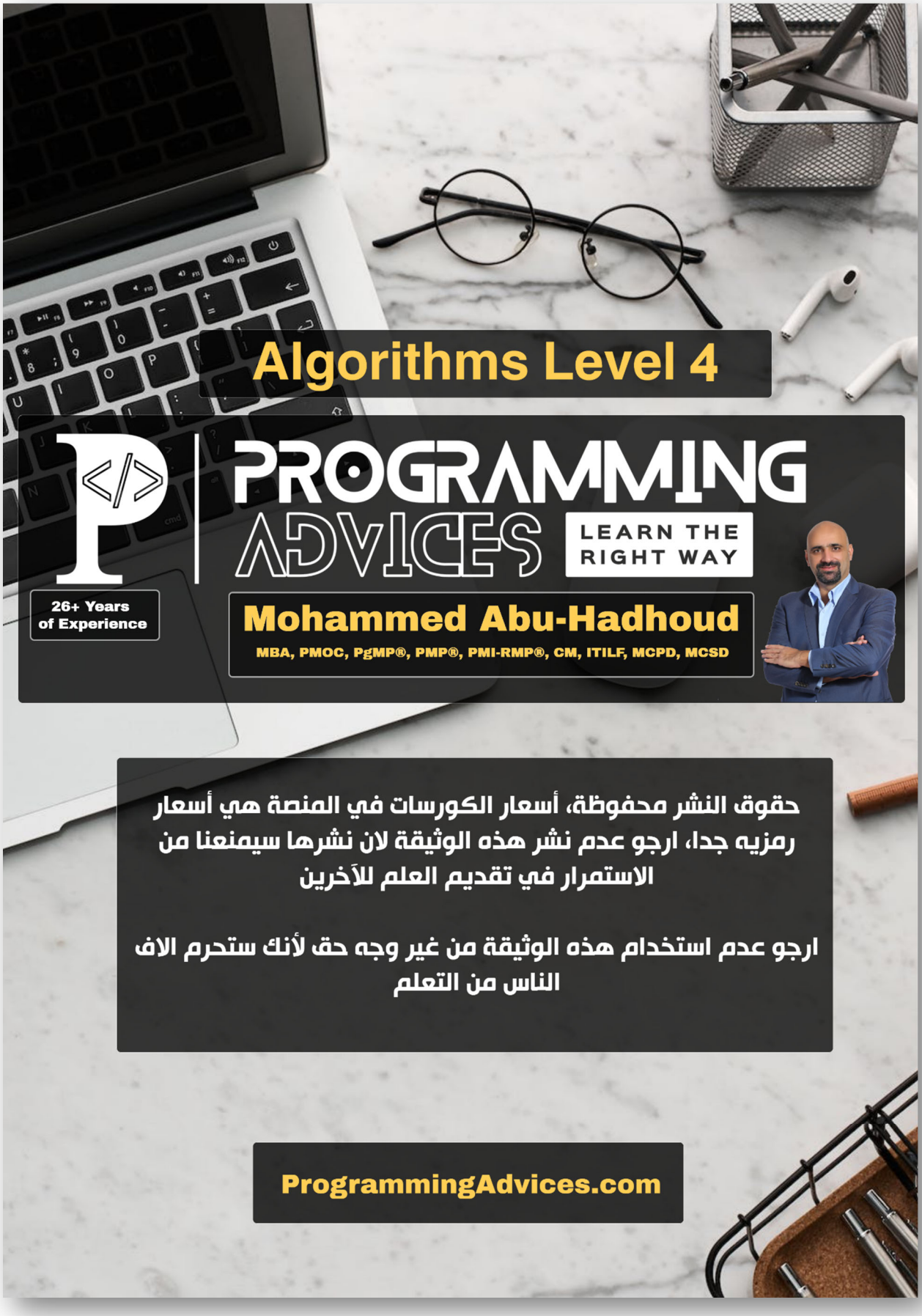
Algorithms Level 4
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Mohammed Abu-Hadhoud
MBA, PMOC, PgMP®, PMP®, PMI-RMP®, CM, ITILF, MCPD, MCSD
حقوق النشر محفوظة، أسعار الكورسات في المنصة هي أسعار رمزيه جدا، ارجو عدم نشر هذه الوثيقة لان نشرها سيمنعنا من الاستمرار في تقديم العلم للآخرين
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```cpp
#include <iostream>
using namespace std;

bool isLeapYear(short Year)
{
    // if year is divisible by 4 AND not divisible by 100
  // OR if year is divisible by 400
  // then it is a leap year
   return (Year % 4 == 0 && Year % 100 != 0) || (Year % 400 == 0);
}

short DayOfWeekOrder(short Day, short Month, short Year)
{
    short a, y, m;
    a = (14 - Month) / 12;
    y = Year - a;
    m = Month + (12 * a) - 2;
    // Gregorian:
    //0:sun, 1:Mon, 2:Tue...etc
    return (Day + y + (y / 4) - (y / 100) + (y / 400) + ((31 * m)
/ 12)) % 7;
}

string DayShortName(short DayOfWeekOrder)
{
    string arrDayNames[] = {
"Sun","Mon","Tue","Wed","Thu","Fri","Sat" };

    return arrDayNames[DayOfWeekOrder];
}

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];

}
```

```
string MonthShortName(short MonthNumber)
{
    string Months[12] = { "Jan", "Feb", "Mar",
                          "Apr", "May", "Jun",
                          "Jul", "Aug", "Sep",
                          "Oct", "Nov", "Dec"
    };

    return (Months[MonthNumber - 1]);
}

void PrintMonthCalendar(short Month, short Year)
{
    int NumberOfDays;

    // Index of the day from 0 to 6
    int current = DayOfWeekOrder(1, Month, Year);

    NumberOfDays = NumberOfDaysInAMonth(Month, Year);

    // Print the current month name
    printf("\n  _______________%s_______________\n\n",
        MonthShortName(Month).c_str());

    // Print the columns
    printf("  Sun  Mon  Tue  Wed  Thu  Fri  Sat\n");

    // Print appropriate spaces
    int i;
    for (i = 0; i < current; i++)
        printf("     ");

    for (int j = 1; j <= NumberOfDays; j++)
    {
        printf("%5d", j);


        if (++i == 7)
        {
            i = 0;
            printf("\n");
        }
    }

   printf("\n  _______________________________\n");

}
```

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

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

int main()

{
    short Year = ReadYear();
    short Month = ReadMonth();
    PrintMonthCalendar(Month, Year);

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