

Uva12019

題目

No. Doom's day algorithm is not a method to compute which day the world will end. It is an algorithm created by the mathematician John Horton Conway, to calculate which day of the week (Monday, Tuesday, etc.) corresponds to a certain date.

給日期，問那天星期幾

題目

This algorithm is based in the idea of the doomsday, a certain day of the week which always occurs in the same dates. For example, 4/4 (the 4th of April), 6/6 (the 6th of June), 8/8 (the 8th of August), 10/10 (the 10th of October) and 12/12 (the 12th of December) are dates which always occur in doomsday. All years have their own doomsday.

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In year 2011, doomsday is Monday.
So all of 4/4, 6/6, 8/8, 10/10 and
12/12 are Mondays. Using that
information, you can easily
compute any other date. For
example, the 13th of December
2011 will be Tuesday, the 14th of
December 2011 will be Wednesday,
etc.

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Other days which occur on doomsday are 5/9, 9/5, 7/11 and 11/7. Also, in leap years, we have the following doomsdays: 1/11 (the 11th of January) and 2/22 (the 22nd of February), and in non-leap years 1/10 and 2/21.

Given a date of year 2011, you have to compute which day of the week it occurs.

輸入與輸出

- Input : The input can contain different test cases. The first line of the input indicates the number of test cases. For each test case, there is a line with two numbers: M D. M represents the month (from 1 to 12) and D represents the day (from 1 to 31). The date will always be valid.
- Output : For each test case, you have to output the day of the week where that date occurs in 2011. The days of the week will be: Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday.
- 輸入：第一行有個T代表詢問的日期數 ($T \leq 100$)
接下來會有T行，每行都有一組M、D分別代表月份和日期
- 輸出：輸出那天星期幾

範例測資

輸入：

9

1 6

2 28

4 5

5 26

8 1

11 1

12 25

12 31

3 9

輸出：

Thursday

Monday

Tuesday

Thursday

Monday

Tuesday

Sunday

Saturday

Wednesday

第一筆範例測資

輸入：

1 6

輸出：

Thursday

第二筆範例測資

輸入：
2 28

輸出：
Monday

第三筆範例測資

輸入：

4 5

輸出：

Tuesday

第四筆範例測資

輸入：

5 26

輸出：

Thursday

程式碼

- Step 1:輸入測資

```
4     int m,d;cin>>m;
5     int num_day[12]{31,28,31,30,31,30,31,31,30,31,30,31};
6     while(cin>>m>>d){
```

已宣告變數	//註解
m	月
n	日
num_day	每個月的天數

程式碼

- Step 2:計算現在是第幾天

```
7      int total_day=d;  
8      for(int i=0;i<m-1;i++){  
9          total_day+=num_day[i];  
10     }
```

已宣告變數	//註解
m	月
n	日
num_day	每個月的天數
Total_day	經過的天數

程式碼

- Step 3:輸出禮拜幾

已宣告變數	//註解
bin	存放二進位
in	十進位數字
num	1的出現次數

```
11 int day=(total_day+5)%7;
12 switch (day)
13 {
14     case 0:
15         cout<<"Sunday\n";
16         break;
17     case 1:
18         cout<<"Monday\n";
19         break;
20     case 2:
21         cout<<"Tuesday\n";
22         break;
23     case 3:
24         cout<<"Wednesday\n";
25         break;
26     case 4:
27         cout<<"Thursday\n";
28         break;
29     case 5:
30         cout<<"Friday\n";
31         break;
32     case 6:
33         cout<<"Saturday\n";
34         break;
```

完整程式碼

```
1  #include<iostream>
2  using namespace std;
3  ✓ int main(){
4      int m,d;cin>>m;
5      int num_day[12]{31,28,31,30,31,30,31,31,30,31,30,31};
6  ✓ while(cin>>m>>d){
7      int total_day=d;
8  ✓ for(int i=0;i<m-1;i++){
9          total_day+=num_day[i];
10     }
11     int day=(total_day+5)%7;
12  ✓ switch (day)
13     {
14     case 0:
15         cout<<"Sunday\n";
16         break;
17     case 1:
18         cout<<"Monday\n";
19         break;
20     case 2:
21         cout<<"Tuesday\n";
22         break;
23     case 3:
24         cout<<"Wednesday\n";
25         break;
26     case 4:
27         cout<<"Thursday\n";
28         break;
29     case 5:
30         cout<<"Friday\n";
31         break;
32     case 6:
33         cout<<"Saturday\n";
34         break;
35     }
36     }
37 }
```

資料來源

- 英文題目：<https://vjudge.net/problem/UVA-11461>
- 中文題目：<https://zerojudge.tw/ShowProblem?problemid=f709>