Project_Euler_019

February 4, 2018

1 Project Euler Problem 19

You are given the following information, but you may prefer to do some research for yourself.

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1 Jan 1900 was a Monday.
Thirty days has September,
April, June and November.
All the rest have thirty-one,
Saving February alone,
Which has twenty-eight, rain or shine.
And on leap years, twenty-nine.
A leap year occurs on any year evenly divisible by 4, but not on a century unless it is divisibl
```

How many Sundays fell on the first of the month during the twentieth century (1 Jan 1901 to 31 Dec 2000)?

```
In [1]: year = 1901
        month = 1
        dow = 2
        # Let's number the months 1 to 12.
        # Let's number the days of the week 0 to 6.
        # 1 Jan 1901 was on a Tuesday.

        sundaycounter = 0

        while (year < 2001):
            # First check if the month starts with a Sunday.  Print year and month if so.
            if (dow == 0):
                sundaycounter += 1
                # print(year, month)

            # Add the appropriate number of days for the rest of the month.
            if (month == 2):
                if(year % 4 == 0):
                    dow = (dow + 29) % 7
                else:
                    dow = (dow + 28) % 7
```

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            elif (month in (1, 3, 5, 7, 8, 10, 12)):
                dow = (dow + 31) % 7
            else:
                dow = (dow + 30) % 7

            # Now increment one month ahead.
            if (month == 12):
                year += 1
                month = 1
            else:
                month += 1

        print(f"There were {sundaycounter} sundays in the century.")
```

```
There were 171 sundays in the century.
```