import JJIO

class Date
    -- Name Anon Y Mous
    -- Does compute dates in the same year
    -- Data attributes
    box year ofType int is private -- YYYY
    box month ofType int is private -- 1 to 12
    box day ofType int is private -- 1 to 31

    constructor Date (y, m, d) is public
        slot y ofType int -- year of 4 digits
        slot m ofType int -- month number
        slot d ofType int -- day number
        -- Does set a Date: year, month and day
        set year = y
        set month = m
        set day = d
    end constructor Date

    function daysInFeb (year) ofType int is private
        slot year ofType int
        -- Does return the number of days in February
        if (isLeap (year)) then
            set result = 29
        else
            set result = 28
        end if
    end function daysInFeb

    function dayOfTheYear (none) ofType int is public
        box result ofType int
        -- Does return number of days in a month
        if (mon == 4) or (mon == 6) or (mon == 9) or (mon == 11) then
            set result = 30
        elseif (mon == 2) then
            set result = daysInFeb (year)
        else
            set result = 31
        end if
    end function dayOfTheYear

    function daysInMonth (mon, yr) ofType int is public
        slot mon ofType int -- month
        slot yr ofType int -- year
        box result ofType int
        -- Does return number of days in a month
        if (mon == 4) or (mon == 6) or (mon == 9) or (mon == 11) then
            set result = 30
        elseif (mon == 2) then
            set result = daysInFeb (year)
        else
            set result = 31
        end if
    end function daysInMonth

    function isLeap (year) ofType bool is public
        slot year ofType int
        box result ofType bool
        -- Does indicate if year is a leap -- needs fix
        if (year % 4) == 0 then
            set result = true
        else
            set result = false
        end if
    end function isLeap

    function test (none) is public
        new xmas ofType Date with (2001, 12, 25)
        new july4 ofType Date with (2001, 7, 4)
        set diff = xmas.dayOfTheYear() - july4.dayOfTheYear()
        output "Days between July 4 and Christmas are: "
        outputln diff
    end function test

end class Date

-- output:
-- Days between July 4 and Christmas are: 174