
Dates

Problem Description

A colleague, who has now left your company for a better-paid job, had just been given a data-processing task which now falls into your hands. The program is intended to perform the following:

1. Read a line of input and determine whether or not it is a valid date between the years 1753 and 3000.
2. Either

- state that the input date is invalid and why it is invalid

e.g.

03 JUN 3004 - INVALID: Year out of range.

or

- output a valid date in the following format:

dd<space><first three chars of month name><space>yyyy

e.g.

02 Apr 1996

Valid input:

Input dates can be presented in different formats and in different orders. For our purposes, dates in the following order will be considered valid:

day month year

and acceptable input may be in any of the following formats

day: dd or d or 0d

month: mm or m or 0m or the first three letters of the month name (all in the same case, or with the first letter upper-case)

year: yy or yyyy

separator: - or / or <space>

Note: only *one* separator type to be used in one date

Example dates following these specifications are:

4-6-92

04/06/1992

3 AUG 97

12-Sep-1955

Notes:

1. 29th of February is only considered a valid date in leap years.
2. If the year is written with only two digits, the date lies between 1950 and 2049, so 65 means 1965 and 42 means 2042.

Task

Write a computer program that runs according to the specifications above. You should test the program thoroughly.

Relates to Objectives

1.1 1.2 1.3 2.2 2.7 2.8 3.4 3.5 4.1 4.5

(2 points, Individual)

The following information may be helpful

Gregorian Calendar

The Gregorian calendar is the calendar in current use in the Western world, both as the civil and Christian ecclesiastical calendar. Instituted by Pope Gregory XIII in 1582, the calendar has 365 days with an extra day every four years (the leap year) except in years divisible by 100 but not divisible by 400. Thus, the calendar year has an average length of 365.2425 days. The Gregorian calendar replaced the Julian calendar, which had become 10 days out of synchrony with the solar cycle. In October, 1582, 10 days were dropped from the calendar. England and the American colonies were late in adopting the calendar. In 1752, they dropped 11 days.

Selected Links

L. E. Doggett's essay on Calendars¹ is reprinted from the *Explanatory Supplement to the Astronomical Almanac* and describes the Western calendar system as well as the Hebrew, Islamic, and Chinese calendars. For even more information, see Calendar Zone², which includes a collection of links to many calendar-related sites.

¹<http://astro.nmsu.edu/~lhuber/leaphist.html>

²<http://www.calendarzone.com/>