Dates

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 (from *stdin*) and determine whether or not it is a valid date between the years 1753 and 3000.

2. Either

   - print to *stdout* a valid date in the following format:

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

     e.g.,

     ```
     02 Apr 2023
     ```

   or

   - print to *stdout* that the input date is invalid,
     and print to *errout* why it is invalid e.g.,

Input	Output	Error Output
03 JUN 3004	03 JUN 3004 – INVALID	Year out of range

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

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. While external date parsing libraries could be convenient to solve this problem, your company requested a custom implementation that is tailored to the specific needs of the program and can be maintained by internal developers.

Each line of input from `stdin` should be processed then output to `stdout`. Each line representing a valid date must be output in the format specified above. Invalid lines should be echoed, followed by `- INVALID`. Then output the reason why the date is invalid should be printed to `stderr`. One possible reason is `UNKNOWN REASON` however, your program should report the problem, e.g., year out of range as in the example above. You should test the program thoroughly.

Sample Input/Output

Input (stdin)	Output (stdout)	Error Output (errout)
4-6-92	04 Jun 1992	Year out of range
04/06/1992	04 Jun 1992	
3 AUG 97	03 Aug 1997	
12-Sep-1955	12 Sep 1955	
03 JUN 3004	03 JUN 3004 - INVALID	

Relates to Objectives

1.1, 1.2, 1.3, 2.2, 2.7, 2.8, 3.4, 3.5, 4.1, 4.5

(1 point, Individual)