Programming 1 — Homework assignment 3

Deadline: Sunday, November 25, 2018, at 23:55

Martian calendar

Task description

The Martian calendar is similar to ours, but simpler. Every year has M_Y months. Every month has D_M days. Every week has D_W days. Every F-th day in a week is a work-free day, and every H-th day in the entire calendar (counted from the first day of the first month of the first year) is a holiday. Holidays are workdays, except, of course, when they fall on work-free days in a week.

The first day of the first month of the first year is the first day in a week. On Earth, this would mean that the 1st of January in the year 1 fell on Monday.

Write a program that reads the data about the Martian calendar and the integers m_{begin}, y_{begin}, m_{end}, and y_{end} and prints the calendar for all months from the m_{begin}-th month of the y_{begin}-th year to the m_{end}-th month of the y_{end}-th year, inclusive.

Input

The first line contains the integers $M_Y \in [1, 100]$, $D_M \in [1, 100]$, $D_W \in [1, D_M]$, $F \in [1, D_W + 1]$, and $H \in [1, 10^9]$, separated by a space. The second line contains the integers $m_{\text{begin}} \in [1, M_Y]$, $y_{\text{begin}} \in [1, 100]$, $m_{\text{end}} \in [1, M_Y]$, and $y_{\text{end}} \in [y_{\text{begin}}, 100]$, separated by a space. If $y_{\text{begin}} = y_{\text{end}}$, then $m_{\text{begin}} \leqslant m_{\text{end}}$.

Following are the properties of the individual test cases:

- J1–J4, S1–S20: $D_W = D_M$ (the days in a month constitute exactly one full week), $F = D_W + 1$ (there are no work-free days), $H = 10^9$ (there are no holidays).
- J5–J6, S21–S30: $F = D_W + 1$ (there are no work-free days), $H = 10^9$ (there are no holidays).
- J7–J8, S31–S40: $H = 10^9$ (there are no holidays).
- J1–J2, J5, S1–S10, S21–S25: $m_{\text{begin}} = m_{\text{end}} = y_{\text{begin}} = y_{\text{end}} = 1$.
- J3, J7, S11–S15, S31–S35: $y_{\text{begin}} = y_{\text{end}} = 1$.

Output

Print the calendar from month m_{begin} in year y_{begin} to month m_{end} in year y_{end}. For each month, print a line with a header (in the form m/y, where m is the sequential number of the current month within the current year and y is the sequential number of the current year), followed by lines containing the labels of the days in the current month. Each of these lines represents a single week. The label of a day is composed of the sequential number of the day in a month, right-justified within a group of 4 spaces (for instance, the number 15 should be printed as `␣␣15`), and the character `*` (the day is both a holiday and

a work-free day), `+` (the day is only a holiday), `x` (the day is only a work-free day), or `_` (the day is neither a holiday nor a work-free day).

Test case J9

Input:

```
12 30 7 3 17
11 2 6 3
```

Output:

```
11/2
             1x   2_   3+   4x   5_
   6_   7_   8x   9_  10_  11x  12_
  13_  14_  15x  16_  17_  18x  19_
  20+  21_  22x  23_  24_  25x  26_
  27_  28_  29x  30_
12/2
                        1_   2x   3_
   4_   5_   6x   7+   8_   9x  10_
  11_  12_  13x  14_  15_  16x  17_
  18_  19_  20x  21_  22_  23x  24+
  25_  26_  27x  28_  29_  30x
1/3
                                  1_
   2_   3_   4x   5_   6_   7x   8_
   9_  10_  11*  12_  13_  14x  15_
  16_  17_  18x  19_  20_  21x  22_
  23_  24_  25x  26_  27_  28*  29_
  30_
2/3
         1_   2x   3_   4_   5x   6_
   7_   8_   9x  10_  11_  12x  13_
  14_  15+  16x  17_  18_  19x  20_
  21_  22_  23x  24_  25_  26x  27_
  28_  29_  30x
3/3
                   1_   2+   3x   4_
   5_   6_   7x   8_   9_  10x  11_
  12_  13_  14x  15_  16_  17x  18_
  19+  20_  21x  22_  23_  24x  25_
  26_  27_  28x  29_  30_
4/3
                              1x   2_
   3_   4_   5x   6+   7_   8x   9_
  10_  11_  12x  13_  14_  15x  16_
  17_  18_  19x  20_  21_  22x  23+
  24_  25_  26x  27_  28_  29x  30_
5/3
   1_   2_   3x   4_   5_   6x   7_
   8_   9_  10*  11_  12_  13x  14_
```

```
  15_  16_  17x  18_  19_  20x  21_
  22_  23_  24x  25_  26_  27*  28_
  29_  30_
6/3
              1x   2_   3_   4x   5_
   6_   7_   8x   9_  10_  11x  12_
  13_  14+  15x  16_  17_  18x  19_
  20_  21_  22x  23_  24_  25x  26_
  27_  28_  29x  30_
```

The eleventh month of the second year starts on the third day in a week. This day is a work-free day but not a holiday.

Submission

Submit your program as a single file named `DN03_`*vvvvvvvv*`.java`, where *vvvvvvvv* represents your student ID number.