Problem D

A calendar

Input file: `calendar.in`
Output file: `calendar.out`

The purpose of this problem is to produce a calendar for a given month and year, as shown in the examples on the following page. Any text in the calendar is to be in English.

Input

The input file first contains a line with a number stating how many data sets there are. Each data set consists of a line with four integer numbers:

1. The year (in the range 1–1 000 000).
2. The month (1=January, 2=February, 3=March, 4=April, 5=May, 6=June, 7=July, 8=August, 9=September, 10=October, 11=November, 12=December).
3. How many days there are in the month (in the range 28–31).
4. Which day is the first of the month (0=Monday, 1=Tuesday, etc).

Output

Every calendar is drawn with lines created from the three characters '`|`', '`-`', and '`+`', as shown in the examples. To the left is the name of the month (in English), to the right the year, and along the top are the two letter abbreviations for the days of the week.

Note that the month and the year are centered vertically, maybe with one more space *below* the text if it is impossible to center it exactly.

Note also that the height of the calendar can vary; it depends both on how many days there are in the month, and on which day of the week the month starts.

If there is more than one calendar, they should be separated by an empty line.

Sample input

```
2
1999 9 30 2
1999 5 31 5
```

Output for sample input

```
+---+----+----+----+----+----+----+----+---+
|   |    |    |    |    |    |    |    |   |
|   | Mo | Tu | We | Th | Fr | Sa | Su |   |
|   |    |    |    |    |    |    |    |   |
|   +----+----+----+----+----+----+----+   |
|   |    |    |    |    |    |    |    |   |
|   |    |    |  1 |  2 |  3 |  4 |  5 |   |
|   |    |    |    |    |    |    |    |   |
| S +----+----+----+----+----+----+----+   |
| e |    |    |    |    |    |    |    |   |
| p |  6 |  7 |  8 |  9 | 10 | 11 | 12 | 1 |
| t |    |    |    |    |    |    |    | 9 |
| e +----+----+----+----+----+----+----+ 9 |
| m |    |    |    |    |    |    |    | 9 |
| b | 13 | 14 | 15 | 16 | 17 | 18 | 19 |   |
| e |    |    |    |    |    |    |    |   |
| r +----+----+----+----+----+----+----+   |
|   |    |    |    |    |    |    |    |   |
|   | 20 | 21 | 22 | 23 | 24 | 25 | 26 |   |
|   |    |    |    |    |    |    |    |   |
|   +----+----+----+----+----+----+----+   |
|   |    |    |    |    |    |    |    |   |
|   | 27 | 28 | 29 | 30 |    |    |    |   |
|   |    |    |    |    |    |    |    |   |
+---+----+----+----+----+----+----+----+---+
```

```
+---+----+----+----+----+----+----+----+---+
|   |    |    |    |    |    |    |    |   |
|   | Mo | Tu | We | Th | Fr | Sa | Su |   |
|   |    |    |    |    |    |    |    |   |
|   +----+----+----+----+----+----+----+   |
|   |    |    |    |    |    |    |    |   |
|   |    |    |    |    |    |  1 |  2 |   |
|   |    |    |    |    |    |    |    |   |
|   +----+----+----+----+----+----+----+   |
|   |    |    |    |    |    |    |    |   |
|   |  3 |  4 |  5 |  6 |  7 |  8 |  9 |   |
|   |    |    |    |    |    |    |    |   |
|   +----+----+----+----+----+----+----+ 1 |
| M |    |    |    |    |    |    |    | 9 |
| a | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 9 |
| y |    |    |    |    |    |    |    | 9 |
|   +----+----+----+----+----+----+----+   |
|   |    |    |    |    |    |    |    |   |
|   | 17 | 18 | 19 | 20 | 21 | 22 | 23 |   |
|   |    |    |    |    |    |    |    |   |
|   +----+----+----+----+----+----+----+   |
|   |    |    |    |    |    |    |    |   |
|   | 24 | 25 | 26 | 27 | 28 | 29 | 30 |   |
|   |    |    |    |    |    |    |    |   |
|   +----+----+----+----+----+----+----+   |
|   |    |    |    |    |    |    |    |   |
|   | 31 |    |    |    |    |    |    |   |
|   |    |    |    |    |    |    |    |   |
+---+----+----+----+----+----+----+----+---+
```