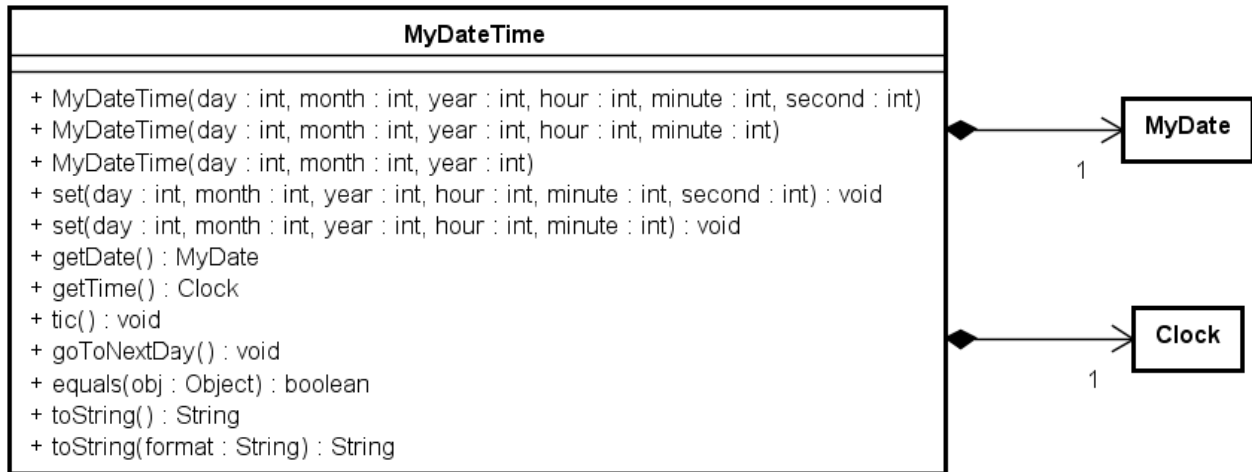


Exercises, SDJ1

(Exercise)

Implement class `MyDateTime` exactly as shown in the UML class diagram below:



A few notes to implementation:

- Note that there are composition relationships.
- The three-argument constructor is setting the time to 12 noon.
- The `tic` method increases the second by one and will at midnight go to the next day.
- The overridden `toString` method (without arguments) return a string in the format you define.
- The `toString` method taking an argument return a string in a format specified by the argument.

The parameter variable `format` may contain the following placeholders:

- `%YY` – the last two digits of the year
- `%Y` – year with all digits
- `%MMM` – month name
- `%MM` – month with two digits
- `%M` – month number
- `%DD` – day with two digits
- `%D` – day
- `%hh` – hour with two digits
- `%h` – hour
- `%mm` – minute with two digits
- `%m` – minute
- `%ss` – second with two digits
- `%s` – second

Examples for the 28th of October 1997 at 2:08:05 pm

- `toString("%DD/%MM/%Y %hh:%mm:%ss")` return "28/10/1997 14:08:05"
- `toString("%DD %MMM %Y %h:%m:%s")` return "28 October 1997 14:8:5"
- `toString("Bobs birthday is %DD-%MM-%YY")` return "Bobs birthday is 28-10-97"

Hint: The `String` class contains two methods suitable for this `toString` method

- `replaceAll(String originalString, String newString)` return a string with all occurrences of `originalString` replaced with `newString`
- A static method `format` with the following example of use with an integer `x`:
`String.format("%02d", x)` return a string with the integer `x` in two digits.

(Exercise – Optional)

Modify the previous exercise, introducing an extra private instance variable (not shown in the diagram) such that the overridden `toString` method (the version without arguments) only include the seconds if the six-argument constructor or six-argument set method has been called. Further, only return the date and not the time for an object created by the three-argument constructor if none of the set methods has been called.