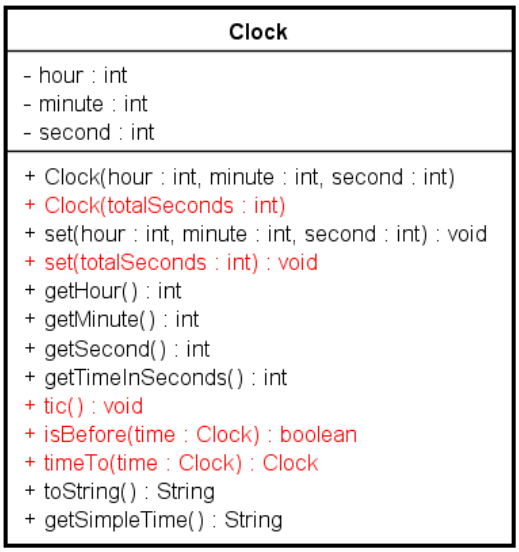
Exercise: Clock, version 2



Create a new Module in IntelliJ `Clock_v2` and copy files from Module `Clock_v1`

Modify class `Clock` such with the following:

a) Create a one-argument `set` method with the total seconds as the parameter. Convert the seconds into the full hours, minutes and seconds and store these in the three instance variables. Make sure that a negative value is taken care of such that the clock becomes legal.
b) Create a one-argument constructor simply calling the set method.
c) Modify the three-argument `set` method such that you cannot add an illegal time (e.g. 25:61:61). It is up to you what to set it to for an illegal value – could be seconds more than 59 is set to 59 and less than 0 to 0, or you could make use of the one-argument `set` method.
d) Let the three-argument constructor call the three-argument `set` method as the only statement.
e) Create a method `tic()` updating the clock, adding one second, e.g. from 14:44:59 to 14:45:00.
f) Create a method `isBefore` returning `true` if the clock is before the clock-argument to the method. Example if clock1=14:44:59 and clock2=13:12:42 then `clock1.isBefore(clock2)` return `false` and `clock2.isBefore(clock1)` return `true`.
g) Create a method `timeTo` returning a `Clock` representing the time from the clock to the clock given as argument. Example if clock1=11:45:00 and clock2=13:00:05 then `clock1.timeTo(clock2)` return a `Clock` with 01:15:05 and `clock2.timeTo(clock1)` return a `Clock` with 22:44:55 (note that because clock2 is not before clock1 then clock1 is understood as the time the next day / 24 hours later). *Hint*: You could operate with total seconds and when returning the clock use the one-argument constructor.
h) Modify method `toString()` such that the time is in the format HH:MM:SS with 2 digits for hour, minute and second. In other words, that values less than 10 has a 0 in front of it. Example: "02:07:00" (note that this is not show as “2:7:0”)
i) Modify method `getSimpleTime()` that return the clock in the format HH:MM. Example: the clock 02:07:24 is returned as "02:07"

Modify your test class (`ClockTest`) such that you test all the changes you have made.