Homework 12

Introductory Programming **Allen B. Downey**
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The reading for this assignment is Chapter 14 of *How to think...*.

12.1 Date methods

1. Start with your solution to Homework 11 or download mine at

   `http://wb/ip/code/ip_hw11_soln.py`

2. Using Evaluations 8 and 9 as a template, convert the Date class so that it uses methods rather than functions. This is a little tricky to do incrementally, because when you change the definition of a function you also have to change the places where it is invoked. Here are some suggestions on how to make and test small changes:

   (a) Move `make_date` inside the Date class and change the name to `__init__`.

   HINT: In emacs, there is a command in the Python menu called Shift region right. If you select a block of code and then invoke this command, it indents the entire block correctly.

   Don't forget that inside an `__init__`, you get self as a parameter, so you don't have to create it yourself, and you don't have to return anything.

   Now change the places where `make_date` is invoked so that they instantiate Date objects.

   (b) Move `print_date` inside the Date class and change the name to `__str__`. Change the name of the parameter to `self` and make the method fruitful; that is, it should return a string representation of the date and print nothing.

   Now change the place where `print_date` is invoked so it uses a `print` statement.

   (c) By now you should be getting the idea, so I will skip the detailed instructions: just make `days_since_2000` a method.

3. That's it! Changing a function to a method is mostly a matter of syntax; it doesn't really change what the program does. The primary benefit of writing methods is that they organize the program by associating data objects with the operations they can perform. In a small program like this, that benefit is probably not apparent, but as programs get bigger, this kind of organization is a useful tool for managing complexity.