

## Switches and Other Ideas

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### Purpose:

Practise manipulating Strings, switches, %, and logic.

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### Due Date:

The completed lab assignment is due Wednesday 2008-02-27 *at the beginning of lecture.*

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### Computing the Number of Days in a Month

Write a method or methods that computes the number of days in a month, given both the month and the year. Again, assume that the year is between 1800 and 3000 of the current Gregorian calendar.

The rules for determining when a year is a leap-year are a bit complicated. Here they are:

1. If the year is not divisible by 4 it is not a leap-year.
2. If the year is divisible by 4 and does not end in 00 it is a leap year (*e.g.*, 2008).
3. If the year ends in 00, but is not divisible by 400 it is *not* a leap-year (*e.g.*, 1900).
4. Otherwise the year is divisible by 400, and is a leap-year (*e.g.*, 2000).

When you write your method(s) use to the extent that you can and that it is appropriate

- boolean variables and methods;
- the % operator; and
- switch-statements.

Write a main-method that provides an extensive testing of your functions.

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### Birthday cards, revisited

Redo the question from the last midterm, but add the following complexity:

Messages should look like:

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HAPPY NINTH BIRTHDAY, Amelia!  
Happy twenty-second birthday, Bob!  
Happy fortieth birthday, Cecilia!
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|               |                 |                |                |               |
|---------------|-----------------|----------------|----------------|---------------|
| first         | second          | third          | fourth         | fifth         |
| eleventh      | twelfth         | thirteenth     | fourteenth     | fifteenth     |
| twenty-first  | twenty-second   | twenty-third   | twenty-fourth  | twenty-fifth  |
| thirty-first  | thirty-second   | thirty-third   | thirty-fourth  | thirty-fifth  |
| forty-first   | forty-second    | forty-third    | forty-fourth   | forty-fifth   |
| fifty-first   | fifty-second    | fifty-third    | fifty-fourth   | fifty-fifth   |
| sixty-first   | sixty-second    | sixty-third    | sixty-fourth   | sixty-fifth   |
| seventy-first | seventy-second  | seventy-third  | seventy-fourth | seventy-fifth |
| eighty-first  | eighty-second   | eighty-third   | eighty-fourth  | eighty-fifth  |
| ninety-first  | ninety-second   | ninety-third   | ninety-fourth  | ninety-fifth  |
|               |                 |                |                |               |
| sixth         | seventh         | eighth         | ninth          | tenth         |
| sixteenth     | seventeenth     | eighteenth     | nineteenth     | twentieth     |
| twenty-sixth  | twenty-seventh  | twenty-eighth  | twenty-ninth   | thirtieth     |
| thirty-sixth  | thirty-seventh  | thirty-eighth  | thirty-ninth   | fortieth      |
| forty-sixth   | forty-seventh   | forty-eighth   | forty-ninth    | fiftieth      |
| fifty-sixth   | fifty-seventh   | fifty-eighth   | fifty-ninth    | sixtieth      |
| sixty-sixth   | sixty-seventh   | sixty-eighth   | sixty-ninth    | seventieth    |
| seventy-sixth | seventy-seventh | seventy-eighth | seventy-ninth  | eightieth     |
| eighty-sixth  | eighty-seventh  | eighty-eighth  | eighty-ninth   | ninetieth     |
| ninety-sixth  | ninety-seventh  | ninety-eighth  | ninety-ninth   |               |

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Figure 1: list of ordinals

That is, for those under 11, the greeting should be in all-capitals (but not the name). In every case the birthday name should be spelled out. You may assume that anyone who lives to one hundred does not wish to receive computer generated junk-mail.

Do *not* use a 99-way switch-statement.

For those who find English spelling troublesome, a list of number words is shown in Figure 1.