

## Appendix B: Initial Exercise

### B.1. Getting the exercise

The code in this book is on Github. The simplest way to get the exercise is to clone the repository and check out the correct branch, as follows:

```
git clone --depth=1 --branch=exercise  
https://github.com/sandimetz/99bottles.git
```

The directory structure for the exercise should look like this:

```
├── lib  
│   └── bottles.rb  
└── test  
    └── bottles_test.rb
```

If you don't have git installed, create the expected directory structure, and then copy and paste the contents of [the raw file on GitHub](#) into `bottles_test.rb`.

Finally, if you don't have an internet connection, you can find the full code listing for the test suite below, in the [Test Suite](#) section.

### B.2. Doing the exercise

The test suite and exercise are written in Ruby. If you're unfamiliar with the language, [ruby-lang.org](http://ruby-lang.org) has [installation instructions](#), a gentle tutorial ([Ruby in Twenty Minutes](#)), and [further references](#).

To run the test suite, invoke Ruby with the path to the test file.

```
ruby test/bottles_test.rb
```

The test suite contains one failing test, and many skipped tests. Your goal is to write code that passes all of the tests. Follow this protocol:

- run the tests and examine the failure
- write only enough code to pass the failing test
- unskip the next test (this simulates writing it yourself)

Repeat the above until no tests is skipped, and you've written code to pass each one.

Work on this task for 30 minutes. The vast majority of folks do not finish in 30 minutes, but it's useful, for later comparison purposes, to record how far you got. Even if you can't force yourself to stop at that point, take a break at 30 minutes and save your code.

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## B.3. Test Suite

```
1  class BottlesTest < Minitest::Test
2    def test_the_first_verse
3      expected = <<-VERSE
4      99 bottles of beer on the wall, 99 bottles of beer.
5      Take one down and pass it around, 98 bottles of beer on the
wall.
6      VERSE
7      assert_equal expected, ::Bottles.new.verse(99)
8    end
9
10   def test_another_verse
11     skip
12     expected = <<-VERSE
13     89 bottles of beer on the wall, 89 bottles of beer.
14     Take one down and pass it around, 88 bottles of beer on the
wall.
15     VERSE
16     assert_equal expected, ::Bottles.new.verse(89)
17   end
18
19   def test_verse_2
20     skip
21     expected = <<-VERSE
22     2 bottles of beer on the wall, 2 bottles of beer.
23     Take one down and pass it around, 1 bottle of beer on the
```

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wall.
24     VERSE
25     assert_equal expected, ::Bottles.new.verse(2)
26 end
27
28 def test_verse_1
29     skip
30     expected = <<-VERSE
31     1 bottle of beer on the wall, 1 bottle of beer.
32     Take it down and pass it around, no more bottles of beer on
the wall.
33     VERSE
34     assert_equal expected, ::Bottles.new.verse(1)
35 end
36
37 def test_verse_0
38     skip
39     expected = <<-VERSE
40     No more bottles of beer on the wall, no more bottles of beer.
41     Go to the store and buy some more, 99 bottles of beer on the
wall.
42     VERSE
43     assert_equal expected, ::Bottles.new.verse(0)
44 end
45
46 def test_a_couple_verses
47     skip
48     expected = <<-VERSES
49     99 bottles of beer on the wall, 99 bottles of beer.
50     Take one down and pass it around, 98 bottles of beer on the
wall.
51
52     98 bottles of beer on the wall, 98 bottles of beer.

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```
53 | Take one down and pass it around, 97 bottles of beer on the
    | wall.
54 | VERSES
55 |     assert_equal expected, ::Bottles.new.verses(99, 98)
56 | end
57 |
58 | def test_a_few_verses
59 |     skip
60 |     expected = <<-VERSES
61 |     2 bottles of beer on the wall, 2 bottles of beer.
62 |     Take one down and pass it around, 1 bottle of beer on the
    | wall.
63 |
64 |     1 bottle of beer on the wall, 1 bottle of beer.
65 |     Take it down and pass it around, no more bottles of beer on
    | the wall.
66 |
67 |     No more bottles of beer on the wall, no more bottles of beer.
68 |     Go to the store and buy some more, 99 bottles of beer on the
    | wall.
69 | VERSES
70 |     assert_equal expected, ::Bottles.new.verses(2, 0)
71 | end
72 |
73 | def test_the_whole_song
74 |     skip
75 |     expected = <<-SONG
76 |     99 bottles of beer on the wall, 99 bottles of beer.
77 |     Take one down and pass it around, 98 bottles of beer on the
    | wall.
78 |
79 |     98 bottles of beer on the wall, 98 bottles of beer.
80 |     Take one down and pass it around, 97 bottles of beer on the
```

wall.

81

82 97 bottles of beer on the wall, 97 bottles of beer.

83 Take one down and pass it around, 96 bottles of beer on the

wall.

84

85 96 bottles of beer on the wall, 96 bottles of beer.

86 Take one down and pass it around, 95 bottles of beer on the

wall.

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88 95 bottles of beer on the wall, 95 bottles of beer.

89 Take one down and pass it around, 94 bottles of beer on the

wall.

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91 94 bottles of beer on the wall, 94 bottles of beer.

92 Take one down and pass it around, 93 bottles of beer on the

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94 93 bottles of beer on the wall, 93 bottles of beer.

95 Take one down and pass it around, 92 bottles of beer on the

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97 92 bottles of beer on the wall, 92 bottles of beer.

98 Take one down and pass it around, 91 bottles of beer on the

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100 91 bottles of beer on the wall, 91 bottles of beer.

101 Take one down and pass it around, 90 bottles of beer on the

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103 90 bottles of beer on the wall, 90 bottles of beer.

104 Take one down and pass it around, 89 bottles of beer on the

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106 | 89 bottles of beer on the wall, 89 bottles of beer.
107 | Take one down and pass it around, 88 bottles of beer on the
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110 | Take one down and pass it around, 87 bottles of beer on the
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113 | Take one down and pass it around, 86 bottles of beer on the
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115 | 86 bottles of beer on the wall, 86 bottles of beer.
116 | Take one down and pass it around, 85 bottles of beer on the
    | wall.
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118 | 85 bottles of beer on the wall, 85 bottles of beer.
119 | Take one down and pass it around, 84 bottles of beer on the
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124 | 83 bottles of beer on the wall, 83 bottles of beer.
125 | Take one down and pass it around, 82 bottles of beer on the
    | wall.
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127 | 82 bottles of beer on the wall, 82 bottles of beer.
128 | Take one down and pass it around, 81 bottles of beer on the
    | wall.
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130 81 bottles of beer on the wall, 81 bottles of beer.  
131 Take one down and pass it around, 80 bottles of beer on the wall.  
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134 Take one down and pass it around, 79 bottles of beer on the wall.  
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137 Take one down and pass it around, 78 bottles of beer on the wall.  
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154 73 bottles of beer on the wall, 73 bottles of beer.



155 | Take one down and pass it around, 72 bottles of beer on the wall.  
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158 | Take one down and pass it around, 71 bottles of beer on the wall.  
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161 | Take one down and pass it around, 70 bottles of beer on the wall.  
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164 | Take one down and pass it around, 69 bottles of beer on the wall.  
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167 | Take one down and pass it around, 68 bottles of beer on the wall.  
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179 | Take one down and pass it around, 64 bottles of beer on the

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329 | Take one down and pass it around, 14 bottles of beer on the  
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331 | 14 bottles of beer on the wall, 14 bottles of beer.  
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334 | 13 bottles of beer on the wall, 13 bottles of beer.  
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337 | 12 bottles of beer on the wall, 12 bottles of beer.  
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340 | 11 bottles of beer on the wall, 11 bottles of beer.  
341 | Take one down and pass it around, 10 bottles of beer on the  
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343 | 10 bottles of beer on the wall, 10 bottles of beer.  
344 | Take one down and pass it around, 9 bottles of beer on the  
345 | wall.  
346 | 9 bottles of beer on the wall, 9 bottles of beer.  
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348 | wall.  
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352 | 7 bottles of beer on the wall, 7 bottles of beer.



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353 | Take one down and pass it around, 6 bottles of beer on the
    | wall.
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356 | Take one down and pass it around, 5 bottles of beer on the
    | wall.
357 |
358 | 5 bottles of beer on the wall, 5 bottles of beer.
359 | Take one down and pass it around, 4 bottles of beer on the
    | wall.
360 |
361 | 4 bottles of beer on the wall, 4 bottles of beer.
362 | Take one down and pass it around, 3 bottles of beer on the
    | wall.
363 |
364 | 3 bottles of beer on the wall, 3 bottles of beer.
365 | Take one down and pass it around, 2 bottles of beer on the
    | wall.
366 |
367 | 2 bottles of beer on the wall, 2 bottles of beer.
368 | Take one down and pass it around, 1 bottle of beer on the
    | wall.
369 |
370 | 1 bottle of beer on the wall, 1 bottle of beer.
371 | Take it down and pass it around, no more bottles of beer on
    | the wall.
372 |
373 | No more bottles of beer on the wall, no more bottles of beer.
374 | Go to the store and buy some more, 99 bottles of beer on the
    | wall.
375 |     SONG
376 |     assert_equal expected, ::Bottles.new.song
377 | end
```

