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1  # Lab 2: Zillion
2  # Counting is hard.
3  # Andrea Smith
4  # CSCI 1913
5
6  class Zillion:
7      def __init__(self,digits):
8          self.digits = []
9
10
11     for i in digits:
12         if i == " " or i == ",":
13             continue
14         elif i.isdigit() == False:           # check if list
15         • of digits contains at least one digit and add that bih
16         • to a new list
17             raise RuntimeError
18         else:
19             self.digits.append(int(i))
20
21     if len(self.digits) == 0:
22         raise RuntimeError
23
24     def increment(self):                     # If the number
25     • is 9, replace it with a zero. If it's not 9, add 1
26         i = len(self.digits) -1             # start at the
27         • end of the list, checks right to left
28         while self.digits[i] == 9 and i >= 0:
29             self.digits[i] = 0
30             i -= 1
31
32         if i < 0:
33             self.digits.insert(0,1)
34         elif self.digits[i] != 9:
35             self.digits[i] += 1
36
37     def isZero(self):                       # checks if the
38     • number is all zero(es)
39         for i in self.digits:
40             if i == 0:
41                 return True
42             else:
43                 return False
44
45     def toString(self):                     # converts value

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    • to a string
43     convertedStr = ""
44     for i in self.digits:
45         convertedStr += str(i)
46     return convertedStr
47
48 #
49 # TESTS. Test the class Zillion for CSci 1913 Lab 2.
50 #
51 # James Moen
52 # 18 Sep 17
53 #
54 # Every test is followed by a comment which shows what must be
    • printed if your
55 # code works correctly. It also shows how many points the test is
    • worth.
56 #
57
58 try:
59     z = Zillion('')
60 except RuntimeError:
61     print('Empty string')
62
63 # It must print 'Empty string' without apostrophes. 2 points.
64
65 try:
66     z = Zillion(' , ')
67 except RuntimeError:
68     print('No digits in the string')
69
70 # It must print 'No digits in the string' without apostrophes. 2
    • points.
71
72 try:
73     z = Zillion('1+0')
74 except RuntimeError:
75     print('Non-digit in the string')
76
77 # It must print 'Non-digit in the string' without apostrophes. 2
    • points.
78
79 try:
80     z = Zillion('0')
81 except RuntimeError:
82     print('This must not be printed')
83
84 # It must print nothing. 2 points

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84 # It must print nothing. 2 points.
85
86 print(z.isZero())    # It must print True. 2 points.
87
88 try:
89     z = Zillion('000000000')
90 except RuntimeError:
91     print('This must not be printed')
92
93 # It must print nothing. 2 points.
94
95 print(z.isZero())    # It must print True. 2 points.
96
97 try:
98     z = Zillion('000 000 000')
99 except RuntimeError:
100     print('This must not be printed')
101
102 # It must print nothing. 2 points.
103
104 print(z.isZero())    # It must print True. 2 points.
105
106 try:
107     z = Zillion('997')
108 except RuntimeError:
109     print('This must not be printed')
110
111 # It must print nothing. 2 points.
112
113 print(z.isZero())    # It must print False. 2 points.
114
115 print(z.toString())  # It must print 997. 2 points.
116
117 z.increment()
118
119 print(z.toString())  # It must print 998. 2 points.
120
121 z.increment()
122
123 print(z.toString())  # It must print 999. 2 points.
124
125 z.increment()
126
127 print(z.toString())  # It must print 1000. 2 points.
128
129 try:
130     z = Zillion('0 9,9 9')
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131 except:
132     print('This must not be printed')
133
134 # It must print nothing. 3 points.
135
136 z.increment()
137 print(z.toString()) # It must print 1000. 2 points.
138
```