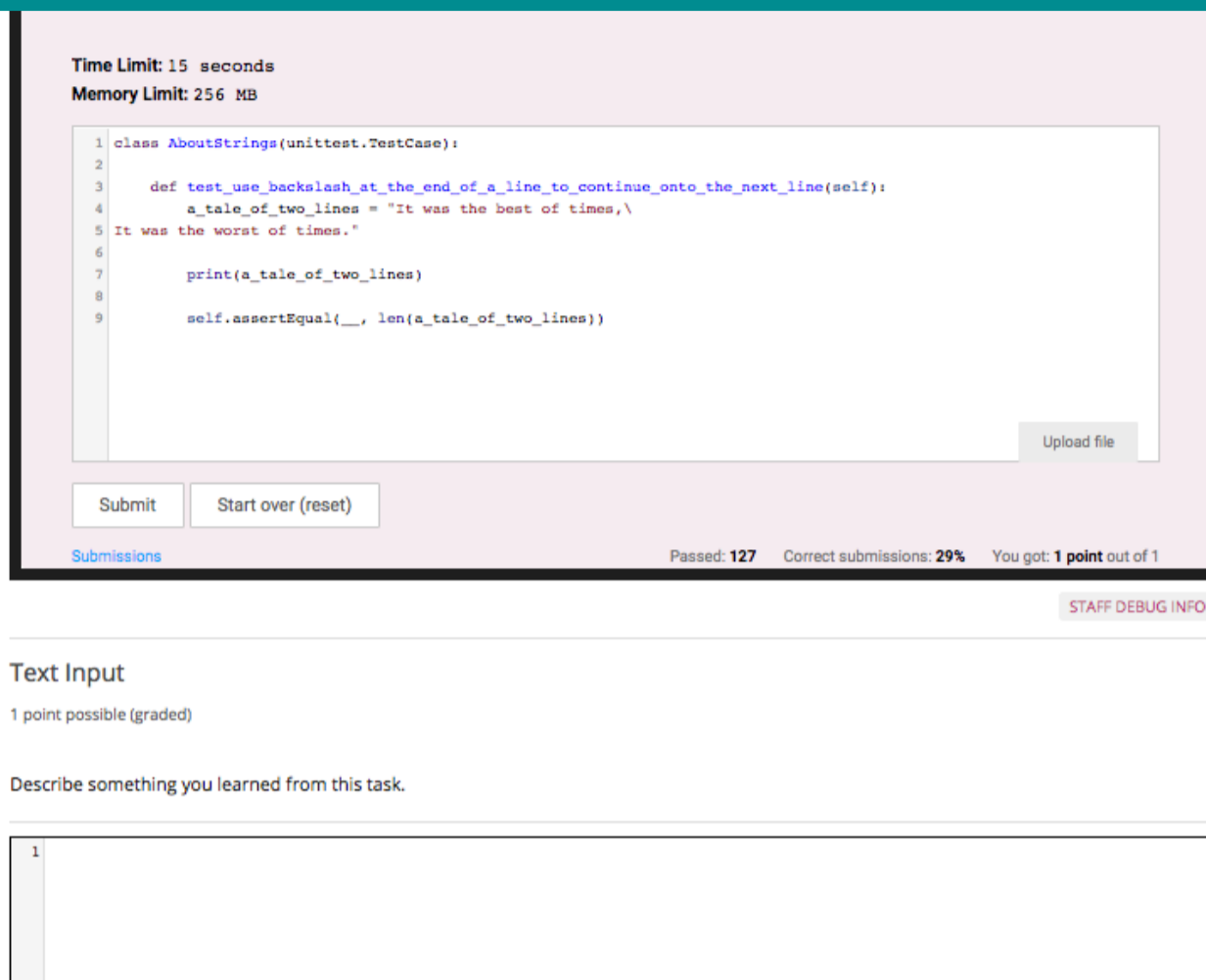


# Discovery learning



The screenshot shows a programming exercise interface. At the top, it displays "Time Limit: 15 seconds" and "Memory Limit: 256 MB". Below this is a code editor with the following Python code:

```
1 class AboutStrings(unittest.TestCase):
2
3     def test_use_backslash_at_the_end_of_a_line_to_continue_onto_the_next_line(self):
4         a_tale_of_two_lines = "It was the best of times,\
5 It was the worst of times."
6
7         print(a_tale_of_two_lines)
8
9         self.assertEqual(__, len(a_tale_of_two_lines))
```

Below the code editor are buttons for "Submit" and "Start over (reset)", and an "Upload file" button. At the bottom of the code editor area, it says "Passed: 127 Correct submissions: 29% You got: 1 point out of 1". Below the code editor is a "Text Input" section with "1 point possible (graded)" and the prompt "Describe something you learned from this task." Below the prompt is a text input field with a line number "1" on the left.

Online learning is often linear and one way: teachers explain concepts, students learn them and then apply them in exercises and assignments. In a new programming course, designed for a blended course, but also used as an online course, we have experimented with discovery learning in an online setting. Rather than explaining programming concepts, students discovered them in really small puzzles. After each puzzle, students reflected on their learning.

While we applied this to a programming course, we think this could be applied in math and engineering courses also. Everywhere you want to get a better insight into what students think, and where you want them to reflect on their thinking.

Students enjoyed the course and we learned a lot from their exploring to use in future courses.

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