Review by Revision!

## CSC160, Prof. Phil Lombardo

In this lab, you will correct and revise two programs: example1.py and example2.py. During this process, you will track down errors, address issues with styling, complete function stubs, write doc-strings, and even create your own functions. At the end, to help review some terms, you will go on a scavenger hunt to identify some common computer science terms in the two programs.

# Team members

Please list the names of everyone you worked with during lab, and whether you worked alone or not after lab.

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| **In lab team** |  |

# Learning Objectives

By the end of this activity, you should feel comfortable:

* working with a partner to read and modify code (this is called pair programming)
* reading and making sense of an existing Python program
* modifying an existing Python program to change its behavior
* working with event-driven programs

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# Grading

The following rubric will be used to grade your work on this lab. See the syllabus for information about revision tokens for increasing your grade.

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|  | **Yes** | **No** |
| You worked diligently with your partner during the lab period, sharing the work and communicating throughout. | 5 pts | 0 pts |

# Part 1: Exploring example1.py

This program, as summarized in the doc-string at the top, asks the user for (x,y)-coordinates of two points. Then it computes the distance between them

1. Before you make any changes, does this function run? If so, does it respond to different inputs?

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2. Review this program with regard to our [*style guidelines*](https://docs.google.com/document/d/104k5QSPDWPrztKOlC54ghQzIMFQLgsngzO_BxVJ6VIs/edit?usp=sharing)*.* There are at least three mistakes in styling for this program. Please identify them and past them below, and then fix them in the program.

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3. Find the function that is currently only a “function stub.” Complete the code for this function and share it below.

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4. Modify the program as needed to make it responsive to the user input. In other words, if we enter the coordinates of two points, the program should print the *actual* distance between them and the area of an equilateral triangle with that base.

**When you’ve finished revising this program, call me over to take a look!**

*Optional 5:* If you have time at the end of the lab come back to this. Write a function that you can use to prompt the user for the coordinates of the two points. (Look for a similar structure in all our input() statements and write a function that can help us avoid that repetitive coding.

# Part 2: Exploring example2.py

This program, as summarized in the doc-string at the top, allows the user to press keys on the keyboard to have the turtle draw different shapes in different colors. As you press keys, it creates a sequence of colored shapes.

1. Before you make any changes, does this function run? If so, does it respond to different keyboard inputs? (Try ‘r’, ‘b’, and ‘g’ for keyboard inputs.) Does the program work? Check the console to see if there are any errors.

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2. If you encountered a problem in (1), please fix it. Below, share what the issue was and briefly explain *how* you fixed it.

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3. When you press ‘b’ the turtle should draw a blue square, and similarly ‘g’ should draw a green square. Are these working? Why or why not?

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4. If you encountered a problem in (3), fix it and share a description of how you fixed it.

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5. We want to add to the functionality of this program. Specifically, we want the turtle to draw a purple triangle when we press ‘p’, and a orchid-colored triangle when we press ‘o’. Which two functions will we need to modify in order to accomplish this?

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6. Implement the changes you outlined in (5) and test your program. Did it work? If not, continued to describe adjustments that you needed to make.

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7. Review your now working program against our [*style guidelines*](https://docs.google.com/document/d/104k5QSPDWPrztKOlC54ghQzIMFQLgsngzO_BxVJ6VIs/edit?usp=sharing). There are at least two mistakes in the styling for this program. In the box below, list the changes you made. (Remember to update your parameters in the function doc-strings if you made changes….)

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8. In google, look up “anonymous function python” and read a few of the search results. As best as you can, describe where we use an anonymous function in this code *and why* we need to use it. You may need to look at the turtle documentation and chat with me a bit.

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# Part 3: Scavenger Hunt!

For each of the computer science terms below, find an example in either program (example1.py or example2.py) and paste it in the box below.

Statement

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Formatted string

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Print statement

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A *literal* (explain the type of literal, e.g. a string literal)

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Expression

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Constant (mention whether this is local or global, and if local mention its frame)

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A variable (explain the type of the variable, e.g. a float variable)

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Assignment statement

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Function doc-string

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Module import

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Parameter

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Argument

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Function definition

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Function call

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# Reflection

Please answer the following questions:

1. What confused you most about this activity?

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2. What questions do you have either about the activity directly or about related topics that came to mind while you did the activity?

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3. Do you feel like you achieved all of the learning objectives listed at the top of each part that you completed? If you feel uncertain about any of them, please list them here.

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# Submission

Make sure that your and your collaborator's names are at the top of your Python file.

Download a copy of this document as a .pdf or .docx. Upload that copy along with your code to the Canvas assignment for this lab. Only one student needs to submit from each group.