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Overview

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Logging and Debugging

Introduction

When something goes wrong in your code, most programmers' first intuition is to insert a print statement. A print statement can help you answer questions like, "What is the value of variable *x* just before my code crashes? Does my code crash only when *x* has that value, or does it crash all the time?" This "print statement debugging" is how most new programmers begin investigating failures in their code.

This lesson will teach you two new, awesome and professional ways to debug your code: logging and debugging.

Logging takes the idea of printing statements from your code and brings it to the next level. You'll be able to selectively hide or show different logging messages, and send them to the console, into log files, or across the internet into log servers.

Then we'll use the interactive Python debugger. The debugger lets you "get into the head" of the Python interpreter. We will step through each line of code as it's executed by Python, with an extra opportunity to print out the values of variables or evaluate extra statements before moving on to the next line of code. And you can transfer the skills you learn in Python's debugger into the debuggers of many other languages.

Learning Objectives

Upon successful completion of this lesson, you will be able to:

- Create log messages of different importance levels.
- Selectively hide or show log messages based on their importance.
- Send log messages to a log file.
- Send log messages across the internet to a central logging server.
- Step through program execution in Python's interactive debugger.
- Set breakpoints and conditional breakpoints within a program's execution.
- Use a debugger to diagnose, describe, and correct the failure of a Python script.

New Words, Concepts, and Tools

- logging
- log levels
- syslog
- debugger
- pdb
- breakpoint
- "step in"
- continue

Prerequisites

To be successful in this lesson you will need to be very familiar with the following concepts, covered earlier in the class:

1. String formatting
2. Creating functions

Before you Start

- [Python's logging library](#)
Spend five to ten minutes scanning the text for basic *familiarity* with the logging library.
- [PDB commands](#)
Read over just the debugger commands.

Suggested Workflow

- Explore the "Before you Start" readings and video

• Explore the **Before you start** readings and video

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- Work through the lesson content pages
- Watch the required videos

- Do the practice activity
- Submit your assignment

At the End of the Lesson

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