C9102: Intro Programming in Python

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Jordan Moldow (jmoldow@alum.mit.edu)

MIT Educational Studies Program

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Outline

Programming

- A program is “a sequence of coded instructions for a computer”
- Programming is the coding of these instructions by humans
- “The purpose of programming is to create a program that exhibits a certain desired behavior.”
- Programming is “writing the source code of computer programs”

General Programming Steps

1. Pick a programming language
2. Write “source code” inside a text file
   - Source code is understandable by humans [who know the language]
   - Each language has different code syntax
3. (For compiled languages) A “compiler” translates source into binary / machine code that is understandable by computers
4. Computer executes code

Writing Python Programs

- Code can be written and saved using special programming environments – file type is .py
- Code can also be written in a normal text editor
  - *nix: vim, emacs, gedit, NOT OpenOffice or LibreOffice
  - Windows: Notepad, Notepad++, NOT Word
- We will use Python IDLE, an officially supported integrated development environment
- Python interpreter executes code directly from your source code – Python is an **interpretted language**

Python Interpreter

- The first thing you see after opening Python IDLE is a command prompt
- This is a shell for the Python interpreter
- Go ahead and type stuff into it
- In its most basic form, the interpreter acts like a calculator, supporting all basic mathematical operations and orders of operations
- Of course, the shell is infinitely more powerful than this, and we will slowly build up our knowledge of what Python can do

Writing and Saving Programs

- No code you write into the interpreter is permanent – it will be lost when you close the interpreter
- You can save code into a file so that you can run it whenever you want
- In Python IDLE, File -> New Window opens a Python file, which you can write code into, save, and run

Hello World! Your First Program!

- A programming tradition – your first program simply outputs the text `Hello World!`
- "Output", in this and most cases, means to write text on the screen

```
1 print "Hello World!"
```