Welcome (back) to ESC180!

The Big Picture: Programming Languages

- A computer program is a sequence of instructions to the computer
  - Some computer programs are written in *machine language*
    - For example, "Change memory cell 11200 to contain 1"
      - Memory cell 11200 can indicate, for example, whether one of the pixels on the screen is on or off, acting like an on/off switch
      - Programs in machine languages are directly* executed by the electronics. The CPU (central processing unit) is responsible for executing the instructions
  - Most programs are *not* written in machine language
    - For example, using print() in Python, we printed whole letters instead of issuing instructions pixel-by-pixel
      - And we could change the font size too

*Not always, things can be more complicated
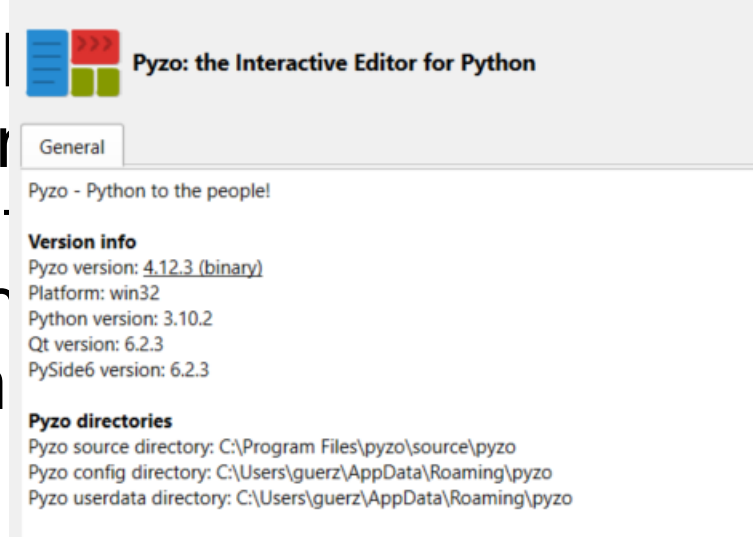
Python: a scripting programming language

- Python is a more "human"-like language, where we can issue instructions at a much higher level of abstraction in than in machine language
  - Print letters to a window in the screen
  - Open a window
  - Store complicated data in variables
  - Use if-else statements
- Another program, called a *Python interpreter*, takes either Python files or individual Python commands, and executes them

Pyzo: an Integrated Development Environment (IDE) for Python

- We will be usually using Pyzo in this course
- Allows us to write Python programs and then execute them using the Python interpreter easily
- Allows us to have the Python interpreter run the Python program line-by-line instead of all at once, so that we can more easily find mistakes in the Python code ("debug the program")

Pyzo itself is written in Python

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- Allows us to have ~ un the Python program line-by-lir ~ so that we can more easily find m~ ~de ("debug the program")

Pyzo: the Interactive Editor for Python

General

Pyzo - Python to the people!

Version info
Pyzo version: 4.12.3 (binary)
Platform: win32
Python version: 3.10.2
Qt version: 6.2.3
PySide6 version: 6.2.3

Pyzo directories
Pyzo source directory: C:\Program Files\pyzo\source\pyzo
Pyzo config directory: C:\Users\guerz\AppData\Roaming\pyzo
Pyzo userdata directory: C:\Users\guerz\AppData\Roaming\pyzo

Pyzo itself is written in Python

About Pyzo

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License
Pyzo is open source, it's code is distributed under the 2-Clause BSD license.

Contributors

How to succeed in ESC180

- ESC180 is about solving problems using programming in Python
- You will be evaluated on how well you can solve problems using programming and how well you understand how Python works
- Practice!
  - The labs and projects are where you will get most of your experience with solving problems using programming this semester
  - In lecture, we will be writing Python code to solve a lot of problems. You should understand the approach that was used. Try to come up with similar problems, and applying the same approach.
    - Or even try doing the same problems from scratch
  - Warning: studying the textbook/lecture notes the night before the test is unlikely to work. Learning programming is much more like learning a language or learning how to ride a bike than it is like high school math or history