

COMP
110

CL01: Objects and Data Types

First, an introduction to Visual Studio...

The image shows a screenshot of the Visual Studio IDE interface. The Explorer window on the left is highlighted with a yellow box and labeled 'A Explorer'. The Editor window in the center is highlighted with a cyan box and labeled 'Editor'. The Terminal window at the bottom is highlighted with a green box and labeled 'Terminal'. The Editor window contains the text 'B ← Edit a module' and the word 'Editor'. The Terminal window contains the text 'C ← Runs your Command Line Interface (CLI)' and a bulleted list: '• Run a module' and '• REPL (Read, Execute, Print, Loop)'. The status bar at the bottom shows 'Ln 1, Col 1 Spaces: 4 UTF-8 LF Python 3.11.1 64-bit'.

A Explorer

B ← Edit a module

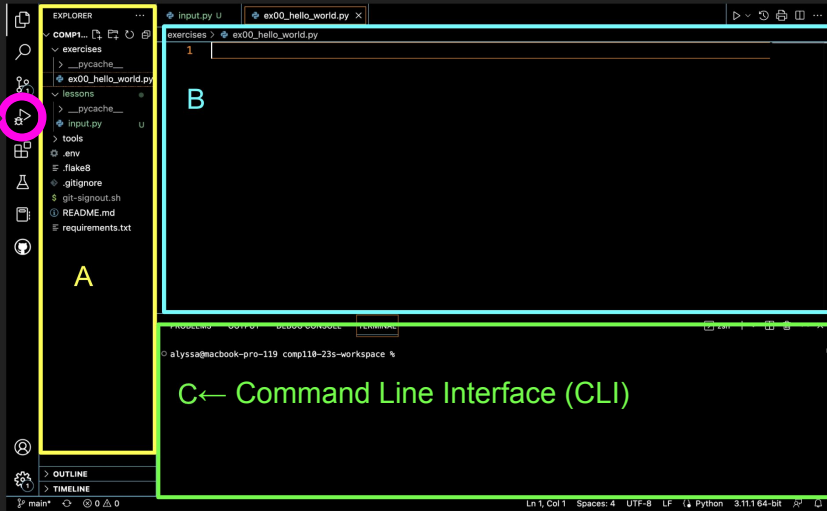
Editor

C ← Runs your Command Line Interface (CLI)

- *Run a module*
- *REPL (Read, Execute, Print, Loop)*

main* 0 0 0 Ln 1, Col 1 Spaces: 4 UTF-8 LF Python 3.11.1 64-bit

Ways to run code



Use Trailhead:

- Launch with the debug button
- “Starting Trailhead server at <http://localhost:1110>”

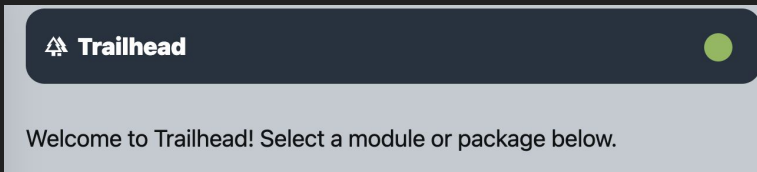
Interactive (like a conversation with your computer):

REPL: Read Execute Print Loop

- To initialize the REPL in your terminal, type:
 - `python`
- `>>>` means you're in the REPL

To run a module (execute a python (.py) file) from your terminal, type:

- `python -m my_file_name`



Objects and Types

An **object** is *typed* unit of data in memory.

The object's **type** classifies it to help the computer know how it should be interpreted and represented.

Example types of data:

- Numerical
- Textual
- Sequences
- Grouping of different types

Numerical Built-In Types

- Integers

- `int`
- Zero or non-zero digit followed by zero or more integers
- 100 is an int but 0100 is not
- 3 is but 3.08 is not
- -2000 is but -2000.1 is not

- Decimals (Or floats)

- `float`
- Examples: 3.02, 4008.0, -16.99999
- Not the *only* way to represent decimal numbers, but a very precise way

Textual Built-In Type

- Strings
 - `str`
 - A sequence (or *string*) of characters
 - Can be denoted using “ ”

Indexing

- **Subscription** syntax uses square brackets and allows you to access an item in a sequence
- **Index numbering starts from 0**

Docstrings

- A string written at the top of every file to describe its purpose.
- Denoted with three quotations `""" """`

Booleans

- `bool`
- Evaluates to `True` or `False`

Check an Object's Type

- `type()`

Change an Object's Type

- `float()`
- `str()`
- `int()`

Homework!

- Respond to **Lesson 01 (LS01)** and **Lesson 02 (LS02)** Gradescope Questions → due **Wednesday (today!)** at 11:59pm
 - **LS01:** VS Code, Terminal, + Running a Program
 - **LS02:** Objects and Data Types
- Course Setup + EX00 (due August 27 at 11:59pm)
 - Come to open house for help!