Lesson 1.02: Interactive Mode ## Learning Objectives Students will be able to... * Define and identify: **interpreter, string, integer, float, value, errors, console, expression** * Use the Python interpreter to evaluate simple math expressions * Distinguish between an integer, float, and string ## Materials/Preparation * [Lab - Using the Interpreter] ([printable lab document]) ([editable lab document]) * [Associated Reading - section 1.1] (https://tealsk12.gitbook.io/intro-cs-2/readings#1-1) * Ensure all students are able to log into the system * Go through the lab so that you are familiar with the requirements/results and can assist students ## Pacing Guide | **Duration** | **Description** | | ---------- | ---------- | | 5 Minutes | Do Now | | 10 Minutes | Lesson | | 15 Minutes | Lab Part 1/Discussion | | 20 Minutes | Lab Part 2/Discussion | | 5 Minutes | Debrief | ## Instructor's Notes ### 1. Do Now * Display the online IDE and asks students to identify the key parts (menu bar items [run, console, +], code panel, console panel) of the IDE. * After going over the three parts of the IDE have students check that they can still log into their IDE account. ### 2. Lesson #### Guided Activity * Have students all bring up their console on their computer * The part on right half of the screen is called a **console**: * The **console** is a place where you can interact with a program. * The **interpreter** runs Python code. * To run the Python interpreter, type code into the console and hit "Enter" or click "Run", the code executes immediately. * Make sure all the students are able to do this and then give out the lab worksheet. ### 3. Lab Part 1 Give students time to work on section 1, #### Discussion Section 1 * What does the // do? How is that different from /? And how are those different from %? * What's the difference between 3.0 and 3? * Go over the following two terms 1. **Floats**: a data type, number with a decimal point. 2. **Integers**: a data type, number without a decimal point. * Now, give students time to work on section 2 #### Discussion Section 2 * What happened when you typed in a? * What do you think that error message mean? * Go over **String**: a data type, characters surrounded in single or double quotes. * Now, give students time to work on section 3 #### Discussion Section 3 * What was the difference between the two inputs? * Strings can be combined using `+`. * What do you think the error message means? * You can't combine different types! * Now, give students time to work on section 4 #### Discussion Section 4 * What error did you get? What do you think that means? * What happens when you multiply strings? ### 4. Lab Part 2 * Define **expression**: a combination of values and operators (and variables) * Ask students to give an example of an expression * Make sure students write down their predictions before going to the interpreter/IDE to check the actual output. ### 5. Debrief * Discuss any surprising/unexpected results. * Remind students of adding strings together using `+`. * Talk about how single and double quotes are interchangeable * Multiplying strings * Order of Operations is the same as what students have learned in math class. * Discuss why it might be helpful to have an interactive console. How is it different than snap? ### Accommodation/Differentiation If students are moving quickly, have students practice higher order-of-operations problems. You can also have them practice assigning values to variables. [Lab - Using the Interpreter]:lab.md.html [Cloud 9 Cheat Sheet]: ../cloud_9_cheat_sheet.md.html ## Forum discussion [Lesson 1.02: Interactive Mode (TEALS Forums Account Required)](https://forums.tealsk12.org/c/2nd-semester-unit-1/1-02-interactive-mode) [printable lab document]: https://github.com/TEALSK12/2nd-semester-introduction-to-computer-science/raw/master/units/1_unit/02_lesson/lab.pdf [editable lab document]: https://github.com/TEALSK12/2nd-semester-introduction-to-computer-science/raw/master/units/1_unit/02_lesson/lab.docx