Lesson 7.03: Methods ## Learning Objectives Students will be able to... * Define and identify: **method**, **`__str__`**, **`__add__`**, **operator overloading** * Create a class with an `__init__` method * Understand and use the `self` argument * Instantiate a class with an argument ## Materials/Preparation * [Do Now] * [Lab - Kangaroo Class] ([printable lab document]) ([editable lab document]) * [Associated Reading - section 7.3](https://tealsk12.gitbook.io/intro-cs-2/readings#7-3) * Read through the do now, lesson, and lab so that you are familiar with the requirements and can assist students ## Pacing Guide | **Duration** | **Description** | | ---------- | ----------- | | 5 Minutes | Do Now | | 10 Minutes | Lesson | | 35 Minutes | Lab | | 5 Minutes | Debrief | ## Instructor's Notes ### 1. Do Now * Display the Do Now on the board. * Students will find that when they try to print the two different Time objects, it produces output that's not particularly useful or readable. * Students will also discover that adding objects doesn't work...yet! ### 2. Lesson #### Instruction - Method * a function inside of a class. * The first argument is always `self`. #### Discussion * Ask students what method we have already seen and used previously. (`init`) * Ask students how they would distinguish between the two time variables. #### Instruction - `__str__` * Need a method called `__str__`. * This will get called when you print an object * it returns a string that is easy to read and understand #### Activity * Have the students practice writing `__str__` for the `Time` class for 5 minutes. * Have a student write up their string method on the board. #### Instruction `__add__` * A method that gets called when the plus sign is used between two `Time` objects. * In this case it takes as parameters `self` and another `Time` object and returns a `Time` object that is the sum of both. * Overwriting add is called **operator overloading** because you are re-writing the code used to make the + work. #### Demonstration * Work together with students to come up with the add time algorithm. ### 3. Lab * Have students finish up the time adding method. * Have students work on kangaroo lab. ### 4. Debrief * Go over students' questions and demonstrate some students' successfully completed labs. * Review what a method is, as well as what specific methods were used in today's lab. ## Accommodation/Differentiation Students that are moving quickly should work on the bonus assignment in the lab or assist a partner that is struggling. ## Forum discussion [Lesson 7.03: Methods (TEALS Discourse Account Required)](https://forums.tealsk12.org/c/2nd-semester-unit-7-classes/lesson-7-03-methods) [Do Now]:do_now.md.html [Lab - Kangaroo Class]:lab.md.html [printable lab document]: https://github.com/TEALSK12/2nd-semester-introduction-to-computer-science/raw/master/units/7_unit/03_lesson/lab.pdf [editable lab document]: https://github.com/TEALSK12/2nd-semester-introduction-to-computer-science/raw/master/units/7_unit/03_lesson/lab.docx