

## Problem Set 03

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March 29, 2022

### Problem: Object Oriented Programming

Write code that creates a class called `Fraction`.

The class `Fraction` has two attributes: `numerator` and `denominator`.

- In your constructor (in your `__init__` method), verify (assert?) that the `numerator` and `denominator` passed in during initiation are both of type `int`. If you want to be thorough, also check to make sure that the `denominator` is not zero.
- Write a `.reduce()` method that will reduce a fraction to lowest terms.
- Override the Object class's `__str__` and `__repr__` methods so that your objects will print out nicely. Remember that `__str__` is more for humans; `__repr__` is more for programmers. Ideally, the `__repr__` method will produce a string that you can run through the `eval()` function to clone the original fraction object.
- Override the `+` operator. In your code, this means that you will implement the special method `__add__`. The signature of the `__add__` function will be `def __add__(self, other):`, and you'll return a new `Fraction` with the result of the addition. Run your new `Fraction` through the `reduce()` function before returning.

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### General guidelines

Submit your problem set solution as code plus any comments. You should submit code in a `.py` file. Export as `.py` if you do your coding in a Jupyter notebook, but now would be a good time to get used to programming in console Python or Spyder. You may include comments in your `.py` file using Python's commenting syntax, or you can submit a separate text file (or Word or PDF document) with your commentary. No Pages documents will be accepted. Convert Pages documents to PDF before submitting.