CS 441 Class Exercise III

March 6, 2020

API Design

Use one of the design patterns that we learned this week to design an Application Programming Interface (API). The API includes four operations that can be used by other programmers to (1) generate a number, (2) calculate the sum of two numbers, (3) display the value of a number, and (4) check if a number is equal to another number, respectively.

Your design must meet the following requirements:

1. Supports two types of numbers, integer and fraction.
2. Encapsulates the implementations of the operations and number types from the user.
3. The API does not need to be changed to support additional number types, so that the code using your API does not need to be changed either.
4. Other programmers only need the header file of your API. The names of concrete number types (e.g., integer, fraction) should not appear in the header file.

Draw a class diagram to represent your final design.