1. Compare and contrast the float and Decimal classes' benefits and drawbacks.

The main difference is Floats and Doubles are binary floating point types and a Decimal will store the value as a floating decimal point type. So Decimals have much higher precision and are usually used within monetary (financial) applications that require a high degree of accuracy.

2. Decimal('1.200') and Decimal('1.2') are two objects to consider. In what sense are these the same object? Are these just two ways of representing the exact same value, or do they correspond to different internal states?

3. What happens if the equality of Decimal('1.200') and Decimal('1.2') is checked?

4. Why is it preferable to start a Decimal object with a string rather than a floating-point value?

because using floats for currency will just cause errors down the road

5. In an arithmetic phrase, how simple is it to combine Decimal objects with integers?

Decimal “is based on a floating-point model which was designed with people in mind, and necessarily has a paramount guiding principle – computers must provide an arithmetic that works in the same way as the arithmetic that people learn at school.” – excerpt from the decimal arithmetic specification.

6. Can Decimal objects and floating-point values be combined easily?

Decimal objects cannot generally be combined with floats or instances of fractions.

7. Using the Fraction class but not the Decimal class, give an example of a quantity that can be expressed with absolute precision.

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8. Describe a quantity that can be accurately expressed by the Decimal or Fraction classes but not by a floating-point value.

The reason it is impossible to represent some decimal numbers this way is that both the exponent and the mantissa must be integers. In other words, all floats must be an integer multiplied by an integer power of 2. 9.2 may be simply 92/10 , but 10 cannot be expressed as 2n if n is limited to integer values.

Q9.Consider the following two fraction objects: Fraction(1, 2) and Fraction(1, 2). (5, 10). Is the internal state of these two objects the same? Why do you think that is?

When an object or a group of objects is divided into equal parts, then each individual part is a fraction. A fraction is usually written as 1/2 or 5/12 or 7/18 ..

Q10. How do the Fraction class and the integer type (int) relate to each other? Containment or inheritance?

A fraction such as consists of two parts. The top value, known as the numerator, can be any integer.