SSN College of Engineering,
Department of Computer Science and Engineering
CS2309 Java Lab

Exercise 1:

1.Develop Rational number class in Java. Use JavaDoc comments for documentation. Implementation should use efficient representation for a rational number,
i.e. (500 / 1000) should be represented as (½).

Algorithm

1. Create a class Rational number with 2 members, numerator and denominator.
2. Create Default constructor and object copy constructor.
3. Use constructor to initialize the data members with the values obtained from the command line argument.
[Hint: Check for Rational number validity – Denominator should not be zero]
4. Create a method to display the rational number.
5. Create a method to reduce the rational number in an efficient manner.
[Hint: Find GCD between numerator and denominator. Divide them with GCD]
6. Add two Rational numbers and reduce it.
[Hint: If the two rational numbers have the same sign, add them. The answer will take the sign of these numbers. If the two rational numbers have different signs, subtract them. The answer will take the sign of the larger number.]
(m1,n1) + (m2,n2) = (m1n2 + m2n1, n1n2)
7. Insert JavaDoc comments at proper locations. Generate the code documentation.

Sample Input and Output

Enter the decimal number : 0.5

Rational number : 1 / 2

Enter the numerator : 500
Enter the denominator : 1000

Rational number : 1 / 2