

1. IMPLEMENTATION OF RATIONAL NUMBER

Develop Rational number class in Java. Use JavaDoc comments for documentation. Your implementation should use efficient representation for a rational number, i.e. (500 / 1000) should be represented as ($\frac{1}{2}$).

ALGORITHM:

STEP 1: Get two inputs from the user through command line arguments.

STEP 2: Store the numerator to variable a and denominator to variable b.

STEP 3: If both a and b are either positive or negative, set the flag as 0.

STEP 4: If either a or b is negative, set flag as 1.

STEP 5: Compare the values of a and b and assign the lowest value to c.

STEP 6: Set the for loop for i=2.

STEP 7: If both a and b values are divisible by i, then perform

(i) $a=a/i$;

(ii) $b=b/i$;

(ii) $i=i+1$;

STEP 8: Repeat the loop if the value of i is less than c. Break the loop if the condition fails.

STEP 9: If flag is 1, display the result as negative number; else display it as positive number.