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ITM 311-02

Lab 08

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**Source Code:**

public class Fraction

{

int num, den;

//default constructor

public Fraction()

{

num = 1;

den = 1;

}

//overloaded constructor

public Fraction(int n, int d)

{

num = n;

if (d==0)

{

System.out.println( "error- division by zero");

System.exit(0); // terminate program if division by 0

}

else

den = d;

}

public Fraction Sum(Fraction someFraction)

{

int n = someFraction.den+someFraction.num\*den;

int d = den\*someFraction.den;

return new Fraction(n/gcd(n,d),d/gcd(n,d)); //return refreshed member values

}

public Fraction Difference(Fraction someFraction)

{

//code function definition

int n = someFraction.den-someFraction.num\*den;

int d = den\*someFraction.den;

return new Fraction(n/gcd(n,d),d/gcd(n,d));

}

public Fraction Multiply(Fraction someFraction)

{

//code function definition

int n = num \* someFraction.num;

int d = den\*someFraction.den;

return new Fraction(n/gcd(n,d),d/gcd(n,d));

}

public Fraction Division(Fraction someFraction)

{

//code function definition

int n = num \* someFraction.den;

int d = den\*someFraction.num;

return new Fraction(n/gcd(n,d),d/gcd(n,d));

}

//find and return greatest common denominator

public int gcd(int n, int d)

{

int remainder;

while (d != 0)

{

remainder = n % d;

n = d;

d = remainder;

}

return n;

}

public void display() // Display method

{

int n = this.num;

int d = this.den;

System.out.println(n + "/" + d);

}

public static void main(String [] args)

{

Fraction frac1 = new Fraction(1,2);

Fraction frac2 = new Fraction(1,4);

Fraction fracResult = new Fraction();

fracResult = frac1.Sum(frac2); // Result 3/4

fracResult.display();

//finish coding to call the Difference, Multiply and division functions

fracResult = frac1.Difference(frac2); // Result 1/4

fracResult.display();

fracResult = frac1.Multiply(frac2); // Result 1/8

fracResult.display();

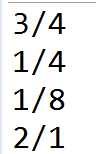
fracResult = frac1.Division(frac2); // Result 2/1

fracResult.display();

//include also the call to the display function for additional results

}//end main

}//end class

**Output**