

Question #58776, Programming & Computer Science / C++ | Completed

Question: A fraction-handling program contains this menu:

- A. Add two fractions
- B. Convert a fraction to decimal
- C. Multiply two fractions
- Q. Quit

Write C++ code for the program with sub functions for the choices.

Answer:

```
#include<iostream>

using namespace std;

class Frac
{
public:
    Frac(int n = 0, int d = 1);
    void print();
    void add(Frac one, Frac two);
    void mult(Frac one, Frac two);
    void printDec();
private:
    int num, den;
    double decimal;
    void reduce();
};

Frac::Frac(int n, int d)
{
    num = n;
    if (d <= 0)
    {
        cout << "Error, denominator is equal to 0 or negative" << endl;
        exit(0);
    }
    else
        den = d;
}

int gcd(int a, int b)
{
    if(a == 0)
        return b;
    else
        return gcd(b%a, a);
}

void Frac::printDec()
{
    cout << "The decimal form is " << num/(double)den << endl;
}

void Frac::reduce()
{
    int GCD = gcd(num, den);
    num /= GCD;
    den /= GCD;
}

void Frac::add(Frac one, Frac two)
```

```

{
    num = (one.num * two.den) + (two.num * one.den);
    den = one.den * two.den;
    reduce();
}

void Frac::mult(Frac one, Frac two)
{
    num = one.num * two.num;
    den = one.den * two.den;
    reduce();
}

void Frac::print()
{
    if (den == 1)
        cout << "The fraction form is " << num << endl;
    else
        cout << "The fraction form is " << num << "/" << den << endl;
    decimal = num/(float)den;
}

int main(int argc, char *argv[])
{
    int x1,x2,y1,y2;
    int choise;
    cout<<" enter fist fraction: x1 ";
    cin>>x1;
    cout<<" enter fist fraction: x2 ";
    cin>>x2;
    cout<<" enter second fraction: y1 ";
    cin>>y1;
    cout<<" enter second fraction: y2 ";
    cin>>y2;
    Frac a(x1,x2), b(y1,y2), sum, prod;
    a.print();
    b.print();

    cout<<"1: Add\n2: Multiply\n3: Convert a fraction to decimal \n q -
Exit\n";
    while(cin>>choise)
    {

        if(choise == 1 ){
            sum.add(a,b);
            cout << "The sum is ";
            sum.print();
        }
        if(choise == 2){
            prod.mult(a,b);

            cout<< "The product is ";
            prod.print();
        }
        if(choise == 3)
        {
            a.printDec();
            b.printDec();
        }
        cout<<" enter fist fraction: x1 ";
        cin>>x1;
    }
}

```

```
    cout<<" enter fist fraction: x2 ";
    cin>>x2;
    cout<<" enter second fraction: y1 ";
    cin>>y1;
    cout<<" enter second fraction: y2 ";
    cin>>y2;
    cout<<"1: Add\n2: Multiply\n3: Convert a fraction to decimal \n q -
Exit\n";
}
return 0;
}
```