



BUBT | BANGLADESH UNIVERSITY OF
BUSINESS AND TECHNOLOGY

ASSIGNMENT

ASSIGNMENT NO -

Course NO : CSE-122

Course Name : Object Oriented Programming

Submission Date : 10-04-23

Submitted To

Name: Khan Md. Hasib

Assistant Professor

Department of Computer Science & Engineering

Submitted By

Name: Sadman Ishraq

ID: INATKE: SECTION:06

50

22234103212.

Assignment 03:

```
#include <iostream>
#include <cassert>
#include <cmath>

using namespace std;

class Fraction {
private:
    int numerator;
    int denominator;

public:
    Fraction(int num, int denom) {
        assert(denom != 0);
        assert(typeid(num) == typeid(int) && typeid(denom) == typeid(int));
        numerator = num;
        denominator = denom;
    }

    void reduce() {
        int gcd = abs(__gcd(numerator, denominator));

        numerator /= gcd;
        denominator /= gcd;

        if (denominator < 0) {
            numerator = -numerator;
            denominator = abs(denominator);
        }
    }

    Fraction operator+(Fraction const &f2) {
        int new_num = numerator * f2.denominator + f2.numerator * denominator;
        int new_denom = denominator * f2.denominator;
        Fraction result(new_num, new_denom);
        result.reduce();
        return result;
    }

    friend ostream& operator<<(ostream& os, const Fraction& f) {
        os << f.numerator << "/" << f.denominator;
        return os;
    }

    string repr() const {
        return "Fraction(" + to_string(numerator) + ", " + to_string(denominator) + ")";
    }
};
```

```
int main() {  
    Fraction f1(3, 4);  
    Fraction f2(1, 2);  
    Fraction f3 = f1 + f2;  
  
    cout << "f1 = " << f1 << endl;  
    cout << "f2 = " << f2 << endl;  
    cout << "f3 = " << f3 << endl;  
    cout << "f3.repr() = " << f3.repr() << endl;  
  
    return 0;  
}
```