



International University of Business Agriculture and Technology

Lab Report 10

Course Code: CSC 284

Course Name: Programming in C++ Lab

Submitted To:

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1.Code:

```
#include <iostream>
using namespace std;

class Cart
{
private:
    double price;
    int quantity;

public:
    Cart(double p, int q) : price(p), quantity(q) {}

    double getTotal() const { return price * quantity; }

    double operator+(const Cart &other)
    {
        return this->getTotal() + other.getTotal();
    }
};

int main()
{
    Cart cart1(10.0, 5);
    Cart cart2(15.0, 3);
    cout << "Total price of both carts: " << cart1 + cart2 << endl;
    return 0;
}
```

Output:

PROBLEMS OUTPUT PORTS SQL CONSOLE TERMINAL DEBUG CONSOLE

```
PS F:\University\3rd Semester - Fall '24\CSC 284 - C++ Lab\Cpp_practice> cd "f:\Univ
284 - C++ Lab\Cpp_practice\Lab10\" ; if ($?) { g++ tempCodeRunnerFile.cpp -o tempCo
odeRunnerFile }
Total price of both carts: 95
PS F:\University\3rd Semester - Fall '24\CSC 284 - C++ Lab\Cpp_practice\Lab10> |
```

2.Code:

```
#include <iostream>
using namespace std;

class Distance
{
private:
    int kilometers;
    int meters;

public:
    Distance(int km, int m) : kilometers(km), meters(m) {}

    void display() const
    {
        cout << kilometers << " km " << meters << " m" << endl;
    }

    Distance operator+(const Distance &other)
    {
        int totalMeters = meters + other.meters;
        int totalKilometers = kilometers + other.kilometers + totalMeters /
1000;
        totalMeters %= 1000;
        return Distance(totalKilometers, totalMeters);
    }
};

int main()
{
    Distance distance1(5, 700);
    Distance distance2(3, 800);
    Distance total = distance1 + distance2;
    total.display();
    return 0;
}
```

Output:

PROBLEMS OUTPUT PORTS SQL CONSOLE TERMINAL DEBUG CONSOLE

```
PS F:\University\3rd Semester - Fall '24\CSC 284 - C++ Lab\Cpp_practice> cd "f:\Univ
284 - C++ Lab\Cpp_practice\Lab10\" ; if ($?) { g++ tempCodeRunnerFile.cpp -o tempCo
odeRunnerFile }
```

```
9 km 500 m
```

```
PS F:\University\3rd Semester - Fall '24\CSC 284 - C++ Lab\Cpp_practice\Lab10> |
```

3.Code: #include <iostream>

```
using namespace std;
```

```
class Account
```

```
{
```

```
private:
```

```
    double balance;
```

```
public:
```

```
    Account(double b) : balance(b) {}
```

```
    double getBalance() const { return balance; }
```

```
    Account &operator-(double amount)
```

```
{
```

```
    balance -= amount;
```

```
    return *this;
```

```
}
```

```
};
```

```
int main()
```

```
{
```

```
    Account acc(1000.0);
```

```
    cout << "Initial balance: " << acc.getBalance() << endl;
```

```
    acc - 200.0;
```

```
    cout << "Balance after withdrawal: " << acc.getBalance() << endl;
```

```
    return 0;
```

```
}
```

Output:

PROBLEMS OUTPUT PORTS SQL CONSOLE TERMINAL DEBUG CONSOLE

```
PS F:\University\3rd Semester - Fall '24\CSC 284 - C++ Lab\Cpp_practice> cd "f:\University\3rd Semester - Fall '24\CSC 284 - C++ Lab\Cpp_practice\Lab10\" ; if ($?) { g++ tempCodeRunnerFile.cpp -o tempCodeRunnerFile }
Initial balance: 1000
Balance after withdrawal: 800
PS F:\University\3rd Semester - Fall '24\CSC 284 - C++ Lab\Cpp_practice\Lab10> |
```

4.Code:

```
#include <iostream>
using namespace std;

class Complex
{
private:
    double real;
    double imag;

public:
    Complex(double r, double i) : real(r), imag(i) {}

    void display() const
    {
        cout << real << " + " << imag << "i" << endl;
    }

    Complex operator+(const Complex &other)
    {
        return Complex(real + other.real, imag + other.imag);
    }

    Complex operator-(const Complex &other)
    {
        return Complex(real - other.real, imag - other.imag);
    }
};

int main()
{
    Complex num1(3, 4);
    Complex num2(1, 2);
    Complex sum = num1 + num2;
    Complex diff = num1 - num2;
    sum.display();
    diff.display();
    return 0;
}
```

Output:

PROBLEMS OUTPUT PORTS SQL CONSOLE TERMINAL DEBUG CONSOLE

```
PS F:\University\3rd Semester - Fall '24\CSC 284 - C++ Lab\Cpp_practice> cd "f:\Unive
284 - C++ Lab\Cpp_practice\Lab10\" ; if ($?) { g++ tempCodeRunnerFile.cpp -o tempCod
odeRunnerFile }
```

```
4 + 6i
```

```
2 + 2i
```

```
PS F:\University\3rd Semester - Fall '24\CSC 284 - C++ Lab\Cpp_practice\Lab10> |
```

5.Code:

```
#include <iostream>
using namespace std;

class Matrix{
private:
    int mat[2][2];

public:
    Matrix(int a, int b, int c, int d){
        mat[0][0] = a;
        mat[0][1] = b;
        mat[1][0] = c;
        mat[1][1] = d;
    }
    void display() const{
        for (int i = 0; i < 2; ++i)
        {
            for (int j = 0; j < 2; ++j)
            {
                cout << mat[i][j] << " ";
            }
            cout << endl;
        }
    }
    Matrix operator+(const Matrix &other)
    {
        return Matrix(mat[0][0] + other.mat[0][0], mat[0][1] +
other.mat[0][1],
                    mat[1][0] + other.mat[1][0], mat[1][1] +
other.mat[1][1]);
    }
};
int main(){
    Matrix m1(1, 2, 3, 4);
    Matrix m2(5, 6, 7, 8);
    Matrix result = m1 + m2;
    result.display();
    return 0;
}
```

Output:

PROBLEMS OUTPUT PORTS SQL CONSOLE TERMINAL DEBUG CONSOLE

```
PS F:\University\3rd Semester - Fall '24\CSC 284 - C++ Lab\Cpp_practice> cd "f:\Univ
284 - C++ Lab\Cpp_practice\Lab10\" ; if ($?) { g++ tempCodeRunnerFile.cpp -o tempCo
odeRunnerFile }
```

```
6 8
```

```
10 12
```

```
PS F:\University\3rd Semester - Fall '24\CSC 284 - C++ Lab\Cpp_practice\Lab10> |
```

6.Code:

```
#include <iostream>
using namespace std;

class Employee
{
private:
    string name;
    double salary;

public:
    Employee(string n, double s) : name(n), salary(s) {}

    double getSalary() const { return salary; }

    Employee operator+(double bonus)
    {
        return Employee(name, salary + bonus);
    }
};

int main()
{
    Employee emp("John", 5000);
    Employee empWithBonus = emp + 1000;
    cout << "Salary after bonus: " << empWithBonus.getSalary() << endl;
    return 0;
}
```

Output:

PROBLEMS OUTPUT PORTS SQL CONSOLE TERMINAL DEBUG CONSOLE

```
PS F:\University\3rd Semester - Fall '24\CSC 284 - C++ Lab\Cpp_practice> cd "f:\Unive
284 - C++ Lab\Cpp_practice\Lab10\" ; if ($?) { g++ tempCodeRunnerFile.cpp -o tempCoc
odeRunnerFile }
6 8
10 12
PS F:\University\3rd Semester - Fall '24\CSC 284 - C++ Lab\Cpp_practice\Lab10> 
```

7.Code:

```
#include <iostream>
using namespace std;

class Fraction
{
private:
    int numerator, denominator;

public:
    Fraction(int num, int denom) : numerator(num), denominator(denom) {}

    void display() const
    {
        cout << numerator << "/" << denominator << endl;
    }

    Fraction operator+(const Fraction &other)
    {
        int commonDenominator = denominator * other.denominator;
        int newNumerator = numerator * other.denominator + other.numerator *
denominator;
        return Fraction(newNumerator, commonDenominator);
    }
};

int main()
{
    Fraction frac1(1, 2);
    Fraction frac2(1, 3);
    Fraction result = frac1 + frac2;
    result.display();
    return 0;
}
```

Output:

PROBLEMS OUTPUT PORTS SQL CONSOLE TERMINAL DEBUG CONSOLE

```
PS F:\University\3rd Semester - Fall '24\CSC 284 - C++ Lab\Cpp_practice> cd "f:\University\3
284 - C++ Lab\Cpp_practice\Lab10\" ; if ($?) { g++ tempCodeRunnerFile.cpp -o tempCodeRunner
odeRunnerFile }
```

5/6

```
PS F:\University\3rd Semester - Fall '24\CSC 284 - C++ Lab\Cpp_practice\Lab10> |
```


8.Code:

```
#include <iostream>
using namespace std;

class Player
{
private:
    string name;
    int points;

public:
    Player(string n, int p) : name(n), points(p) {}

    int getPoints() const { return points; }

    Player operator+(const Player &other)
    {
        return Player(name + " & " + other.name, points + other.points);
    }
};

int main()
{
    Player player1("Alice", 100);
    Player player2("Bob", 150);
    Player team = player1 + player2;
    cout << "Team score: " << team.getPoints() << endl;
    return 0;
}
```

Output:

PROBLEMS OUTPUT PORTS SQL CONSOLE TERMINAL DEBUG CONSOLE

```
PS F:\University\3rd Semester - Fall '24\CSC 284 - C++ Lab\Cpp_practice> cd "f:\University\3rd Semester - Fall '24\CSC 284 - C++ Lab\Cpp_practice\Lab10\" ; if ($?) { g++ tempCodeRunnerFile.cpp -o tempCodeRunnerFile }
Team score: 250
PS F:\University\3rd Semester - Fall '24\CSC 284 - C++ Lab\Cpp_practice\Lab10>
```

9.Code:

```
#include <iostream>
using namespace std;

class Box
{
private:
    double length, width, height;

public:
    Box(double l, double w, double h) : length(l), width(w), height(h) {}

    double getVolume() const
    {
        return length * width * height;
    }

    bool operator>(const Box &other)
    {
        return getVolume() > other.getVolume();
    }
};

int main()
{
    Box box1(3.0, 4.0, 5.0);
    Box box2(2.0, 6.0, 6.0);
    if (box1 > box2)
    {
        cout << "Box 1 is larger" << endl;
    }
    else
    {
        cout << "Box 2 is larger" << endl;
    }
    return 0;
}
```

Output:

PROBLEMS OUTPUT PORTS SQL CONSOLE TERMINAL DEBUG CONSOLE

```
PS F:\University\3rd Semester - Fall '24\CSC 284 - C++ Lab\Cpp_practice> cd "f:\University\3rd Semester - Fall '24\CSC 284 - C++ Lab\Cpp_practice\Lab10\" ; if ($?) { g++ tempCodeRunnerFile.cpp -o tempCodeRunnerFile }
Box 2 is larger
PS F:\University\3rd Semester - Fall '24\CSC 284 - C++ Lab\Cpp_practice\Lab10> |
```

10.Code:

```
#include <iostream>
using namespace std;

class MyString
{
private:
    string str;

public:
    MyString(string s) : str(s)
    {
    }
    string getStr() const
    {
        return str;
    }
    MyString operator+(const MyString &other)
    {
        return MyString(str + " " + other.str);
    }
};

int main()
{
    MyString firstName("John");
    MyString lastName("Doe");
    MyString fullName = firstName + lastName;
    cout << "Full name: " << fullName.getStr() << endl;
    return 0;
}
```

Output:

PROBLEMS OUTPUT PORTS SQL CONSOLE TERMINAL DEBUG CONSOLE

```
PS F:\University\3rd Semester - Fall '24\CSC 284 - C++ Lab\Cpp_practice> cd "f:\Universi
284 - C++ Lab\Cpp_practice\Lab10\" ; if ($?) { g++ tempCodeRunnerFile.cpp -o tempCodeRu
odeRunnerFile }
Full name: John Doe
PS F:\University\3rd Semester - Fall '24\CSC 284 - C++ Lab\Cpp_practice\Lab10> |
```