OOP TUTORIAL 4

```cpp
#include<iostream>
using namespace std;
class Complex {
   float real, imag;
public:
   // Default constructor
   Complex() {
       real = 0.0;
       imag = 0.0;
   }
   // Parameterized constructor
   Complex(float r, float i) {
       real = r;
       imag = i;
   }
   void display() {
       cout << "Complex number is: " << real << "+" << imag << "j\n";
   }
   // Addition as member function
   Complex operator+ (Complex c) {
       Complex temp;
       temp.real = real + c.real;
       temp.imag = imag + c.imag;
       return temp;
   }
   // Declare friend multiplication function
   friend Complex operator* (Complex m, Complex n);
   // Declare friend input/output operators
   friend ostream& operator<<(ostream& out, const Complex& c);
   friend istream& operator>>(istream& in, Complex& c);
};
// Multiplication as friend function
Complex operator* (Complex m, Complex n) {
   Complex temp;
   temp.real = (n.real * m.real) - (n.imag * m.imag);
   temp.imag = (n.real * m.imag) + (n.imag * m.real);
   return temp;
}
// Input operator
istream& operator>>(istream& in, Complex& c) {
   in >> c.real >> c.imag;
   return in;
}
// Output operator
ostream& operator<<(ostream& out, const Complex& c) {
   out << c.real << "+" << c.imag << "j";
   return out;
}
```

```
int main() {
   Complex C1, C2;
   cout << "Enter 1st complex number (real and imaginary parts separated by
space): ";
   cin >> C1;
   cout << "Enter 2nd complex number (real and imaginary parts separated by
space): ";
   cin >> C2;
   Complex C3 = C1 + C2;
   Complex C4 = C1 * C2;
   cout << "C1 = " << C1 << endl;
   cout << "C2 = " << C2 << endl;
   cout << "Sum = " << C3 << endl;
   cout << "Product = " << C4 << endl;
   return 0;
}
```

OUTPUT

```
Enter 1st complex number (real and imaginary parts separated by space): 2 2
Enter 2nd complex number (real and imaginary parts separated by space): 2 2
C1 = 2+2j
C2 = 2+2j
Sum = 4+4j
Product = 0+8j
```