TRIBHUVAN UNIVERSITY

INSTITUTE OF ENGINEERING

PULCHOWK CAMPUS

DEPARTMENT OF ELECTRONICS AND COMPUTER ENGINEERING

LAB REPORT ON OBJECT ORIENTED PROGRAMMING

Bachelor's Degree in Electronics, Communication and Information Engineering

FIRST YEAR SECOND PART(I-II)

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TASK 1:

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

class COMPLEX{
    private :
        int real;
        int img;
    public:
    COMPLEX(int a, int b){
        real = a;
        img = b;
    }
    void operator ++(){
        ++real;
        ++img;
        cout<<"\n During prefix : "<<++real<<" +i"<<++img;
        cout<<"\n After prefix :  "<<real <<" + i"<<img;
    }
    void operator ++(int){
        cout<<"\n During postfix : "<<real++<<" +i"<<img++;
        cout<<"\n After postfix : "<<real<<" + i"<<img;
    }
};
int main(){
    COMPLEX c1(3,4);
    ++c1; //c1.operator ++()
    c1++; //c1.operator ++(int)
}
```

TASK 2:

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

class COMPLEX{
    private :
        int real;
        int img;
    public:
    COMPLEX(int a, int b){
        real = a;
        img = b;
    }
  friend void operator ++(COMPLEX);
  friend void operator ++(COMPLEX,int );
};
void operator ++(COMPLEX c2){
        cout<<"\nDuring prefix : "<<++c2.real<<" +i"<<++c2.img;
        cout<<"\nAfter prefix :  "<<c2.real<<" + i"<<c2.img;
    }
void operator ++(COMPLEX c3, int){
        cout<<"\nDuring postfix : "<<c3.real++<<" +i"<<c3.img++;
        cout<<"\nAfter postfix : "<<c3.real<<" +i"<<c3.img;
    }

int main(){
    COMPLEX c1(3,4),c2(8,9);
    ++c1; //operator ++(c1)
    c2++; //operator ++(c2,int)
}
```

TASK 3:

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

class COMPLEX{
    private :
        int real;
        int img;
    public:

    void ask(){
            cout<<"\nEnter the real and imaginary value : ";
            cin>>real>>img;
    }
    void operator +(COMPLEX);
};
void COMPLEX::operator+(COMPLEX c3){
     cout<<"\nSum of complex numbers:  "<<real + c3.real <<" + i"<<img + c3.img;
}
int main(){
    COMPLEX c1,c2;
    c1.ask();
    c2.ask();
    c1+c2; //c1.operator+(c2)
}
```

TASK 4:

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

class COMPLEX{
    private :
        int real;
        int img;
    public:

    void ask(){
            cout<<"\nEnter the real and imaginary value : ";
            cin>>real>>img;
    }
    friend void operator +(COMPLEX , COMPLEX);
};
void operator+(COMPLEX c3, COMPLEX c4){
     cout<<"\nSum of complex numbers:  "<<c3.real + c4.real <<" + i"<<c3.img + c4
.img;
}
int main(){
    COMPLEX c1,c2;
    c1.ask();
    c2.ask();
    c1+c2; //operator+(c1,c2)
}
```

TASK 5:

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


class MATRIX{
    private:
        int mat1[3][3];
        int r;
    public:
        void ask(){
            cout<<"\n";
            for(int i=0; i<3;i++){
                for (int j=0;j<3;j++){
                    cout<<"Matrix["<<i+1<<"]["<<j+1<<"] : ";
                    cin>>mat1[i][j];
                }
            }
        }
        MATRIX operator *(MATRIX md){
            MATRIX ml;
            cout<<"\nAfter multiplication : \n";
            for(int i=0;i<3;i++){
                for(int j=0;j<3;j++){
                    int m=0;
                    for (int k=0;k<3;k++){
                        r =mat1[i][k] * md.mat1[k][j];
                        m=m+r;
                    }
                    ml.mat1[i][j]=m;
                }
             }
            return ml;
         }
    void display();
};
void MATRIX :: display(){
    for (int i=0;i<3;i++){
        for(int j=0;j<3;j++){
            cout<<mat1[i][j]<<" ";
        }
        cout<<"\n";
    }
}
```

```
int main(){
    MATRIX ma,mb,mc;
    cout<<"\nFor First martrix : \n";
    ma.ask();
    cout<<"\nFor Second Matrix : \n";
    mb.ask();
    mc=ma*mb;
    mc.display();
}
```