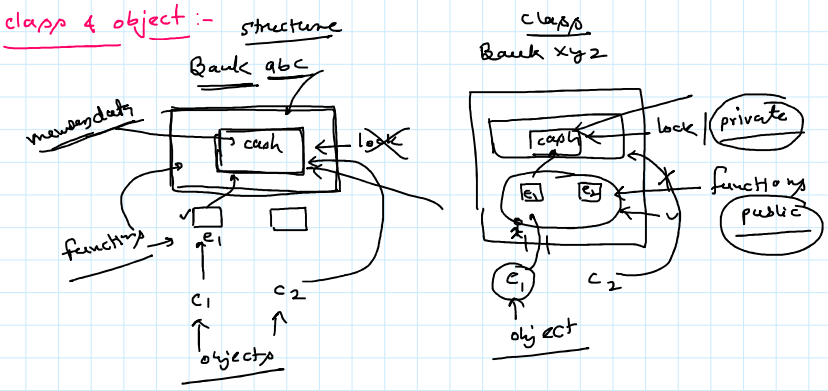
Day 06

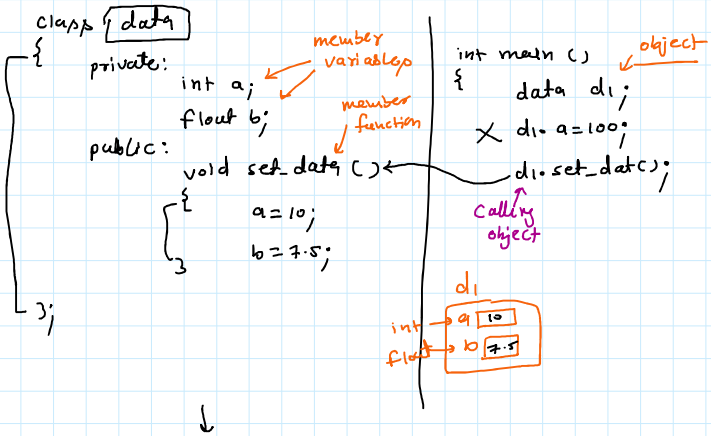
22 March 2025 08:25 AM

class & object :- structure

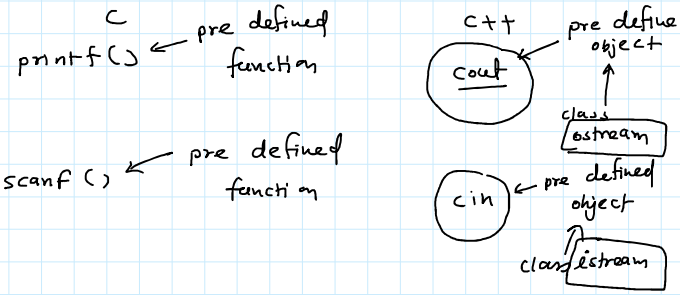


Syntax

```
class class-name
{
    private:
        member;
        :
    public:
        member.
        :
    private:
        |
};
```




```
#include<iostream>
using namespace std;
class data{
    private:
        int a;
        float b;
    public:
        void set_data()
        {
            a=10;
            b=7.5;
        }
        void output()
        {
            std::cout<<a<<" "<<b<<endl;
        }
};
int main()
{
    data d1,d2;
    // d1.a=10;
    d1.set_data();
    d1.output();
    return 0;
}
```



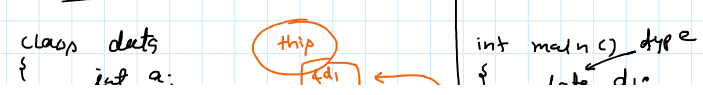
cout << "Hello";
(insertion op)

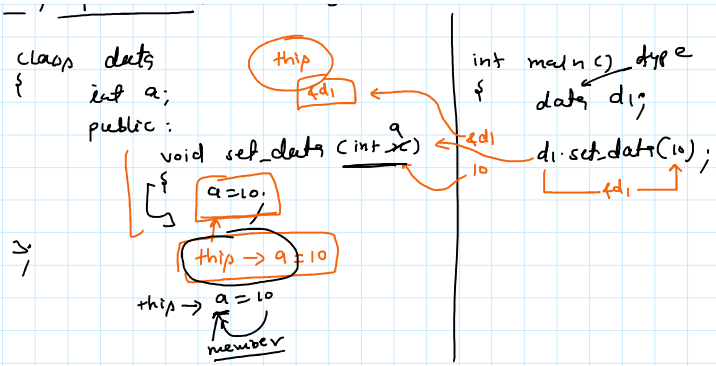
cin >> a
(Extraction op)

```c
#include<stdio.h>
int x;
void inc()
{
    static int a=5;
    a++;
    printf("%d ",a);
}
int main()
{
    inc();
    inc();
    inc();
    inc();
    return 0;
}
```

```cpp
#include<iostream>
using namespace std;
class data{
    public:
        void set_data()
        {
            a=10;
            b=7.5;
        }
        void set_data2(int x, float y)
        {
            a=x;
            b=y;
        }
        void get_data()
        {
            cout<<"Enter int value:";
            cin>>a;
            cout<<"Enter float value:";
            cin>>b;
        }
        void output()
        {
            cout<<a<<" "<<b<<endl;
        }
    private:
        int a;
        float b;
};
int main()
{
    data d1,d2;
    // d1.a=10;
    d1.set_data2(200,62.51);
    d1.output();
    d2.set_data2(100,75.25f);
    d2.output();
    data d3;
    d3.get_data();
    d3.output();
    return 0;
}
```

this pointer ← keyword ← store address of calling object





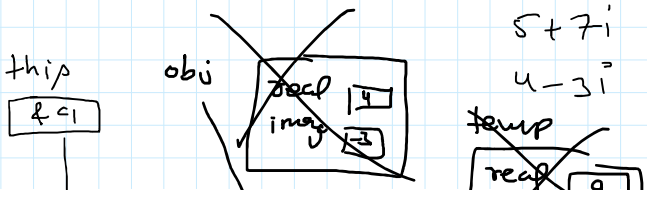

```
#include<iostream>
using namespace std;
class data{
    public:
        void set_data(int a, float b)
        {
            this->a=a;
            this->b=b;
        }
        void output()
        {
            cout<<a<<" "<<b<<endl;
        }
    private:
        int a;
        float b;
};
int main()
{
    data d1,d2;
    // d1.a=10;
    d1.set_data(200,62.51);
    d1.output();
    return 0;
}
```

Complex class :→

```
class complex {
        int real;
        int imag;
    public:
        void set_data (int r, int i)
        {
            real = r;
            imag = i;
        }
        void output ()
        {
            if(imag >=0)
              cout <<real <<"+" <<imag<<"i";
            else
              cout <<real <<imag<<"i"<<endl;
```

5
-7
5+7i
5-7i

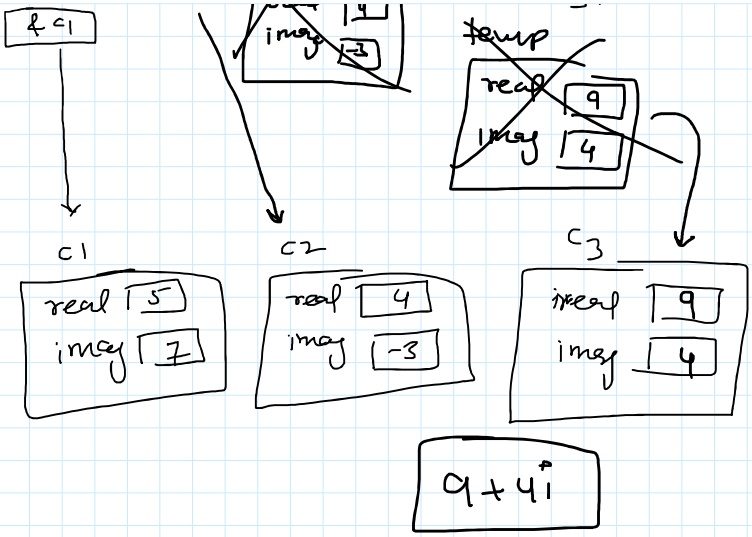
```
#include<iostream>
using namespace std;
class complex{
    public:
        void set_data(int r, int i)
        {
            real = r;
            imag = i;
        }
        void output()
        {
            if(imag >= 0)
                cout<<real<<"+"<<imag<<"i"<<endl;
```

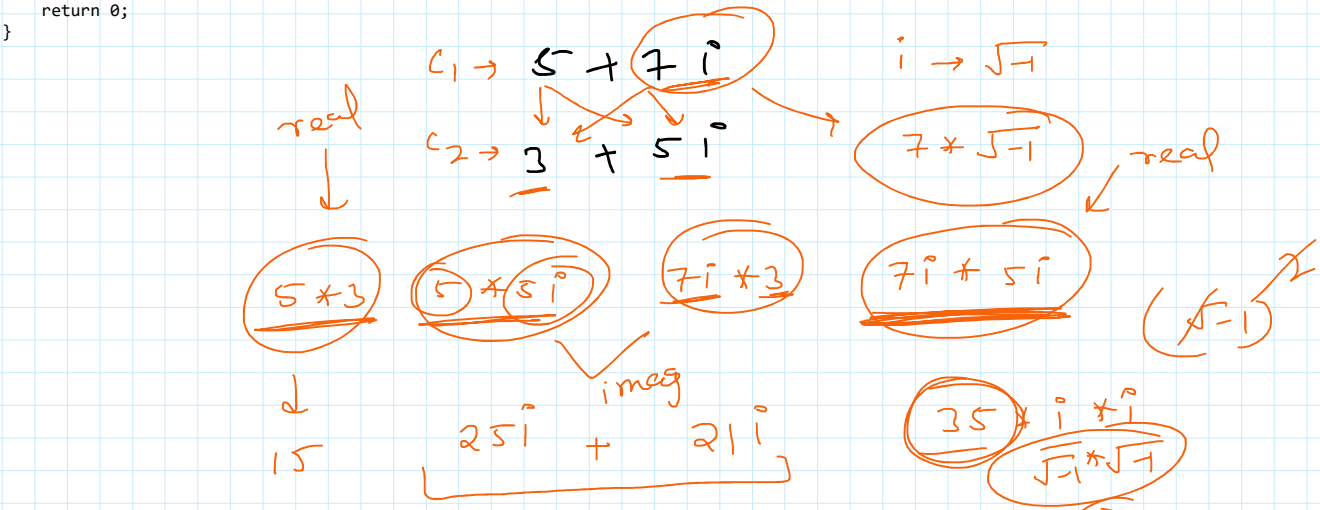


```
        void output()
        {
            if(imag >= 0)
                cout<<real<<"+"<<imag<<"i"<<endl;
            else
                cout<<real<<imag<<"i"<<endl;
        }
        complex sum(complex obj)
        {
            complex temp;
            temp.real = real + obj.real;
            temp.imag = imag + obj.imag;
            return temp;
        }
    private:
        int real,imag;
};
int main()
{
    complex c1,c2;
    c1.set_data(5,7);
    c2.set_data(4,-3);
    c1.output();
    c2.output();
    complex c3;
    c3 = c1.sum(c2);
    c3.output();
    return 0;
}
```

5 + 4

7 -3





$$c_3.real = (c_1.real * c_2.real) + (c_1.imag * c_2.imag) * -1$$

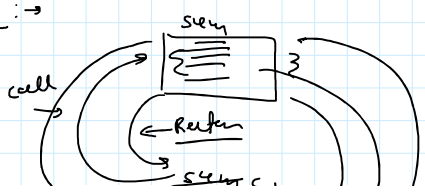
$$c_3.imag = (c_1.real * c_2.imag) + (c_1.imag * c_2.real)$$

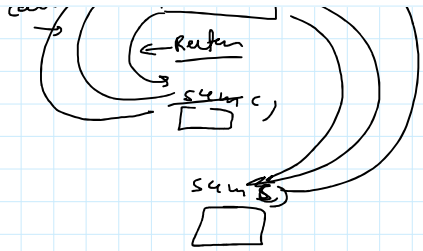
member function outside the class :→

```
class data
{
    int a;
public:
    void fun1();   ← member function declaration
};
```

inline void data::fun1()
{
    a=10;
    cout<<a;
}
← member function definition

inline :→

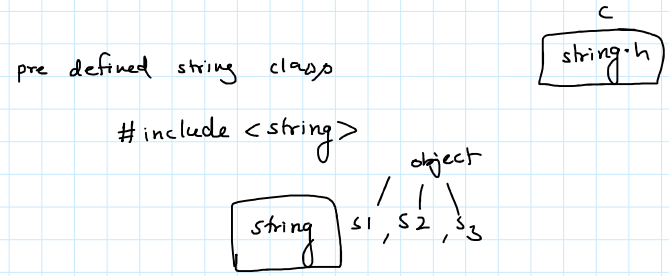




```
#include<iostream>
using namespace std;
class Array{
    int arr[10];
    int n;
    public:
        void get_data()
        {
            cout<<"Enter number of elements:";
            cin>>n;
            //input
            for(int i=0 ; i<n ; i++)
            {
                cout<<"Enter value of "<<i+1<<" element:";
                cin>>arr[i];
            }
        }
        void output()
        {
            for(int i=0;i<n;i++)
            {
                cout<<arr[i]<<" ";
            }
            cout<<endl;
        }
        void reverse()
        {
            for(int i=0,j=n-1 ; i<j ; i++,j--)
            {
                swap(arr[i],arr[j]);
            }
        }
        int size()
        {
            return n;
        }
};
int main()
{
    Array a1,a2;
    a1.get_data();
    a2.get_data();
    a1.output();
    a2.output();
    a1.reverse();
    a1.output();
    cout<<a1.size();
}
```

```
#include<iostream>
#include<string.h>
using namespace std;
class MyString{
    char str[100];
    public:
        void get_data()
        {
            cout<<"Enter a string:";
            //cin>>str;
            cin.getline(str,100);
        }
        void output()
        {
            cout<<str<<endl;
        }
        MyString sum(MyString obj)
        {
            MyString temp;
            strcpy(temp.str,str);
            strcat(temp.str,obj.str);
            return temp;
        }
};
int main()
{
    MyString s1,s2,s3;
    s1.get_data();
    s1.output();
```

```
    s2.get_data();
    s2.output();
    s3 = s1.sum(s2);
    s3.output();
    return 0;
}
```




```
#include<iostream>
#include<string>
using namespace std;
int main()
{
    string s1;
    cout<<"Enter a string:";
    // cin>>s1;
    getline(cin,s1);
    cout<<s1;

    return 0;
}
```

```
#include<iostream>
#include<string>
using namespace std;
int main()
{
    string s1;
    cout<<"Enter a string:";
    // cin>>s1;
    getline(cin,s1);
    cout<<s1<<endl;
    // cout<<s1.size()<<endl;
    cout<<s1.length()<<endl;
    string s2;
    s2=s1;
    s2="abcd";
    s1.clear();
    s1.empty();
    s1.push_back('R');
    s1.pop_back();

    return 0;
}
```