Level-02

Lecture-06

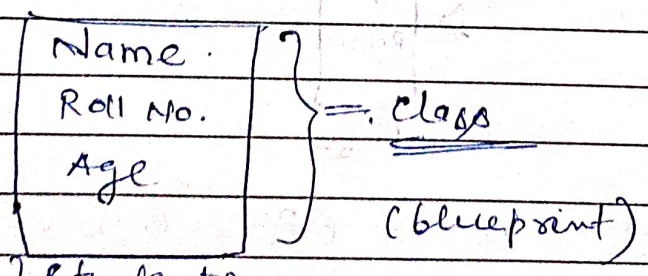
OOPs

- object oriented Programming (OOPs)
- Object is a real world entity which have same property
- We want our code must be as close as real world

eg Student as object has property like
- name, MIS, Marks
- age
- class, cource etc,

and student have function (Tasks)
- change name
- change MIS. NO,

- Class is template or blue print which define what our object have and it's property as well.



Students.

S1

Name = XYZ
Roll No=101
Age = 25

object

S2

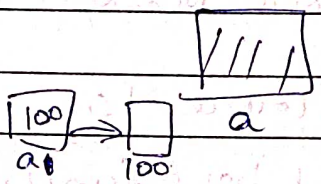
Name = abc
Roll no. = 10
Age = 24

Object
(Actual student)

How to Create class?

→
```
Class Student{
    int rollNo.        ← by default they are private access specifier
    int age;
};
```

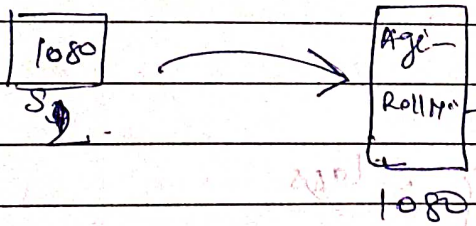
To Create Obj

Statically / Dynamically
```
int a;
int *a1 = new int;
```


Statically
```
Student S1;
```


(Statically creating a obj)

Dynamically
```
Student *S2 = new Student;
```
(Dynamically creating a obj)



To set a value (Properties' values) of object

- $a = 5$
- $*a_1 = 5$
- $S1.age = 24$, $S1.rollNo = 101$
- $(*S_2).age = 24$; $(*S2).rollNo = 101$
  or
- $S2 \rightarrow age = 24$; $S2 \rightarrow rollNo = 101$

We have to dereference first then assign the value

Access Specifier

- → Public → Can be access by anywhere
- → Private → only be access inside a class only
- → Protected

by default all property define inside our class (Student) is private. so to make it's Public we have to do following changes

```
Class Student {
Public :          ← access specifier added
  int rollNo;
  int age;
};
```

Getters and Setters

```
Class Student {
Public:
  int rollNo.
Private:
  int age.
Public;
  Void display () {
  cout << rollNo << age << endl;
    }
}
```

age can be accessed as it is in same class

How to call class's function from main

~~S1. age =~~

```
S1. display ()
(*S2). display ();
S3 → display ();
```

to access private member

```
Class Student {
    Public :
        int age;
    Private ;
        int rollNo.
    Public:
        void setage ( int Value) {
            age = value;
        }
        void getage () { cout << age << endl}
    };
int main ()
{
    Student S1;
    int value
        cin >> Value
        S1. setage (Value);
        S1. getage()
    Student *S2 = new Student
    (*S2). setage (Value)
    Student *S3 = new Student.
        S3 -> Setage. (value);
        S3 -> getage ();
        (*S2) -> getage ();
}
```

we call a method which is in Student class to set the values as it's private variable.

to get private variable

Q But if you can edit or get private variable then what is it's use.

Ans

by use of private variable, we ensure safety of same variable (which can not be access directly) ~~they~~ to access them we need to call method first
we can also introduce some constraint to be able to set age ex:

```
Class Student {.
  public :
    int roNO.
  Private:
    int age;
  ~~Void Set~~
  Public:
    void set age (int a , int Password) {.
    if (Password != 123) {.
        return;
    }if (a<0) {
        return :
    }
    age = a;
  }.
};
```

constraint

Constructor