OOP overview
What & Why??

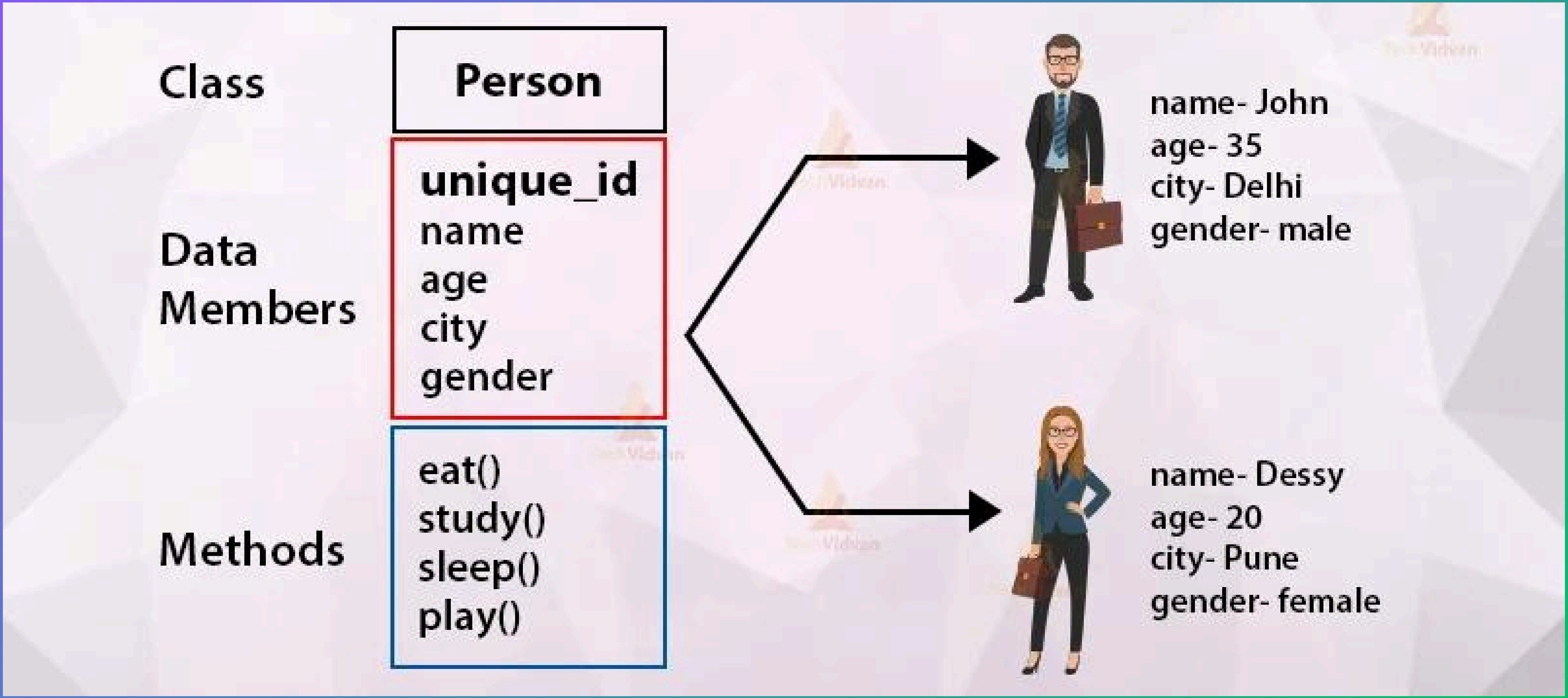
Modularity

Reusability

Scalability

Maintainability

OOP overview



Class

Person

Data Members

unique_id
name
age
city
gender

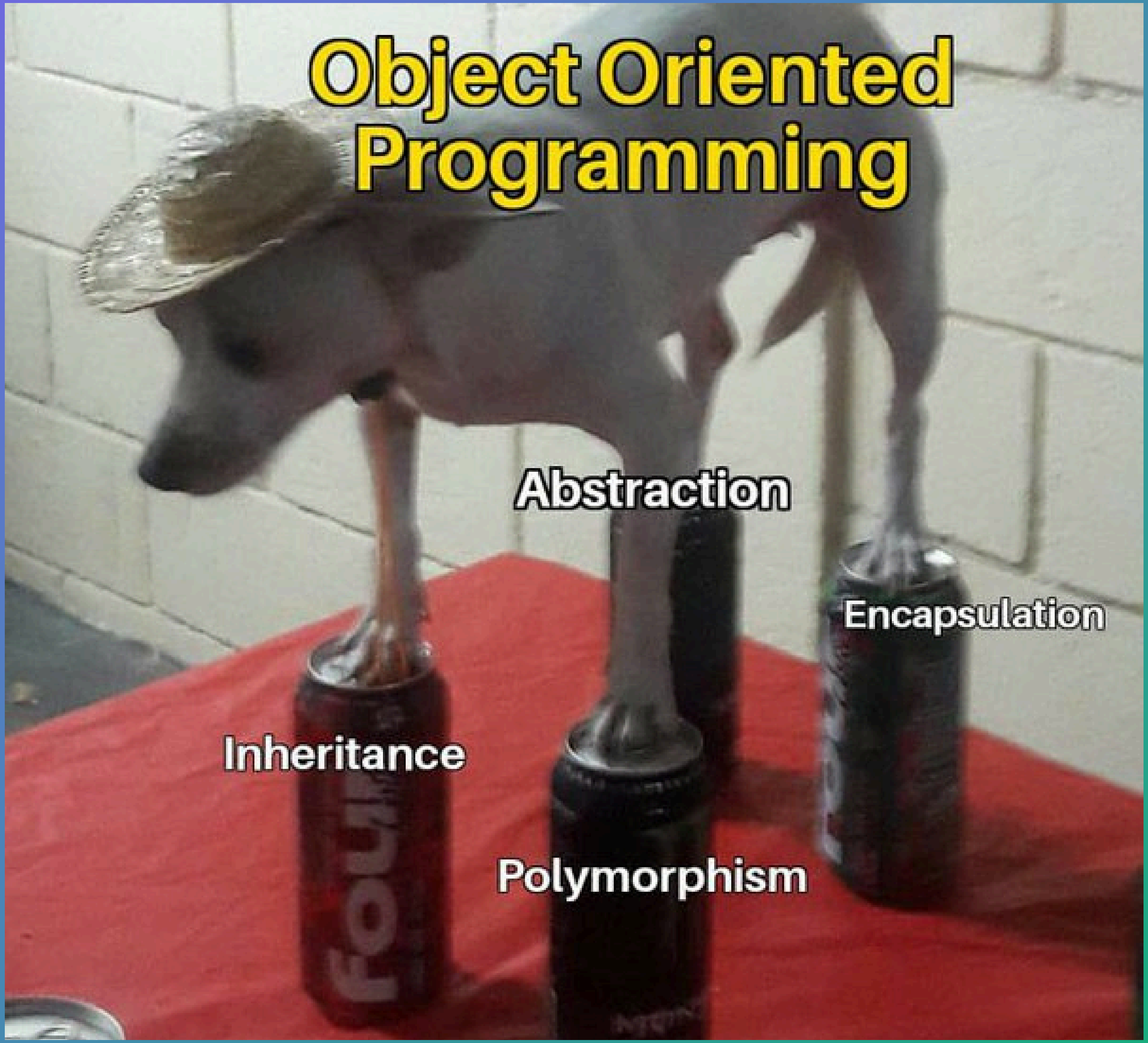
Methods

eat()
study()
sleep()
play()

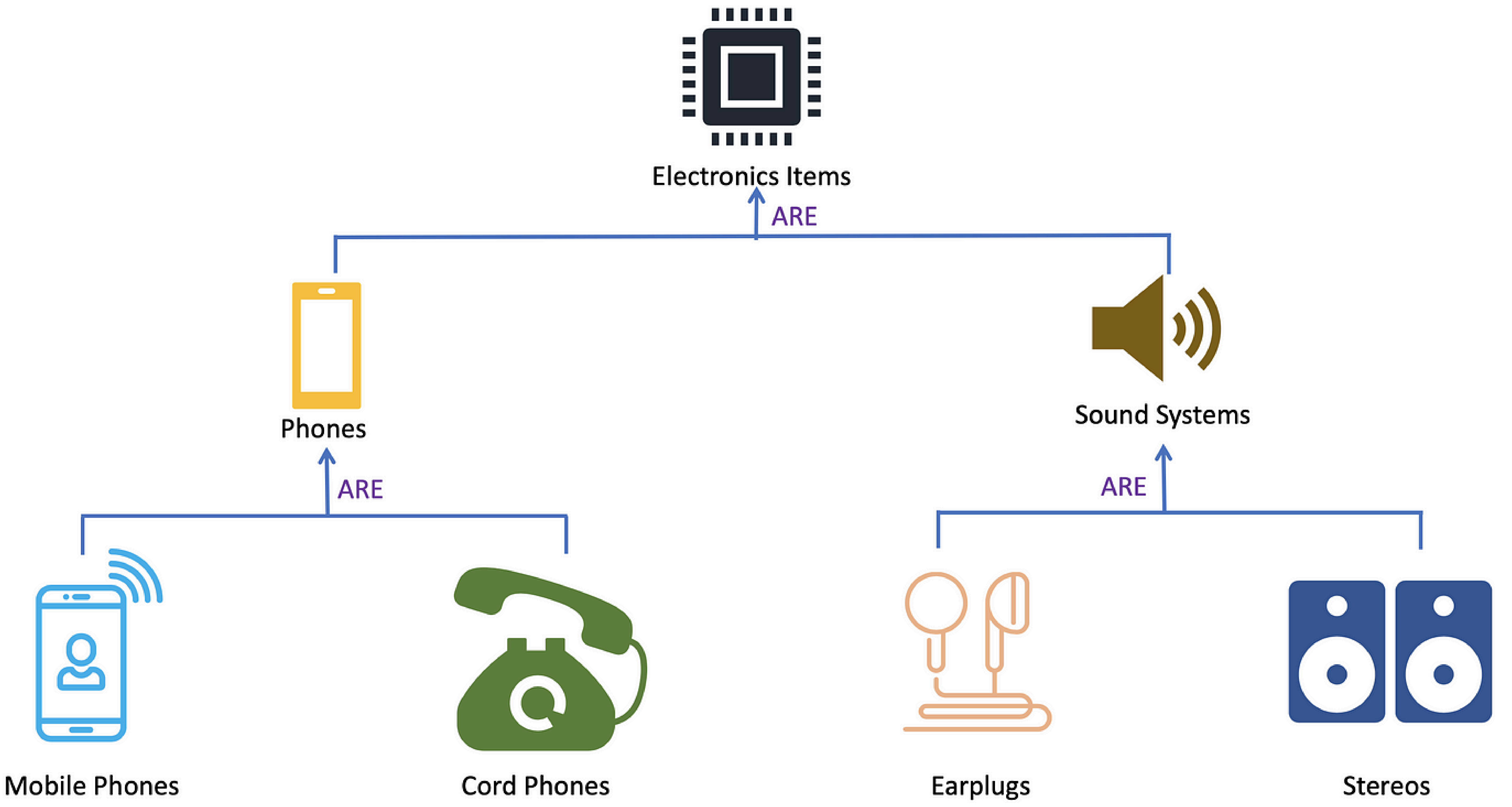
name- John
age- 35
city- Delhi
gender- male

name- Dessy
age- 20
city- Pune
gender- female

OOP principles



What is the inheritance?
why?
How we use it?



Electronics Items

ARE

Phones

Sound Systems

ARE

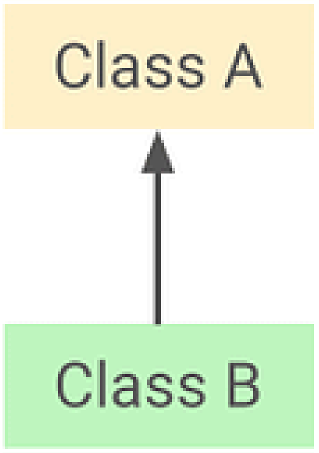
ARE

Mobile Phones

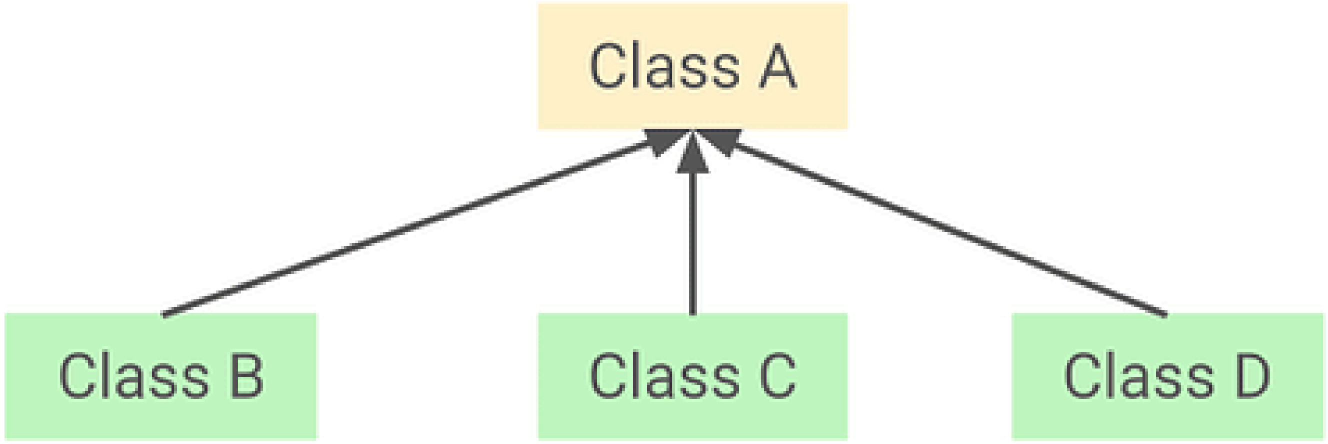
Cord Phones

Earplugs

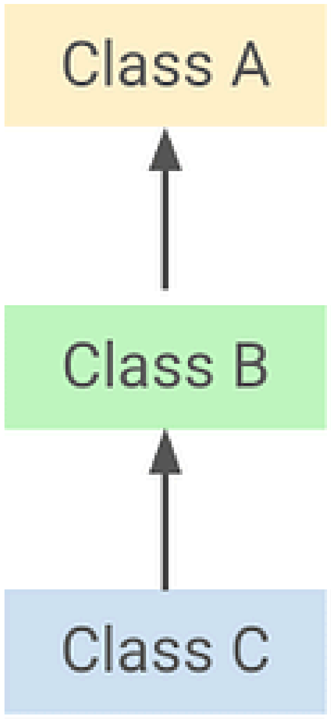
Stereos



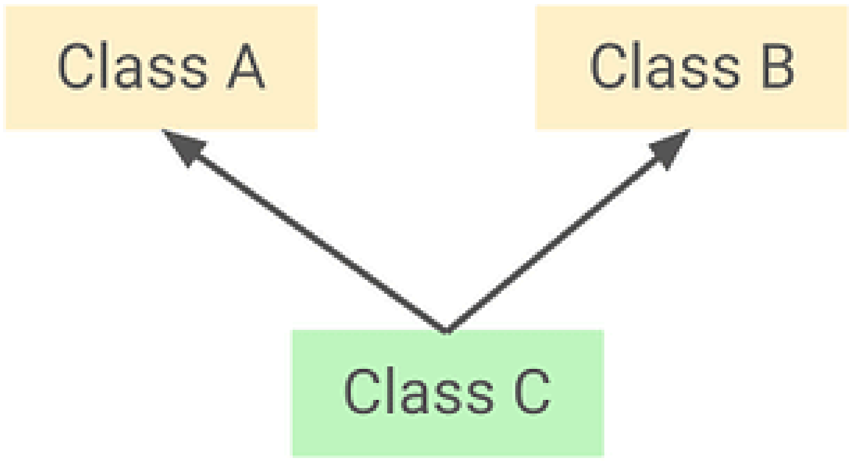
Single Inheritance



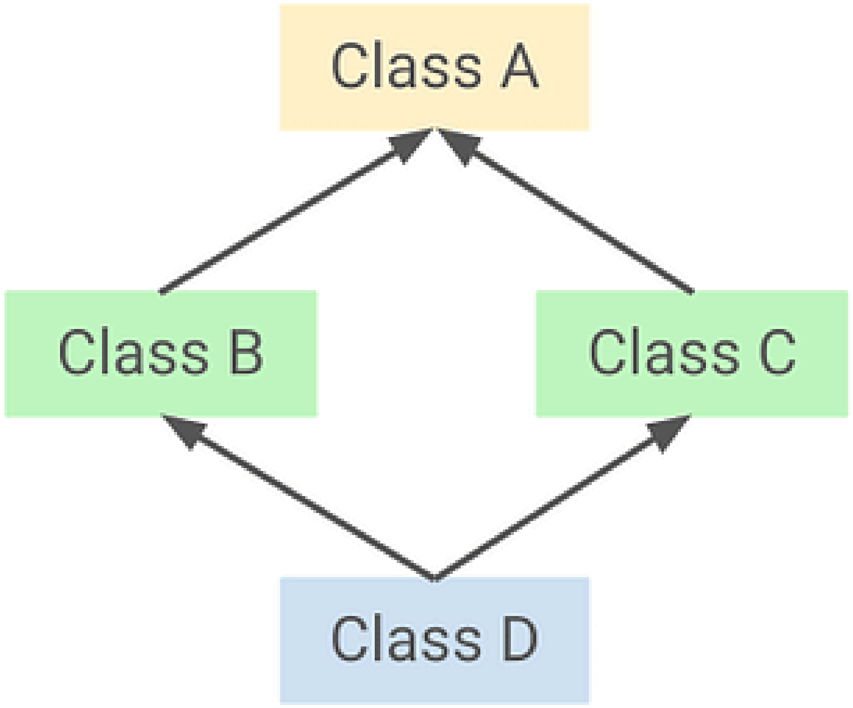
Hierarchical inheritance



Multilevel Inheritance



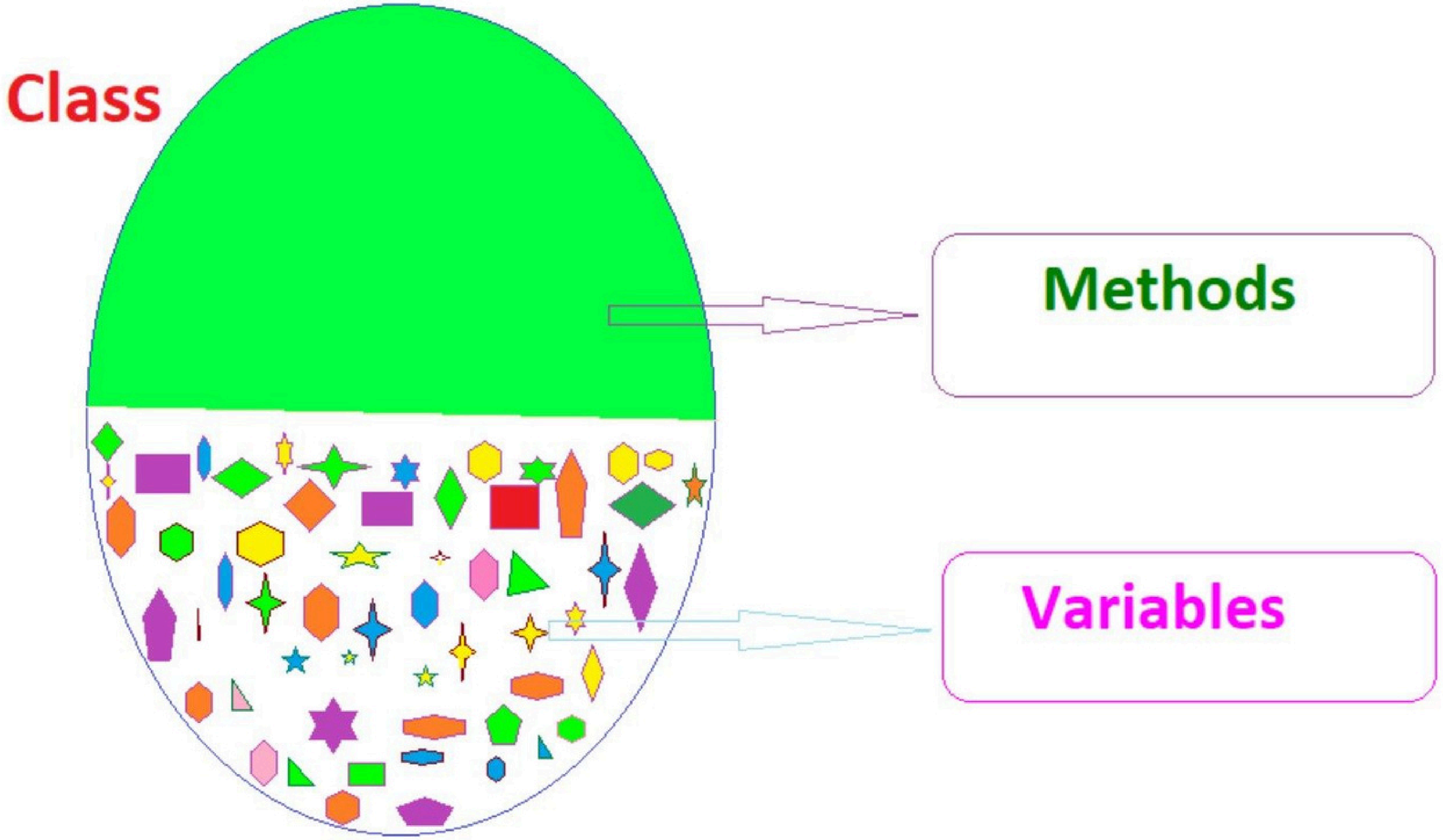
Multiple Inheritance



Hybrid Inheritance

What is the Encapsulation?
why?
How we use it?

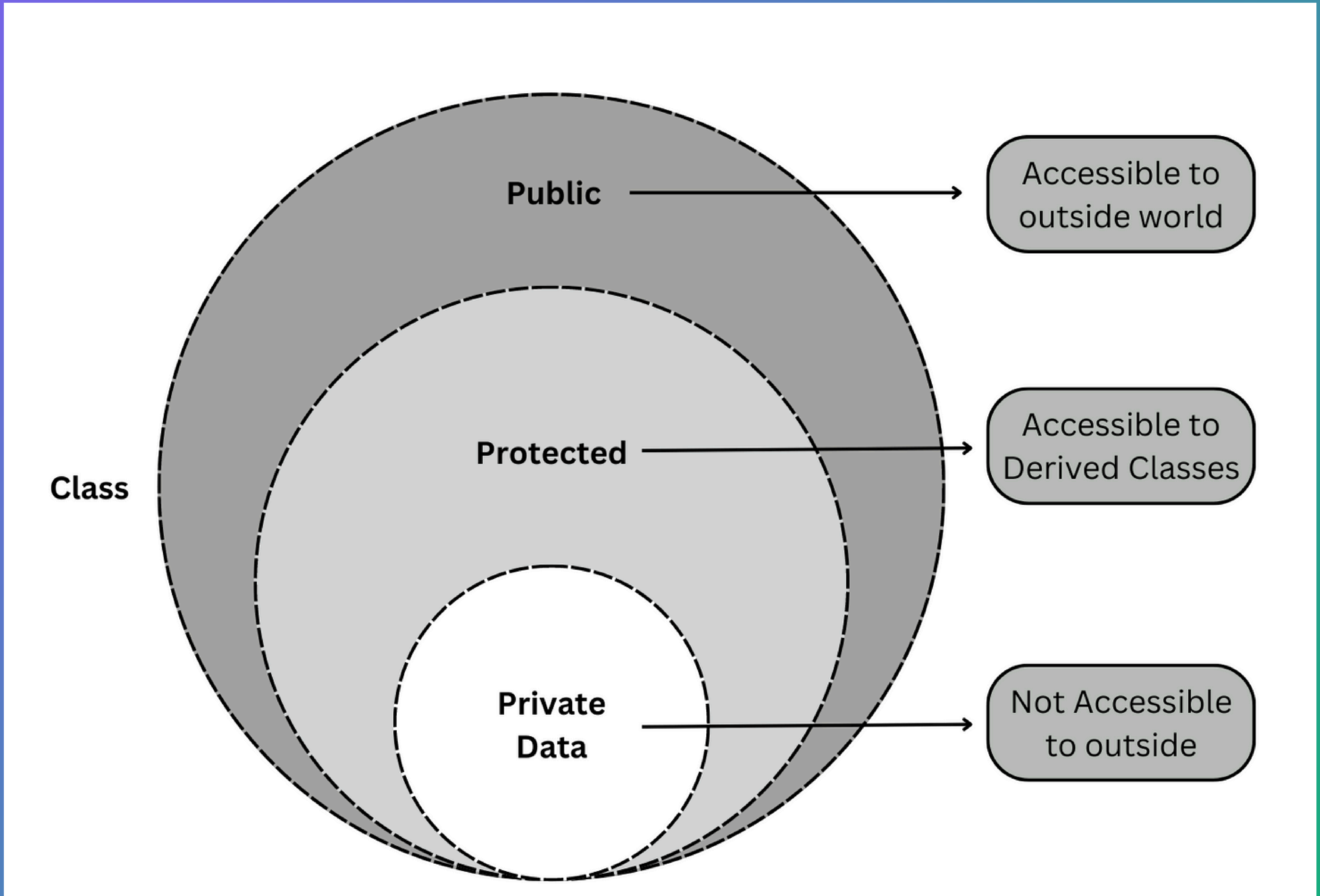
Encapsulation in C++



Class

Methods

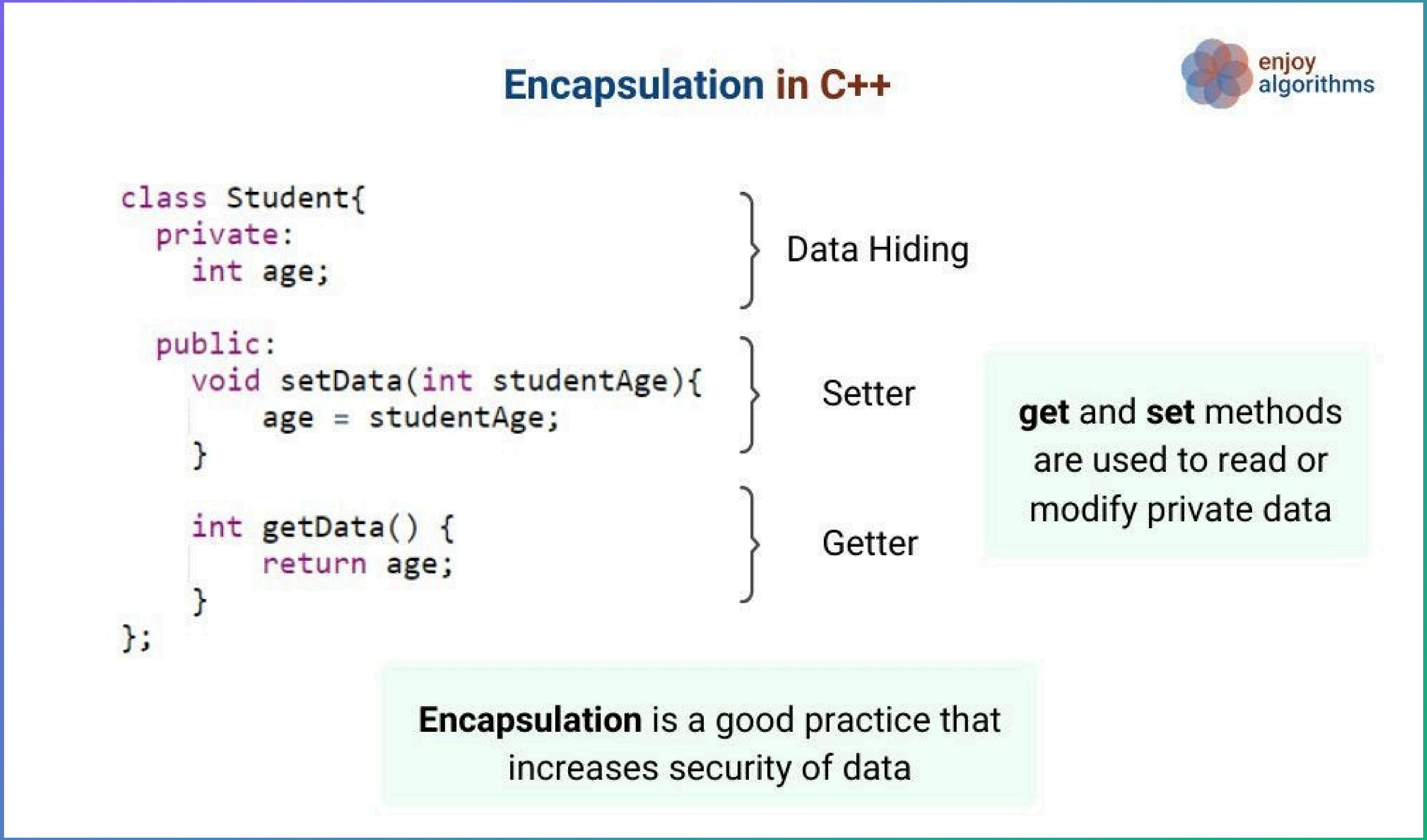
Variables


Class
Public
Accessible to outside world
Protected
Accessible to Derived Classes
Private Data
Not Accessible to outside

OUTPUT

Getter
Setter

INPUT



Encapsulation in C++

```
class Student{
  private:
    int age;

  public:
    void setData(int studentAge){
        age = studentAge;
    }

    int getData() {
        return age;
    }
};
```

Data Hiding

Setter

Getter

get and **set** methods are used to read or modify private data

Encapsulation is a good practice that increases security of data

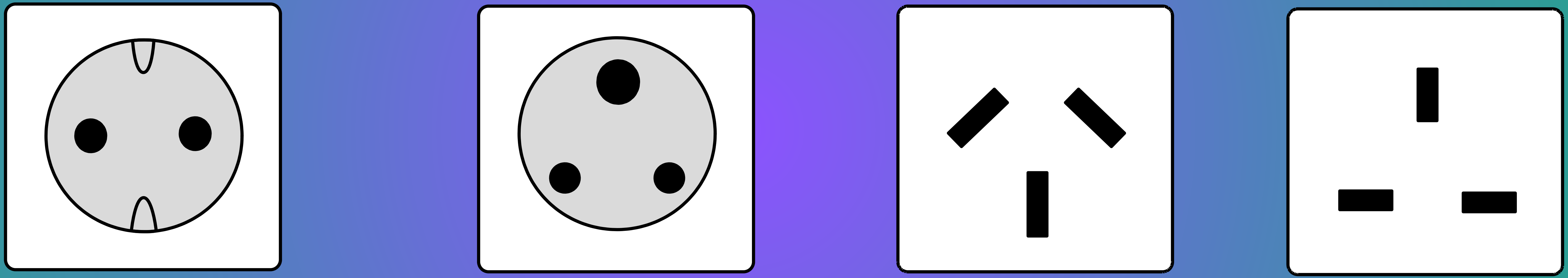
What a polymorphism?

Polymorphism in programming refers to the ability of a particular objectto behavedifferentlydepending onits actual type.

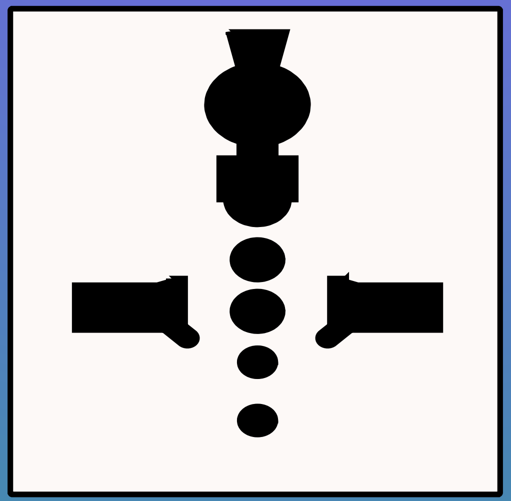
Why a polymorphism?

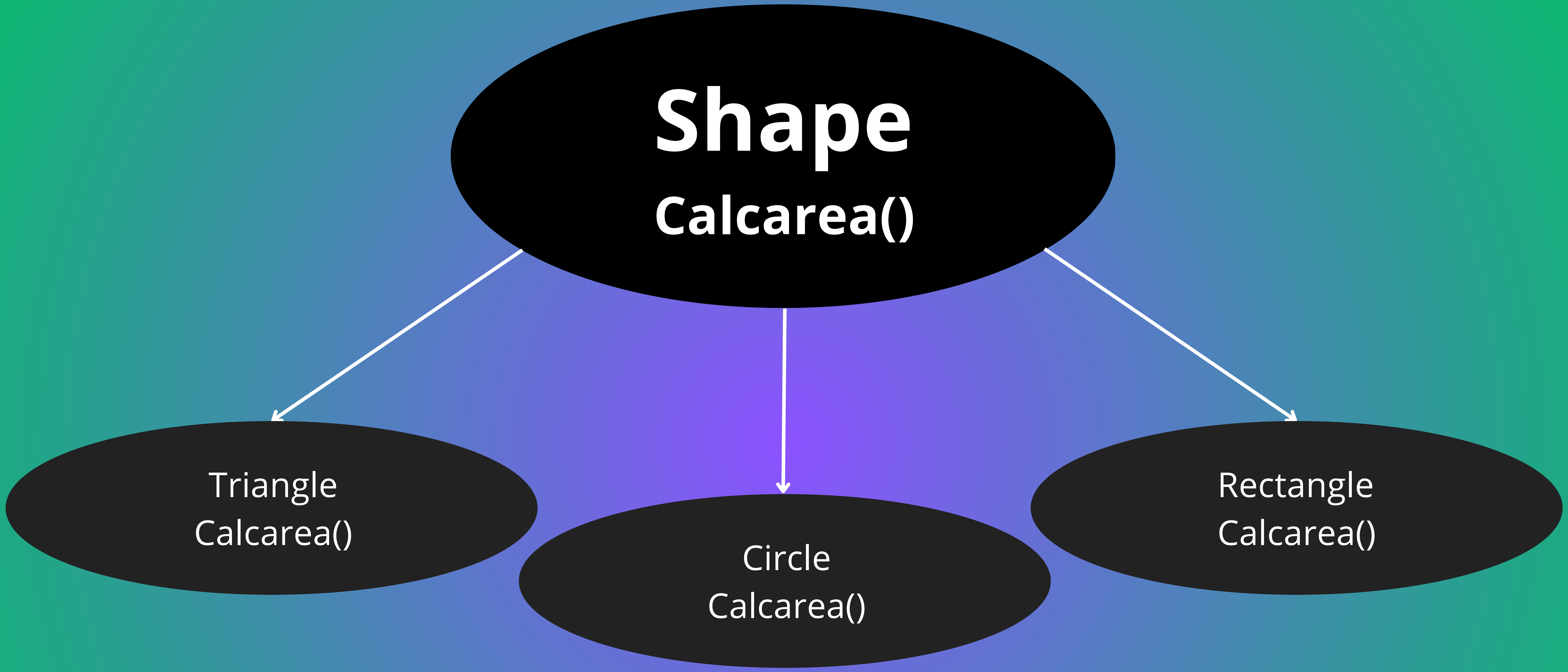
Polymorphism inprogramming allows objects to behave differently based on their , simplicity.

Without Polymorphism



With Polymorphism





Shape

Calcarea()

Triangle

Calcarea()

Circle

Calcarea()

Rectangle

Calcarea()

Overriding

```
virtualvoidAdd(int a,int b){
content
}

void Add(int a,int b) override{
content//
}
```

Overloading

```
void Add(int a,int b){
content
}

void Add(float a,float b){
content
}
```

What is type of polymorphism?

Run time (focus)

Overriding

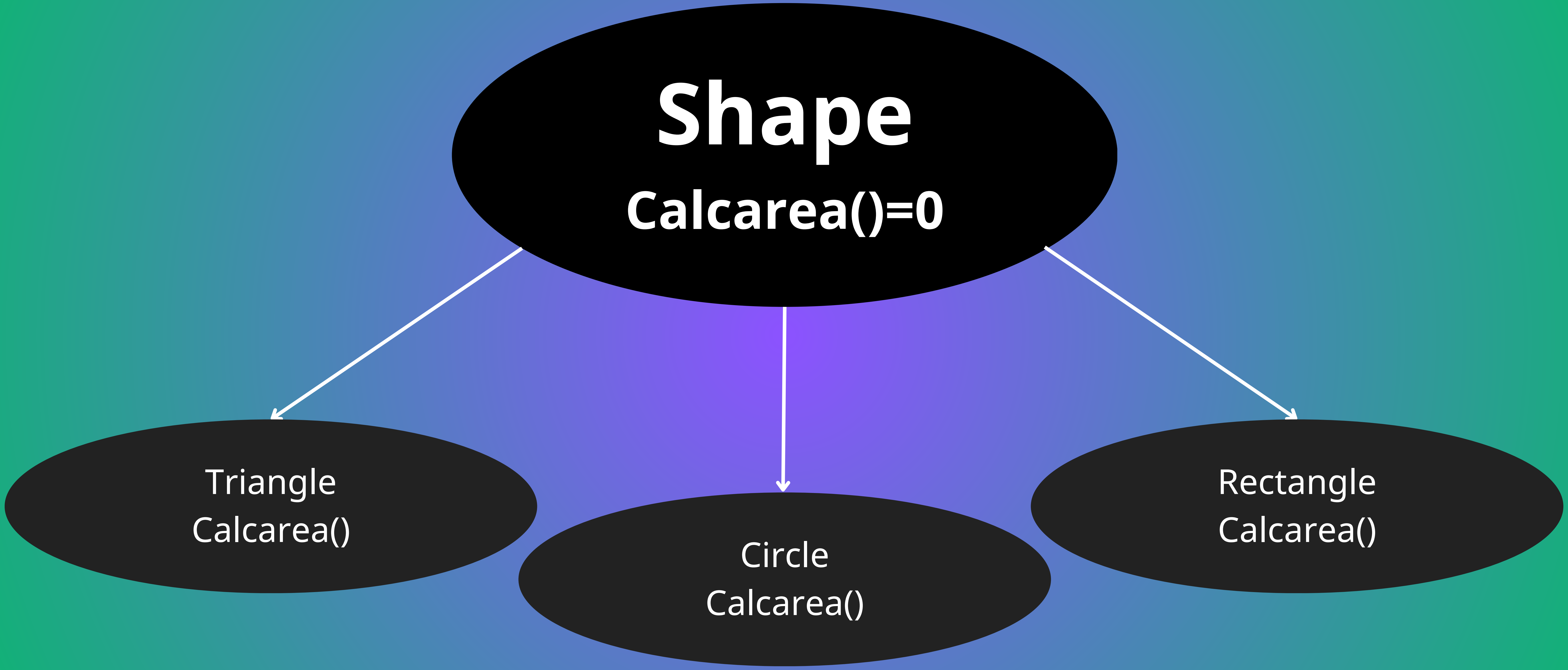
Compile time

Overloading

Why we needed Abstraction or What are its benefits?

how to implement

- Basa Class
- Pure functions
- overriding



Shape

Calcarea()=0

Triangle

Calcarea()

Circle

Calcarea()

Rectangle

Calcarea()

What is the difference between Abstract class and interface ?