ENCAPSULATION

Four Pillars of OOPS

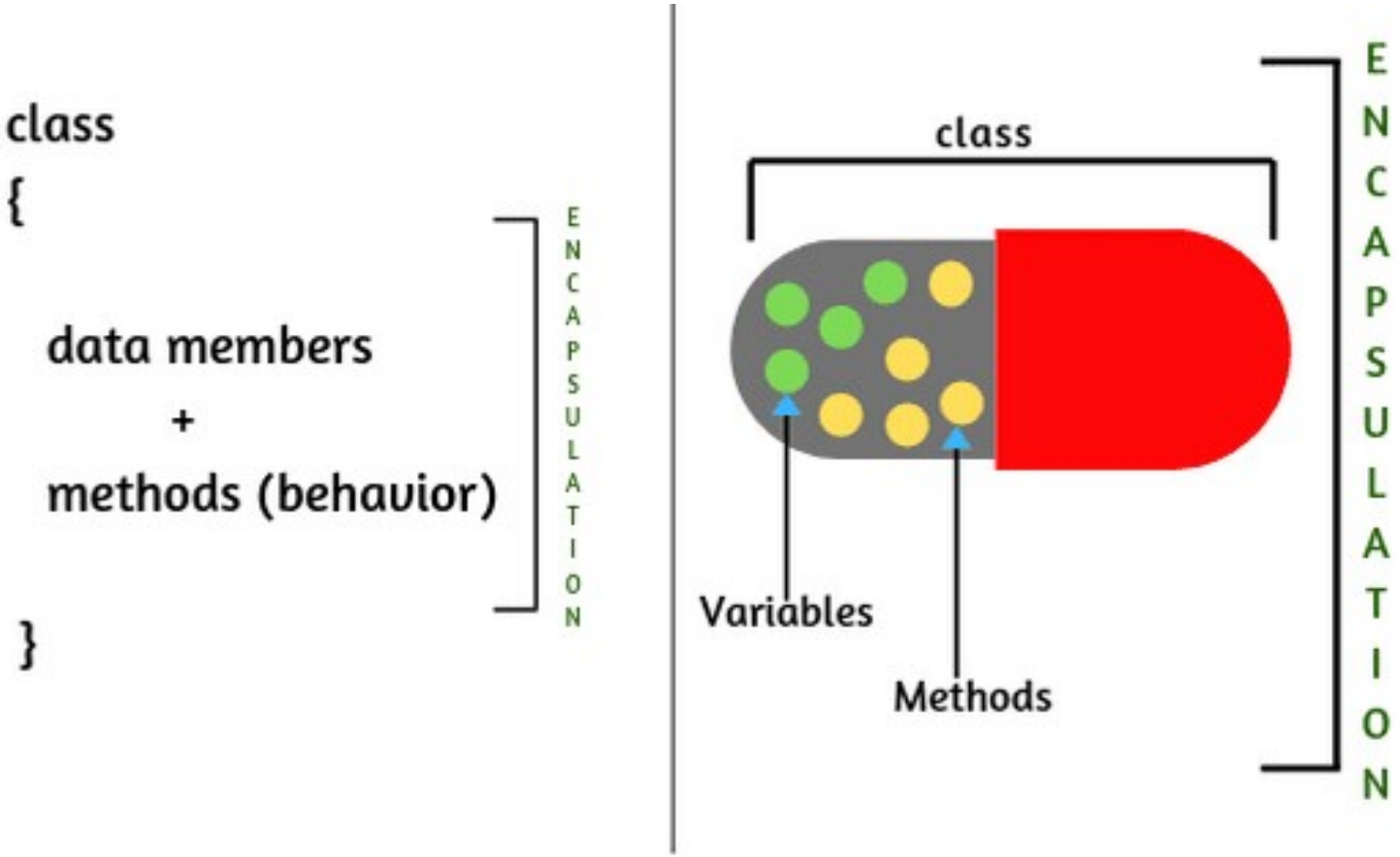
1. Encapsulation
2. Abstraction
3. Polymorphism
4. Inheritance


I wish I can see the real world exmaples
Encapsulation

Encapsulation in Java

The process of binding data and corresponding methods (behaviour) together into a single unit is called encapsulation in Java.

- **Binds members of class together.**
- **Prevents from accessing the members by other classes.**


class
{
data members
+
methods (behavior)
}
ENCAPSULATION
class
Variables
Methods
ENCAPSULATION

In encapsulation, the fields are declared as private in the class to prevent other classes directly. And these can be accessed using the public setter and getter methods.

If the field is declared private in the class then it cannot be accessed by anyone from outside the class and hides the field within the class. Therefore, it is also called data hiding.

Data Hiding

Prevents to access data members (variables) directly from outside the class so that we can achieve security on data.

Encapsulation = Data Hiding + Abstraction

Encapsulation can be termed as wrapping up of data and methods into a single unit.

A class encapsulates the fields, which holds the state of an object and the methods which define the actions of the object.

4 levels for access

1. private
2. default
3. protected
4. public

Let's understand by an example

Suppose there is a secret code required to enter into your HOME

Code to enter into your HOME?

1. **private**

   Only head of the family knows the code to enter into home. So only he can open the front door.

2. **default**

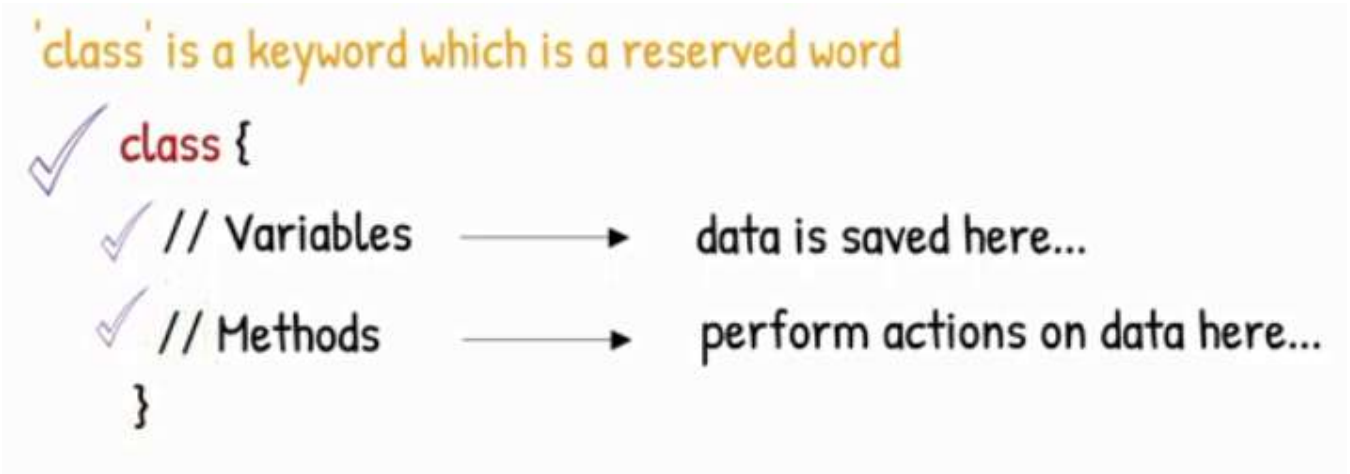
   Entire family have code. So everyone in family can open the front door.

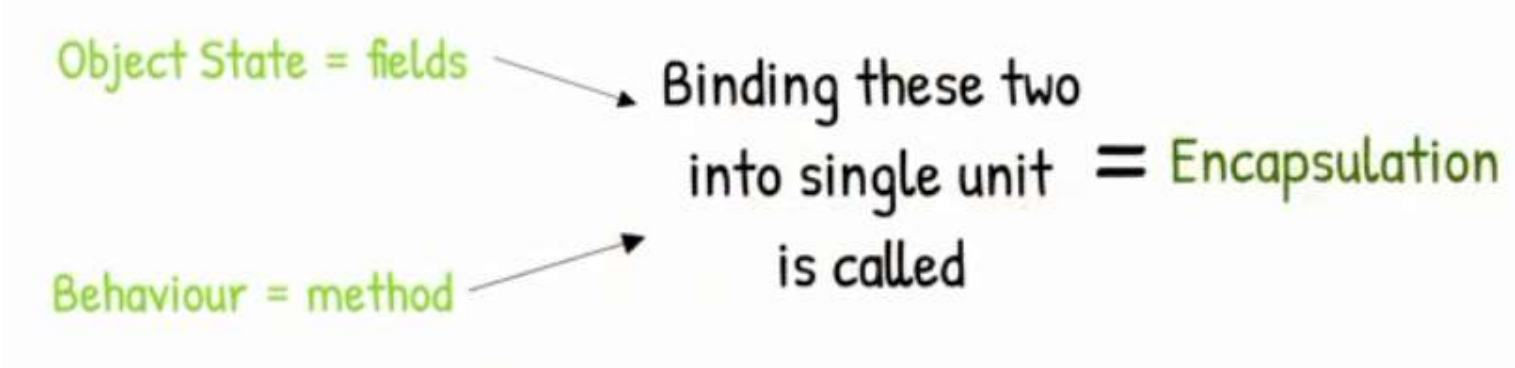
3. **protected**

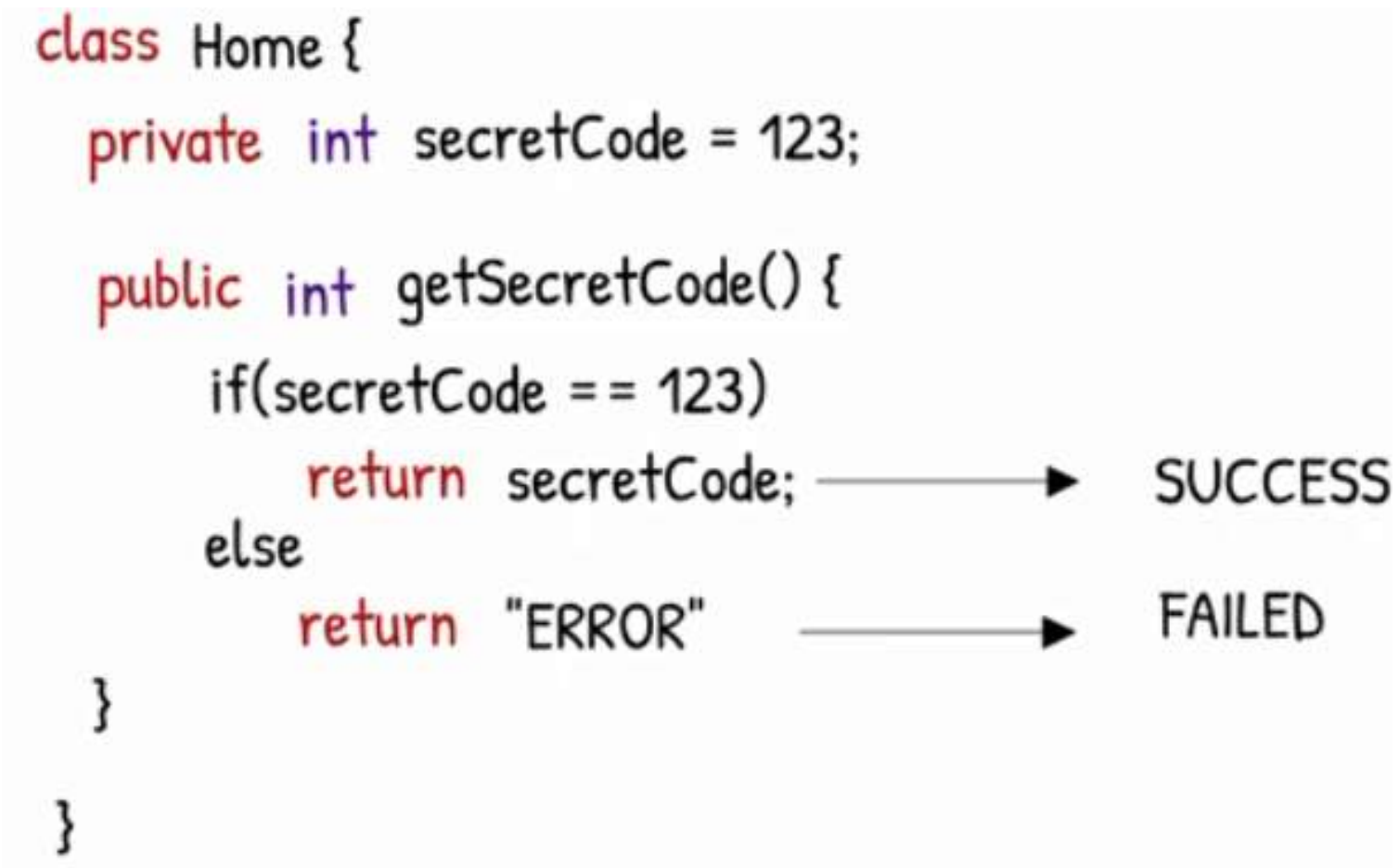
   The entire family + few relatives living in home have code. So relative + family can open the door.

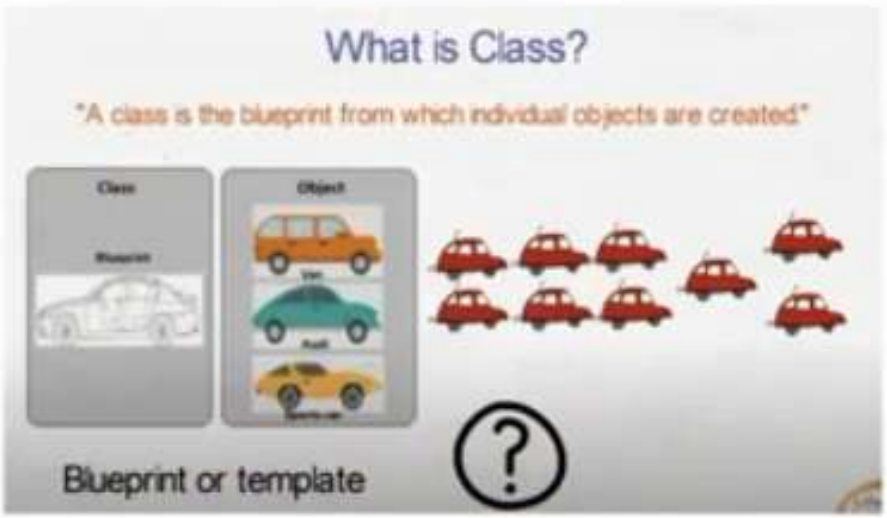
4. **public**

   You put the code on social media and everyone can access it now.


'class' is a keyword which is a reserved word
class {
// Variables
data is saved here...
// Methods
perform actions on data here...
}


Object State = fields
Behaviour = method
Binding these two into single unit is called
= Encapsulation


class Home {
private int secretCode = 123;
public int getSecretCode() {
if(secretCode == 123)
return secretCode;
SUCCESS
else
return "ERROR"
FAILED
}
}


What is Class?
"A class is the blueprint from which individual objects are created"
Class
Object
Blueprint or template
?


What is an object?


A human mind where data is stored and encapsulated
what to share?
what not to share?

NEXT LECTURE: INHERITANCE