Abstract Classes

Lecture 15

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Abstract classes, why and when????

- When it is difficult or often unnecessary to implement all the methods in parent class:
  - *Make the parent class an abstract class
    - *A special class, Not complete on its own.
  - *Make an extended class
    - * Implement the method there
- Syntax: abstract class_name

Abstract classes and instantiation..

- Abstract class cannot be instantiated

- To use this class, you need to use the object of the extended class.

Extended class…Requirements

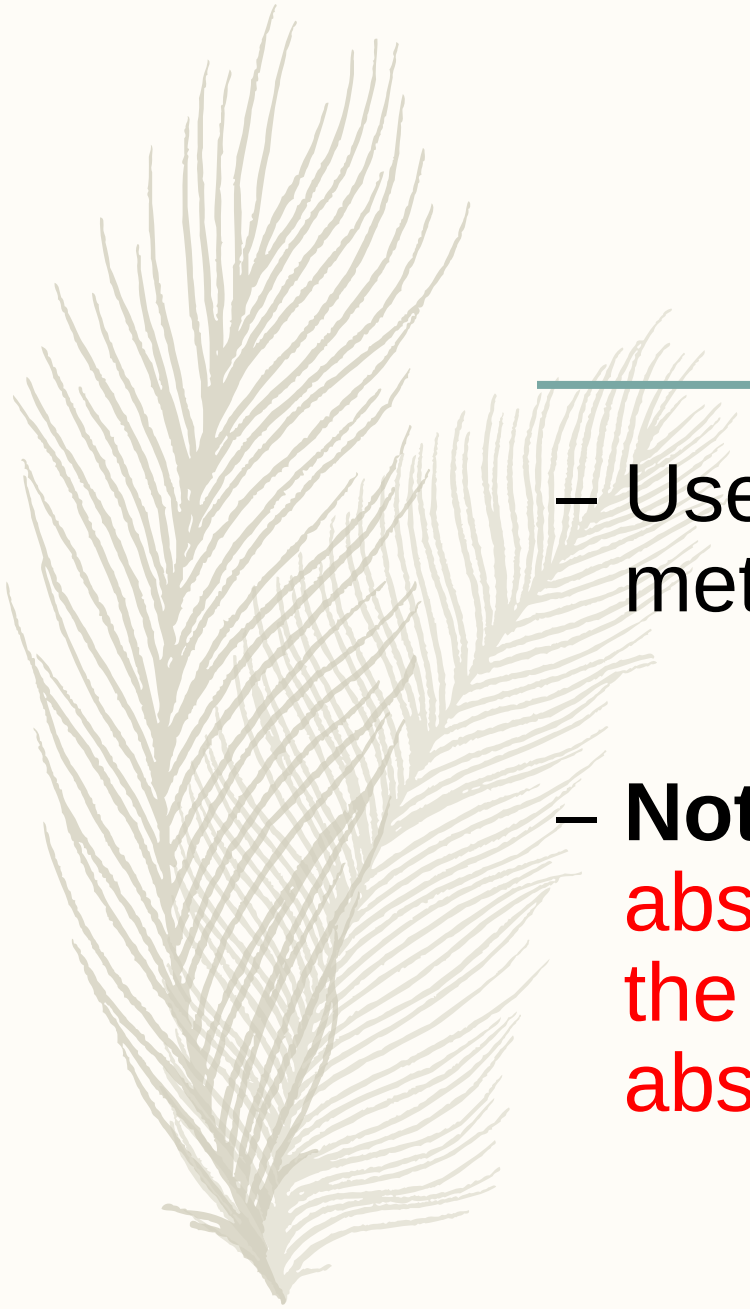
- A class derived from the abstract class must implement all those methods that are declared as abstract in the parent class.

Abstract method

– A method which is declared as abstract and does not have implementation is known as an abstract method.

– Syntax for abstract method:

abstract void method_name();
//no method body



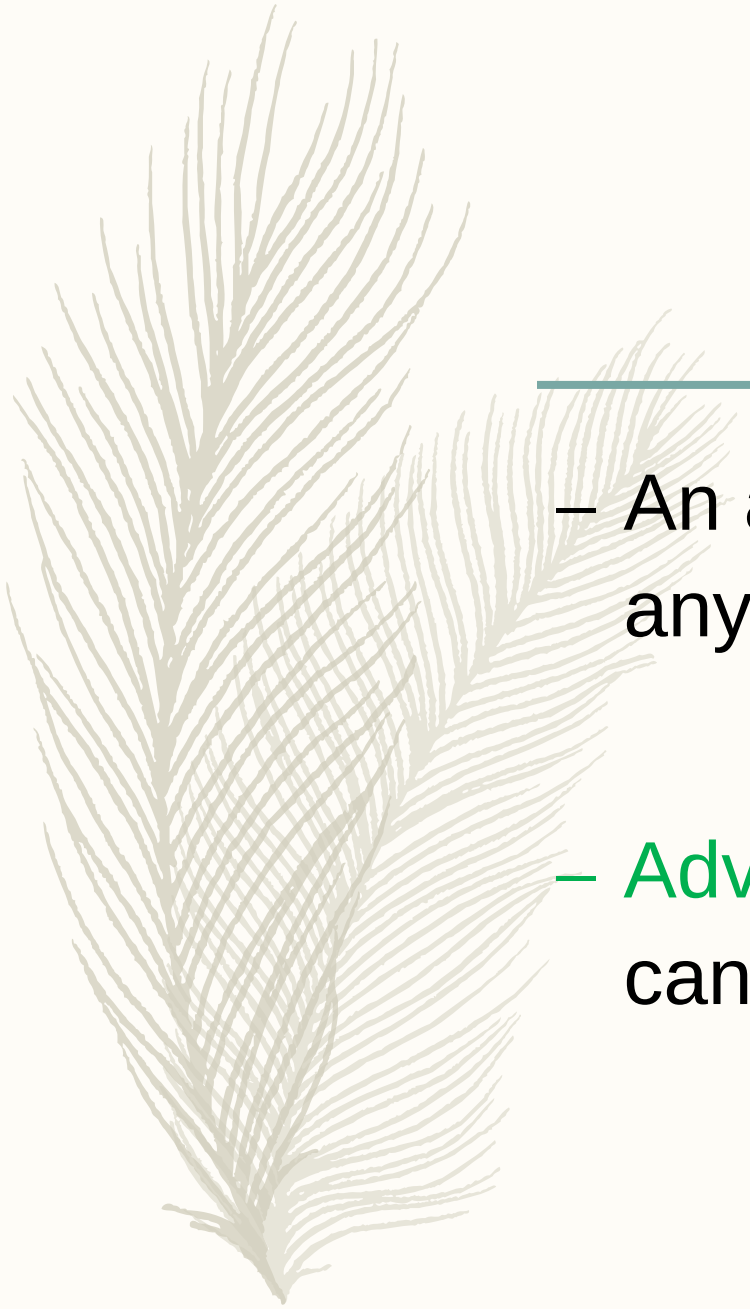
- Use the object of the child class to call all methods of parent class.

- **Note:** If a child does not implement all the abstract methods of abstract parent class, then the child class must need to be declared abstract as well.

More about Abstract class…

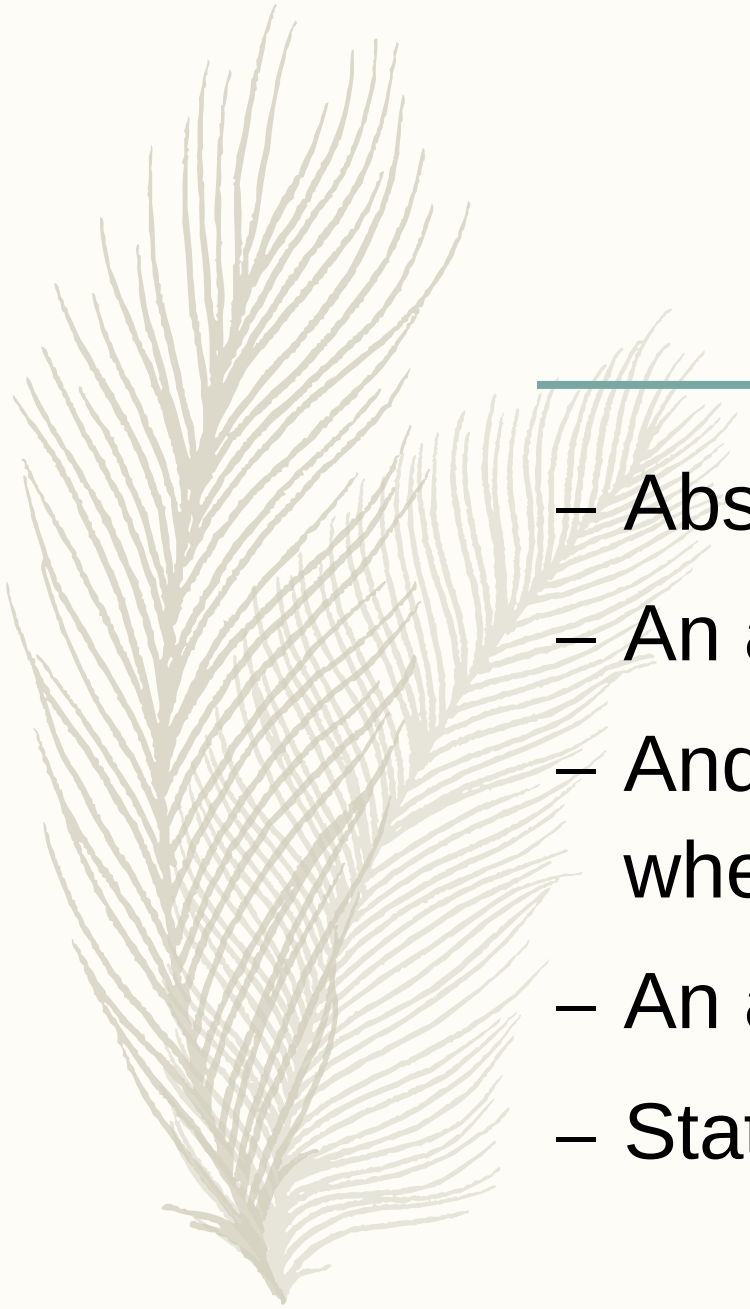
- It cannot be instantiated, but we can have references of abstract class

- It may include abstract methods and normal methods



- An abstract class can be abstract even without any abstract method.

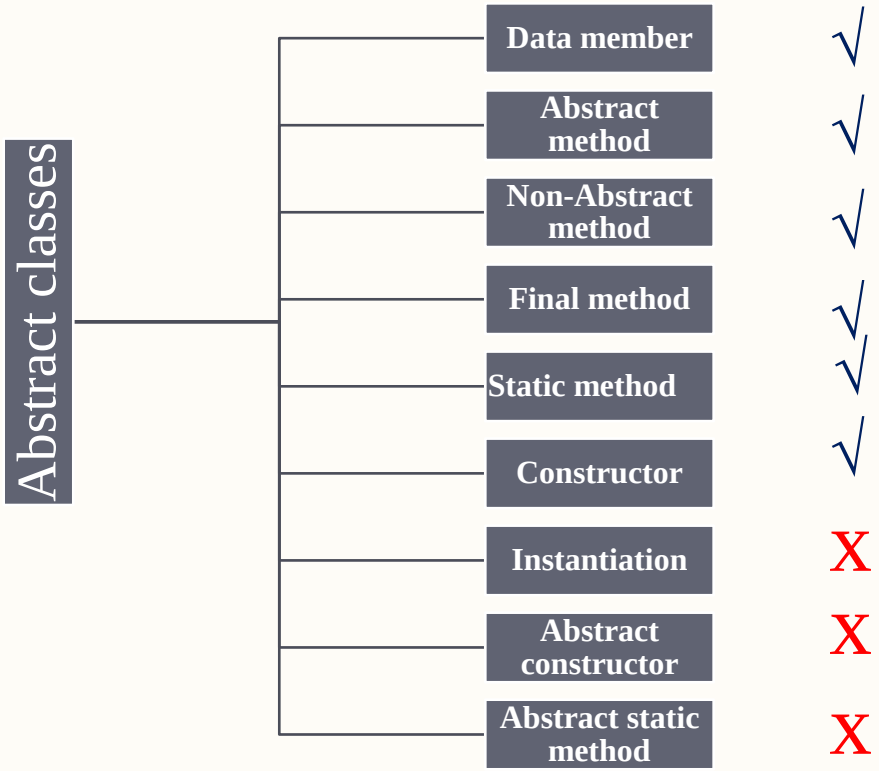
- Advantage: This allows us to create classes that cannot be instantiated, but can only be inherited.



- Abstract classes can also have final methods
- An abstract class can contain constructors.
- And a constructor of abstract class is called when an instance of a inherited class is created.
- An abstract class can have static methods
- Static methods cannot be abstract

– Constructors cannot be abstract

In a nutshell, abstract classes can……..



Examples