

# Abstraction

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Abstraction is used to hide the implementation from the user.

User can see it, access it but can't see what is happening behind or in backend.

Eg: Whatsapp Message

It is divided into 3 sub topics:

- i. Abstract Method
- ii. Abstract Class
- iii. Concrete Class

1. Abstract Method: It is a method which have only function declaration but not the function definition.

Class Cname:

Def Mname(args):

Pass

2. Abstract Class: If we have at least 1 abstract method in the class, it is an abstract class.

- Here object creation is not possible.

3. Concrete Class: If a class don't have any abstract method then it is called as concrete class.

- We can create the object for concrete class.
- All the classes where object is created is concrete class only.

- Abstraction is mainly used in project designing.

- For using abstraction 'abc' module is used.

- From this 'abc' module, we have to use ABC(Abstract Base Class)

Syntax:

From abc import ABC,abstractmethod

Class Cname:

@abstractmethod

Def Mname(args):

Pass

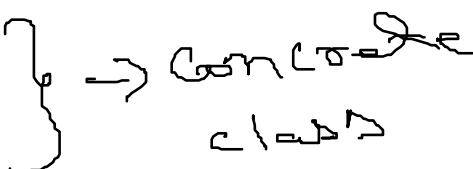


Class Cname1(Cname):

Def Mname(args):

S B

Obj=Cname1()



Eg:

from abc import ABC,abstractmethod

class Cal(ABC):

```
@abstractmethod
def add(a,b):
    pass
@abstractmethod
def sub(a,b):
    pass
@abstractmethod
def mul(a,b):
    pass
@abstractmethod
def div(a,b):
    pass

class Cal_up(Cal):
    def add(a,b):
        print(a+b)
    def sub(a,b):
        print(a-b)
    def mul(a,b):
        print(a*b)
    def div(a,b):
        print(a/b)

ob1=Cal_up()
Cal_up.add(10,2)
Cal_up.sub(10,2)
Cal_up.mul(10,2)
Cal_up.div(10,2)
```

Assignment:

Q. Write a Python program to demonstrate the concept of **abstraction** using the abc module.

Create an abstract class named Vehicle with an abstract method start\_engine().

Then, create two subclasses Car and Bike that inherit from Vehicle and implement the start\_engine() method in each subclass.

Finally, create objects of both subclasses and call the start\_engine() method to show how abstraction works.

