Abstract classes and methods

An abstract class is a class that has at least one abstract method. Abstract methods can only have names and arguments, and no other code. Thus, we cannot create objects out of abstract classes. Instead, we need to create child classes that add the code into the bodies of the methods, and use these child classes to create objects.

How to declare classes and methods as abstract?

// Abstract classes are declared with the abstract keyword,

// and contain abstract methods

abstract class Car {

abstract public function calcNumMilesOnFullTank();

}

Note:

It is important to know that once we have an abstract method in a class, the class must also be abstract.

Can we have non abstract methods inside an abstract class?

An abstract class can have non abstract methods. In fact, it can even have properties, and properties couldn’t be abstract.

abstract class Car {

// Abstract classes can have properties

protected $tankVolume;

// Abstract classes can have non abstract methods

public function setTankVolume($volume)

{

$this -> tankVolume = $volume;

}

// Abstract method

abstract public function calcNumMilesOnFullTank();

}How to create child classes from an abstract class?

**Since we cannot create objects from abstract classes**, we need to create child classes that inherit the abstract class code. Child classes of abstract classes are formed with the help of the extends keyword, like any other child class. They are different in that they have to add the bodies to the abstract methods. The child classes that inherit from abstract classes must add bodies to the abstract methods.

abstract class Car {

// Abstract classes can have properties

protected $tankVolume;

// Abstract classes can have non abstract methods

public function setTankVolume($volume)

{

$this -> tankVolume = $volume;

}

// Abstract method

abstract public function calcNumMilesOnFullTank();

}

===============================================

class Honda extends Car {

// Since we inherited abstract method,

// we need to define it in the child class,

// by adding code to the method's body.

public function calcNumMilesOnFullTank()

{

$miles = $this -> tankVolume\*30;

return $miles;

}

}

============================================

class Toyota extends Car {

// Since we inherited abstract method,

// we need to define it in the child class,

// by adding code to the method's body.

public function calcNumMilesOnFullTank()

{

return $miles = $this -> tankVolume\*33;

}

public function getColor()

{

return "beige";

}

}