

# Programming PHP

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# PHP Topics

General Discussions

PHP Reflection Quiz

Intro to Object Oriented Programming in PHP

Practice / Classroom coding

# What are classes in OOP?

A blue print

A definition

A description of something in your program

OOP - W3SCHOOL

# A class defines two things

## Properties

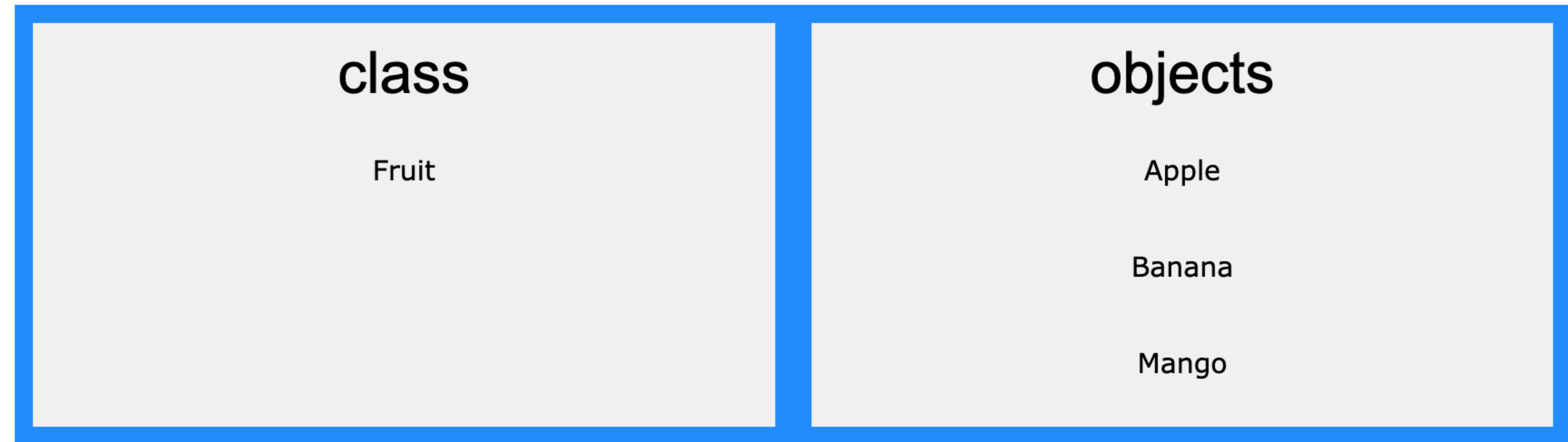
- Variables
- Arrays
- Data

## Methods

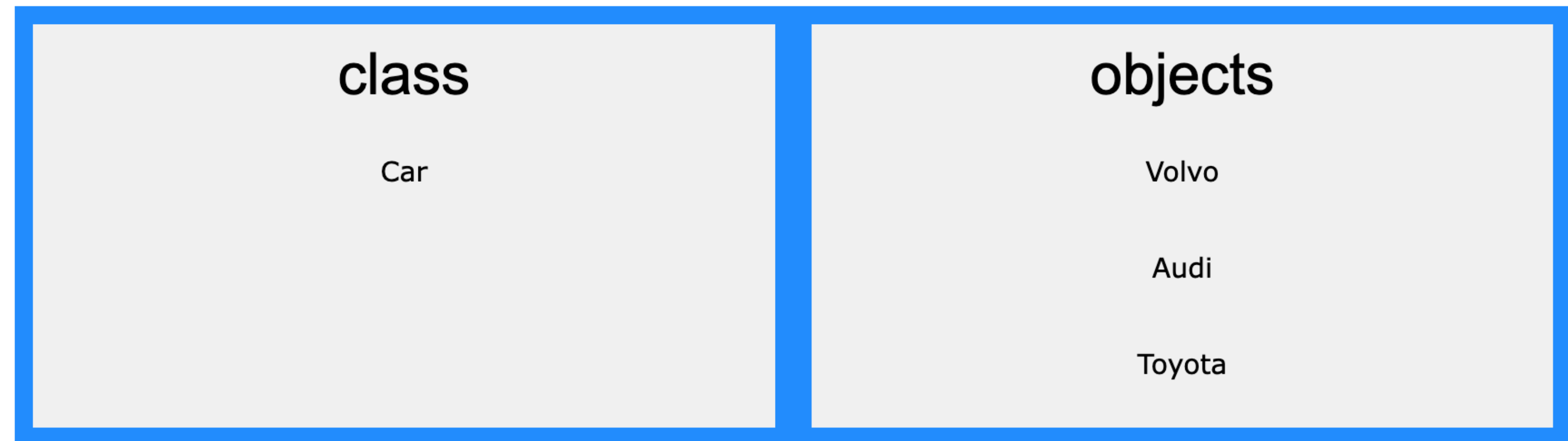
- Functions
- Behaviors

# So a class describes what exactly?

an object



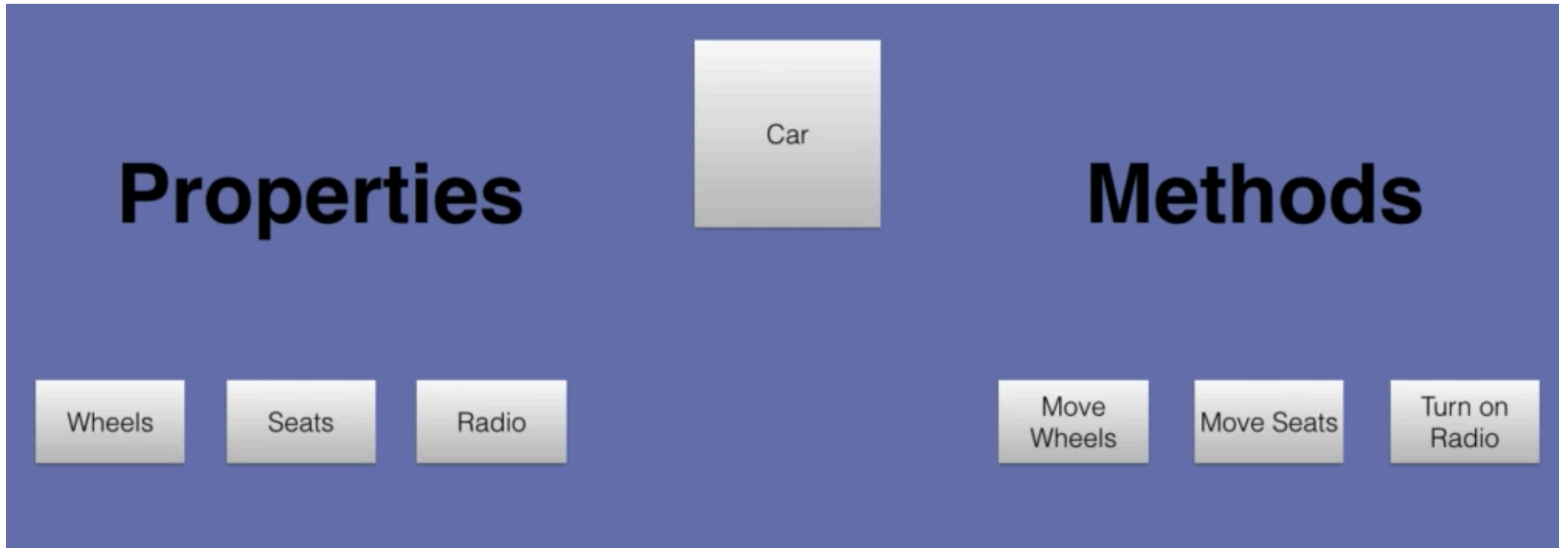
Another example:



[https://www.w3schools.com/php/php\\_oop\\_what\\_is.asp](https://www.w3schools.com/php/php_oop_what_is.asp)

# And Object has Properties and Methods

e.g. object can be “Car”



# Class in PHP

```
<?php
class Fruit {
    // Properties
    public $name;
    public $color;

    // Methods
    function set_name($name) {
        $this->name = $name;
    }
    function get_name() {
        return $this->name;
    }
}
?>
```

**Note:** In a class, variables are called properties and functions are called methods!

# Objects in PHP

Objects of a class is created using the **new** keyword.

```
<?php
class Fruit {
    // Properties
    public $name;
    public $color;

    // Methods
    function set_name($name) {
        $this->name = $name;
    }
    function get_name() {
        return $this->name;
    }
}
```

```
$apple = new Fruit();
$banana = new Fruit();
$apple->set_name('Apple');
$banana->set_name('Banana');

echo $apple->get_name();
echo "<br>";
echo $banana->get_name();
?>
```

Visualize by running above code

[https://www.w3schools.com/php/phptryit.asp?filename=tryphp\\_class2](https://www.w3schools.com/php/phptryit.asp?filename=tryphp_class2)



# PHP - \$this keyword

The \$this keyword refers to the current object, and is only available inside methods.

```
<?php
class Fruit {
    public $name;
}
$apples = new Fruit();
?>
```

So, where can we change the value of the \$name property?

# PHP - \$this keyword

Two approaches:

1. Inside the class (by adding a set\_name() method and use \$this):

```
<?php
class Fruit {
    public $name;
    function set_name($name) {
        $this->name = $name;
    }
}
$apple = new Fruit();
$apple->set_name("Apple");

echo $apple->name;
?>
```

- We're creating a blueprint or template for something we're calling "Fruit".
- This blueprint has a property called "name" that can be accessed and changed by anyone.
- We're also defining a function within this blueprint called "set\_name" that allows us to give a name to the fruit.
- We're then creating a new instance of "Fruit", which we're calling "apple".
- We're using the "set\_name" function to give the name "Apple" to our "apple" instance.
- Finally, we're displaying the name of our "apple" instance, which is "Apple"

# PHP - \$this keyword

2. Outside the class (by directly changing the property value):

```
<?php
class Fruit {
    public $name;
}
$apple = new Fruit();
$apple->name = "Apple";

echo $apple->name;
?>
```

- This group has a characteristic called "name".
- Create a new member of the "Fruit" group and call it "apple".
- Assign the name "Apple" to this new member.
- Display or print out the name of this new member, which is "Apple"

# PHP - instanceof

You can use the `instanceof` keyword to check if an object belongs to a specific class:

```
<?php  
$apple = new Fruit();  
var_dump($apple instanceof Fruit);  
?>
```

# PHP - constructor

A constructor allows you to initialize an object's properties upon creation of the object.

If you create a `__construct()` function, PHP will automatically call this function when you create an object from a class.

```
<?php
class Fruit {
    public $name;
    public $color;

    function __construct($name) {
        $this->name = $name;
    }
    function get_name() {
        return $this->name;
    }
}
```

```
$apple = new Fruit("Apple");
echo $apple->get_name();
?>
```

Notice that the construct function starts with two underscores (\_\_\_)!

Visualize above snippet from here: [https://www.w3schools.com/php/phptryit.asp?filename=tryphp\\_constructor](https://www.w3schools.com/php/phptryit.asp?filename=tryphp_constructor)

# PHP - access modifiers

There are three access modifiers:

- **public** - the property or method can be accessed from everywhere. This is default
- **protected** - the property or method can be accessed within the class and by classes derived from that class
- **private** - the property or method can ONLY be accessed within the class

```
<?php
class Fruit {
    public $name;
    protected $color;
    private $weight;
}

$mango = new Fruit();
$mango->name = 'Mango'; // OK
$mango->color = 'Yellow'; // ERROR
$mango->weight = '300'; // ERROR
?>
```

# PHP - static data in classes

Static properties can be called directly - without creating an instance of a class.

Static properties are declared with the `static` keyword:

```
<?php
class ClassName {
    public static $staticProp = "Programming PHP";
}
?>
```

To access a static property use the class name, double colon (::), and the property name:

```
ClassName::$staticProp;
```

```
<?php
class pi {
    public static $value = 3.14159;
}
```

```
// Get static property
echo pi::$value;
?>
```

# PHP - static data in classes

Static methods can be called directly - without creating an instance of the class first.

Static methods are declared with the `static` keyword:

```
<?php
class ClassName {
    public static function staticMethod() {
        echo "Hello World!";
    }
}
?>
```

To access a static method use the class name, double colon (::), and the method name:

```
ClassName::staticMethod();
```

```
<?php
class greeting {
    public static function welcome() {
        echo "Hello World!";
    }
}
// Call static method
greeting::welcome();
?>
```

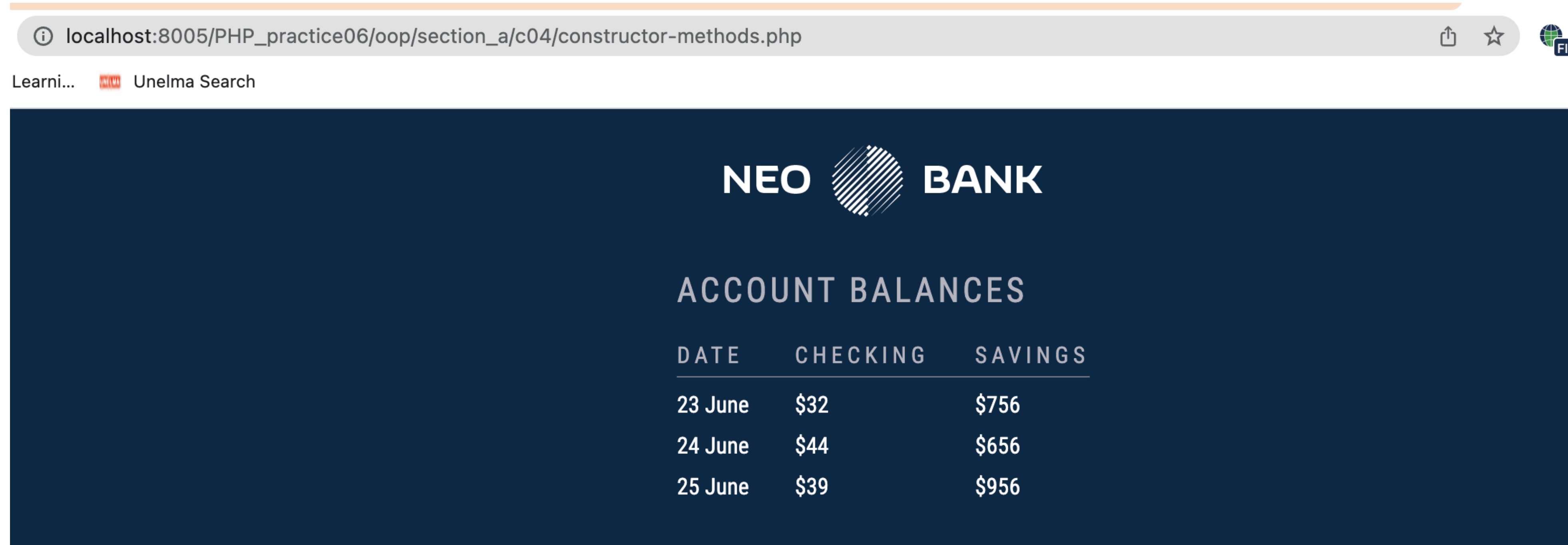


# Chapter Summary

- Objects group together variables and functions that represent something from the world around us.
- In an object, the variables are called properties and the functions are called methods.
- A class is used as a template to create objects.
- Class definitions set out the properties and methods that each object created using that class will have.
- The `__construct()` method runs when an object is created. It can be used to put values into properties.
- `$this` access a property or method of *this* object.
- Properties can be declared as public (can be accessed by code outside the object) or protected (can only be used by code inside the object).
- Classes and objects help organize, re-use, maintain, and share code more effectively.

# Practice / Classroom Coding

- **PHP\_practice01/10.php:**
  - Create a simple class e.g. Dog in PHP
  - Set some properties, make methods, instantiate the class
- **PHP\_practice06/oop/section\_a/c04/constructor-methods.php**
  - Write PHP code using constructors with a class as shown below



localhost:8005/PHP\_practice06/oop/section\_a/c04/constructor-methods.php

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**NEO BANK**

ACCOUNT BALANCES

DATE	CHECKING	SAVINGS
23 June	\$32	\$756
24 June	\$44	\$656
25 June	\$39	\$956