

Phalcon



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About the Tutorial

Phalcon is an open source framework quite popular among developers. It is a combination of PHP and C language. Phalcon is developed by Andres Gutierrez and his group of collaborators.

This tutorial provides an overall idea on Phalcon PHP framework and how you can use it.

Audience

This tutorial is basically developed for those who want to learn Phalcon from ground up. The target audience of learning this framework includes students, PHP developers, web designers and web developers.

Prerequisites

Before starting with this tutorial, the user should have knowledge of HTML, CSS and PHP along with an understanding of MVC framework. It would be an added advantage if you have prior exposure to other traditional frameworks like Laravel, Yii, or Codeigniter.

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1. PHALCON – OVERVIEW

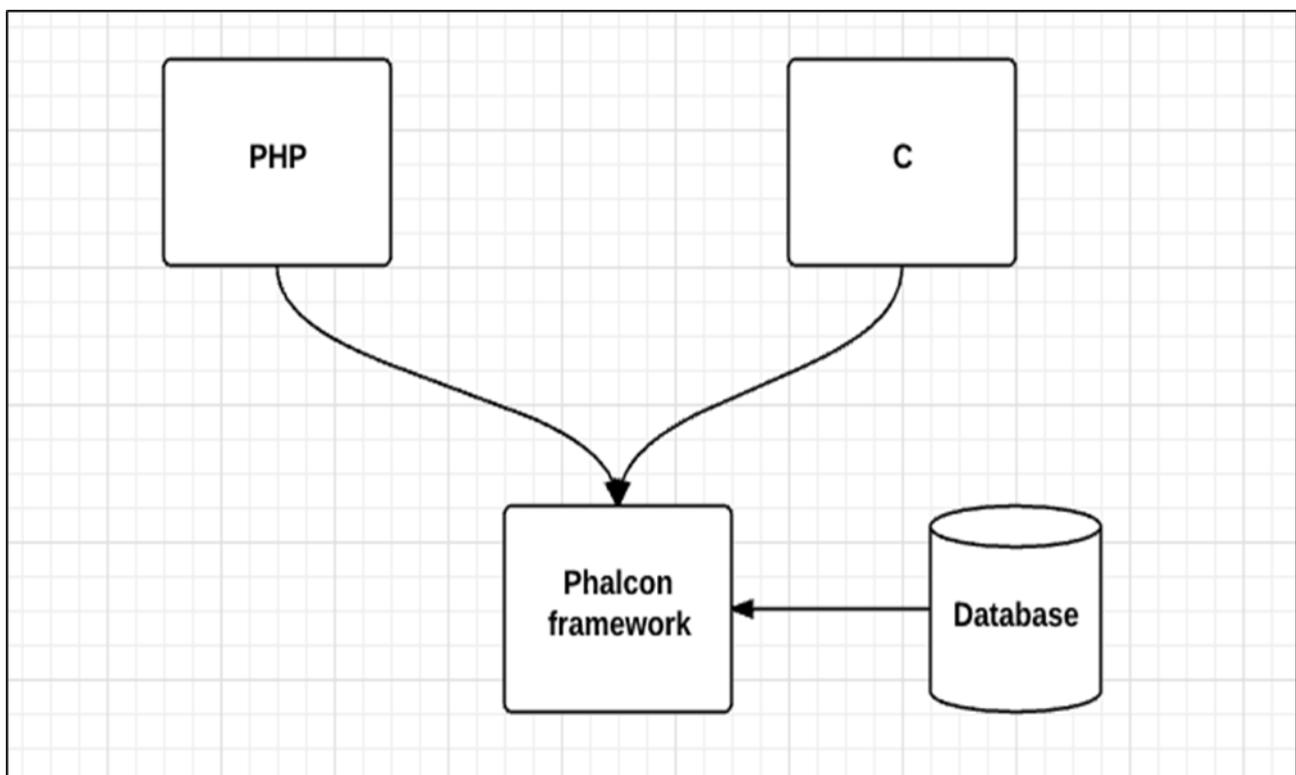
Phalcon is introduced as one of the recent frameworks of PHP, developed by a group of enthusiastic developers. Phalcon is a loosely coupled framework, which means it allows its objects to be treated like glue components, based on the needs of application.

Phalcon offers some unique features in comparison to other frameworks (traditional or existing) in PHP. Following are some of the most prominent features of Phalcon:

- It is a full stack open source framework.
- A user needs quite less amount of code to take advantage of several components.
- It can be used to create an independent framework as required. For example, if we just need Phalcon's Cache component, we can use it in any application written either in pure PHP or using a framework.
- For a developer having knowledge of **Model-View-Controller** (MVC) and **Object-Relational Modeling** (ORM), working with Phalcon is like a cakewalk.

Performance

The performance of Phalcon is a feature which distinguishes it from other traditional frameworks of PHP. Phalcon has a combination of both PHP and C; each of them can be used as a stand-alone module. The compilation of every request is considered on a higher speed in Phalcon which makes everything seem out-of-the-box.



C Language

Phalcon is compatible with C which increases the compilation rate. Also, C in combination with Phalcon provides Object Relational Mapping (ORM) which provides consistency with models created. Every model created in Phalcon is associated with the table of relational database. ORM in Phalcon is purely implemented in C.

Developer Tools

Developer tools are used for developing web application. These tools help in generating scaffold application with a combination of all features (C – Create, R – Read, U – Update, D – Delete). Developer tools also include extensible support for third party libraries to be implemented in Phalcon.

Object Relational Mapping

Phalcon supports a wide range of databases. It is not limited to access of relational databases. It supports both relational and non-relational databases which is like adding a feather to the cap of Phalcon framework.

Phalcon Vs Other Frameworks

The following table highlights how Phalcon differs from other popular frameworks such as Yii and Laravel.

	Yii	Laravel	Phalcon
Type of Projects	Yii helps in creating large scale projects like forums, portals, CMS, RESTful web services, etc.	Laravel is used for building web applications. It is known for exquisite and sophisticated syntax.	Phalcon is used to design variety of projects.
Database Support	Yii supports all relational and non-relational databases.	Laravel supports all relational databases.	Phalcon gives equal support to relational and non-relational databases.
Language	Yii framework is purely written in PHP.	Laravel is written in PHP and follows MVC pattern.	Phalcon includes both PHP and C.
Scalability	Yii is quite scalable for small and medium projects.	Scalability is high for Laravel with all kinds of projects.	Good for medium projects.
Performance	Comparatively low.	High but less in comparison with Phalcon.	High performance.

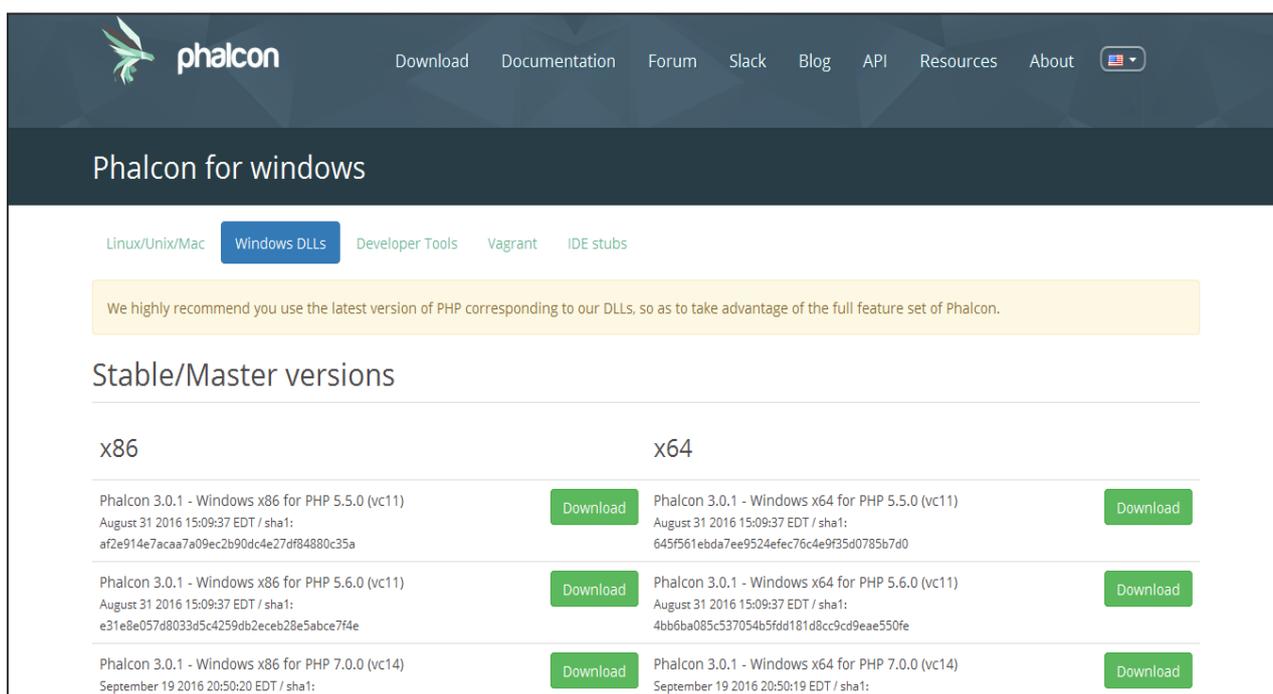
2. PHALCON – ENVIRONMENTAL SETUP

Prerequisites: We need WAMP/LAMP/MAMP or XAMPP stack for this framework.

Following are the steps for the installation process of Phalcon framework in Windows.

Step 1: Phalcon installation is completely dependent on **dll** file. DLL (Dynamic Link Library) creates the required package and plugins for Phalcon.

The following link is used for downloading dll file:
<https://phalconphp.com/en/download>



The screenshot shows the Phalcon website's download page for Windows DLLs. The page is titled "Phalcon for windows" and has a navigation menu with links for Download, Documentation, Forum, Slack, Blog, API, Resources, and About. Below the navigation, there are tabs for Linux/Unix/Mac, Windows DLLs (selected), Developer Tools, Vagrant, and IDE stubs. A yellow banner states: "We highly recommend you use the latest version of PHP corresponding to our DLLs, so as to take advantage of the full feature set of Phalcon." The main content is titled "Stable/Master versions" and is divided into two columns: x86 and x64. Each column lists three versions of Phalcon 3.0.1 for different PHP versions (5.5.0, 5.6.0, and 7.0.0) with corresponding "Download" buttons. The x86 column also includes SHA1 hashes for each version.

x86	x64
Phalcon 3.0.1 - Windows x86 for PHP 5.5.0 (vc11) August 31 2016 15:09:37 EDT / sha1: af2e914e7acca7a09ec2b90dc4e27df84880c35a	Phalcon 3.0.1 - Windows x64 for PHP 5.5.0 (vc11) August 31 2016 15:09:37 EDT / sha1: 645f561ebda7ee9524efec76c4e9f35d0785b7d0
Phalcon 3.0.1 - Windows x86 for PHP 5.6.0 (vc11) August 31 2016 15:09:37 EDT / sha1: e31e8e057d8033d5c4259db2eceb28e5abce7f4e	Phalcon 3.0.1 - Windows x64 for PHP 5.6.0 (vc11) August 31 2016 15:09:37 EDT / sha1: 4bb6ba085c537054b5fdd181d8cc9cd9eae550fe
Phalcon 3.0.1 - Windows x86 for PHP 7.0.0 (vc14) September 19 2016 20:50:20 EDT / sha1:	Phalcon 3.0.1 - Windows x64 for PHP 7.0.0 (vc14) September 19 2016 20:50:19 EDT / sha1:

Step 2: Download the required dll file. Check for the appropriate configuration of the system and download the required dll file. After downloading the file, extract **phalcon-php.dll** to **/php/ext** in the **xampp** folder.

Step 3: Edit the path in **php.ini** file to get it configured in a similar manner of other **.dll** files.

```

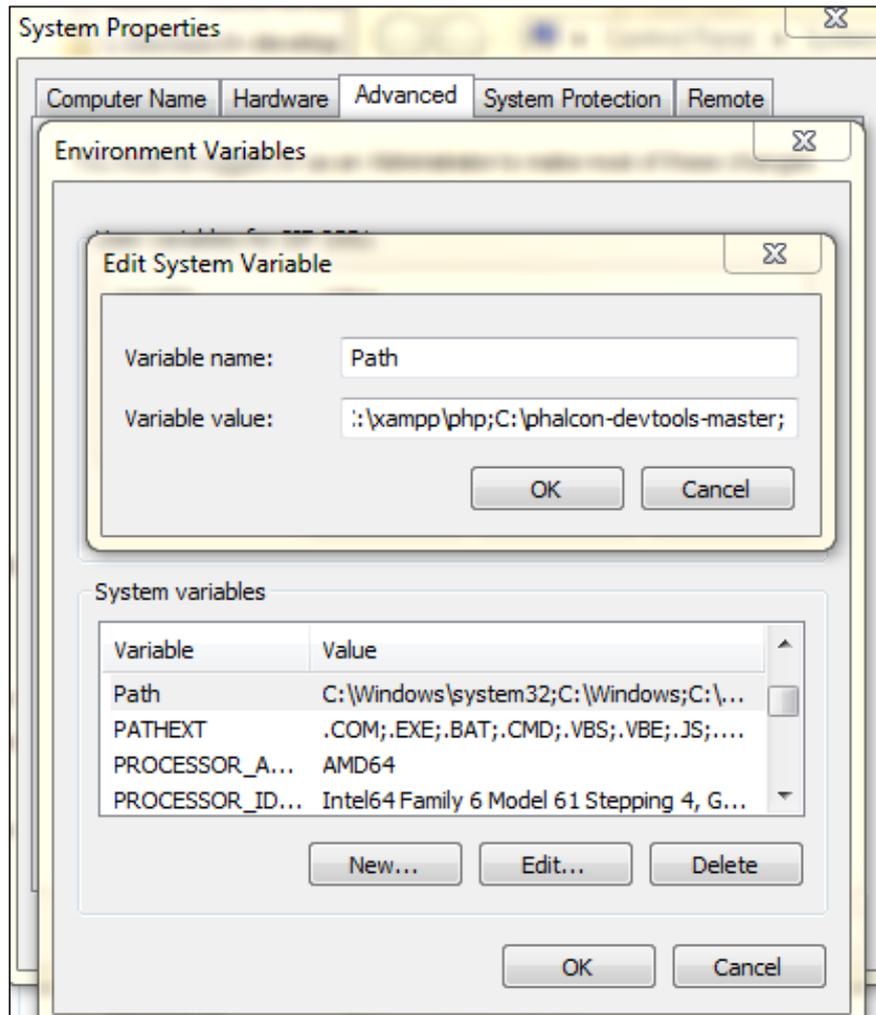
863 extension=php_gd2.dll
864 extension=php_gettext.dll
865 ;extension=php_gmp.dll
866 ;extension=php_intl.dll
867 ;extension=php_imap.dll
868 ;extension=php_interbase.dll
869 ;extension=php_ldap.dll
870 extension=php_mbstring.dll
871 extension=php_phalcon.dll
872 extension=php_exif.dll ; Must be after mbstring as it depends on it
873 extension=php_mysql.dll
874 extension=php_mysqli.dll
875 ;extension=php_oci8.dll ; Use with Oracle 10gR2 Instant Client
876 ;extension=php_oci8_11g.dll ; Use with Oracle 11gR2 Instant Client
877 ;extension=php_openssl.dll
878 ;extension=php_pdo_firebird.dll
879 extension=php_pdo_mysql.dll
880 ;extension=php_pdo_oci.dll
881 ;extension=php_pdo_odbc.dll
882 ;extension=php_pdo_pgsql.dll
883 extension=php_pdo_sqlite.dll
884 ;extension=php_pgsql.dll
885 ;extension=php_pspell.dll
886 ;extension=php_shmop.dll
887
888
889 ; The MIBS data available in the PHP distribution must be installed.
890 ; See http://www.php.net/manual/en/snmp.installation.php
891 ;extension=php_snmp.dll
892

```

Step 4: Once the path is edited, restart the **xampp/wamp** stack. It will be clearly visible in the dashboard, once the **dll** file is properly set.

phalcon		
Web framework delivered as a C-extension for PHP		
phalcon		enabled
Author	Phalcon Team and contributors	
Version	3.0.1	
Build Date	Aug 24 2016 11:24:53	
Powered by Zephir	Version 0.9.4a-dev-7e304ba18c	
Directive	Local Value	Master Value
phalcon.db.escape_identifiers	On	On
phalcon.db.force_casting	Off	Off
phalcon.orm.cast_on_hydrate	Off	Off
phalcon.orm.column_renaming	On	On
phalcon.orm.enable_implicit_joins	On	On
phalcon.orm.enable_literals	On	On
phalcon.orm.events	On	On
phalcon.orm.exception_on_failed_save	Off	Off
phalcon.orm.ignore_unknown_columns	Off	Off
phalcon.orm.late_state_binding	Off	Off
phalcon.orm.not_null_validations	On	On
phalcon.orm.virtual_foreign_keys	On	On

Step 5: After downloading the package, set the path variable in the system properties.



Step 6: The **dll** files and Phalcon tools together help in creating the project/web application. The user can verify through command prompt whether Phalcon framework has been successfully installed. The output will be displayed as shown in the following screenshot.

```

C:\> Command Prompt
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\SIF 2551>phalcon

Phalcon DevTools (3.0.1)

Available commands:
  commands      (alias of: list, enumerate)
  controller    (alias of: create-controller)
  module        (alias of: create-module)
  model         (alias of: create-model)
  all-models    (alias of: create-all-models)
  project       (alias of: create-project)
  scaffold      (alias of: create-scaffold)
  migration     (alias of: create-migration)
  webtools      (alias of: create-webtools)

C:\Users\SIF 2551>

```

Step 7: Once this necessary output is received, create a project using the following command:

```
phalcon create-project <project-name>
```

The following output will be displayed.

```

C:\xampp\htdocs>phalcon

Phalcon DevTools (3.0.1)

Available commands:
  commands      (alias of: list, enumerate)
  controller    (alias of: create-controller)
  module        (alias of: create-module)
  model         (alias of: create-model)
  all-models    (alias of: create-all-models)
  project       (alias of: create-project)
  scaffold      (alias of: create-scaffold)
  migration     (alias of: create-migration)
  webtools      (alias of: create-webtools)

C:\xampp\htdocs>phalcon create-project demo1

Phalcon DevTools (3.0.1)

  Success: Controller "index" was successfully created.
C:\xampp\htdocs\demo1\app\controllers\IndexController.php
  Success: Project "demo1" was successfully created.

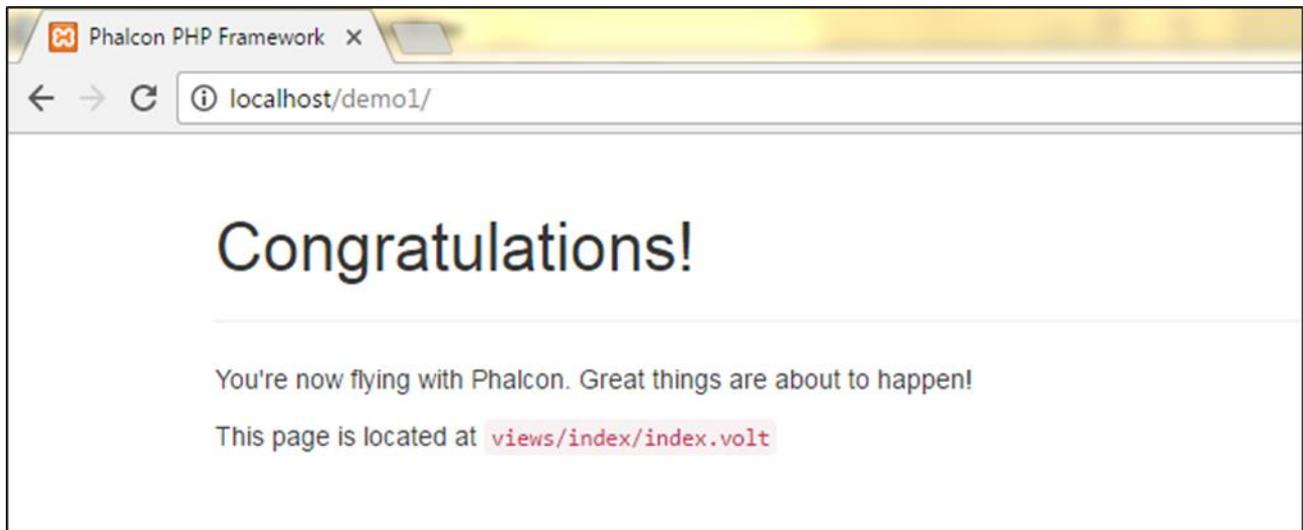
C:\xampp\htdocs>_

```

Step 8: The web application is successfully created. Click the following URL:

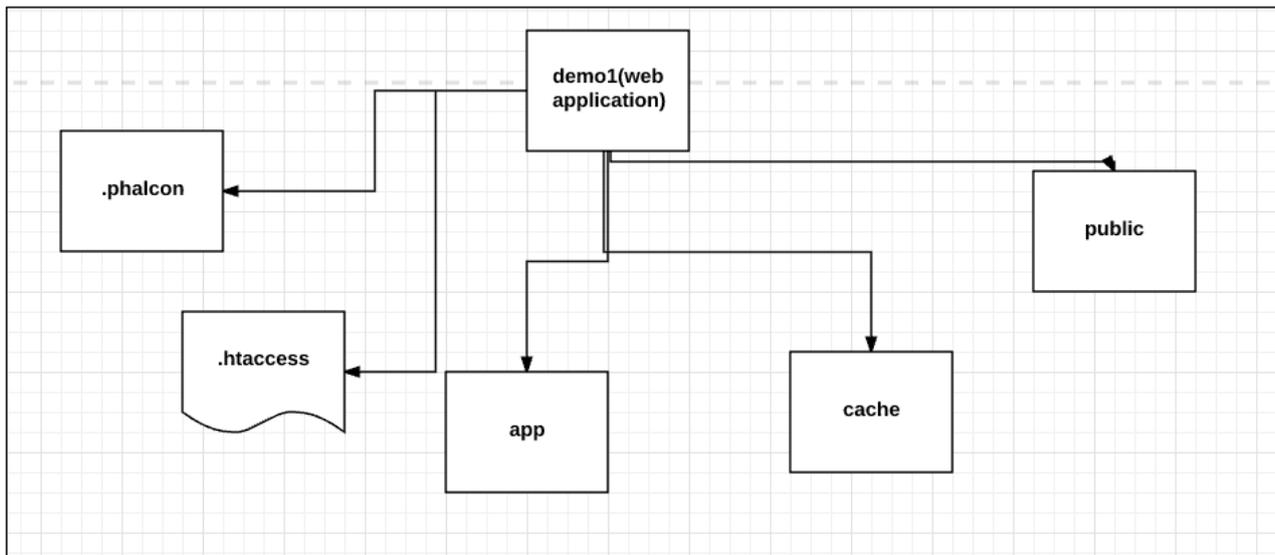
<http://localhost/demo1>

The output will be displayed as shown in the following screenshot. It is the welcome page for Phalcon PHP.



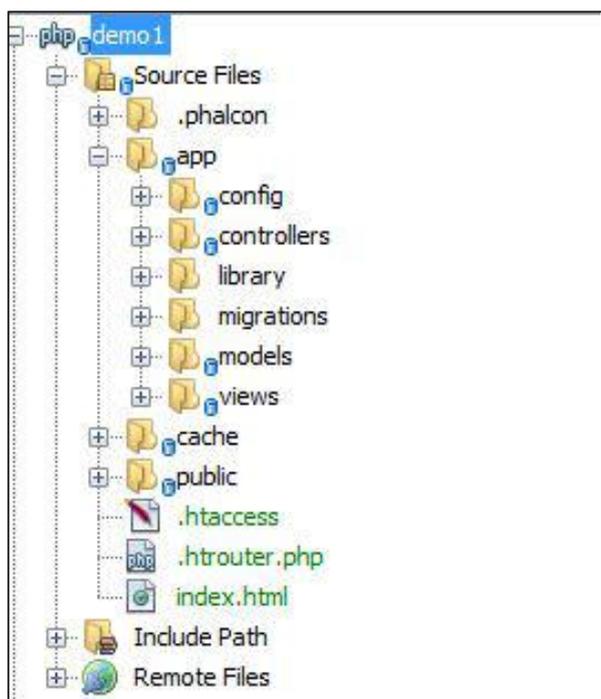
3. PHALCON – APPLICATION STRUCTURE

In this chapter, we will discuss the Application Structure of Phalcon. Following is the complete directory structure of a Phalcon project.



There is one root folder which is considered as the **code base** and is publicly available for the web server. It is also called as **web directory**. Other folders outside the web root directory are considered out of reach for the web server and for Phalcon project.

Once a project is created, the directory structure will be visible as follows in the **wamp/xampp** folder. Consider for the project which we created in the previous chapter.

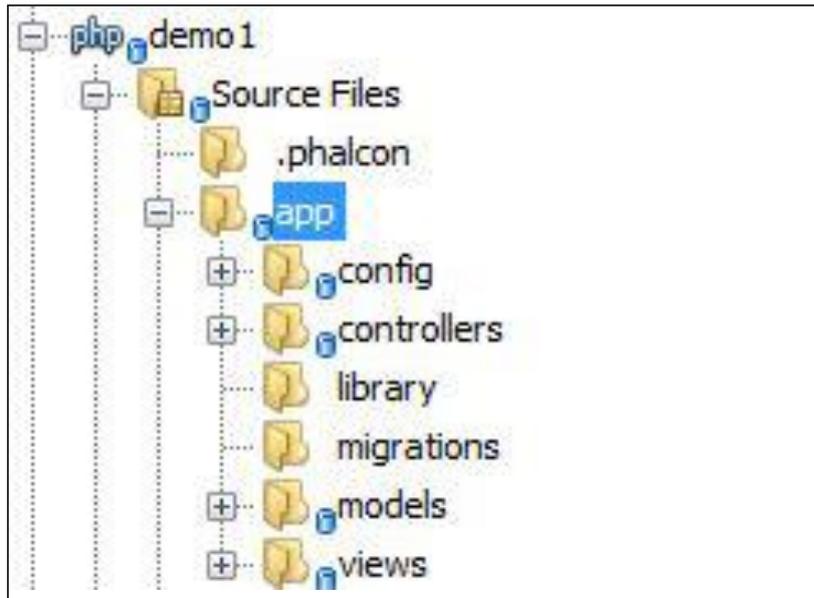


Following are the folders and sub-folders of the project.

App

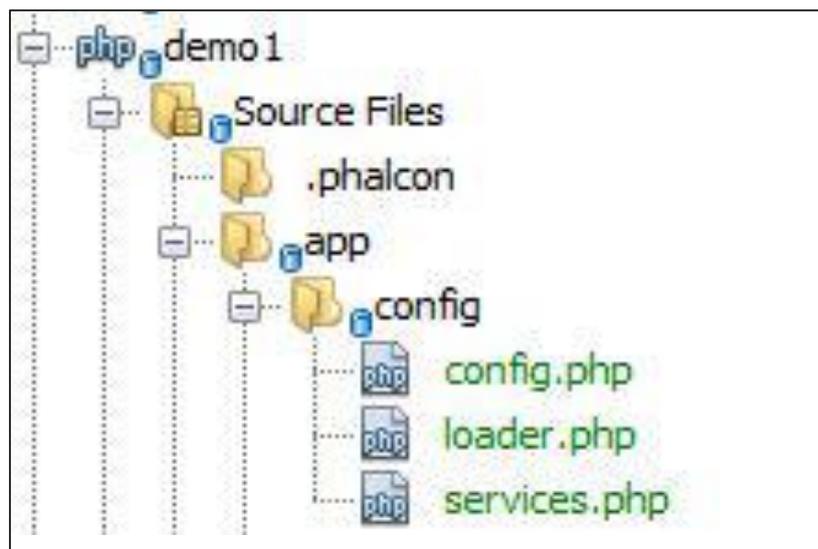
This folder consists of all vital script files and folders. The complete web application is designed on the basis of "app" folder. The configuration files help in assisting the necessary configuration for running the application smoothly.

Following is the detailed view of app folder for the given Phalcon web application.



It consists of config, controllers, library, migrations, models and views.

Config



All the configuration required for the web application in Phalcon is comprised in this folder. It includes information related to database connectivity, third-party libraries to be added if any, and the services to be included.

Controllers

All the controllers are included in this folder. They are used for processing requests and generating response.

Library

Third-party libraries for the web application (apart from the existing Phalcon framework).



Migrations

This sub-folder consists of all the files associated with data migration, which can also be used in any other framework.

Models

Models include all the logic required to interact with the database. It is actually used for data representation.

Views

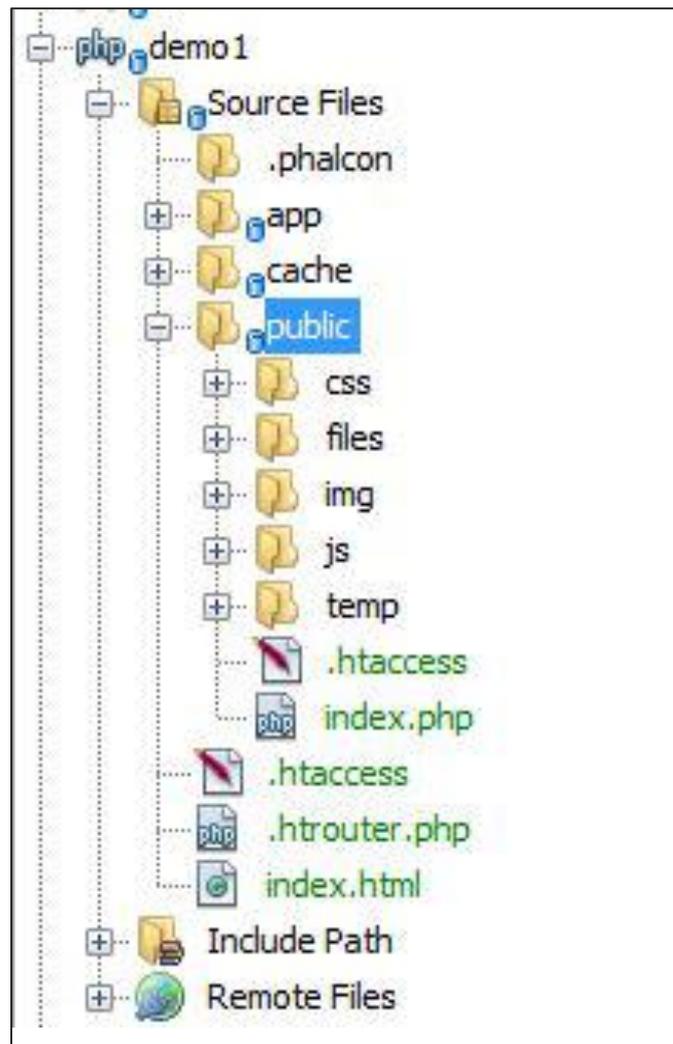
It constitutes all the views related to the web application. These views are displayed to the end users with the help of controllers.

Cache

This directory includes data related to caching, which helps in improving the performance.

Public

It includes all the folders for asset management purpose which comprises of CSS, JavaScript, files to be uploaded, and some meta data.



.htaccess File

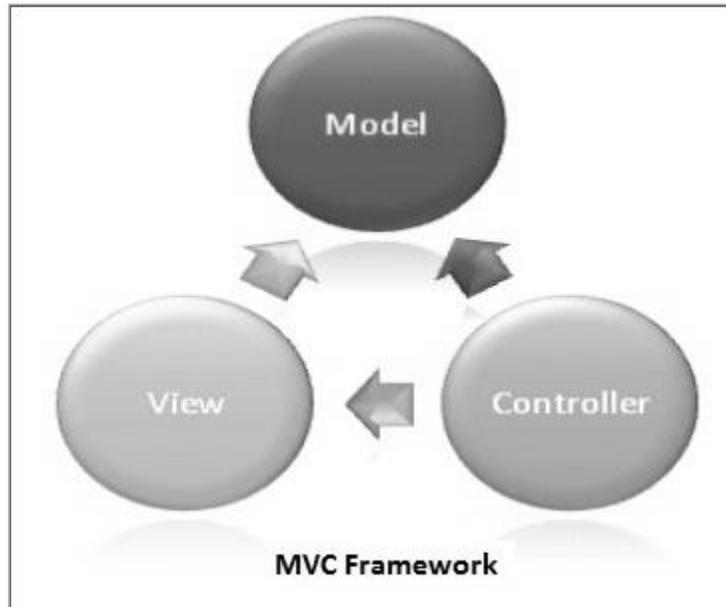
Web servers running on Apache Web Server software use **.htaccess** as a configuration file. When it is placed in a directory, all the necessary configuration is loaded as soon as the server is started.

For example, it is possible to configure a website so that it will be available only to specific IP addresses with **.htaccess** file.

4. PHALCON – FUNCTIONALITY

Model View Controller (MVC) is a software design and structural pattern for developing web-based applications. This software architectural separates the representation of information from the user's interaction with it.

The MVC model defines the web applications with three logic layers.



Model

Models are objects which represent knowledge. There should be a one-to-one relationship between the model and its parts. It includes all the logic to be used for database connectivity and performing CRUD operations.

View

A view is a visual representation of its model. View interacts with the model or its parts and gets the data necessary for the presentation from the model. This is achieved by sending requests and receiving appropriate responses. View includes all the data that end user sees.

Controller

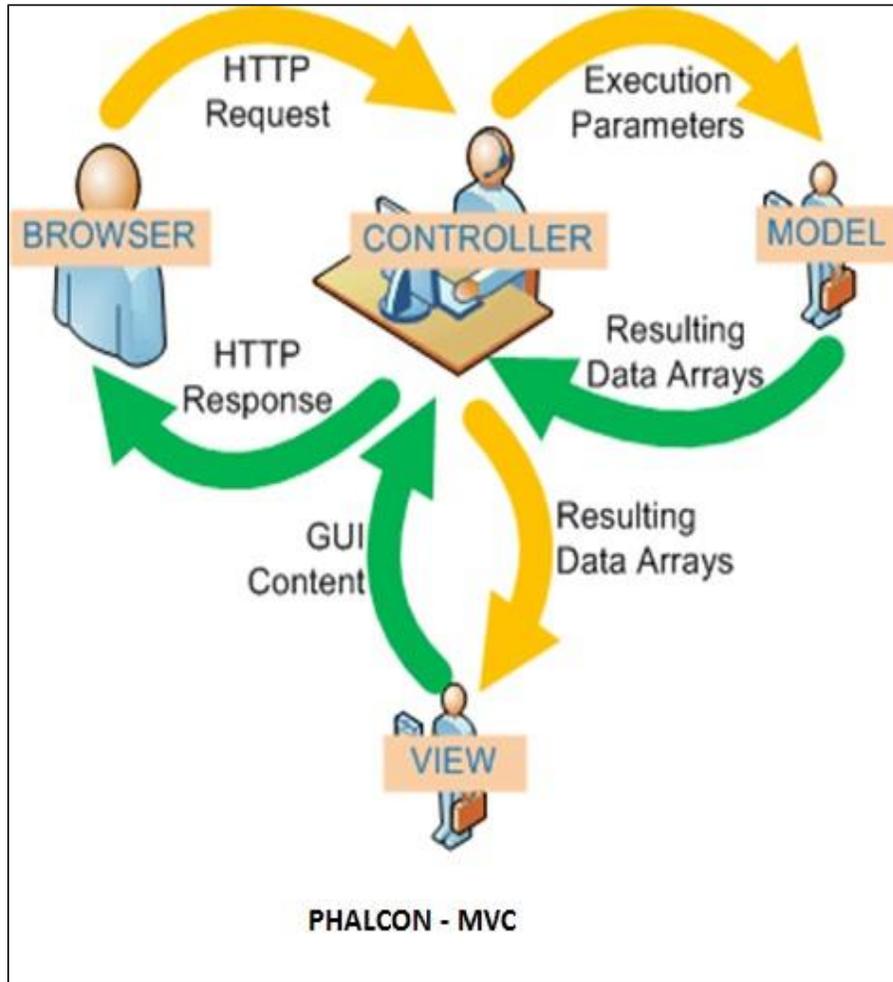
A controller acts as the intermediary between the user and the system (model and view). It accepts the request from the user, through the view sends it to the model. The model manipulates it and sends the response to the controller, which is displayed as the output to the end user through view.

The controller receives such user output and translates it into the appropriate messages. These messages are used by view to display as appropriate responses.

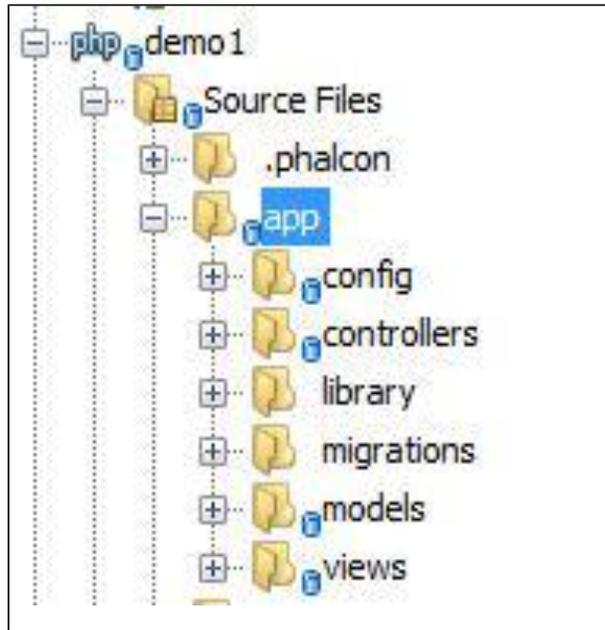
Workflow in Phalcon

The workflow in Phalcon is as follows:

- The user interacts with the user interface (view) and the interaction is maintained with the help of some method/event.
- These methods and events are handled by the controller.
- The controller accesses the model by updating the user's action.
- View uses the model to generate an appropriate output.
- View fetches data from its model. The model has no direct interaction with view.
- The user interface waits for further user interactions, which starts with a new cycle of request and response.



Phalcon includes directories for Model, View, and Controller. The following screenshot gives a better scenario.



All business logic is described in the controller, and the model interacts with the database which includes all files with respect to each and every table.

Note:

- All the controllers created in Phalcon web application extends **Phalcon\Mvc\Controller**.
- All the models associated with the database tables extends **\Phalcon\Mvc\Model**.

End of ebook preview
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