



Department of Computer Engineering

Unit 3
PHP MVC Framework:
Laravel

Subject Code: 01IT0701
Advance Web
Technology

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#### Outline

- Introduction to Laravel and MVC
- Environment Setup
- Routes
- Namespaces
- Controllers
- Views
- Request Response
- Redirections
- Forms
- Session
- Cookie
- Database Connectivity and CRUD operations

## What is Laravel?

- Laravel is a free open-source PHP web framework, created by Taylor Otwell and intended for the development of web application following the model-view-controller (MVC) architectural pattern.
- Laravel most widely used PHP framework for web application development.
- Laravel is an open-source framework that anyone can download and use accordingly for web app development.
- Uses object oriented libraries.

Laravel is a PHP framework that uses the MVC architecture.

- Framework: It is the collection of methods, classes, or files that the programmer uses, and they can also extend its functionality by using their code.
- Architecture: It is the specific design pattern that the framework follows. Laravel is following the MVC architecture

## Laravel Installation

- Step 1. Install XAMP
- Step 2. Download Composer's installer: https://getcomposer.org/download/
- **Step 3.** Place the installer and run it from the added to Path directory C:\xampp\php\php.exe
- Step 4: Now check whether composer is installed or not?
- C:\users\admin>composer

 The installation of the composer is completed. Now we will check whether the composer is installed successfully or not. To check this, open the command prompt and type Composer.



## Laravel Installation

- Step 5: install laravel –
   composer global require laravel/installer
- Step 6: Now check whether Laravel installed or not?
   c:\xampp\htdocs>laravel
- Step 7: Create a new Project in your Directory.
   c:\xampp\htdocs>laravel new project1
- Step 8: c:\xampp\htdocs>cd project1
- Step 9: c:\xampp\htdocs\project1>php artisan serve (artisan is a command line interface/tool included with laravel)
- Step 10: Now load the project on http://127.o.o.1:8000

## Composer Installation

#### What is Composer?

- Composer is a dependency manager for a PHP programming language that manages the dependencies of PHP software and required libraries.
- Composer runs through the **command line**. The main purpose of the composer is to install the **dependencies** or **libraries** for an application.
- The composer also provides the users to install the PHP applications available on the **Packagist**, where Packagist is the main repository that contains all the available packages.

Click on the link given below to download the Composer: <a href="https://getcomposer.org/download/">https://getcomposer.org/download/</a>.

## How to run Project:

• The above command will install Laravel in the current directory. Start the Laravel service by executing the following command.

#### php artisan serve

```
Administrator: C:\Windows\System32\cmd.exe-php artisan serve

C:\laravel-master\laravel>php artisan serve
Laravel development server started on http://localhost:8909/
```

http://127.0.0.1 :8000  Copy the URL underlined in gray in the above screenshot and open that URL in the browser. If you see the following screen, it implies Laravel has been installed successfully.

#### Laravel

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## Directory structure

- After fresh install Laravel have following directory structure.
  - ■App
    - Commands
    - Console
    - Events
    - Handlers
      - Commands
      - Events
    - Http
      - Controllers
      - Middleware
      - Requests
    - Provider
    - Services
  - ■Bootstrap
  - **□**config

- Database
  - Migrations
  - Seeds
- Public
  - Package
- Resources
  - Lang
  - Views
- ■Storage
  - Cache
  - Log
  - Sessions
  - Views
  - Work
- tests

- MVC is an acronym for 'Model View Controller'. It represents architecture developers adopt when building applications.
- MVC is a software architecture, that separates application into three parts: the model, the view, and the controller.

#### • Model:

- The Model manages fundamental behaviors and data of the application.
- It can respond to requests for information, respond to instructions to change the state of its information, and even notify observers in event-driven systems when information changes.
- This could be a database or any number of data structures or storage systems. In short, it is the data and data-management of the application.

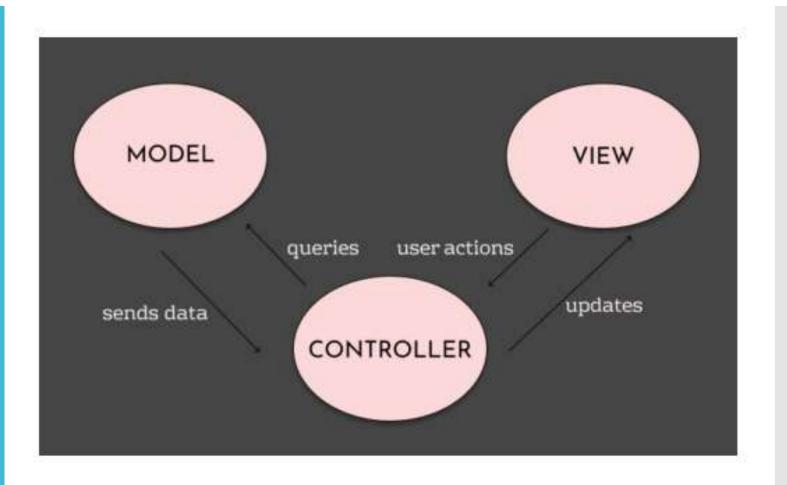
#### View:

• The view effectively provides the user interface element of the application. It'll render data from the model into a form that is suitable for the user interface.

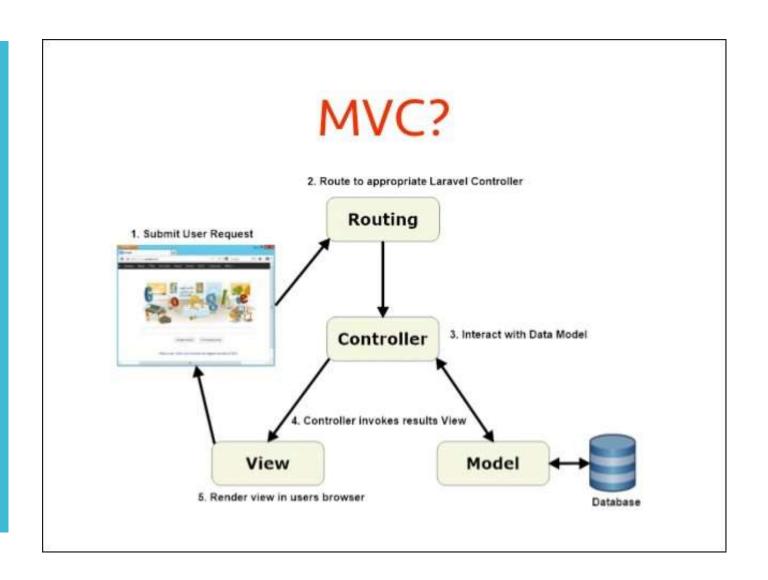
#### Controller:

 The controller receives user input and makes calls to model objects and the view to perform appropriate actions.

• All in all, these three components work together to create the three basic components of MVC.



- A Model is a representation of a real-life instance or object in our code base.
- The View represents the interface through which the user interacts with our application.
- When a user takes an action, the Controller handles the action and updates the Model if necessary.



- Let's look at a simple scenario.
- If you go to an e-commerce website, the different pages you see are provided by the View layer.
- When you click on a particular product to view more, the Controller layer processes the user's action. This may involve getting data from a data source using the Model layer.
- The data is then bundled up together and arranged in a View layer and displayed to the user. Rinse and repeat.

## Artisan console

- Artisan is the name of the command-line interface included with Laravel. It provides a number of helpful commands for your use while developing your application. It IS driven by the powerful Symfony Console component. To view a list of all available Artisan commands, YOU may use the list command:
- — php artisan list
- Every command also includes a "help" screen which displays and describes the command's available arguments and options. To View a help screen, simply precede the name of the command with help:
- php artisan help migrate

## Where exactly the Display page comes from:

- 1. Open Project in Editor: / or go to Root Folder
- Root/resource/views/ welcome.blade.php
   In vews folder we need to create views here
  - If you make any changes on this page you can do
    it, like:
     Change the heading Laravel to
     "Laravel Projects".
  - 2. from where welcome page is called:
    - Go to Routes folder and then web.php like :
      - Routes/web.php

You will find welcome page and that is exactly: welcome.blade.php

```
Route::get('/', function () {
return view('welcome');
});
```

## Create a new page:

#### Go to View:

Right click -> new file :abc.blade.php

According to Laravel file name start with small letter only like: "abc.blade.php"

```
abc.blade.php
```

```
<html>
<head>
welcome to ABC View testing
</head>
<body>
<h1>welcome to ABC View
testing</h1>
</body>
</html>
```

#### Web.php

```
Route::get('/', function () {
  return view('welcome');
});
Route::get('/abc', function () {
  return view('abc');
});
```

How to call in URL:

http://127.o.o.1:8000/abc

#### Routing:

- What is Routing?
- Making a new page with routing
- Anchor tag with routing
- Pass URL parameters with routing
- Pass data with routing
- Redirection

#### Routing:

- What is basically Routing?
- When you create a page in Laravel, so basically Laravel don't know what to do???
- So we need to do define routing,

Which means something comes in routing, or we write in routing, then we need to open particular page.

To open page in Routing : go to Route Folder first

Route/web.php

Route::get('/', function() { return view('welcome'); };

Basically it is called welcome.blade.php

So its simply opens welcome.blade.php in browser

• Where we need to defined routing??



Routing defined after "/"

Route::get('/', function () {
return view('welcome');
});

Here route is : "abc"

Route::get('/abc', function() {
return view('abc');
});

Lets make anchor tag in welcome.blade.php

## Anchor Tag With Routing

- welcome.blade.php
- We need to write this code below to main heading:
- We need to put route in href="". So abc is route put in
- <a href="abc">abc</a>

web.php

Route::get('/abc', function () { return view('abc'); }).

Controller:

- What is controller
- How to make controller
- How call controller with routing
- How pass data with controllers

#### Controller:

- A Controller is that which controls the behavior of a request. It handles the requests coming from the Routes.
- In Laravel, a controller is in the 'app/Http/Controllers' directory. All the controllers, that are to be created, should be in this directory.
- It is central unit of any MVC based application, which actually manages database operations as well as GUIs.
- It is mainly used to fetch the data from the database and display in GUI.
- It is also used for sessions and cookies management
- It can also be used to pass a data using query string and the fetch the data of it.
- (Which means you need to write business logic in controller).

## How Controller Works?

- Step 1: Create Controllers
- Step2: make relevant or required functions in controller
- Step3: call this function / call this controller, using Routing(Web.php)

#### Controller:

### create controller

- Where to find controller in leravel?
- App/Https/Controllers
- To create a new controller the code is:
- Php artisan make : controller Users
- After executing this command successful,
- Users.php will be created in App/Https/Controllers
- Controller name always start with a capital letter because it is a class.
   It follows OOPs concept.

#### **Controller Continues...**

#### Controller: add index ( ) in controller (Users.php)

Users.php – generated by command

```
<?php

namespace
App\Http\Controllers;

use Illuminate\Http\Request;

class Users extends
    Controller
{
    //
    //
}</pre>
```

#### Now add index function to Uesrs.php

```
<?php

namespace
App\Http\Controllers;

use Illuminate\Http\Request;

class Users extends Controller
{
    public function index($id)
    {
    echo $id;
    }
}</pre>
```

# How to call function index() / controller

- Step1 :we need to define routing
- Syntax:
- Route::get(" name of route "," name of Class @name of function");
- Route::get("test","Users@index");
- Or
- Route::get("/test/","App\Http\Controllers\Users@index");

To run now:

http://127.o.o.1:8000/test

# How to pass parameters with controllers

```
Users.php
<?php
namespace App\Http\Controllers;
use Illuminate\Http\Request;
class Users extends Controller
public function index($id)
echo $id;
 Web.php
 Route::get("test/{id}","Users@index");
 Or
 Route::get("/test/{id}","App\Http\Controllers\Users@index");
```

To run this:

http://127.0.0.1:8000/test/101

#### Views:

- What is view?
- How to make view?
- Call a view with routing
- Call a view with Controller
- Pass data while calling view

#### What is View?

- View mainly deals with GUI part of Laravel application
- It contains all the HTML parts to display the data in to browser.

## How to make a view?

- Go to Your Folder, Search for RESOURCES
- Resources/Views/Welcome.Blade.Php → Default file
- To create a new view:
- Right click on views & select new file (named it anything u like: as following)
- Resources/Views/mobiles.Blade.Php

#### mobiles.Blade.Php

```
<html>
<head>
welcome to Creating Views
</head>
<body>
<h1>Mobile.blade.php</h1>
</body>
</html>
```

# How to call View with routing?

To open a view page using routing goto web.php (Routing)

Syntax:

Route::view('/route name', 'View name/ file name');

Example:

Route::view('/iphone', 'Mobiles');

To run this:

http://127.0.0.1:8000/iphone

## How to call View with Controller?

- We already created controller named Users.php so we will use same file, we have also created INDEX() in that file .
- Now To call View with Controller do as follows:
- Step1: Go to Controller:

```
<?php
```

```
namespace App\Http\Controllers;
use Illuminate\Http\Request;
class Users extends Controller
{
  public function index($id)
  {
  return view('Mobiles');
  //Mobiles is the view name only
  //echo $id;
  }
}
```

#### To run this:

http://127.0.0.1:8000/test/101

How to pass data While calling a view?

```
We already created controller named Users.php so we will use same file, we have also created INDEX() in that file.
```

Now To call View with Controller do as follows:

Step1: Go to Controller: Users.php

```
namespace App\Http\Controllers;
use Illuminate\Http\Request;
class Users extends Controller
{
  public function index($id)
{
  return view('Mobiles', ['name'=>"Alex"]);
  //echo $id;
}
```

To run this:

<?php

http://127.0.0.1:8000/test/101

Continues...

# How to pass data While calling a view?

- We already created view name mobiles.blade.php so we will use same file..
- Now To call View with Controller do as follows:
- Step2: Go to Views: Mobiles.blade.php

```
<html>
<head>
welcome to Creating Views
</head>
<body>
<h1>Mobile.blade.php</h1>
<h2>
{{$name}}

// $name is the variable that is passed in controller and fetch in view.
// {{{}}: Shortcut to define Php which also known as Blade Templating.
</h2>
</body>
</html>
```

#### To run this:

http://127.0.0.1:8000/test/101

- It is mainly used to send any type of request from one page to another page.
- When we need to fetch any data from data server, so basically request sent through HTTPS only.
- It is also used for knowing the URL of Site from where the data is being sent .
- It can also be used to know through which method (GET/POST) the data has been sent .
- It is also used to know the data of the query string in the form of array.

To know all types of Request

Examples:1

 To know all the types of request is being sent go to App/http/controller/users.php

```
<?php
namespace App\Http\Controllers;
use Illuminate\Http\Request;
class Users extends Controller
{
    public function index(Request $req)
    {
       var_dump($req);
    }
}</pre>
```

Now perform below to check what we have ??

var\_dump(\$req->input()); ---- > it will display Blank Array

Now type if url as enter the data:

http://127.0.0.1:8000/user?data=100

You can add more data to above url like &id=1000811.

To know URL:

Examples:1

To know URL : App/http/controller/users.php

```
<?php
namespace App\Http\Controllers;
use Illuminate\Http\Request;
class Users extends Controller
{
    public function index(Request $req)
    {
        echo $req->url();
    }
}
i/p in url :http://127.0.0.1:8000/user?data=100&id=100000
o/p: http://127.0.0.1:8000/user, now we get upto /user only what about rest?
```

#### Continues...

To know URL:

Examples:1

#### Now To get Full URL:

```
<?php
namespace App\Http\Controllers;
use Illuminate\Http\Request;
class Users extends Controller
{
    public function index(Request $req)
    {
        echo $req->fullUrl();
    }
}
```

To know PATH:

Examples:1

#### To know Path : App/http/controller/users.php

```
<?php
namespace App\Http\Controllers;
use Illuminate\Http\Request;
class Users extends Controller
{
    public function index(Request $req)
      {
        echo $req->path();
      }
}
```

**Input**: http://127.0.0.1:8000/user?data=100&id=100000

Output: user

Which means from this path our data is coming.

To know Data come from: GET /POST

Examples:1

To check: data comes from get or Post?

App/http/controller/users.php

```
<?php
namespace App\Http\Controllers;
use Illuminate\Http\Request;

class Users extends Controller
{
    public function index(Request $req)
    {
       echo $req->method();
    }
}

O/P: GET
```

GET /POSTused : to display something

Examples:1

Now if Any condition we are using like, if I m using GET or POST, I wanna do something or if get then display something / if post then display something: App/http/controller/users.php

```
<?php
namespace App\Http\Controllers;
use Illuminate\Http\Request;
class Users extends Controller
    public function index(Request $req)
         //echo $req->method();
         if($req->isMethod('GET'))
              echo "Data coming through GET";
         else
              echo "Else";
```

OutPut: if

Continues... but condition change in next...

GET /POSTused : to display something

Examples:2

Now if Any condition we are using like, if I m using GET or POST, I wanna do something or if get then display something / if post then display something: App/http/controller/users.php

```
<?php
namespace App\Http\Controllers;
use Illuminate\Http\Request;
class Users extends Controller
    public function index(Request $req)
         //echo $req->method();
         if($req->isMethod('POST'))
              echo "if";
         else
              echo "else";
```

Output: else

#### To know Query parameters : App/http/controller/users.php

# Https Request & Response :

how to Get Query Parameters

Examples:1

```
<?php

namespace App\Http\Controllers;
use Illuminate\Http\Request;

class Users extends Controller
{
    public function index(Request $req)
    {
       var_dump($req->query());
    }
}
```

i/p in url: http://127.0.0.1:8000/user?data=100&id=100000

# Form Processing with Validation:

#### Formcontrol.p hp:Controller File

```
<?php
namespace App\Http\Controllers;
use Illuminate\Http\Request;
class Formcontrol extends Controller
  //
public function submit(Request $req)
$req->validate([
"name"=>"required",
"pass"=>"min:2 | max:8",
"phone"=>"numeric | min:10",
"email"=>"email"
]);
//Print Data from POST Method
             return $req->input();
```

Continues...

#### Form Processing with Validation:

#### Form.Blade.php : Regular HTML Form File

<html> <head> (a)error('pass') <title>Forms</title> <div>{{\$message}}</div> </head> @enderror <body> <hr> <div> Mobile<input type="text" name="phone"> <u|> (@error('phone') @foreach(\$errors->all() as \$e) <div>{{\$message}}</div> {|se}} @enderror @endforeach <br> Email<input type="text" name="email"> </div> (aerror('email') <form action="formdata" method="POST"> <div>{{\$message}}</div> @csrf @enderror Name: <input type="text" name ="name"> <hr> <input type="submit" value="OK"> (a)error('name') <div>{{\$message}}</div> </form> @enderror </body> <br> </html>

Password: <input type="password" name="pass">

Continues...

# Form Processing with Validation:

Web.PHP: Route File

- Route::view("/regform",'form');
- Route::post("/formdata",'Formcontrol@submit');

### CSRF Protection:

Introduction

- Laravel makes it easy to protect your application from <u>cross-site</u> <u>request forgery</u>(CSRF) attacks. Cross-site request forgeries are a type of malicious exploit whereby unauthorized commands are performed on behalf of an authenticated user.
- Laravel automatically generates a CSRF "token" for each active user session managed by the application. This token is used to verify that the authenticated user is the one actually making the requests to the application.
- Anytime you define an HTML form in your application, you should include a hidden CSRF token field in the form so that the CSRF protection middleware can validate the request. You may use the @csrf Blade directive to generate the token field:

### CSRF Protection:

Introduction

- CSRF refers to Cross Site Forgery attacks on web applications. CSRF attacks are the unauthorized activities which the authenticated users of the system perform. As such, many web applications are prone to these attacks.
- Laravel offers CSRF protection in the following way –
- Laravel includes an in built CSRF plug-in, that generates tokens for each active user session. These tokens verify that the operations or requests are sent by the concerned authenticated user.

# How to Define?

**CSRF** 

<form method="POST" action="/profile">

@csrf ...

</form>

## Laravel & Database

- First create a table in database
- With any field that you required like: id, name, address, email.
- Now need to configure and check database file of Laravel, for that go to config/database.php
- In this file you will find different configurations for different type of databases, supported by Laravel.
- For. Ex. SQLite , MySql, PGSql, SQLSRV(sqlserve),
- · you need to configure you database as per you requirement
- We do not change this file, but all the configurations related to database are made in .env file of Laravel.
- Open .env file & go to DB\_connection=mysql and change the :
  - Host,
  - Port,
  - Database
  - Username & password as per your requirement.
  - DB\_SOCKET=/Applications/MAMP/tmp/mysql/mysql.sock (also add in MAC)

## Laravel & Database

- After the Configuration restart the Laravel server.
- Create a Controller for performing database operations named <u>dbcontroller</u> then go to <u>dbcontroller.php</u> file.
- Now we need to call the Controller to perform database operations, so we create one route in web.php

#### Fetch the data

- Now to fetch the data from the database, we required DB Class or namespace, now Syntax to import DB Class is as follows:
- use Illuminate\Support\Facades\DB;
- Using above name space we can perform any type of database operations
- For. Ex. To Fetch the data from the table. the syntax is as follows:

#### Fetch Data /

#### Perform Selection operations

- Step 1: Create controller **dbcontrol**
- Type Command: Php artisan make:controller dbcontroller
- So controller file is at : Controllers/dbcontrol.php

#### Continues...

```
dbcontrol.php
```

```
public function dbselect()
// Fetch the Data from the table
// Array Format
$a = DB::select('select * from user');
print_r($a);
// Json Format
return DB::select('select * from user');
// Other Way of Fetching the Data with Where Clause
$b = DB::table('user')
->where('Name','Munindra')
->get();
print_r($b);
// Find the Data only on basis of ID
c = DB::table('user')->find(5);
print r($c);
//Count the Records
$d = DB::table('user')->count();
print r($d);
```

Continues...

Now after making controller and function we need to define Route: Which is as Follows

Route::get("dbsel",'dbcontrol@dbselect');

Web.php

### Inserting Data in Database :

dbcontrol.php

8

web.php

```
public function dbinsert()
{
  // Insert New Records
  $i = DB::table('user')
  ->insert([
  'Name'=>'Mahendra',
  'Email'=>'M@m.com',
  'Address'=>'Chennai'
]);
  print_r($i);
}
```

Now after making function we need to define Route: Which is as Follows

Route::get("dbins",'Dbcontrol@dbinsert');

### Updating Data in Database :

dbcontrol.php

8

web.php

```
public function dbupdate()
    // Update Any Records
    $u = DB::table('user')
    ->where('ld','6')
    ->update([
    'Name'=>'Mahendra Reddy',
    'Email'=>'Mahendra@mu.ac.in'
    ]);
    print_r($u);
Now after making function we need to define Route: Which is
as Follows
    Route::get("dbupt",'Dbcontrol@dbupdate');
```

### Deleting Data in Database :

dbcontrol.php

8

web.php

```
public function dbdelete()
{
    // Delete Any Records
    $del = DB::table('user')
    ->where('ld','6')
    ->delete();
    print_r($del);
}
```

# Access Database through Model

- Step 1: Create Model First :
- Php artisan make:model dbmodel

Now go to dbmodel.php file In App Folder and update the code as follows:

Step 2 : Create a Function in controller:

Step 3: To Access the dbmodel (Model), Create route in web.php

Note: Model can be used to only fetch the data

#### dbmodel.php

```
<?php
namespace App;
use Illuminate\Database\Eloquent\Model;
class dbmodel extends Model
{
    //
    protected $table = 'user'; // (Any Table name to show in o/p)
}</pre>
```

#### Dbcontrol.php

```
public function dbmodel()
{
return dbmodel::all();
(It will return all the data of the Table in form of Json . for the table name passed in the model file)
}
```

Web.php

Route::get("dbmodel",'Dbcontrol@dbmodel');

Laravel:

Session

Step 1: First create signin.blade.php in views

Step 2: Create Route for it in Web.php

Step 3: Create a controller login.php

Step 4: Create profile.blade.php in view

Step 5-1: Create a Route for Logout in Web.php

Step 5-2: Create a Route in Web.php for Profile.Blade.php

#### STEP 1:

Signin.blade.p hp

```
<form action="signon" method="post">
```

Username:<input type="text" name="user"> <br>

Password:<input type="password" name="pwd"><br>

@csrf

<button type="submit">Login

</form>

STEP 2:

Web.php

Route::view("signin",'signin');

Route::post("signon",'login@submit'); // Create a Route to get Post data via controller

#### STEP 3:

# Login.php (Controller)

# STEP 4: Profile.blade. Php (View)

<h1>Profile Page</h1>

<h3>Welcome {{session('data')['user']}}</h3> // Displays the Username sent via POST and Session

<br>

<a href="logout">Logout</a> // Clicking Logout removes session and redirects to signin page

#### STEP: 5-1 & 5-2 Web.php

Route::view("profile",'profile');

 If session is not created, then user should not be able to access the profile page directly withoutlogin. So to manage this, go to web.php and put the following code:

```
Route::get('profile', function() {
  if(!session()->has('data'))
  {
    return redirect('signin');
  else
  return view('profile');
});
                      Route::get('/logout', function () {
//LOGOUT
                      session()->forget('data');
                      return redirect('signin');
                     });
```

#### Laravel:

Cookie

- Step 1: First Create a Controller for Cookies. -> cookiecontrol
- Step 2: Now Create 2 Functions to Set and Get Cookies in the Class (Controller)
- Step 3: Create Routes in Web.php for each controller methods of cookies

#### Step 1: cookiecontrol. php

Add following Namespaces in header section of Controller

use Illuminate\Http\Response;

use App\Http\Requests;

use App\Http\Controller\Controllers;

Step 2: create Functions in cookiecontrol. php (Controller)

```
public function setcookie(Request $req)
{
  // How Long Cookie Should Remain in minutes
  $minutes = 5;
  // Response message of the cookie
  $response = new Response('Hello Students');
  //set cookie and its value
  $response->withCookie(cookie('name','Marwadi University',$minutes));
  $$response->withCookie(cookie('address','Rajkot',$minutes));
  // set cookie
  return $response;
}
```

Step 2: create Functions in cookiecontrol. php (Controller)— Continue..

```
public function getcookie(Request $req)
{
  // Retrieve value of name Cookie
  $result = $req->cookie('name');
  // Retrieve value of address Cookie
  $result1 = $req->cookie('address');
  // Print values of Cookies
  echo $result;
  echo $result1;
}
```

Step 3: Creating Routes: web.php

```
// Route for Cookies
// Route for Setting Cookie Value
Route::get('setcookie','cookiecontrol@setcookie');
// Route for Getting Cookie Value
Route::get('getcookie','cookiecontrol@getcookie');
```

#### **THANKYOU**