

# Creating Forum Discussion Website with Laravel

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**Abstract**—In this era of Information Technology, internet has become a big part of our lives and so do website. There are many popular websites nowadays. A great website is created using a great development tools. One of the best web development tools is Laravel. Laravel is a backend web framework that provide us many features. It is a simple and easy to use website but still powerful enough to make a great site. In this paper, the author will make a simple forum discussion website with laravel framework and implements most of the basic features laravel has.

**Keywords**—website; backend; framework; laravel;

## I. INTRODUCTION

Information Technology has been continuously evolved. Many new companies have been successful in their business because of information technology. One of their key is having a good website that makes customer satisfied and get a good user experience.

Nowadays, many tools have been made to support people in making a good website. One of those best tools is Laravel. Laravel is a powerful MVC (Model-View-Controller) PHP backend framework. According to hotframeworks.com, Laravel has been in top 10 of the most popular web framework since 2014 and the best backend PHP framework. Laravel gives us many features to be implemented and offers a robust set of tools and an application architecture but still simple and elegant to used.

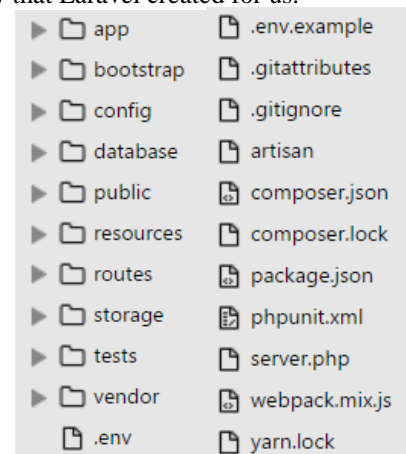
In this paper, the writer will discuss about the basic of laravel, i.e. structure and some important features that laravel provides. Laravel offers modularity, testability, routing, configuration management, query builder and ORM (Object Relational Mapper), schema builder, migrations, seeding, template engine, e-mailing, authentication, redies, queues, even and command bus. Then, the writer will also implement Laravel to make a forum discussion website. The writer will use Laravel version 5.4.

## II. FUNDAMENTAL CONCEPTS

### A. Structure of Laravel

Laravel is a MVC backend framework with bundles, migrations, and artisan. Artisan is the command-line interface

included with Laravel that provides many helpful commands to support us to build our application. Here are the structure of root directory that Laravel created for us.



**Figure 1. Laravel's Directory Structure**

To manage requests from the application, Laravel use routing to route the request to an appropriate controller. Routing can be managed in 'routes/web.php'. Then, the controller is responsible in directing traffic between database's datas and Views. Controllers can be managed in 'app\Http\Controllers'.

Laravel currently supports four types of databases, i.e. MySQL, PostgreSQL, SQLite, and SQL Server. The database configuration for the application can be managed in 'database' directory. Laravel makes interacting with databases become easier as we can choose to use raw SQL, Laravel query builder, or using Eloquent ORM (Object Relational Mapping). Laravel's database query builder provides an easier way to create and run database queries. It can perform most of the database operations and works on all supported database systems. The query builder also uses PDO (PHP Data Object) parameter binding to prevent the application from attacks such as SQL injection. PDO uses prepared statements, that allow us to securely pass any parameters without having to escape and sanitize them. The Eloquent ORM uses Model which is used to interact with the tables in the database. Each database's table has a corresponding Model. We can query the data in our

Models and call the Model when we want to use a specific table. The Models can be managed in 'app' directory.

Laravel provides database version control using migration feature. It allows the team project to modify the database schema and stay up to date on the current schema state. Migrations use schema builder to manage the application's schema. Laravel also includes to seed the database with test data using seed classes. Database migration and seeding can be managed in 'database' directory.

View is used to managed the presentation logic of the application. In Laravel, Views are stored in 'resources/views' directory. Laravel's Views support blade templates. Blade is a simple and powerful templating engine provided by Laravel. View with blade templates use '.blade.php' file extension. The main advantage of using blade is we can make template inheritance using @extends, @yield, @section, @parent, and @show command. This feature allow us to extend a master template with an individual pages. Blade also supports some common commands for loops and conditions such as @for, @foreach, @while, @if, and @elseif.

Middleware that can be managed in 'App\Http\Middleware' directory is used to perform action between request and response. Middleware is used for filtering mechanism. The most common use of middleware is for authentication. If the user is authenticated, he can access the page, otherwise he will be redirected to the login page.

### B. Important Features

The most common function that we implement while making a website is CRUD (Create-Read-Update-Delete). Laravel provides some methods for us to make a CRUD action easier. We create the resourceful controller using '—resource' extension while creating it via artisan CLI. The controller will contain a method for each of the available resource operations. While routing, we can just use one line of code instead of seven. We use 'resource' method to replace index, create, store, show, edit, update, and destroy actions. The 'resource' method creates multiple routes to handle some actions related to CRUD. Here are the actions handled by resource controller.

Verb	URI	Action	Route Name
GET	/photos	index	photos.index
GET	/photos/create	create	photos.create
POST	/photos	store	photos.store
GET	/photos/{photo}	show	photos.show
GET	/photos/{photo}/edit	edit	photos.edit
PUT/PATCH	/photos/{photo}	update	photos.update
DELETE	/photos/{photo}	destroy	photos.destroy

Figure 2. Actions Handheld by Resource Controller

One of the important aspect in designing web application is security. It assures the users that their data remains safe and secured. There are some Laravel features that support security. For storing password, we can use laravel class called 'Hash' which provides secure Bcrypt hashing. For authenticating users, we can use 'Auth::attempt' method which is more secured and easier to use. For protection from CSRF (Cross-site Request Forgery) attacks, we can use double-brace syntax ({{ \$value }}) in our Blade templates, and only use the {!! \$value !!} syntax if we are certain that the data is safe to display in its raw format. For protection from SQL injection attacks that target the weakness of SQL query, we can use query builder and Eloquent ORM instead of raw SQL query.

### III. IMPLEMENTATION

To apply what the author has learned about Laravel, the author will make simple forum discussion website. The author started by setting up the database configuration of the Laravel. Then the author created users, forums, replies, and likes table using laravel migration function. The author also created 'header.blade.php' file that will be the master template of all other files so that all files will have the same header.

#### A. Users Management

To manage users, the author created UsersController, User model, register page, login page, show profile page, and edit profile page. The author also created middleware for authentication.

- Register

The registration form consists of name, username, email address, password, and confirm password input fields. The username and email address fields must be unique. The password and confirm password fields must be same. The form is being protected using 'csrf\_field()' method. Before the registration data been stored in the database, the password will be hashed first using Bcrypt hashing method provided by Laravel. To store the data to database, the author use save method from eloquent.

- Login

The login form consists of username and password input fields. The form is being protected using 'csrf\_field()' method. To check if the username and the hashed password exist in the database, the author used 'Auth::attempt' method. The author used eloquent method to get data from database.

- Logout

Log out method is used to log out from the website. The log out process is being protected using 'csrf\_field()' method.

- Show User Profile

Show profile page used to see user's own profile or other's profile. This page can only be accessed by the authenticated user. The author used eloquent method to get data from database.

- *Edit Profile*

Edit profile page is used to edit user's own profile. This page can only be accessed by the authenticated user. The author used eloquent method to get data and save data to the database. The form is being protected using 'csrf\_field()' method.

### B. Forums Management

To manage forums, the author created ForumsController that extends resource, Forum model, Reply model, Like model, show list forum page, create forum page, edit forum page, and forum detail page.

- *Show List Forum*

Show list forum page is an implementation of index action in resourceful controller. For each forum, the page will show the data about title, content, created by, and created at. The author used query builder to get the data from the database. This page also provides button to create, edit, or delete the forum. The button only will be shown if the user is authenticated.

- *Create Forum*

Create forum page is an implementation of create action and create forum function is an implementation of store action in resourceful controller. The create form consists of title and content. The create function stores the data to database using eloquent save method. The form is being protected using 'csrf\_field()' method.

- *Edit Forum*

Edit forum page is an implementation of edit action and edit forum function is an implementation of update action in resourceful controller. The form is being protected using 'csrf\_field()' method. The author used eloquent find method to get forum data and eloquent save method to store the data to database.

- *Delete Forum*

Delete forum page is an implementation of destroy action in resourceful controller. The author deleted the data using eloquent delete method. The delete forum processed is being protected using 'csrf\_field()' method.

- *Show Forum Detail*

Show forum detail is an implementation of show action in resourceful controller. The author got the data using eloquent find method. This page also provides the user button to comment and like the forum. The button will only be shown if the user is authenticated.

- *Comment Forum*

This function used by user to comment certain forum. Only user that is already authenticated can comment. The author stored the data to database using eloquent save method. The form is being protected using 'csrf\_field()' method.

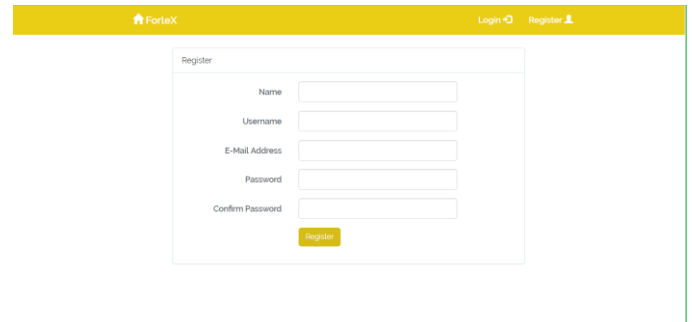
- *Like Forum*

This function is used to liked certain forum. Only user that is already authenticated can like or unlike. The author checked if the user already liked the forum using query builder. To implement like and unlike, the author use eloquent save and delete method. The like and unlike processed is being protected using 'csrf\_field()' method.

## IV. LOOKS OF THE WEBSITE

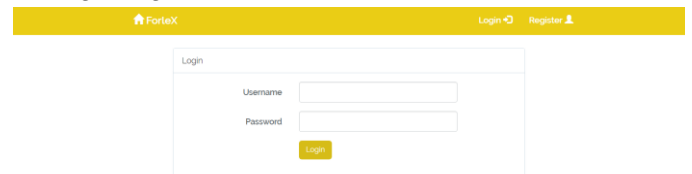
Here are the screenshot of the project.

### A. Register Page



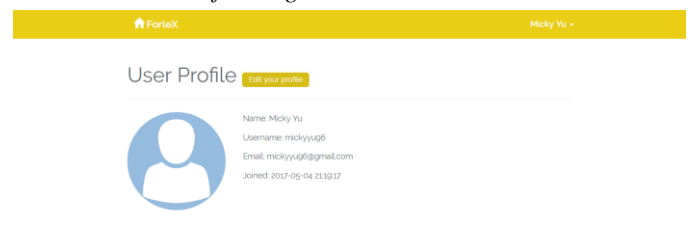
**Figure 3. Register Page**

### B. Login Page



**Figure 4. Login Page**

### C. Show User Profile Page



**Figure 5. Show User Profile Page**

#### D. List Forum Page

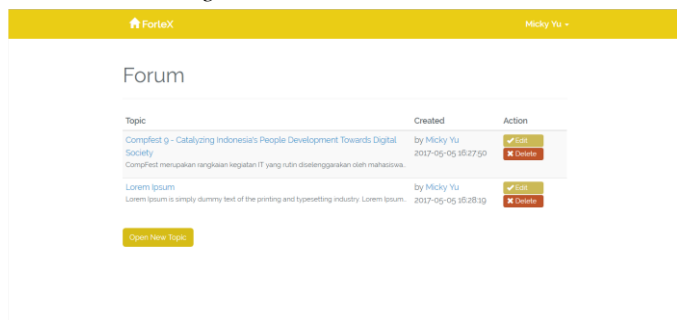


Figure 6. List Forum Page

#### E. Create Forum Page

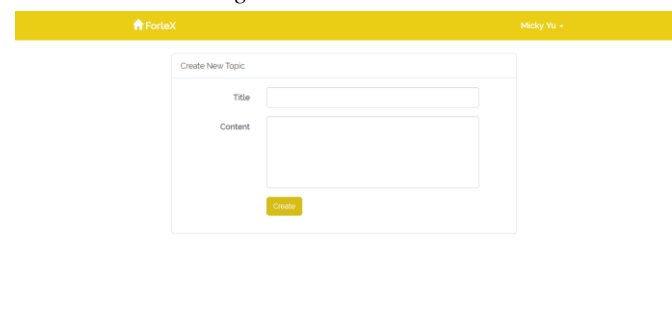


Figure 7. Create Forum Page

#### F. Show Forum Detail Page



Figure 8. Show Forum Detail Page

#### V. CONCLUSION

Laravel is one of the best backend framework nowadays. It uses a commonly used design pattern namely MVC (Model-View-Controller) and commonly used programming language namely PHP. It also provides many features that will help us in making website faster and easier. It also has many bundles of libraries.

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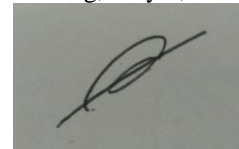
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#### STATEMENT

With this, I state that this paper is my own creation, not taken, not translated from another person's paper, and not a plagiarism.

Bandung, May 5, 2017



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