

Science and Technology for Community: Improving Web Programming Skills using Laravel Framework

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ABSTRACT

The essence of technology is to help human work become easier, cost effective, save time more efficiently and on target. The use of technology that is studded with innovation provides real changes in every activity, including in the world of education. Even in some countries such as Australia and Hong Kong, technology has been introduced through basic programming since the age of 3 years. In Indonesia in 2016 the Minister of Communication and Information, Rudiantara, has discussed programming so that it is included in the elementary school curriculum. The introduction of technology at the elementary school level aims to prepare young people who are ready to face technology in the industrial era 4.0. This service activity is carried out in order to improve web programming capabilities using the Laravel framework. The hope is that by providing the ability to program using the Laravel framework, it can support academic education and increase employment opportunities with more capabilities.

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1. Introduction

Web technology is familiar to all levels of society wherever they are. So that Web technology has had the effect of changing communication patterns and business on companies with consumers. It is important for company employees to be familiar with Web design based on the facts mentioned above. The website is one of the main features of the internet, which is a medium for disseminating information, a medium for online interaction and a medium for sharing information in real time. Information on the website can be presented in the form of multimedia (text, graphics, images, sound, and video), making it easier for the accesser to understand the information conveyed. Job opportunities in the internet sector are still very wide open. The internet industry is experiencing an amazing development. The need for Web Development and Web Designer personnel is very much needed. The development of the internet has also had a positive



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impact on business progress in all fields, one of which is due to the ever-expanding internet network.

The need for web design is prevalent and global. That is because the times are increasingly advanced and modern so that everything can be achieved instantly including the required information that can be informed through a website network. Therefore it is very important that there is web design and programming training that will help and make it easier to hone skills to be even more skilled in web design so that any information or appeals on the website can be presented appropriately and attractively.

University is an upper level education equipped with the ability to enter the world of work. Web programming for students is considered very relevant to improve competence in the field of information technology. With this training, students are able to have more opportunities to face the world of work with a high level of competition in the field of web technology. The Laravel framework was chosen as the training material because it was considered to have advantages compared to other popular frameworks such as Code Igniter (CI) in terms of execution time (Das, Ripunjit, and Lakshmi Prasad Saikia, 2016). The comparison of the CI and Laravel execution times can be seen in Figure 1.

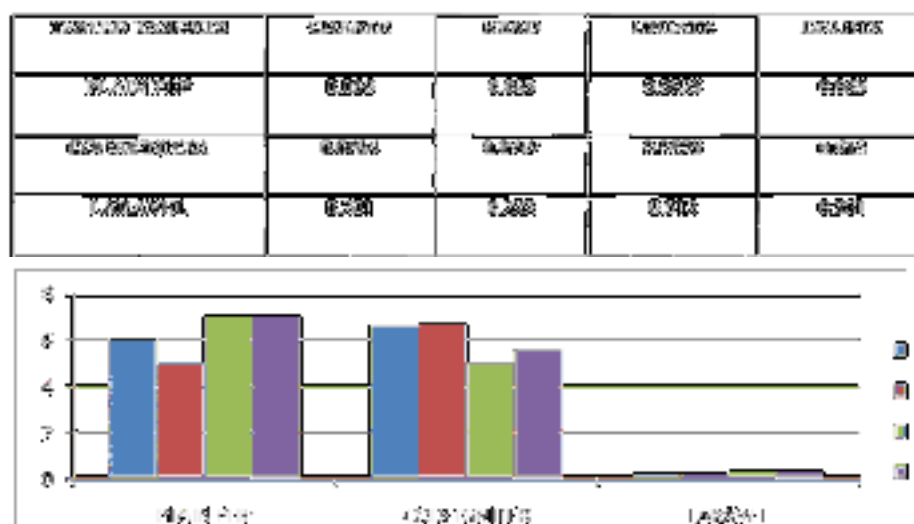


Fig 1. Comparison of execution time (seconds) between Plain PHP, CI and Laravel

2. Implementation and Methods

1. Lecture and Question and Answer method

This method is done in a way where the trainer explains the concept of the material to be discussed to the training participants. Then if there are those who still don't understand, a question and answer session is held, so participants can ask questions that are not understood regarding the material then the trainer will answer by explaining it to the participants.

2. Demonstration Methods and Examples (practice)

A demonstration shows and plans how a job or how something is done. This method involves breaking down and acting out things through examples. This method is very effective, because it is easier to show participants how to do a task, because it is combined with learning aids such as: pictures, text material, discussions or in other words practicing the material that has been taught.

Table 1. Training Materials

Session	Materi Pelatihan
Module 1	Composer, Routing MVC
Module 2	CRUD Laravel
Module 3	Table Relation in Laravel
Module 4	Authentication and Authorization

3. Results and Discussion

The activity was carried out according to schedule on Tuesday, June 25 2019 at 08.00 and ended at 16.00 WIB in the informatics engineering laboratory room. This activity was guided by 2 presenters and followed by all participants.



Fig 2. The first training material, introduction to the Laravel Framework to participants



Fig 3. Create, Read, Update, Delete training materials

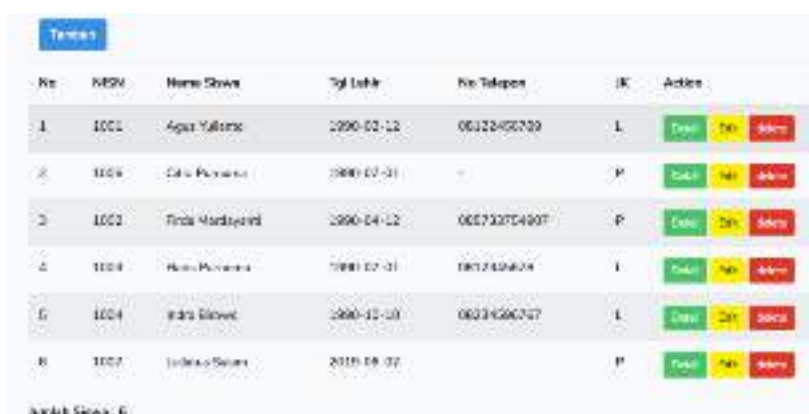


Fig 4. Documentation of activities after the training ends

Material First, participants were introduced to the use of composer and MVC routing. Composer is an open source project driven by Nils Adermann and Jordi Boggiano. This composer project hosted on Github was recorded since April 3, 2011 and is still active today. (Aminudin, 2015). Composer is also known as dependency management, meaning that by using composer developers can install a library through composer and composer will automatically install other libraries needed, without the need to download one by one (Ren et. Al, 2015). Similar to apt get install on the Linux operating system, npm is built into NodeJs and Bundler in Ruby. Meanwhile, for routing it is introduced with 5 types of verbs in Laravel, namely Get: Used to request resources from the server. Post: Used to store resources to the server. Put: Used to update resources to the server. Patch: Used to update resources to the server. Delete: Used to delete resources on the server (Chen et. Al, 2017).

The material for the two participants was taught about the concept of Create, Read, Update, Delete (CRUD) in Laravel. By using the Resource Controller feature, the CRUD creation will be faster.

The material for the three participants was taught about database concepts and implementation. The basic concept includes one-to-one, one-to-many, many-to-many. Meanwhile, the implementation uses the Migration feature.



No	NISN	Nama Siswa	Tgl Lahir	No. Telepon	JK	Aktive
1	1001	Agus Yulianto	1990-02-12	08122405700	L	Detail Ubah Hapus
2	1002	Chika Purwanita	1990-07-21	-	P	Detail Ubah Hapus
3	1003	Firda Mardiyanti	1990-04-12	082733704907	P	Detail Ubah Hapus
4	1004	Hana Purwanita	1990-07-21	1817404004	L	Detail Ubah Hapus
5	1004	Edris Silwan	1990-12-10	08231656707	L	Detail Ubah Hapus
6	1007	Yuliana Saiani	2010-08-07		P	Detail Ubah Hapus

Jumlah Siswa: 6

Fig 5. One of the results of CRUD implementation

The fourth material is related to authentication in training using the operator, administrator and guest authentication scenario. In an application, there are usually several pages that can only be accessed by certain users, therefore this training teaches

how to use authentication in Laravel using the php artisan make: auth command. With this command, Laravel will automatically provide files that can be used for registration, login and there is even a feature to reset passwords.

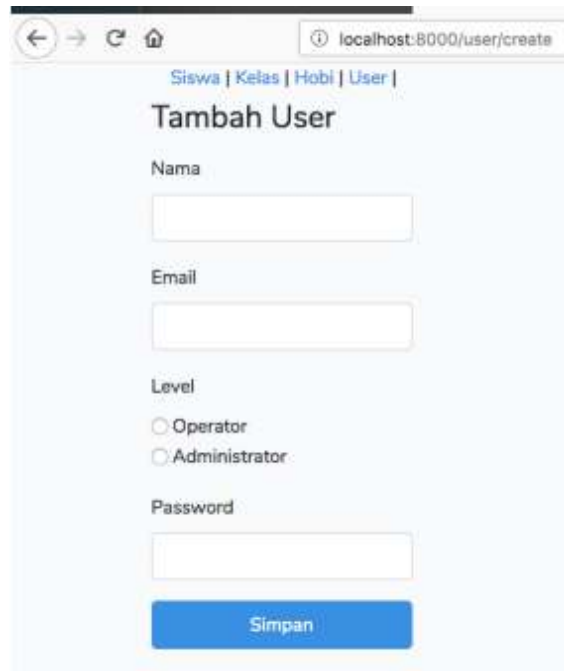
The image shows a web browser window displaying a user registration form. The browser's address bar shows 'localhost:8000/user/create'. The page has a light blue header with navigation links: 'Siswa | Kelas | Hobi | User |'. The main heading is 'Tambah User'. Below the heading are four input fields: 'Nama' (text), 'Email' (text), 'Level' (radio buttons for 'Operator' and 'Administrator'), and 'Password' (text). At the bottom of the form is a blue button labeled 'Simpan'.

Fig 6. User registration and authentication form

The success of this training is measured by the participants' achievement in doing the assignments in each of the 4 modules given. Of the 20 participants who took part in the training 19 participants were able to work on time while 1 participant only worked up to the 3rd module due to time constraints. In each module there is a tutorial for participants to understand the material step by step, then at the end of the module they are given the task of implementing what has been taught.

4. Conclusion

This community service activity is an activity agenda that is routinely carried out once a year by providing benefits and transferring knowledge and technology to the community. This activity was facilitated by the Universitas Muhammadiyah Malang (UMM) and the UMM Informatics Laboratory.

This activity has a positive impact on participants in improving their web programming skills using the Laravel framework to develop the web faster than without a framework. Based on testimonies from participants, the adaptation of other frameworks such as Code Igniter (CI) to the Laravel framework is easier to understand and has easy-to-learn features.

4.1 Suggestion

The suggestion for the next training activity is that the training time should be made longer, not just one day. With a longer time, it is expected that the material provided will be more detailed and more time for exploration with the features offered by the Laravel framework.

Acknowledgements

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