

# Build Software of Information Management Community Service Events

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**Keywords:** Community Service, Event Management, Framework, Website, PHP.

**Abstract:** AbdimasFIT is a website that used to manage community service data at the Faculty of Information Technology (FIT) at Universitas Kristen Maranatha, Bandung. Not only collecting data on community service, but also seeing reports on community service activities. In this report feature, users are expected to be able to summarize the data on community service activities, so that they can help FIT in solving problems around community service. These problems can be in the form of speakers who should be invited, what topics are most frequently held, who are lecturers who often contribute to community service activities, the number of activities per period, what activities are involved if many users are involved, and so on. Web-based applications that are made generally based on Laravel. Laravel is one of the many PHP frameworks. This web-based application has been activated on the server so that it can be accessed online from anywhere and anytime. AbdimasFIT will be tested by several testers and blackbox testing will be carried out to see if there are still some errors on the AbdimasFIT website. The final result of AbdimasFIT, namely AbdimasFIT can facilitate the Faculty of Information Technology in solving problems regarding community service activities.

## 1 INTRODUCTION

Faculty of Information Technology often holds community service activities. Community service that is usually held is such as seminars, training, social services. Community service activities are carried out by many people, at different times, different people, and on different topics so that there will be a lot of data that should be stored also managed (Mukti et al., 2018).


Data storage from an event such as community service is usually done manually or digitally. Usually, if it had done manually, the data is stored by writing it down on a piece of paper or in a book. Usually, these community service data are digitally stored through Microsoft Office Word, or Microsoft Office Excel.


Data storage methods such as writing in a book, a piece of paper, or entering data through Microsoft Office Word or Microsoft Office Excel have several shortcomings, namely the possibility of losing the data if it is not stored properly, so that the recording becomes useless. Publication of these data is also

complicated, if you want to disseminate the data obtained for purposes such as considering a speaker at a seminar, it will be complicated to juxtapose all duplicate and irregular data, it is difficult to duplicate it assuming the copier can be unclear in duplicating or archive Microsoft Office Word or Microsoft Office Excel which can be corrupt.

Data management will also be complicated if the data held are incomplete, scattered, corrupt, and come from various sources. So that making decisions becomes very complicated and may become irrelevant to what is needed, such as what activities are more desirable, who should take part in community service activities, what topics are of more interest, and other things that must be considered. Therefore, we need a system or application that allows to overcome these things, especially for reporting, informative web that has a dashboard that contains summary of the important data such as total of the activities from each study program, events that coming soon, events that coming today, and so on.

A website is a set of pages connected to the internet that are created with various purposes and

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can be used by the creator for a purpose and can be accessed by all or some users who have internet networks. By creating an application based on a website, this application can be reached anywhere and anytime as long there is an internet network. Data management will also be easy because the data is easily accessed so that it will increase the performance of existing data management.

Decisions made regarding community service activities will also be more precise and better, thanks to the report feature on the website. The report feature contains data such as what activities have taken place per period, what activities have been carried out by each study program, who is involved in an activity, and so on. With all data located in one place, data management will also be good and right on target, especially it will be more useful for study programs or the Faculty of Information Technology in general to make decisions.

The role of the dashboard page is also important because it will make it easier for users who access the AbdimasFIT website to get information faster than having to open it from other pages. The dashboard page is important because the first page web users will see is the dashboard, which is the page that appears after logging in. There is data that contains summaries such as a list of activities that will take place, activities that have taken place, the number of certificates held, the number of activities that are participated in, news on the AbdimasFIT website, etc. that are needed by users who access the AbdimasFIT website.

## 2 SYSTEM DESIGN AND DEVELOPMENT

### 2.1 System Overview

Figure 1 as shown below is the entity relationship diagram of the AbdimasFIT website. Figure 2 is the use case diagram of AbdimasFIT website.

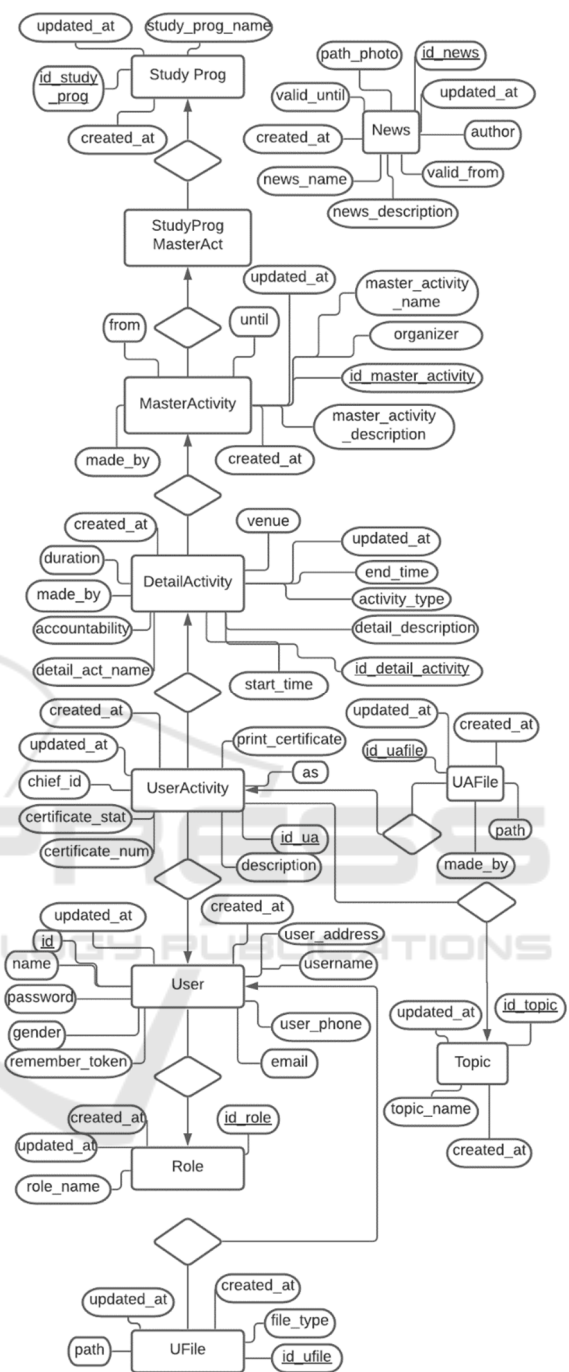


Figure 1: Entity Relationship Diagram AbdimasFIT.

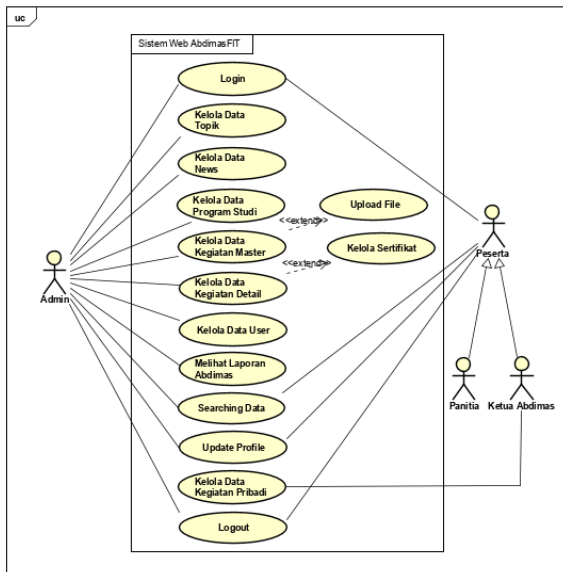


Figure 2: Use Case Diagram AbdimasFIT.

AbdimasFIT is a web-based application that used to store and manage existing data on Community Service. AbdimasFIT has features such as adding, deleting, and changing activity data, certificates, users, and topics. Shown in figures 1 AbdimasFIT’s entity relationship diagram. There is 12 entities on AbdimasFIT website system, consisting of Prodi (uses to store the study programs), ProdiKegiatanM (Study Program and Master Activities many-to-many relation), KegiatanMaster (uses to store the Master Activity), KegiatanDetail (uses to store the Detailed Activities), KegiatanUser (Detail Activity and Users many-to-many relation), Sertifikat (uses to store certificates), News (uses to store the news), UFile (uses to store the users files), KFile (UAFfile in English, uses to store the activities files), Topik (uses to store activity’s topics), Users (uses to store users), and Role (uses to store user’s role). There are 4 types of users, *admin*, *ketua abdimas* (head of the community dedication activity), *peserta* (participant), and *panitia* (committee), as seen in Figure 2 Use Case for the AbdimasFIT Website System that the Admin, *ketua abdimas* (head of the community dedication activity), *peserta* (participant), and *panitia* (committee) can both login, logout, view reports community services, searching data, and updating profiles. Admin can manage topic data, news, users, *kegiatan* detail (detailed activity), *kegiatan* master (master activity), *program studi* (study program), and certificates. The Head of Community Service and the committee can manage personal data.

### 2.1.1 User Role Matrix

Shown in Table 1 below user role matrix for each type of users. Admin has full access for all the circumstances, all user can search data, see dashboard content, see report data, see news data, see user data, and see activity detail data. In addition, *Ketua Abdimas* can add master activity and detail data, add certificate data, change activity detail data, delete activity detail data, and see certain certificate.

Table 1: User Role Matrix.

Description	Admin	Ketua Abdimas	Panitia	Peserta
Searching Data	V	V	V	V
See Dashboard	V	V	V	V
Add News Data	V			
Add Topic Data	V			
Add User Data	V			
Add Study Program Data	V			
Add Master Activity Data	V	V		
Add Detail Activity Data	V	V		
Add Certificate Data	V	V		
Change News Data	V			
Change Topic Data	V			
Change User Data	V			
Change Study Program Data	V			
Change Master Activity Data	V			
Change Detail Activity Data	V	V		
Delete News Data	V			
Delete Topic Data	V			
Delete User Data	V			
Delete Study Program Data	V			
Delete Master Activity Data	V			
Delete Detail Activity Data	V	V		
Delete Certificate Data	V			
See Report Data	V	V	V	V
See News Data	V	V	V	V
See User Data	V	V	V	V
See Detail Activity Data	V	V	V	V
See All Certificate Data	V			
See Certain Certificate	V	V		

### 2.1.3 Eloquent ORM

Eloquent ORM is a feature provided by Laravel that functions to manage data in the database so that it is easier to manage. "all ()" only (Juniawan & Sylfania, 2017). Eloquent is very practical and shortens the time to write code with maximum results and is not inferior to writing SQL queries.

### 2.1.4 MVC (Model-View-Controller)

MVC, which stands for Model-View-Controller, is a term or concept that is often used when creating an application or web, where the creation of an application or web is divided into 3 main parts, namely as a model, view, and controller. According to Nurul Huda, MVC which is divided into models, views, and controllers has their respective duties and responsibilities. The model is responsible for organizing, manipulating, preparing, and organizing data originating from the database in accordance with the commands given from the controller. View aims to present information that can be understood by the user in accordance with the commands given by the controller. Controllers have the task of controlling what models and views should do (Huda, 2017).

### 2.1.5 Laravel Framework

Laravel is one of the PHP frameworks which has the MVC (Model-View-Controller) concept in the PHP language which is used in website creation and is designed with a clear and time-saving syntax. Laravel has features, namely Eloquent ORM, Bundles, Application Logic, Reverse Routing, Class Auto Loading, Restful Controllers, View Composer, IoC Container, Migration, Unit Testing, and Automatic Pagination. Bundles is a feature that has a modular packaging system (Hadi, 2020). According to CloudHost (2016), Eloquent ORM is an advanced PHP usage that provides an internal method of an "active record" pattern that resolves relation problems to objects in the Application Logic database that are part of the application and use a controller or Route part; Reverse Routing is a relation between Route and Link Restful controllers which aims to separate HTTP GET and POST logic. Auto Loading class provides automatic load on classes in PHP; The View Composer is a logical unit code that executes while the View is loading the IoC Container creating a new object generated with a Controller return; Migration is a feature that provides system control to the schema in the Unit Testing database, namely a feature that performs multiple tests to detect and prevent regressions; Automatic Pagination aims to make the

task of implementing pages on the website simpler (Filiana et al., 2020). Laravel also has the name Blade. Blade is the default templating engine that comes from Laravel. Blade has a file extension ".blade.php" which can be seen from the file extension that the blade is still PHP like Laravel which is a PHP framework. Blade can contain HTML, PHP, Javascript, if, else, foreach, yield, section, include, and so on. Writing if, else, foreach, yield, section, include, and other commands are easy because they can be entered anywhere, for example in HTML view we need foreach, so just add the command "@foreach ....." in the place will we foreach, and there is no need to write it like "<? php foreach .....?>". The foreach end tag also only needs to add "@endforeach" which looks more recognizable and conspicuous than the close brace which is sometimes overlooked if not careful. There is also no need for a semicolon at the end of sentences which reduces the risk of errors due to forgetting the semicolon.

### 2.1.6 CPanel

CPanel is a Linux based control panel that is usually used by web hosting accounts. By using CPanel, website management is easy and is only done in one place so that it will be easy to do many things in the same place. CPanel also allows users to monitor, create subdomains, and install the software needed for the website to be created.

### 2.1.7 Dashboard

Dashboard is a User Interface (UI) that displays data visualizations in an application or web, which is depicted with graphs, curves, numbers, or other data visualizations. The purpose of the dashboard is to make it easier for users to make clearer, more precise, faster, and more stable decisions. According to the dashboard, it can also solve data visualization problems (Tamaza & Cahyono, 2021). Compared to having to search for data on different pages, all the data that a user needs will be collected on the spot, on the dashboard. In displaying data on the dashboard, it is also expected not to present too much or excessive data because it will make users confused and difficult because the data displayed is too much or complex.

### 2.1.8 PHP (Hypertext Preprocessor)

PHP, which stands for Hypertext Preprocessor, is a programming language used in web development and can usually be used in conjunction with HTML or a framework. According to Yasin (2019), writing PHP



code will make it easier and simpler so that it can simplify the documentation process (Yasin, 2019). According to Natalya Prokofyeva and Victoria Boltunova (2017), PHP is a popular and widely used programming language, used by 81.7% of all websites in all server-side programming languages, therefore there is a lot of documentation about PHP. In PHP, the syntax will begin with "<? php" and will end with ">" (Prokofyeva & Boltunova, 2017). PHP files are saved as ".php" extension.

### 2.1.9 Similar Research of Community Service Events

In the research done by the author, of course there are also journals that have some similarities. Journals that have similarities with the topic being researched by the author are used so that they can become a reference for research that is being carried out by the author.

*Desain dan Implementasi Aplikasi Pendataan Pengabdian Dosen Pada Lembaga Penelitian dan Pengabdian Masyarakat Berbasis Web:* The journal written by Fransiskus Panca Juniawan and Dwi Yuny Sylfania (2017) discusses web-based lecturer community service data collection applications (Juniawan & Sylfania, 2017). The language used is PHP. Users in the lecturer community service data collection application are admins and users. The pages in this application are the login page, the main menu, the service menu page which functions to enter the final service report data at STMIK Atma Luhur Pangkal Pinang, search pages, and search results pages. The advantage of this application is a very simple display that makes it easy to add data and view data. The weakness that the author sees from this application is that the displayed dashboard is not informative and does not have information that can be obtained by web visitors.

*Analisis dan Perancangan Aplikasi Sistem Informasi Penelitian dan Pengabdian Masyarakat LPPM STT Terpadu Nurul Fikri:* The journal created by Desi Ratnasari and Hilmy Abidzar Tawakal (2017) discusses the web application for the management of LPPM (Institute for Research and Community Service) research and community service activities (Ratnasari & Tawakal, 2017). The programming language used is the Yii2 Framework. The page provided is a login page, home page, research page, dedication page, submission form page, member content form page, validation form page. It is not explained in the journal what users are there, and it is assumed that there is only one type of user with full access. The way to add the data presented is in the

form of a wizard or what Desi Ratnasari and Hilmy Abidzar Tawakal (2017) call it as a step. This stage consists of submission, member content, ratification, validation, BHP, and budgeting. The journal does not convey what the meaning of BHP is, so the author does not know what BHP is intended for. The drawback of this application is that a menu called BHP is not something common so that users may not understand what the BHP menu is, entering data without a save and exit button makes the user have to enter at once and must be sure what is filled in is final. The advantage of this application is that entering data using the step method or the wizard makes it easier for users to enter data in one cycle only, feels as simple as the application made by Fransiskus Panca Juniawan and Dwi Yuny Sylfania (2017), only with the difference in the amount of data entered, stored and displayed.

*Perancangan Data Warehouse Perguruan Tinggi untuk Kinerja Penelitian dan Pengabdian kepada Masyarakat:* A journal written by Agata Filiana, Andhika Galuh Prabawati, Maria Nila Anggia Rini, Gloria Virginia, and Budi Susanto (2020) discussing the design of a college-centered data warehouse for the performance of research and community service, more specifically about research and PkM (Community Service) lecturers (Filiana et al., 2020). The data design made using the snowflake scheme, Data requirements needed by Agata Filiana, Andhika Galuh Prabawati, Maria Nila Anggia Rini, Gloria Virginia, and Budi Susanto (2020) are the amount of research funds for each DTSP (Lecturer assigned to the Study Program) per semester year, the amount research funding from internal sources of each DTSP per semester year, the amount of research funding from external sources of each DTSP per semester year, the average research funding per semester, the average research funding from internal sources per semester, the average research funding from external sources per semester year, number of DTSP involved in research per semester year, number of DTSP involved in PkM per semester year, number of partners involved in research, and number of partners involved in PkM. The data design is able to meet the needs needed to see the performance of research data and PkM from higher education. The drawback of designing a college data warehouse for research performance and PkM is that if you add the calculation of the number of active DTSP in the specified academic year, it might be better and more clearly visible regarding the presentation of the activeness of lecturers who carry out research and PkM. The advantage is that because it only discusses the data design, the data provided, and the

explanation is very detailed and more planned than the journals of Fransiskus Panca Juniawan and Dwi Yuny Sylfania (2017). The difference between this journal and the two journals above is that this journal only discusses the design of a data warehouse, while the two journals above also explain their web-based applications.

### 3 RESULTS AND DISCUSSION

#### 3.1 Dashboard View

The dashboard page shown in Figure 3a & 3b is a display that will appear for all types of users (Admin, Head of Community Service, Committee, Participants) it's just that the admin display has a slight difference in the number of certificates and the number of activities followed to the total number of certificates and all activities, then for the whole display is where a slider will be displayed displaying news, the number of certificates and links to certificates owned by the user, the number of activities followed and links to what activities were followed, today's activities, activities this month, activities that will take place. The appearance of the slider on the dashboard can be adjusted by the admin on the news page.

The dashboard is made to follow if the user will need any data so that it can produce an informative and useful dashboard for the user. The number of user certificates is displayed because it is assumed that users who enter the AbdimasFIT website will check the certificate and plan to see the certificate. The consideration in the display of the number of activities that is followed is that the user who enters this website wants to see what activities he has participated in. The consideration regarding today's activity display, this month's activity, and the activities that will take place is that the user wants to see what activities are on this day, this month, and what will take place, so that they can remember what activities are on this day or month this or the future.

This month's news display and all news is assumed that the user wants to see any news this month as well as all the news if he wants to see what has been missed or will come. The number of activities per study program is also assumed to see the study programs with the number of activities they have and what study programs often work with the Faculty of Information Technology. Then for the average participant per activity it is assumed that if you can make a target in an activity, it usually has how many people been involved per activity.

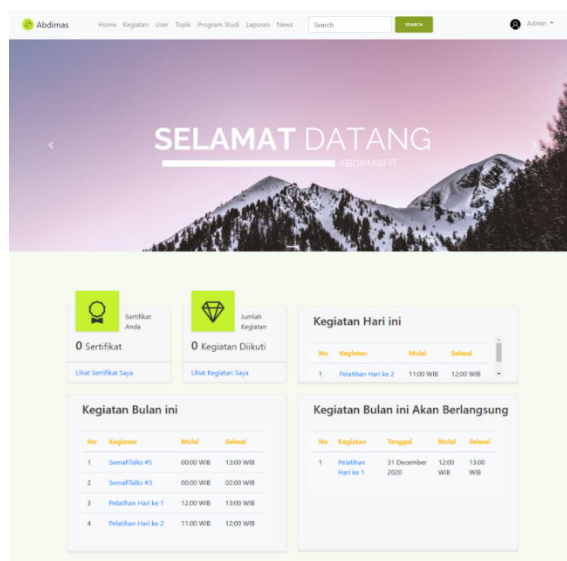


Figure 3a: Dashboard AbdimasFIT (top).



Figure 3b: Dashboard AbdimasFIT (bottom).

#### 3.2 Laporan View

The report page shown in Figure 4, Figure 5, Figure 6 is a report page that looks the same for each user role. The purpose of the report page is to display data normally required for faculty or study programs to reach decisions related to community service activities. Apart from just being viewed, reports can also be exported as Excel files. Report restrictions vary, some are limited by the period (including the start time to the finish time), some are limited by selecting study programs, some are limited by entering the desired activities. As seen on Program Code 1, the query that shown there is used for showing data in figure 5,

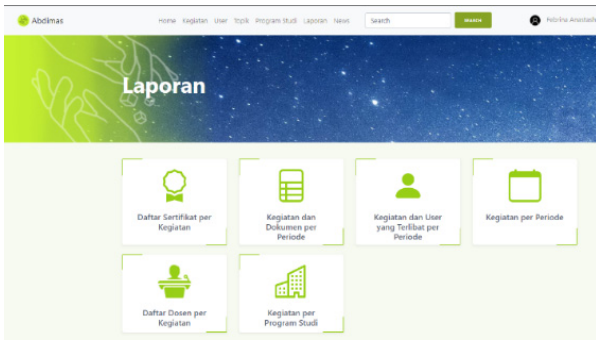


Figure 4: Laporan View.

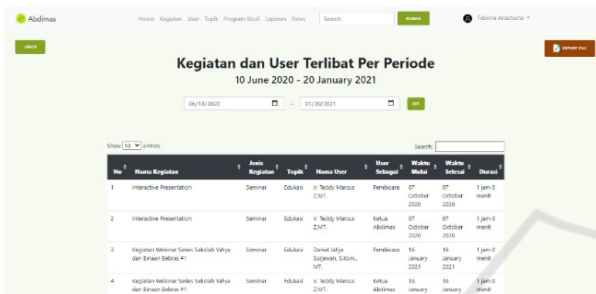


Figure 5: "Kegiatan dan User Terlibat" per Periode View.

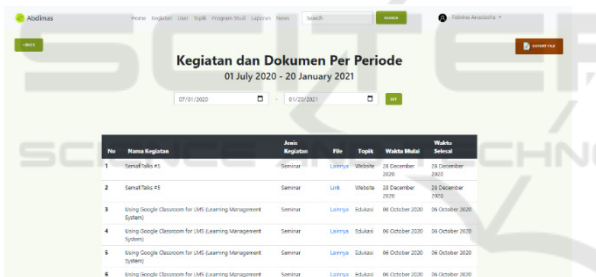


Figure 6: Kegiatan dan Dokumen per Periode View.

```

1. $kegUserTerlibatPerPeriode =
   DetailActivity::join
2. ('table_user_activity'
3. , 'table_detail_activity.id_detail_a
   ctivity', 'table_user_activity.detai
   l_activity_id')->join
4. ('users',
5. 'table_user_activity.user_id'
6. , 'users.id')->join
7. ('table_topic'
8. , 'table_detail_activity.topic_id', '
   table_topic.id_topic')
9. ->whereBetween
10. ('table_detail_activity.start_time'
    , [$start_time, $end_time])
11. ->orWhereBetween
12. ('table_detail_activity

```

```

13. .end_time', [$start_time,
    $end_time])
14. ->orderBy
15. ('table_detail_activity
16. .detail_activity_name', 'asc')
17. ->get();

```

Program Code: 1 Sum of Detail Activity Per Study Program.

### 3.3 Topik View

The topic page seen in Figure 7 is a topic page that is visible to logged in users other than admin, while display of the topic page for users who log in with an admin account won't show the create button. This topic page is used to manage topic data, as well as see what activity data a topic has, examples: Website, Pola Desain Perangkat Lunak, IoT, Edukasi, etc.

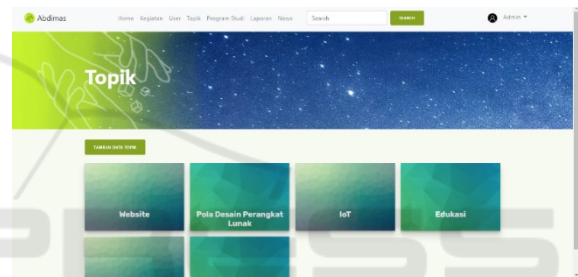


Figure 7: Topik View.

### 3.4 News View

The news page seen in Figure 8 is the page that appears if the user has a role other than admin, the difference is that the admin has an add news button. Apart from Admin the add news button will not appear. Figure 9 is a detailed news page from admin and Figure 10 is a detailed news page from users other than admin.

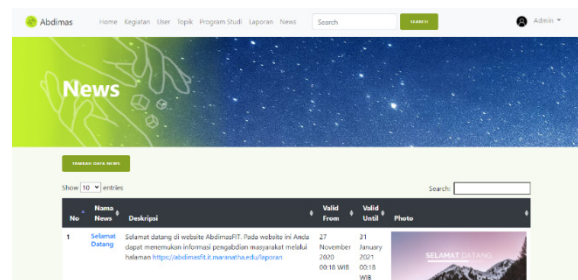


Figure 8: News View.

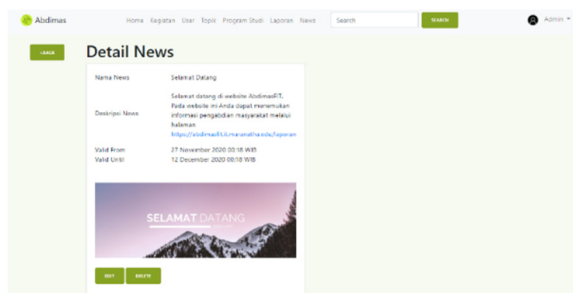


Figure 9: News Detail Admin View.



Figure 10: News Detail Non-Admin View.

#### 4 CONCLUSIONS

The management of reports on the AbdimasFIT website is carried out by providing a special page containing a collection of reports that are needed by the user, by providing several filters such as filters per activity, filters per study program, and filters per period. If there is an export feature on the report page, it can also help the process of data management activities. The AbdimasFIT web report page is also considered to have a complete report and complete types of reports, but it may need additional additions to make it more complete.

All data on the AbdimasFIT website that is managed will be good if they are interconnected, such as detailed activity data, master activities, topics, and users can also be seen when viewing details on the study program page, so that management happens to be good and existing data becomes uninterrupted and visible correlation between data.

The dashboard page in order to be informative requires sensitivity to the needs of AbdimasFIT web users, displaying actual and factual data by providing appropriate functions so that the data on the dashboard can be easily digested and trusted by users. A good dashboard is also one that is not too wordy and to the point so that data can be obtained in a short

and easy time. The AbdimasFIT web dashboard page is considered complete and adequate.

Those are also some suggestions for AbdimasFIT website based on the things that have been achieved in the implementation of the AbdimasFIT web, several suggestions were obtained from respondents. Data originating from the target community service side requires data such as PIC, contact phone numbers, addresses, and so on. Add a button to save the export results to the drive. Data regarding sources of funds, nominal implementation funds can be added in order to facilitate auditing needs.

Based on the further development carried out by the author, there are several suggestions given. It would be better if the certificate could be made and published on the AbdimasFIT website. Provide notification regarding certificates and activities via email.

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