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MySRS – The Development of Web-Based using PHP Laravel Framework

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Abstract: Many organizations today, including in Malaysia, have implemented online management systems, as it is believed that technology and innthis sovation provide many benefits to those involved. The manual system lacks efficiency, too many manual forms and is time consuming, while the web-based system is more systematic, good management and prevents the loss of data. The goals of this project, MySRS – The Development of Web Based using PHP Laravel Framework, are to identify the data and information required within the organization, design the architecture and functionalities, and create an online management system to replace the manual system. The scope of this project is for the admin, who is the leader in Skim Rondaan Sukarela (SRS) to control the system and for public citizens to view MySRS to gain information, be promoted, and for registration. This system uses the Web Development Life Cycle for the methodology and the Waterfall Model because it is a suitable approach that can be used to develop web-based systems efficiently in a structured way. MySRS is developed using the PHP Laravel framework because it produces better website performance. According to the results of the user testing, it demonstrates positive feedback and excellent satisfaction from the leader of Skim Rondaan Sukarela (SRS) and the public. In conclusion, MySRS improves the management of the organization by reducing the manual workload. It helps people to do their jobs in an effective way and reduces data handling.

Keywords: Laravel, MVC Architecture, Skim Rondaan Sukarela, Waterfall Model, Web-based System.

1 Introduction

The demand for the online system has increased rapidly until nowadays because the online system has been doing a good job in eliminating the need for hard copies, space, protocols, and time. Thus, an online system is very efficient to save time in managing a task. As highlighted by [1], from 2018 to 2020, there are considerable differences in time consuming between mobile and desktop on websites. People spend on the website, also called an online system, using a desktop is the most time-consuming than mobile. In 2020, desktop visits were 40% longer than mobile visits [1]. Therefore, people prefer to use the website on a desktop, perhaps because it is keyboarding, wide-screen, and has greater bandwidth. As one of the needed environments during these days, Skim Rondaan Sukarela, also known as SRS, comes with benefit from the use of online management system for website. Online registration, report submission and accessing information among Admin and Public User need an effective communication medium so that the potency of misunderstanding or lack of information can be reduced. Thus, MySRS ideal since it provided the best solution compared to how SRS organize it management before this. This system is to enhance and improve the management. In this project, a web-based management system provided an effective management system of SRS in Kampung Mengabang Telong. This system was developed using software freely distributed and available to the public and also need internet to access the system. SRS organization was blamed for not being able to control security in residential areas and reducing feelings of anxiety about crime. Then, many SRS organization are not active due to lack of participation and the residents are not notice the organization's existence. Furthermore, the management of SRS organization in Kampung Mengabang Telong was still done in the manual way such as paper form. To achieve the aim of this project, these objectives are addressed. First, to identify what data and information that are needed within organization. Data and information are required to accomplish a good management system. Second, to design the architecture of the system

and its functionalities. Designing helps to be clear about how the system works and functioning using the waterfall model process. Lastly, to develop an online management system that can replace the manual system. This system is a web-based system that are developed using PHP Laravel framework.

2 Literature Review

A Skim Rondaan Sukarela

Rukun Tetangga roles include supporting community bonding and national integrity, helping prevent conflicts between people in Malaysia, applying nationalism and patriotism to build a strong community, evaluating relationships between people, organizing programs or activities by government agencies, and many more [2]. Rukun Tetangga's roles have widened up to community bonding through the establishment of Skim Rondaan Sukarela (SRS). It is a community activity under Rukun Tetangga (RT) with active participation from the villagers who do patrol every day from 10 P.M to 6 A.M within two shifts [3]. Participation in SRS is open for all local male residents. Skim Rondaan Sukarela managed its organization by applying a top-down approach in Malaysia, which mainly focused on crime prevention. The top-down approach of management can help focus on results based on objectives [4]. Rondaan Sukarela (SRS) was established under Rukun Tetangga (RT) and Security Committee (J3K) to provide safeties in the community. It also functions established in every village and plays an integral part in helping security forces in the local places [5]. Therefore, Skim Rondaan Sukarela (SRS) helps and contributes a lot in helping police officers, especially in reducing the crime rate in the local village.

B Programming Language

Programming language is the language between human and machines which to be interact and communicate to each other. Plus, everyone can develop more complex programs at any time. Programming is also known as problem solving [6]. Programming language become more complex but much easier to implement. A new programming language might be a one of the challenges for the developers. According to [20], self learning, just-in-time learning and relating new language to previous language are those of strategies that can be implemented for the developer to learn a new language. For example, from Java to Kotlin Language or PHP traditional to the new PHP framework, Laravel.

Client-side scripting is called front-end development which the program is written in HTML, CSS, JavaScript, Angular, Vue and React as the front framework [7]. The flow of the website from the client side is user interact with the application will create request, download bundle from the data response and extract bundle to run in the client device as it requested, which mean it will display the output. Many website are fully successfully developed such as Amazon, Gmail and Facebook that use JavaScript with AJAX that produce dynamic and real-time performance [8]. HTML (Hypertext Markup Language) is the basic to implement website markup which the latest one is HTML5. It helps developer in structuring sites and access hierarchical object models which is JavaScript [9]. According to [9], markup language contains HTML, XML and XHTML which based on SGML (Standard Generalized Markup Language) where almost of its code contain tags <..>. HTML can define tables, heading, footer, header and many more as it helps programmer to structure their website. CSS (Cascading Style Sheet) is interpreted by the browser in the client-side. It helps HTML which markup the website by providing many interactive elements to apply with that adjust presentation of data. CSS resolves the issue of a website's numerous pages having the same look and feel. It are made up of rules which are selectors and property-value pairs [10]. There are three ways to include CSS in the coding which are inline, internal, and external. Inline apply a unique style to a single HTML element. Internal is used if only a single page has a unique style and external is used when can change the look of an entire website by changing just one file that include to the html page. JavaScript is a scripting language that enables developer to create a responsive content, multimedia, animate images, and a multi-paradigm. JavaScript is both client-side and server-side that allows to make an interactive website. Executing JavaScript can sometimes change in presentation with or without requesting for the server [11]. JavaScript have

multiple libraries and frameworks that are developed using it, including jQuery, AngularJS, and Node.js [12].

Back-end development, which also known as server-side scripting can handle request from user in server, then after processing the request, server will send response to user as the result of the application [8]. The server will fulfil the user's requirement which is sent from the client-side. Developer should choose wisely what type of server-side environment for the development. Many researchers had been making comparison between Node.js, PHP, Django, and Rails. The comparison are about the ease to use, popularity, availability and performance[13]. Laravel is the framework of PHP in the web development. It is well known as the better website performance, easy third-party integrations, and simple. [14] produced a book named 'Beginning Laravel' to give overview about the PHP Laravel framework where how Laravel and traditional PHP works are very difference in its processing. To install Laravel, first need to do is installing the Composer; works as the dependency management tool in PHP. Other elements of Laravel are file structure, routing, controller class, view and blade, environment, database migration, eloquent, MVC, and facades. For MVC (Model-View-Controller), Laravel uses the design pattern which is based the Symfony system. According to [15], View works as the interface logic, Controller receives and request the data, and Model is the connection with the data to the users. It decomposes difficult concepts into entertaining and easy-to-remember details, so the developer can start using design patterns right away [16].

C Web Development Life Cycle (WDLC) Methodology

Waterfall model is the way of sequential process where each phase is must complete step by step because the scope needs to be defined first before starting the actual product development. Waterfall model have general steps which are gathering requirements, analysis, design, development, testing, implementation and maintenance [17]. Besides, according to [18] , the waterfall only take one delivery at the end of the project which is take time long time to be complete since all planning stages need to be completed.

D MySQL Database

SQL is stand for Structured Query Language. MySQL is a free license to download without need to be pay. It is an open-source database server system. It is the second popular relational DBMS (Database Management System) and RDBMS (Relational Database Management System is the first popular relational open-source client server. The advantages of MySQL are its high performance, high reliability, and ease of use, which all entice authors to utilize it.

3 Methodology

A Overview of Web Development Life Cycle (Waterfall Model)

MySRS is a web development system for Skim Rondaan Sukarela (SRS) organization. Project methodology that used for this project will closely with the basis of Software Development Life Cycle (SDLC) using Waterfall model as the process of accomplishment of this project. The waterfall model is good for software development since it divides a project into discrete parts [19]. Therefore, it was to prepare the complete web-based project development using Web Development Life Cycle (WDLC). Basically, System Development Life Cycle (SDLC) have multiple stages include software feasibility, analysis, design, coding, testing and production. Since this project use Web Development Life Cycle (WDLC) for the development, it focused on the development of website itself.

i. Information Gathering

This is the first step that most important compared to other phases that collecting requirements, including functional or non-functional requirements. To begin with a project, the user's requirements should be identified. Identify users' needs help to provides solution. The first method is by collecting

the requirement. This method was done with conducting interviews with the chairman of Kawasan Rukun Tetangga (KRT), leader of Skim Rondaan Sukarela in Kampung Mengabang Telong. The questionnaire also conducted for the residents of village in Kampung Mengabang Telong. In addition, secondary data has been done to collect the overview of SRS by the literature review and observation.Then, identify the problems from the results of literature review, interview, questionnaire, and observation. To support the problems related, exploring and do some research by reading journals and articles related were done before conducting the interview. Every business process must have objectives and goals, otherwise, the project might fail. From the problems identified, the objectives were resulted. The objectives help in resulting a good decision-making process. Area of the users for the project has been addressed which are public citizens who can view information, and users from residents in Kampung Mengabang Telong can register for the application of the new member. Another user is an admin who is the leader in Skim Rondaan Sukarela to process and do the management. Area of location is in Kampung Mengabang Telong, but also can access everywhere since it is an online system. Since the organization had been using manual way which is manual paper form, the information were collected from the leader of SRS. Table 1 shows the summarization attributes of manual paper form. It acts as the needs for the users to manage the SRS organization.

Table 1: Summary of data collection from SRS leader

Registration for Members	**Withdrawal of members**	**Inventory management**	**Criminal report**
Precondition			
Full name, identity card, address, phone number, gender, citizen, races, education and work,	Member's name, identity card, SRS ID, address and reasons.	Name, SRS ID, inventorys, and condition.	Cases type, total cases

ii. Planning

First method of planning phase will be observing who are the target audience such as determine their age categories, for example, adults, children, men, or women. By reviewing some of the similar existing project and information gathering collected from phase information gathering, the summary of the review help to identify the design features, the functional and non-functional requirement for the MySRS. Figure 1 shows the functional requirement and non-functional requirement that listed from the system's requirement for both Admin and Public User.

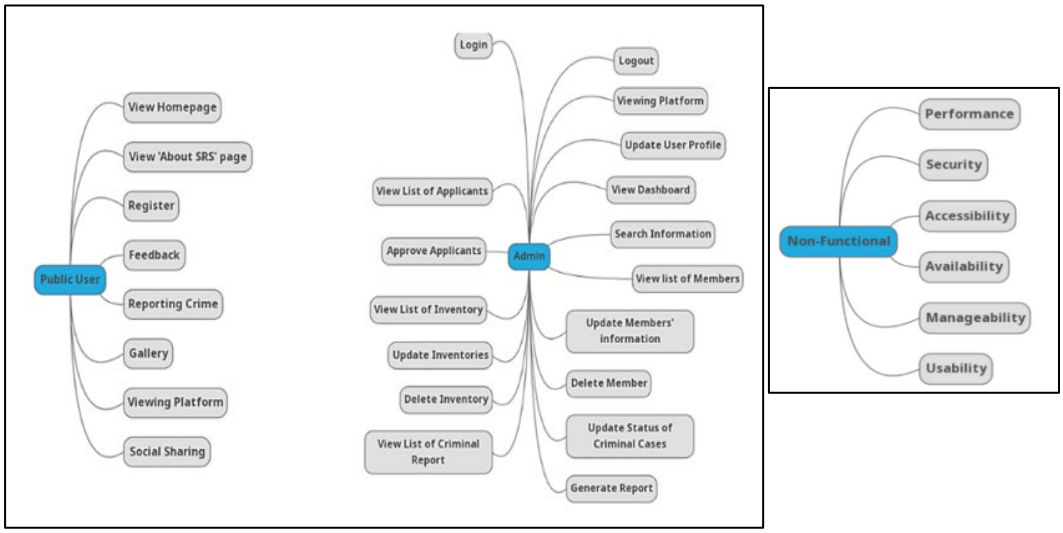

Figure 1: Functional Requirement and Non-Functional Requirement

iii. Design

Designing wireframe is the screen blueprint design that shows what other interface elements will be present on the key pages. It is an important step in the interaction design process. Then, designing the database diagram including the Entity Relationship Diagram (ERD), which its roles is to determine the entity or object that involved in database. Figure 2 illustrates the sketch to identify the suitable interaction in design process, while Figure 3 is a class diagram called Entity Relationship Diagram (ERD) that shows the structure of objects and attributes in this MySRS system.

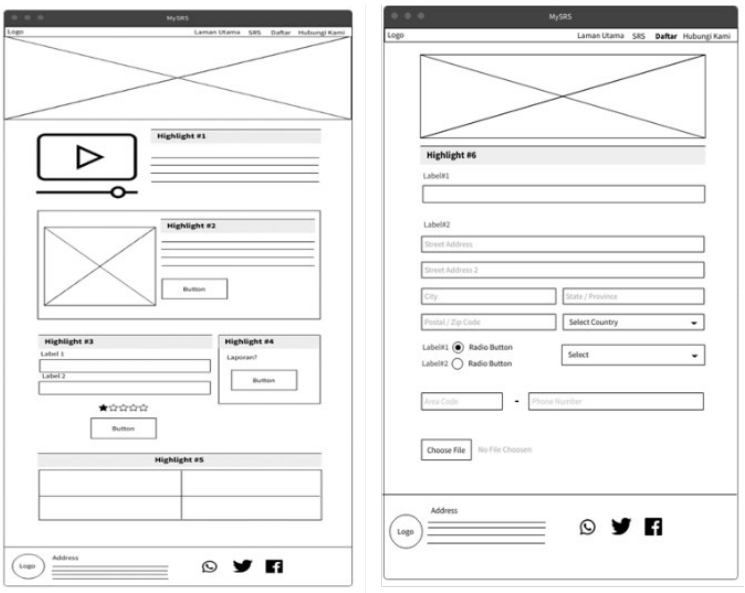

Figure 2: Wireframe for public user

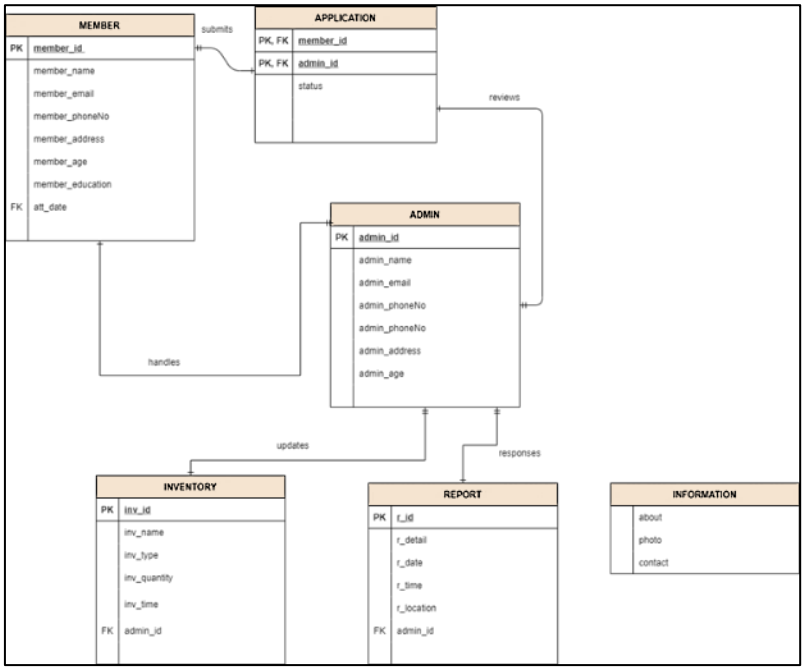

Figure 3: Entity Relationship Diagram (ERD) for MySRS

iv. Development

Coding database language is a method of writing code in database language for queries that use CRUD (Create, Read, Update, Delete).It was important to key in data into the database for users to retrieve and generate. Using VS Code software to code, it uses the languages HTML, CSS and JavaScript for front-end development. For the back-end development, MySRS used the PHP Laravel framework that applies Model View Controller (MVC). When the queries from the coding were running successfully, the database was developed. It received data and sent data into the database when the user requested it. The user interface was the second last step. It was the finalised user interface with a little adjustment before testing. The user interface shows what it should be shown from the user perspective. After coding was successfully implemented, the next step was to connect to the server to get full access to the website. It will run on localhost using Xampp Server.

v. Testing

After web development was completed, it was tested. The functionality was evaluated using hardware and software compatibility. After all the approval from the users and stakeholders, the website was ready for delivery. Observing the system's flows entails self-testing.When performing self-testing, questions such as "How do I feel when I put myself in the user's shoes?" "What does it feel like?" and "Do the functionalities meet the requirements?" were required to be configured. User manual design was a form, or a manual flow of the website written on paper to check the user's handling. Besides, a user manual is also written on the website to let the user know the instructions to do the tasks. Usability testing was important in part of testing with chosen 2-3 users to do the testing of the full system. It was to let users look and feel the flow of the website, the speed, the error handling, and the response interface. The results of the usability testing will be used as feedback to collect satisfaction data. Tools that can be used for collecting feedback are heuristic evaluation forms. Table 2 represents the summary of heuristic evaluation.

Table 2: Summary of heuristic evaluation

Population	100
No. Of Sampling	70
Evaluation	**Analysis of the results**
Appearance of the website	Overall, the appearance of the MySRS is acceptance and excellence.
Content of the website	The content of MySRS is easy to understand and scan. However, help features is disagree by the respondents because MySRS does not include the help guidance. Plus, the minimal text is not shown as well.
Navigation of the website	The navigation of MySRS is strongly acceptance such as easy to identify the location on the site.
Efficiency of the website	MySRS evaluation received the disagree on the loads of the website and no custom 404 errors. The contact information also is not easy to find. Other than that, it is well-accepted.
User satisfaction	Overall, user satisfied with the system.

vi. Maintenance

The results of the usability testing will be used as feedback to collect satisfaction data. A tool that can be used for collecting feedback is the heuristic evaluation form. After publishing the website, it needs to always update the content. It was to make sure the website was always there and people could gain trust. Authentication protects the privacy of the users' names, passwords, and usernames. This has been

done using sessions or cookies that collect how many visitors the website has to analyse for future improvement and enhancement.

4 Result and Finding

A Identifying the data and information needed within organization

i. Analysis of the interview session

The interview was conducted face-to-face with Mr. Kamarul Ariffin Bin Mohamed, the organization's leader. The interview questions have been conducted in an open-ended manner, allowing the responder to react in his own words. From the interview, Mr. Kamarul Ariffin stated that SRS organization in Kampung Mengabang Telong was established on 10th Jun 2009 under KRT to prevent unhealthy and criminal activities. Based on the interview result, it is concluded that that SRS in this residency is not well-welcomed because of less members and unrecognized by others. Besides, the procedure of SRS management is in a manual way which are using letter and paper form to collect data about members. The result of this interview session is to set the requirements of SRS organization.

ii. Analysis of the observation

The observation is done by using the time sampling One of the observation activities is observed the way on how the members operation were scheduled. From the observation results, the time of patrolling is started from 8.00 pm to 3.30 am. A member needs to patrol a night only for a week based on his chosen day. They must gather at the cabin first which is SRS Centre to report their attendances. The observation output is the operations is still done in manual way where the member needs to sign their attendance every time they patrol. The observations are recorded so that the observation can be analyzed.

iii. Data Collection

This organization has 17 members as of December 2021. Plus, additional material includes a thorough manual paper form for member registration, a letter, an inventory, criminal report and many more had also received from Mr. Kamarul Ariffin.

B Design the architecture of the system and its functionalities

The results of objective 2 which is to design the architecture of the system and its functionalities has been accomplished successfully. The architecture and the functionalities has been designed step by step started from the low-fidelity wireframe. The visual elements of the wireframe are often limited to a grayscale color palette and do not include animation. The wireframe of MySRS is withdrawn and sketchy where it illustrates certain characteristic that outlining paging process. For this project it had two wireframes for both admin and public user. Then, use case diagram is designed. Use case diagram helps in described the high-level functions and identify MySRS system's interaction. This system required database, which means Entity Relational Diagram (ERD) is needed for MySRS where it helps in identifying good attributes and system's flow. Lastly, storyboard, the final design for the system and what the final piece should look like. In addition, it helps in describing the elements that suitable to be integrated into the website within a page.

C Developing an online management system that can replace manual system

i. Web Development

First and foremost, to utilize the PHP Laravel framework to the project, dependencies like Composer need to be installed first. The Composer allows to declare the libraries that project is depending on which is Laravel. This is to avoid any missing component or system error during the development

process. The Composer is installed on the Windows since MySRS's hardware requirement is Windows operating system. Composer allows to install Laravel framework. When developing the project, command in the terminal need often to be used. The installation commands for the Laravel are shown in the Figure 4. To create project after installing the Laravel framework, Composer is used. Figure 5 shows the command that need to be written in the terminal and the folder of Laravel project was created after command is executed which is folder named 'srs'.

```
composer global require laravel/installer
```

Figure 4: Composer install Laravel

```
C:\Users\user>composer create-project laravel/laravel srs --prefer-dist
```

Figure 5: Composer create project

Assets is the most important steps to store CSS and JS files into it. Assets' folders work as the resources directory that need compilation, and it placed under the public folder. Public folder contains of assets such as images, JavaScript, and CSS. MySRS have two assets which are admin-assets and assets folder in the public directory. Laravel provides asset () function to generates the assets contains in the public folder easily. Figure 6 is the way to use asset function into the head of the pages.

```
<link href="{{URL::asset('admin-assets/css/sb-admin-2.min.css')}}" rel="stylesheet">
```

Figure 6: Asset function

The traditional PHP framework uses .php files to implements the layout but in Laravel, it uses the .blade.php files for the templating engine. Blade template files are the extension and typically stored in the resources/views directory. The blade views returned from routes or controllers using the view helper. Each view helper will return each page layout. It separates the blades into a few layout which are main and partial layout for better coding implementation. The 'layout/partial' folder contains for metadata such as the title of document, scripts, and CSS files. Basically, each page has head, header, navigation, and footer. This partial used to store all in one so that it can declared just once only as shown as below (Figure 7). 'layout' folder – this folder contains of the blade pages where all elements is included into the page (Figure 8).

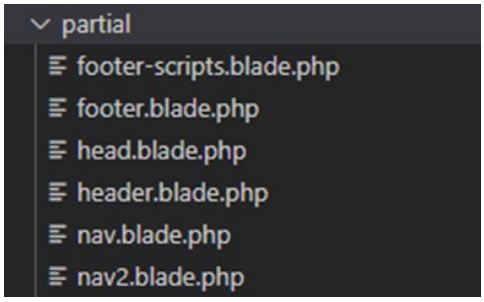

Figure 7: Partial folder

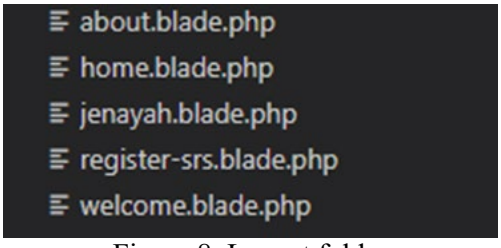

Figure 8: Layout folder

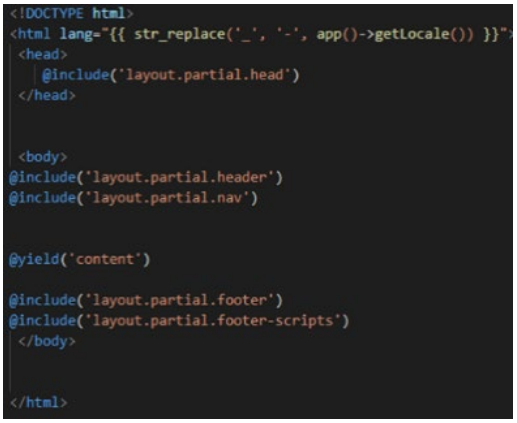

Figure 9: Main Layout

Figure 10: Yield

The 'main-layout' – this page is the main layout where there are syntax @include the partial layout will be get extended into the view page and @yield used to get content and to define a section in a layout (Figure 9). The @yield was imported from the view page as shown as in Figure 10 as the red line. @extends is to extends the main layout into each view page. Backend development of Laravel use PHP Laravel framework where there are a lot of new codes with expressive and elegant syntax. Laravel is a server-side PHP frameworks to building web development.

ii. PHP artisan

Artisan is the name of command-line interface that available in Laravel. Artisan provides number of helpful commands while developing the web development. There are many artisans and the most used for MySRS projects was 'php artisan serve'. This artisan is to publishing the localhost into the browser. To run MySRS, it needs to write php artisan serve in the terminal and use the link given which is http://127.0.0.1:8000 to the browser (Figure 11). If the command is not executed, then the project cannot run.

Figure 11: PHP Artisan Serve

The syntax 'php artisan make:model.' is to creating model classes where it contains the Eloquent model that connected with the database. Then, the 'php artisan make:controller' used to creating controller class where it contains the process between the views and model. Furthermore, the php artisan make:migration is also used to making migration classes that creating a new table in the database and followed by php artisan migrate, which is to migrate the table that was made from the migration and creating the table.

iii. Database Declaration

In Laravel, there is .env file which is stands for environment configuration. It defines many common environment variables based on the website is running locally or on a production serve. The .env file can be changed to matched with project's requirement. The .env file declared the database connection to the project as shown as below (Figure 12): MySRS use MySQL connection and 3306 port. DB_HOST is for declaring the hosting URL. Default is 127.0.0.1 as shown in php artisan serve. The database is named as 'srs' with MySQL phpMyAdmin.

```
.env
APP_NAME=Laravel
APP_ENV=local
APP_KEY=base64:4930/zaYsNeEV1bLMTFLeRMlETqVbWgRqVwURWbyNJ0=
APP_DEBUG=true
APP_URL=http://srs.test

LOG_CHANNEL=stack
LOG_LEVEL=debug

DB_CONNECTION=mysql
DB_HOST=127.0.0.1
DB_PORT=3306
DB_DATABASE=srs
DB_USERNAME=root
DB_PASSWORD=

BROADCAST_DRIVER=log
CACHE_DRIVER=file
FILESYSTEM_DRIVER=local
QUEUE_CONNECTION=sync
SESSION_DRIVER=file
SESSION_LIFETIME=120
```

Figure 12: env

iv. Database Migration

Traditional PHP in creating a table in database can be done in phpMyAdmin platform. However, in Laravel, there is the easiest method which is creating migration using terminal. It can migrate the table into the database using the command-line in terminal. The syntax that need to be write is php artisan make:migration create_nameoftablewithplural(s)_table. For creating table Applicant in the database, the table should be name as applicants. The result shown as below (Figure 13):

```
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Try the new cross-platform PowerShell https://aka.ms/pscore6

PS C:\Users\user\srs> php artisan make:migration create_applicants_table
Created Migration: 2021_12_16_010823_create_applicants_table
```

Figure 13: PHP artisan make:migration

After executed the command, then the migration file of applicants is shown as (Figure 14) which contains function of up () and down (). The function up () is to creating the columns for the table and default is $table-> id() and $table->timestamps(). There are columns that need to be inserted in table applicants which is shown in (Figure 15).

```php
<?php

use Illuminate\Database\Migrations\Migration;
use Illuminate\Database\Schema\Blueprint;
use Illuminate\Support\Facades\Schema;

class CreateApplicantsTable extends Migration
{
    /**
     * Run the migrations.
     *
     * @return void
     */
    public function up()
    {
        Schema::create('applicants', function (Blueprint $table) {
            //we put attributes here
            $table->id(); //default, can delete
            $table->timestamps(); //default, can delete
        });
    }

    /**
     * Reverse the migrations.
     *
     * @return void
     */
    public function down()
    {
        Schema::dropIfExists('applicants');
    }
}
```

Figure 14: Migration File

```php
public function up()
{
    Schema::create('applicants', function (Blueprint $table) {
        //we put attributes here
        $table->id(); //default, can delete
        $table->string('warganegara');
        $table->string('ic');
        $table->string('nama');
        $table->string('alamat');
        $table->string('jantina');
        $table->string('kaum');
        $table->string('pekerjaan');
        $table->string('noPhone');
        $table->string('email');
        $table->string('image_path');
        $table->timestamps(); //default, can delete
    });
}
```

Figure 15: Adding Columns

Below is the overview of table applicants that was created from the migration (Figure 16):

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra
1	id	bigint(20)		UNSIGNED	No	None		AUTO_INCREMENT
2	warganegara	varchar(191)	utf8mb4_unicode_ci		No	None		
3	ic	varchar(191)	utf8mb4_unicode_ci		No	None		
4	nama	varchar(191)	utf8mb4_unicode_ci		No	None		
5	alamat	varchar(191)	utf8mb4_unicode_ci		No	None		
6	jantina	varchar(191)	utf8mb4_unicode_ci		No	None		
7	kaum	varchar(191)	utf8mb4_unicode_ci		No	None		
8	pekerjaan	varchar(191)	utf8mb4_unicode_ci		No	None		
9	noPhone	varchar(191)	utf8mb4_unicode_ci		No	None		
10	email	varchar(191)	utf8mb4_unicode_ci		No	None		
11	image_path	varchar(191)	utf8mb4_unicode_ci		No	None		
12	status	varchar(191)	utf8mb4_unicode_ci		No	None		
13	created_at	timestamp			Yes	NULL		
14	updated_at	timestamp			Yes	NULL		

Figure 16: Table after migration

v. Model-View-Controller

In MySRS web development, MVC helps this project to controls the data easily. Firstly, View. It is to implementing view in the Laravel which is the user interface, the creation of blade templating is the way to produce the interface. To return a view, Route::view is used in web.php routes (Figure 17).

```
Route::view('jenayah', 'jenayah');
```

Figure 17: Route view

```
PS C:\Users\user\srs> php artisan make:controller ApplicantController
Controller created successfully.
```

Figure 18: PHP Artisan make:controller

Then, the Controllers, which it helps in request handling logic into a single class. The controllers class handle the upcoming requests including displaying, creating, updating, and deleting method. To create a controller, Laravel provides the Artisan command to quickly create it. For MySRS, the creation of ApplicantController which is the process of handling request and send the data of applicant's table in database is done by the following command in Figure 18. Then, it executed and creating a controller named ApplicantController (Figure 19) which had already contained the namespace, use and a method that extends the Controller. Inside the method, there are few functions to process the data which are addApplicant (), applicantList (), applicantPending (), approved (), and canceled ().

app > Http > Controllers > ApplicantController.php

```
<?php

namespace App\Http\Controllers;

use Illuminate\Http\Request;
use App\Models\Applicant;
use App\Models\Member;
use App\Models\Inventory;
use App\Models\Jenayah;
use DB;

class ApplicantController extends Controller
{
    function addApplicant(Request $req)
    {...
    }

    public function applicantList(){...
    }

    public function applicantPending(){...
    }


    public function approved($id)
    {...
    }

    public function canceled($id)
    {...
    }
}
```

Figure 19: Controller file

app > Http > Controllers > ApplicantController.php

```
<?php

namespace App\Http\Controllers;

use Illuminate\Http\Request;
use App\Models\Applicant;
use App\Models\Member;
use App\Models\Inventory;
use App\Models\Jenayah;
use DB;

class ApplicantController extends Controller
```

Figure 20: Model

When interacting with a database table via Eloquent, each table has a matching "Model." Model will be used to declare in the Controllers using syntax use App\Models\"model_name" as shown in Figure 20. For this project, for example, creating model for table named 'applicants', the model must be named as

Applicant. Considering that the name of table in the database should be in plural (s) and name for the Model is Applicant. This to avoid any bugs to connecting the model with database. The artisan command for creating model Applicant is shown below (Figure 21). Then, the model of Applicant is executed and the Eloquent's key is created in the basic model class (Figure 22).

```
PS C:\Users\user\srs> php artisan make:model Applicant
Model created successfully.
```

Figure 21: PHP artisan make:model

app > Models > Applicant.php

```php
<?php

namespace App\Models;

use Illuminate\Database\Eloquent\Factories\HasFactory;
use Illuminate\Database\Eloquent\Model;

class Applicant extends Model
{
    use HasFactory;

}
```

Figure 22: Model that has been created

MVC includes built-in functionality that can fully leverage possible while developing web development. Apart from that, MVC offers superior documentation, increased performance, and a variety of built-in functionalities when compared to other PHP frameworks.

vi. Cross-site request forgeries

Cross-site request forgeries, which also known as CSRF, is the feature of Laravel to protect the website from CSRF attack. CSRF is used in the field in the form to validate the request by use the @csrf token. In MySRS project, every form has been included the csrf token as shown the figure below (Figure 23). By that, middleware will automatically verify that token in the request and match with the token stored in the session. If it matches, then authenticated user initiate the request. Figure 23 shows the first section of homepage which this section contains the elements of top navigation bar. The navigation bar including 'Laman Utama', 'Tentang SRS', 'Daftar Ahli', 'Lapor', and 'Hubungi Kami'. Below of the navigation bar is banner picture that contains of logo, images, and button 'Daftar' to navigate to the 'Daftar Ahli' page. Figure 24 shows the second section of homepage which this section contains the briefing of SRS organization. There was a video embedded from the YouTube to user to play. Besides, the button for detailed description of SRS also provided called 'Lanjut' button. Figure 25 shows the dashboard page after the admin login. The dashboard contains many shortcuts and information about the management. The shortcuts can be redirected to the specific page.

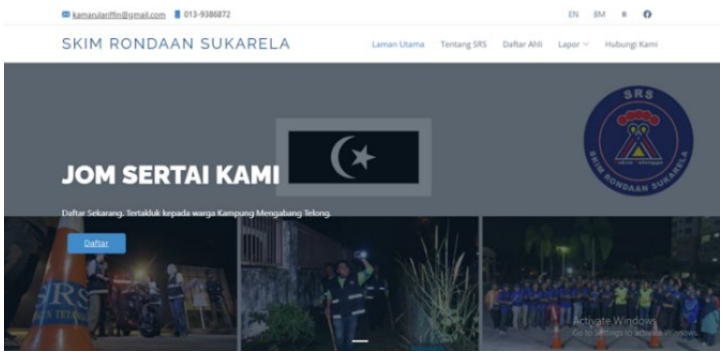

Figure 23: Homepage

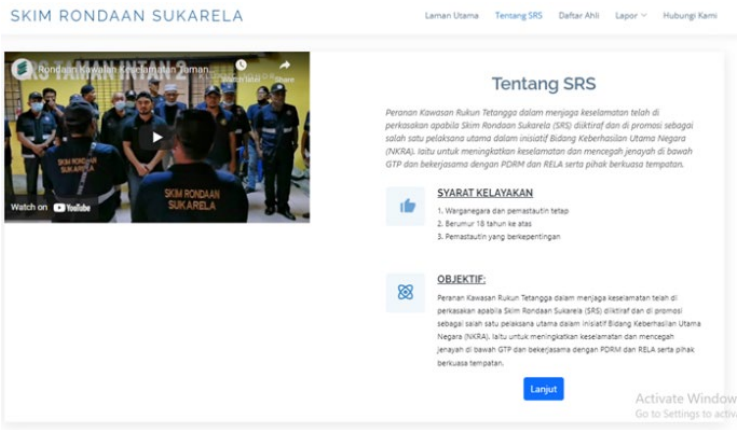

Figure 24: Homepage of 'Tentang SRS' section

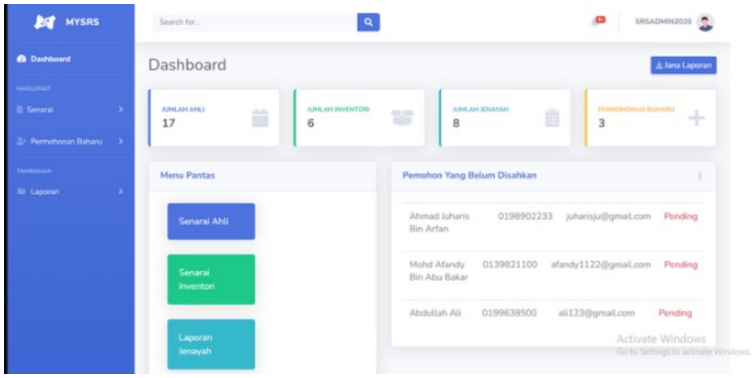

Figure 25: Admin-Dashboard

Figure 26 shows 'Tambah Ali. The inventory list (Figure 27) will display each item of quantity, total borrowed and balanced left. To add new item, admin can click the add button. It also can be deleted and update the list. Figure 28 shows the 'Senarai Pemohon' page where it displays the list of applicants whether their status is 'Gagal', 'Pending' or 'Lulus'. Each applicant will be reviewed their detail from admin and admin will update the status by click the action button.

Figure 26: 'Tambah Ahli' page

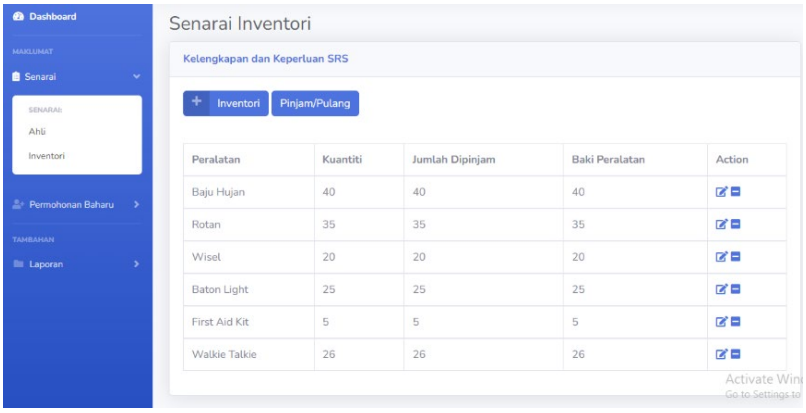

Figure 27: 'Senarai Inventori' page

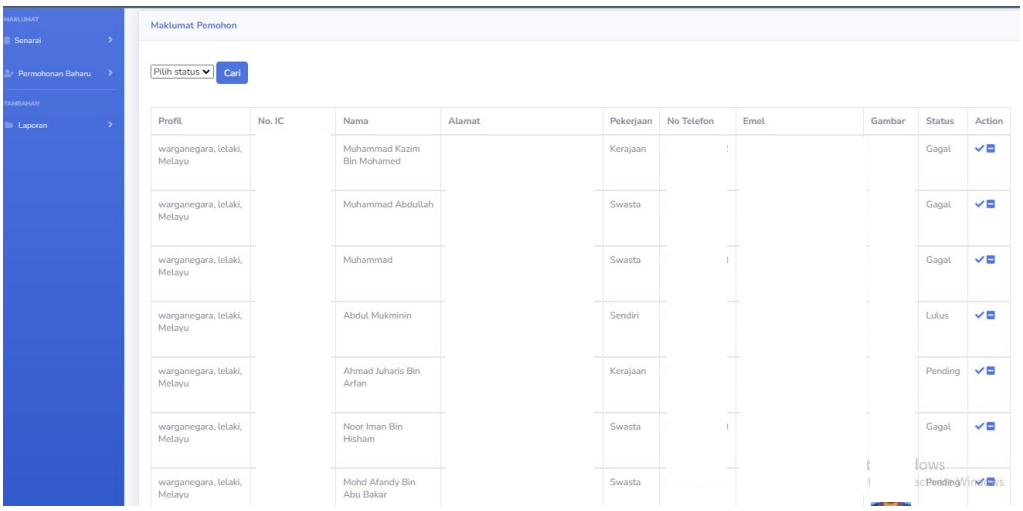

Figure 28: 'Senarai Pemohon' page

vii. Discussion on User Testing Result

In WDLC methodology, user testing is a phase of the system is being tested in real world, which is for the public user and administrator. User testing also known as beta testing, application testing, or end-user testing. Table 3 shows the details of the user testing.

Table 3: Details of user testing

Testing	Date	Location	User	Purpose
Questionnaire	16th January 2022	Google Form	Random	To determine the user satisfaction from other views
Face-to-face	18th January 2022	Kampung Mengabang Telong	The leader, assistant leader, and four members of SRS.	To determine the usability testing from members' view.

The testing has two parts, which are the usability testing and user satisfaction. The testing has conducted using questionnaire and face-to-face. The questionnaire included the video demonstration and also the link to the website. The question used is based on a heuristic evaluation to gather the MySRS feedback

to measure the usability of user interfaces with the issues. From the questionnaire results, they are satisfied with the performance of MySRS.

Usability testing that conducted through face-to-face meeting is where it tested with the leader of SRS, Mr. Kamarul Ariffin, four members of SRS and the assistant leader, Mr. Abdul Rahman. The testing is conducted using test-case analysis and the feedback received was the program running successfully and follow the requirements.

5 Conclusion and Recommendation

MySRS was developed to solve the problems of handling management of SRS in manual way to the systematic way. In the previous four chapters, the methodology of the system, development, and testing phase have been discussed in elaborated. This project development was developed by PHP Laravel framework, therefore, there are few advantages and disadvantages during the development process. Laravel reduce the time of coding for this project which it use the built-in templates in its library, for example, the syntax of PHP got shorter than the traditional. Laravel has a great of security which every single data that need to be authenticate has the hashing algorithm. MVC architecture helps this project to be developed in better way where it separates the design, controller and data handling. This development improve the documentation rather than the traditional PHP. For the disadvantages, since the Laravel is a new framework, therefore, the project consume more times in understanding the use of syntax, functionalities, and how it works. During the development, there are few codes that has been disappeared when upgrading the versions of Laravel. It does not have a smooth transition of upgrading. Laravel has less of community support which troublesome to figure out the errors happen during the development. Although this project is deemed to have completed satisfactorily, there are a few constraints throughout. The limitations of a system provide developers with chances for additional modification and enhancement. Firstly, the MySRS web development is limited for the applicants from Kampung Mengabang Telong only and is only available for website than the mobile application. Secondly, it cannot generate the report into the third-party such as Microsoft Excel and Microsoft Word. Lastly, it only available with Bahasa Malaysia and the system only receive the criminal reports in the system and cannot be send the data into police department.

The purpose of describing the recommendations is to identify potential prospects for future MySRS web development advancements. MySRS educates citizens about the SRS organization, although there are still numerous improvements that can be done to this web development. These recommendations are primarily derived from user feedback and the project's constraints. The following are the recommendations which are the MySRS web development should cover for all applicants in country, and have the availability of SRS organization in nationwide. Then, MySRS will better with features of multilingual translation and generated the report into the third-part such as Microsoft Excel and Microsoft Word. MySRS can be enhanced by developing the system into the application platform (iOS and Android) which is more suitable with current technology..

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