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## **Development of an Online-Based Management System to Facilitate School Events**

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### **Abstract**

Web event management is an event arrangement with a web-based system so that it can be accessed on browsers that have been connected to the internet. Along with the development of information systems, events that are running can be developed in the field of systems, namely by designing a system specifically for this event arrangement. The designer has designed a web-based system for Festival Seni Budaya Kasih Semesta as a medium for an event to take place so that the event can run smoothly. In designing the system, the designer uses the Dynamic System Development Method as a research method to analyze and plan a web event design schedule. The framework used is Laravel framework, then the software used in system design is PHP, HTML, CSS, Javascript, MySQL Database. With the DSDM research method and Laravel framework, it is expected to be able to arrange system design efficiently and effectively. With this web event management system, it can help the committee or event participants of Festival Seni Budaya Kasih Semesta to attend the event smoothly.

**Keywords:** dynamic systems development method, framework, web event management, php, laravel

### **Introduction**

A system is an enterprise that consists of interrelated parts that seek to a goal in a complex environment. The role of information systems in organizational progress is undoubted. With the support of a good information system then an organization will have a variety of advantages. Therefore, information systems serve as a tool to facilitate the management of a resource owned by an organization (Djaelangara, Sengkey, & Lantang, 2015). *Festival Seni Budaya Kasih Semesta* is one of the events that is held once a year, *Festival Seni Budaya Kasih Semesta* is a festival with a culture of loving our universe that radiates the beauty of human nature towards an era of harmony in the world of one family. The festival aims to popularize the spirit of love for nature, develop the charm of human beauty and live happily. Then socialize

the concept of "One Family World", fostering the younger generation to have noble ideals, respect life, be moral and ethical. Apart from that, developing an optimistic, positive, proactive mental attitude and a spirit of universal love. The philosophy of life protects, loves and glorifies life. *Festival Seni Budaya Kasih Semesta* performance takes the form of dance, singing, Universal Love Gymnastics and drama. In essence, the songs sung or performed all talk about the greatness of nature. Conducted by INLA's (International Nature Loving Assosiation) vision is to realize Indonesian people who love nature and each other without distinguishing between ethnicity, religion, culture and others. But the problems arise when data management becomes irregular due to too much data. The previous data registration was done by sending a word file with the registration format containing the participants' data, then sending the file to the committee's email. The large amount of data made it difficult for the event committee to organize the data, making it difficult to arrange the place of residence and coordinate the event due to data errors causing lack of preparation during the event. Based on this background, a system project was designed for this event management.

The objectives of the project design are as follows:

1. The project is carried out to implement the web event management system of the cultural arts of the universe with the Dynamic Systems Development Method.
2. The project was carried on to carry out the analysis of the system of web events management of the art of the culture of the universal with the dynamic systems development method.
3. Seeking solutions to solve the problems on the analysis and implementation of the web system of *Festival Seni Budaya Kasih Semesta*.

## Literature Review

Information system is a system within an organization that combines the needs of the processing of daily transactions that support the operational functions of the organization of a managerial nature with the strategic activities of an organization to be able to provide to certain external parties with the necessary reports (Khairullah, Soedijono, & Hanif Al Fatta, 2017). The components of an information system are: 1. Hardware: a machine that can be assembled so that it can support the processes of a system. 2. Software: an application machine which can be used with the help of hardware to execute a system command. 3. Human: the system user, so that the system can run according to the command. 4. Database: the place where data is stored after transactions on the system. 5. Network: the connection between two or more computers so that they can communicate with each other. 6. Data: the bridge between human and machine (hardware & software) so that data processing can take place. 7. Procedure: Guidelines or methods of system use. The Dynamic Systems Development Method (DSDM) is one of the Agile methods for software development. DSDM is a framework that was originally based on Rapid Application Development (RAD) and prioritizes user engagement continuously with a repeated and increasing development approach, responsive to change, to build a software system that meets business needs on time and on budget (Rusdiana, 2018). The phases of the Dynamic Systems Development Method are as follows:

a. Before the project, the project candidate is identified and the project guarantee assured. Handling these things at this stage avoids problems at the next stage.

b. The life cycle of the project is the core of the DSDM, which consists of five sub-stages: 1) Feasibility Study; 2) Business Studies; 3) Functional Iteration; 4) Design and Build Iterations; 5) Application. (Implementation).

c. After the project, that is to ensure the system runs efficiently. Treatment can be seen as an attempt to continue development based on the natural nature of DSDM, namely repetition and addition.

Then, RESTful API The term REST (Representational State Transfer) was introduced by Roy Fielding in 2000, but the first edition of REST was developed in 1994 when developing the HTTP / 1.0 specification. REST is a client-server architecture, where the client sends requests to the server, the server processes them, and returns responses. Requests and responses are used to send resource representations. Resource represented by URI (Uniform Resource Identifier). Four operations are used to create, read, update, and delete resources: PUT, GET, POST, and DELETE. This is a function of the standard HTTP protocol (Hypertext Transfer Protocol) (Zientarski, Milosz, Kaminski, & Kolodziej, 2017). The Entity Relationship Diagram (ERD) is one of the models used to design databases with the purpose of describing data that relates to a database. Generally after the ERD design is completed the next is to design the database physically i.e. making tables, indexing with still considering performance (Anisya & Wandyra, 2016).

The Use Case Diagram is a series/description of a group that is interrelated and forms an orderly system that is carried out or supervised by an actor. Use cases are used to shape the behavior of objects/things in a model and realized by a collaboration. In general, use cases are depicted with an ellipse with solid lines, usually containing a name. Use case describes system processes (system requirements from the user's point of view) (Djaelangara et al., 2015).

The activity diagram is a specific state diagram, in which most states are actions, and most transitions are in-trigger by completion of the previous state (internal processing). Therefore, an activity diagram does not describe a system's behavior internal (and the interactions between subsystems) exactly, but instead describes the processes and activity paths from the top level in general. An activity can be realized by one use case or more. Activities describe a running process, while use cases describe how actors use the system to perform activities (Djaelangara et al., 2015).

Data Flow Diagram (DFD) is a diagram that shows the flow of data from an entity to system or system to an entity. DFD also defined as a graphical technique that describes the flow of data from input or feedback towards or output (Santoso & Nurmalina, 2017). Data flow diagrams are often used to describe an existing system or a new system that will be developed logically without considering the physical environment in which the data flows. Data flow diagram also used to describe a system without considering the physical environment in which the data is stored.

Flowchart is a symbolic representation of an algorithm or procedure for solving a problem, using flowchart makes it easier for users to check the missing parts in problem analysis, in addition, flowchart is also helpful as a facility to communicate between programmers working in a team of a project (Santoso & Nurmalina, 2017).

## **Research Methods**

The research method used in this research is Dynamic Systems Development Method (DSDM). Method DSDM has five sub-stages, consisting of feasibility study, business study, model functional iteration, design and build, and implementation. The feasibility study and business study stage are the first meeting of the author and the source person, and talk about the project web event, with the conclusion:

1. Web events are the topic of this project.

2. System implementation is the goal of project completion.
3. The feasibility study discusses whether the author can receive suggestions from sources, both from the source of the problem, and the solutions provided by the source.
4. The project was accepted by the author.
5. The discussion of data needed during the web event is directly discussed after the feasibility study is completed.

The flowchart system briefly explains how this system works. First, participants will be asked to fill in participant data to continue the event. When the data has been filled in, and when the participant enters the system, the participant can change the data if desired. Data that has been filled in, will appear in the admin system. Admin can download data that has been saved by participants in Excel format.

## Results and Discussion

### Participant Login Display

The participant login display (see Figure 6) is the initial where the participants started access this system . The participant login display here is: gate for registration , which participants must have identity in the form of an account that has been verified by the admin to enter the system . Participant without account cannot enter the system , however participants can register themselves on the participant registration view.



**Figure 6.** Participant Login Display

### Participant Account Registration View

The participant account registration view (see figure 7) is a display for participant to register an account . The participant account registration view displays several questions that are important for continuity during the event . To participate in the event , participants must register the team name , Mandarin name of team (if any), *email* a team or individual who can represent team , monastery origin ( mandatory ), region of origin ( mandatory ), password and password confirmation. It is recommended to use an active email because the only way the system communicates with participants is by using email. All this data will be stored in the database and is permanent. After completing and successfully registering, participants will get a successful registration display containing information that registration has been successful



**Figure 7.** Appearance Participant Account Registrant

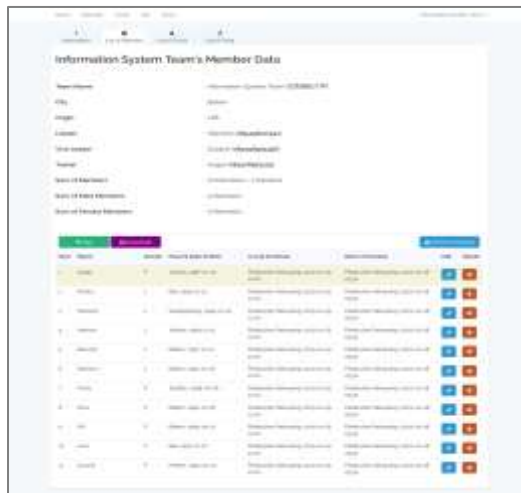
### Participant Homepage Display

The participant's home page display is divided into 4 sections, namely "Information", "List of Member", "List of Guest", and "List of Songs". For the "Information" section of the home page, this display is the initial appearance of the participant after logging into the system (see Figure 8).



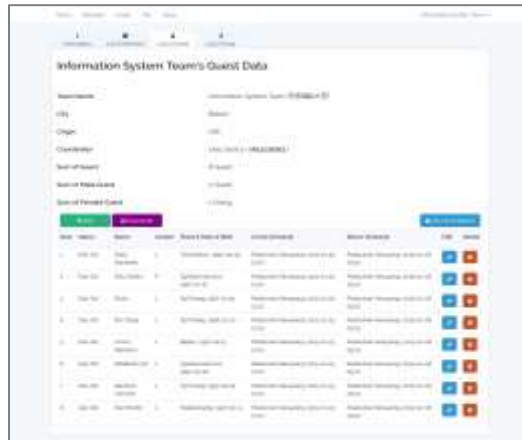
**Figure 8.** Participant Homepage Display "Information" Section

For the home page display of the "List of Member" section (see Figure 4.11), this display shows a sequence of participant data lists. All participants displayed will be stored in the database, then displayed on the admin system. All data displayed will be used as registration for this event participant.



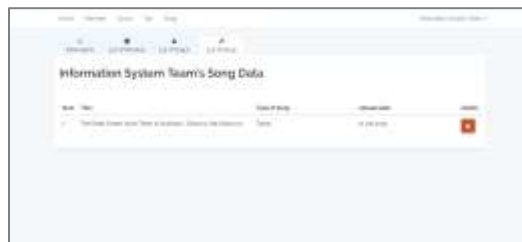
**Figure 9.** Participant Homepage Display "List of Members" Section

For the home page display of the "*List of Guest*" section (see Figure 4.12), this display is the same as the home page display of the participant data list section, except that this display displays a list of guest data, guests here can be categorized as event spectators who take part in the trip with the registrant team, as invited special guests, or other statuses related to the participant team. To participate in all *events*, the admin needs to determine who participates in all *events*, and who does not participate in all *events*. So the system prepares a special *form* to register the list data with the status as a guest.



**Figure 10.** Participant Homepage Display "List of Guests" Section

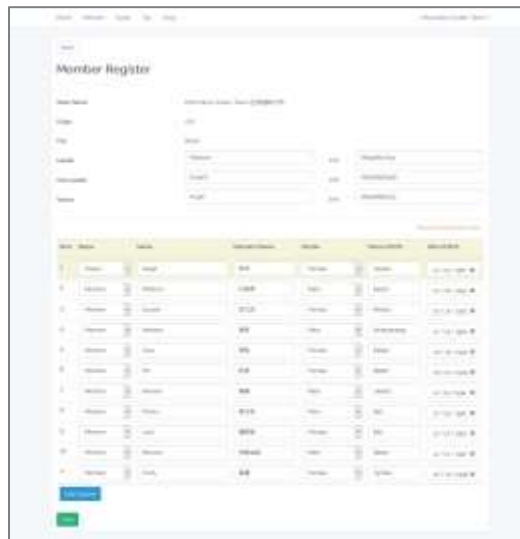
For the home page display of the "*List of Song*" section (see Figure 4.13), this display shows a list of songs that will be used during the event. As a backup song, the system prepares a special *form* to upload songs according to the team, in order to avoid errors or problems such as songs that are not available or cannot be *played* before the *event* day arrives.



**Figure 11.** Participant Homepage Display "List of Song" Section

### Display Registration Event Participants

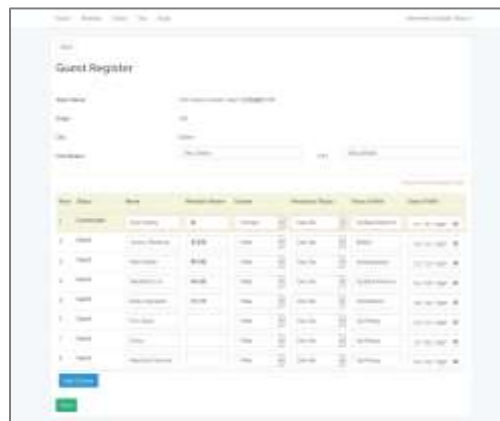
Event participant registration view (see Figure 12), this view displays a table form that contains columns to fill in a lot of data. For event participants, one team can be said to have more than 10 members, so from there the system provides more than 10 columns. First at the top of the table, consists of 3 column lists, namely the chairman, vice chairman, and coach columns. These 3 data are very important because the team participating in the event is required to have several people from the team as the person in charge of the smooth running of the team, member problems faced, and so on. For the coach, the team that participates in the event, needs a coach to coordinate the event that the team will participate in. So from there, this event requires information about the chairman, vice chairman and team coach. Then at the bottom there are many columns to fill in. The columns below can be filled in according to the number of team members, along with other personal information. After everything is filled in completely, participants can click "Save" at the bottom right, then the member data will be saved into the *database*. The saved data will be displayed on the participant's home page in the "*list of members*" section.



**Figure 12.** Appearance Registration Event Participants

Views Guest Registration for Event Participants

The event guest registration view (see Figure 13) displays a table form that contains many columns of data. Here has 1 data at the top of the table, namely guest coordinator data, who is in charge of guest arrangements. Then in the table section, there are several columns that are ready to be filled in by event participants. Participants registered on this form have guest status. Once completed, click "Save" at the bottom left of the table. The saved data will be displayed on the participant's home page display in the "*list of guest*" section.



**Figure 13.** Appearance Guest Registration for Event Participants

Views Travel Schedule Registration Event Participants

The event participant travel registration view (see Figure 14) displays a *form* for registering travel schedule, time and location. This *event* is held in Batam City, and the *event* includes participants from outside the Batam area, so the committee needs to arrange a pick-up schedule for participants from the destination location, namely the port or airport. Therefore, the system provides a special *form* for arrival, and a special *form* for return. After that, at the bottom of the *form* there is a table to fill in. The arrival schedule can be more than one, so

from there the system provides a *dropdown menu* as a selection medium for participants to choose a travel schedule. Travel registration includes participants and guests of participants.



**Figure 14.** Appearance Travel Schedule Registration Event Participants

#### Song Registration Display Show Event Participants

The song registration view appears for event participants (see Figure 15) displays a *form* for registering songs. The *form* here serves to store the song in the system and as a *backup* song, in order to avoid errors or problems such as songs that are not ready or cannot be *played* before the *event* day arrives. Songs that can be *uploaded* are once per *upload*. Then after *uploading*, the song type section has 3 *radio buttons*, here the song type functions to categorize the songs that will be displayed during the *event*. Setting the type of song also functions to arrange the schedule to appear to be harmonious and easy for the committee. Songs that have been *uploaded* will be displayed on the participant's home page display in the "list of songs" section.



**Figure 15.** Song Registration Display Event Participants View



### Admin Login View

The admin login view (see Figure 16) displays a special *login form* for the *admin*. For system security, the *admin login form* is displayed on a different *link* from the participant *login form link*. Then the *admin* also does not get a forgotten password feature, due to maintaining the safety of the system. Therefore, the admin login view only displays 2 columns, namely the "User ID" or "Administrator" column in the display above, then the "Password" column and the button to enter the system.



**Figure 16.** Admin Login View

### Event Start View

The event start view (see Figure 17) displays data in the form of a date *form* that must be filled in before the *admin starts* the *event*. When the *event* starts, some important information needs to be filled in, from the start date to the finish date, then the registration limit and filling limit. For the use of the system, it is also necessary to give an exact date, so that the system is not left idle after the festival is over, without making an activity report during the *event*. The event start view, can only be accessed when the admin has completed the previous *event*, and has not started a new *event*.



**Figure 17.** Event Start View

### Display of Participant Register Settings

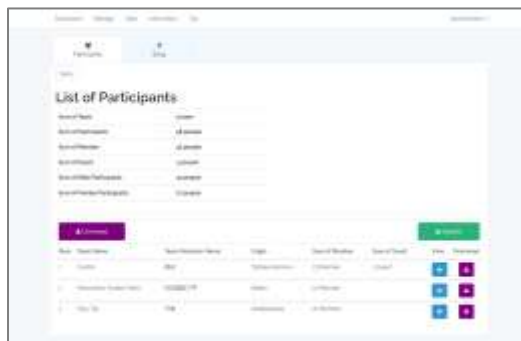
The participant registrant settings view (see Figure 18) displays a list of registrants made by participants in the participant account registration view. At the top there is a back button, which serves to return to the admin homepage display (see Figure 4.20). Then on the right side of the table, there are 2 buttons, namely the "Active" button and the "Lock" button. The active button functions to activate the registrant account, and after activating, the system will send a notification in the form of an *email* to the registrant account *email*. Then the "Lock" button serves to lock the account that has been active. Accounts that are locked or inactive will not get notifications, and account locking will be done for a separate reason from the admin, or the filling limit has arrived. With an inactive account, participants cannot enter the system again.



**Figure 18.** Display of Registrant Settings

Display of Participant Data Settings

The participant data management view divides into 2 views, namely the participant data management view of the participant data section (see Figure 19), then the participant data management view of the song data section (see Figure 20). The participant data section displays data on the number of people along with the participant's personal information. At the top of information. At the top of the table, it displays overall information, namely total active team information, total registered participants, and participant gender distribution.



**Figure 19.** Display of Participant Data Settings

For the display of participant data settings in the song data section (see Figure 4.26) displays a list of songs *uploaded* by registrants. Here the admin can *download the* song by clicking the "Download" button located on the right of the table.



**Figure 20.** Display of Participant Song Settings

Event Finish Display

The event completion view (see Figure 21) displays a *form* and some information and questions for the *admin* to confirm. First, the *admin* will be informed that "participant data", "shuttle schedule data", and "song data" will be deleted from the system. These data are still stored in the *database* but can no longer function on the system. Then for "account data", the system will disable all accounts, but the *admin* can reactivate all accounts by activating them on the participant registrant settings page for the continuation of the next *event*. Then after

that, in number 2 there is a *form* to fill in a description of this year's *event*. This description *form* can be filled in or left blank, the *form* functions as a record to be stored on the system and can be *printed* on the report display later. This *event* completion *form* can also be done when the *event* completion date has arrived. When the date has arrived, the system will immediately complete the *event* and when the *admin logs into* the system, the system will immediately direct the *admin* to the report documentation page along with the report *link*, and the *event is* also considered complete on the day the *admin logs in* on that day..



**Figure 21.** Display of Event Completion

#### Display of Report Documentation

The report documentation view (see Figure 22) displays a table containing previous reports. All reports are stored in this view, so the *admin* can *download* the report if necessary on this page. Then on the right side of the table there is a "Download" button, after *downloading*, the *admin* will save the report in *PDF* format and contains data and information about *events* in the batch *downloaded* by the *admin* (see Figure 23).



**Figure 22.** Appearance Documentation Report



**Figure 23.** PDF Event Report

## Conclusions

The analysis for this *web event management* design is to use the *Dynamic Systems Development Method (DSDM)* to analyse the source of the needs or problems faced, then find solutions to solve these problems. The results of this *web event management* analysis found a problem solving point, namely by designing and implementing a *web-based* system both in registration and managing the data needed during the *event* so that it can be collected into one and can be easily managed by the *web event administrator*. The results of this *web event management* implementation were successfully implemented on a *web* that can be used with an *internet* connection. This proves that the author has successfully completed the analysis and implementation in accordance with the author's expectations. The system is built with the *Laravel framework*, the *Laravel framework* has advantages in system security, system quality, system operations, cost and time saving in system development. This system has been successfully implemented on the *web* by using the *dynamic systems development method* in analysing the design of this system. *Events* are growing all the time, with the number of participants increasing, the system can design *data mining* analysis in large amounts of data, in order to get more precise analysis. The use of *plugins* on the system such as *font-awesome*, *chart-js*, *angular*, and other *plugins* on this system works well. With further development, it can be developed again with other *plugins* in order to design a more *UI* and *UX* appearance to the *user*. For further development, an *android* or *IOS-based web event management* system can be implemented.

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