

THE BALIANS: PROMOTING BALINESE TRADITIONAL ART EXHIBITION USING GEOGRAPHIC INFORMATION SYSTEM

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ABSTRACT

Bali is a tourism destination which be famous by its nature, culture, art and artist. Many Balinese artists gathered together in an art studio and held some traditional art attraction or exhibition. However, they are lack of promotion. Advances of technology could help Balinese artist for promoting Balinese traditional attraction or exhibition. This research focused on the development of a geographical information system named “The Baliens” (The Balinese-Art Entertainment Reservation). “The Baliens” was an information system which provided a way for promoting Balinese traditional art exhibition and facilitating the tourist or local people who want to watch the exhibition. This geographical information system worked as a website service, which was developed using PHP as the programming language, MySQL database, and cloud computing SaaS. “The Baliens” website was able to handle three entities, they were art studio as a place for the artist gathered together and also accommodating an exhibition, administrator who has authority for data verification, and the user -the tourist or local people- who wants to watch the held exhibition. There were three main features of “The Baliens”, those were exhibition booking, event ticket reservation, and online payment for the booked exhibition or tickets. The success rates of “The Baliens” as a reservation system and promotion media were measured by the Likert scale. The result of questionnaires which were used for measurement pointed out that 10 measurement variables were in Agree (A) and Strongly Agree (SA) categories. Those result meant that “The Baliens” had run appropriately.

Keywords: *Geographic Information System, Tourism, Bali, Balinese Exhibition, The Baliens*

1. INTRODUCTION

Bali is the part of Indonesia, which is known as a beautiful tourism destination. Bali has a beautiful nature, unique culture and friendly people, therefore tourist and traveler have more interest in Bali. In 2017, Bali was honored as the best tourism destination by the biggest worldwide traveler website, TripAdvisor[1].

The tourism industry in Bali enhances contribution towards Indonesia's foreign exchange earnings[2]. The many number of visitors bring a chance for the local artist by held some Balinese attractions, then earn money from it. Most of Balinese artists have some Balinese-art talents like *bebondresan* or Balinese traditional comedy, Balinese traditional musical club or *sekeha gong*, Balinese traditional singer club or *sekeha kidung*, Balinese traditional dance club *sekeha pragina*, Balinese traditional puppeteer or *seniman dalang*, etc. The Balinese artist could hold an attraction based on their talents, then earn sales commissions from the tickets.

The versatility of Balinese artist's attraction contrast with the ability to promote their talents. This was obtained from the direct observation. Many people are confused and still have to ask by word of mouth when finding a Balinese artist to joined a Balinese-traditional attraction, performances, and ceremonies. An accessible promotion media is necessary, to be easier for people on finding and promoting traditional-art artists.

Information and technology can be a solution to help Balinese artist in promoting their talents and ability or promoting an attraction to show. “The Baliens” (The Balinese-Art Entertainment Reservation) is a geographic information system which provided a solution for promoting attraction from Balinese artists to the tourists or local people. Balinese artist who gathered together at any art studio were able to registrate their self to the system, promote their talent, even promote the attraction that they will hold. For example, if a hotel wants to hold Balinese traditional dance performances, they could look for

and booked dancers through “The Balian” easily, without losing time for finding suitable dancers. The art studio which wants to join “The Balian” should be registering their self, then registering their artist who gathered in it.

“The Balian” is a website which developed by using cloud computing, PHP language programming, and MySQL database. This geographic information system using cloud computing with SaaS (Software as a System) deployment model. There are three entities who were handled by the “The Balian”, they were the user, art studio, and administrator. “The Balian” were able to displayed list of Balinese artist and art studio who registered in the system. This system also could display list of attraction which will or are being held. “The Balian” website also providing reservation service for tickets or events booking.

The success rates of “The Balian” as a geographic information system for reservation and promotion media could be measured by using the Likert scale. Likert scale is often used in the survey or descriptive research[3].

The rest of this paper is organized as follows. Section 2 presents some previous works which related to the “The Balian”. Section 3 presents reviews of literature about information system, geographic information system, cloud computing and Balinese traditional attraction. Section 4 presents the research method. Section 5 presents the result of experiments and analysis of it. Section 6 presents the conclusions and future works of this research.

2. RELATED WORK

Geographic information system or reservation system using cloud computing and website had researched several times. The following papers loaded the list of research about website and cloud computing for information systems.

In 2012, Siswanto did a research about the usage of Google Maps API for mapping the tourism destinations at Mojokerto Regency, East Java Province, Indonesia. Google Maps API was used for building a map of tourism destinations. The researcher developed a website using PHP, JavaScript and MySQL database[4].

In 2013, Wijaya, Santoso, and Isnanto studied about web-based information system for ticket reservation of a travel company. The website applied a deposit system when a user made a reservation. The website built using PHP,

CodeIgniter framework and MySQL server for the database[5].

In 2014 Sulistyanto and Azhari researched about designing cloud computing system for Palembang *songket* (a type of traditional cloth in Palembang, Indonesia). The deployment model of cloud computing used here was SaaS (Software as a Service). This deployment model enabled the user to utilize the application without installing it on the local computer, set up a server, hire an operator, maintenance costs, and the other resources. It would save the costs[6].

In 2016 Jannah, Hidayah, and Mas’ud did a study about web-based information system for the art attraction reservation system. The website provided reservation information and be a promotion media for the art studio at once. The website was developed using PHP and MySQL database[7].

All those previous studies produced a system which involves two aspects, the user as a customer, and the system itself. The interaction and transaction processes managed by the system’s administrator(s). In this study, “The Balian” involved art studios as an entity to manage their resource and handled the transaction, but those run under an administrator. The advances in SaaS cloud computing helped the art studios to manage their space independently, however, keep supervised by the super-administrator.

3. LITERATURE REVIEW

Section 3 loads literatures which be the based for this research. The reviewed literatures here are about Balinese traditional exhibition, geographical information system, cloud computing, and Likert scale as the indicator for success rate measurement of the developed system.

3.1 Balinese Traditional Art Exhibition

Art studio is closely linked to the Balinese art. Art studio is a place where people can gather together and doing or learning arts, which aims to preserve the cultures[8]. An art studio could help Balinese artist learning many things which are appropriated to their skill and interest such as dance, music, theatre, carving, painting, and so on.

Balinese traditional art exhibition could divide into two form, which has their own meaning. That two forms are (1) *tembang* and *karawitan* exhibition; and (2) *drama gong* and Balinese dance exhibition. Each of them would present in the following subchapter.

3.1.1 *Tembang* and *karawitan* art exhibition

Karawitan is a kind of musical art that is presented using notation system, color sound, and rhythm. *Karawitan* has some function and tone character, also has some rules of work in instrumental, vocal, and *ampuran*[9].

Dhama Githa is a part of *karawitan*, and also a part of Balinese *tembang* (song). There are four types of Balinese *tembang*, the four are *Sekar Rare*, *Sekar Alit*, *Sekar Madya* dan *Sekar Agung*. *Sekar Rare* is a *tembang* that usually in a form of short song, sang freely as an accompaniment of *madolanan* (terms for children playing).

Different from *Sekar Rare*, *Sekar Alit* is already bounded by the rules of singing called *padalingsa*. *Sekar Alit* is often referred as a *pupuh*. Several examples of *pupuh* are *Pupuh Sinom*, *Ginanti*, *Durma*, *Maskumambang*, *Ginada*, *Dandang Gula*, *Pucung*, *Semarandana*, *Pucung Gambuh*, and *Megatruh*.

Sekar Madya is a song which closes to the ritual song, that sung at the traditional ceremonies or religion-based ceremonies. *Sekar Madya* is already bounded by the rules of singing.

Sekar Agung is a Kawi language song, which is different from another *sekar* before, that used Balinese as the language. *Sekar Agung* usually sang at the traditional or religion-based ceremonies.

3.1.2 Drama gong dan Balinese dance

Drama Gong is a kind of theatrical performance. *Drama Gong* usually showed some romantic stories. The stories were taken from the elders or cultural stories from outside Bali province. This theatrical performed by some actors and actresses, who dialogues with the Balinese language. Theatrical Drama Gong is a fusion of modern theatrical and Balinese traditional theatrical[9].



Figure 1: Traditional Balinese Gamelan as musical instruments used in Drama Gong and Balinese Dance[9]

Balinese dance is a kind of traditional dance from Bali. While in a performance, Balinese dancer will be seen doing some abstract but beautiful movements. It is the uniqueness of Balinese dances. Some of the famous Balinese dances among the people or the tourists are Sanghyang dance, Legong dance, Pendet dance, Baris dance and Gabor dance.



Figure 2: Legong Dancer Illustration[9]

3.2 Geographic Information System

Geographic Information System (GIS) is a computer-based information system which used to process and store geographic data. SIG combines text (attributes) of geo-referenced geographic objects and graphical data on the earth (geo-reference). Geographic information systems can be utilized to combine, organize and analyze data to produce an output. This output could be a reference in decision making on geographic problems[10].

Recently, the development of geographic information system leads to the web-based and mobile-based GIS[11]. Another name of a web-based geographic information system is WebGIS, whether mobile-based GIS can be called with MobileGIS. GIS leads development to the web-based and mobile-based application due to advances and effectiveness of network for geographic information. The existence of WebGIS and MobileGIS will help people to find routes to a specific place based on their real-time position.

3.3 Cloud Computing

NIST provides the definition of cloud computing as a model which allowing an on-demand access to a network, to provide configured computing resources which can be utilized together[12]. Examples of cloud computing are networking, server, storage, applications and the other services with minimal of management and interaction from the service provider. There are three service models and four deployment models of cloud computing[13].

SaaS or Software as a Service is one of deployment model of cloud computing. This deployment model focused on giving the user to utilize the application within an internet network. The user could access the application from many devices through an interfaces like web browser. The user do not need to manage or control the basic infrastructures such as networks, servers, operating system, storage, and so on. This ready-to-use model even is not requiring any advance abilities for operating an application, except for application configurations to certain user[14].

3.4 Skala Likert

The Likert scale is usually used to measure perceptions, attitudes or opinions of a person or people, about an event or a social phenomenon. This scale is often used to see a person's attitude in marketing research[15].

Measurement process using Likert scale involve some variable in it. The measured variable will be specified into some variable indicators. The calculation generated from the total of respondents multiplied by the value of the determined Likert score.

There are two types of the question when using the Likert scale for the measurement process. The first is a positive question, and the second one is a negative question. The positive type is used to measure the positive scale, and negative type used to measure the negative scale. The positive type question will be given scores from 5, 4, 3, 2 and 1, while the negative type question will be given scores from 1, 2, 3, 4, 5 or -2, -1, 0, 1, 2. The form of answers from the questions could strongly agree, agree, neutral, disagree, and strongly disagree. Each instrument item's answers could have a gradation from highly positive to highly negative, which can be in words like very important, important, moderately important, slightly important, not important.

4. RESEARCH METHOD

This research using DSRM (Design Science Research Methodology) methodology which was introduced by Peffers[16]. DSRM is a standard guidance in a research which linked to a service design of information and technology. Step-by-step in the DSRM methodology divided into 6 phases, as seen in Figure 3 below.

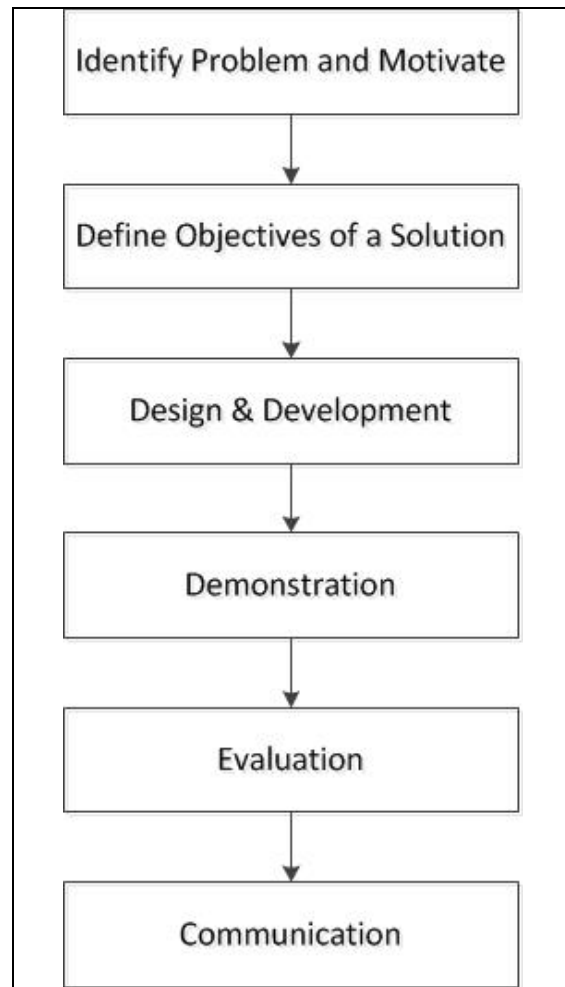


Figure 3: DSRM Methodology

All the six phases of DSRM methodology are identifying problems and motivate, define objectives for a solution, design and development, demonstration, evaluation and communication[17]. Each of the phases will be explained below.

The first phase is identifying problems and motivation. In this phase, the identification process is expected to giving solutions for the research. The specific research problem needs to define to justified the value of a solution. Motivations for the researchers and the audiences of the research could be accomplished by justifying the value of a solution. Motivation is a trigger for giving solutions and a background of the research.

The next phase is defining objectives for a solution. The phase of defining objectives could tell the aim of the research. The objectives can be quantitative or qualitative.

The third phase is design and development. The researcher or researchers could create a design research artifact. This phase

includes designing the system and implementing the planned design.

The fourth phase is the demonstration. The implemented design will be demonstrated to look at the functionalities of the system. The effectiveness of solutions for the objectives also could be measured from this phase.

The demonstrated system then will be evaluated in the evaluation's phase. The result of the demonstration phase will be the consideration of evaluation phase. This evaluation process produces a comprehensive observation measurement of the effectiveness of the system for being the solution of the objective.

The last phase of this DSRM methodology is communication phase. The importance of the problems, artifacts, utility and novelty, its effectiveness to researchers and other relevant, should be communicated through a paper or report. This phase requires knowledge of the disciplinary culture.

5. RESULT AND ANALYSIS

The geographic information system "The Balians" will be discussed in this section. The discussion includes modeling and system design, also interfaces of the system. "The Balians" website then analyzed here, to observe its functionalities and effectiveness as a reservation system and promotion media at once.

The development of "The Balians" started from creating a system design. This system was developed based on a context diagram, as a modeling media. Context diagram of "The Balians" showed in Figure 21 at the end of this paper.

The three entities in Figure 21 could access "The Balians" directly. The three entities at Figure 21 were admin (administrator), art studio and customer (user). This study succeeded in order to develop a website which directly involves an art studio to manage the transaction, besides supervision from the system administrator.

Each of the entities roles would be described here. The admin entity could log into the system, has authority to confirmed some business processes and modifying some system's setting. Art studio entity has access to registering their self as an art studio, logging into the system, filling the art studio's data, adding artists and events (attractions) which ready for booked at particular place and time. The customer (user) entity could be registrating their self as a customer, logging into the system, accessing and booking event ticket, also

making a reservation for artists or events from art studios.

Context diagram at Figure 21 could be derived into a hierarchy diagram. Hierarchy diagram will clarify the main processes or functionalities of the system. Hierarchy diagram of "The Balians" showed in Figure 22 at the end of this paper.

Figure 22 shows five main processes of "The Balians" system. Those five main processes were registration, art studio management, attraction/artist reservation, event reservation and data searching. Two entities, customer and art studio, were able to access the registration menu, meant they enabled to be registering their self. Art studio management included three processes, which were selling management, performance schedule management, and event management. Event (or attraction) or artist reservation consisted of three processes, those were selecting, booking, and paying the booked event. The last process in the top level of hierarchy diagram is data searching, includes art studios searching and events searching.

The modeling media then turned into source codes in IDE (Integrated Development Environment), with a geographic information system "The Balians" as the result. This system developed by using PHP programming language and MySQL database. "The Balians" website compatible with Google Chrome and Mozilla Firefox browsers which supported HTML 5. The whole system supported only one language, that was Bahasa Indonesia. The homepage of "The Balians" is shown in Figure 4 below.



Figure 4: Home Page of "The Balians"

There are five menus which showed in Figure 4, those were Event, *Pertunjukan Disewakan* (events which were able to booked), *Daftarkan Sanggar* (art studio registration), *Tentang Kami* (about us), and Log in. Every menu have their own functions.

Event menu displayed the list of events which will be held and had stored in the system's database before. Art studio could input the event data to the system, then it will be stored in the database. Art studio should input the event

information like name of the event, place and time, amount of tickets available, and price of the event. Customers were able to book the event via “The Balian” if they had registered and could be log into the system. Figure 5 shows the interface of Event menu.

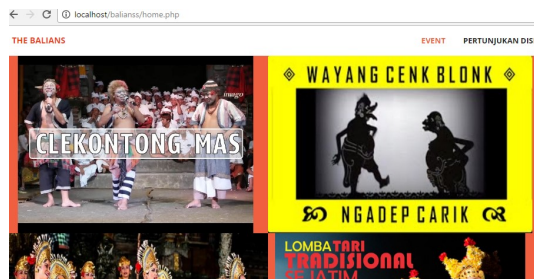


Figure 5: Event Menu

As a geographic information system, “The Balian” included some map-based information inside it. When art studio inputted an event into the system, they also filled location information of the event. Thus, system could display a map which refers to the location of the event, as shown in Figure 6 below.

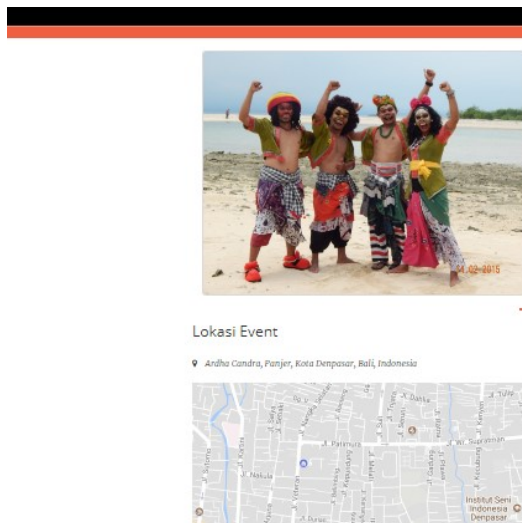


Figure 6: Location of the Event Shown in the Map

Pertunjukan Disewakan menu displayed all the events which available in every art studio. The art studio could input some information like the name of events or attractions, the duration, and prices. Customer or user could book it. The difference between Event and *Pertunjukan Disewakan* menu is Event act as a menu that was intended to booked event tickets such as booked cinema tickets, while *Pertunjukan Disewakan* menu was intended to booked an attraction or event from the art studio to be held at a certain time. Figure 7 shows interface of *Pertunjukan Disewakan* menu.

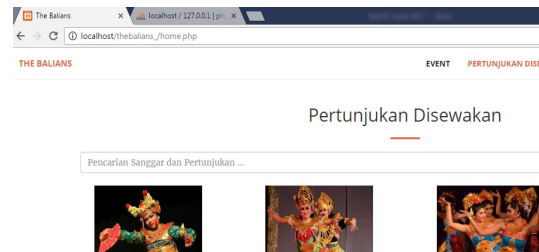


Figure 7: *Pertunjukan Disewakan* Menu

Daftarkan Sanggar menu was an interface for art studios to registering their self into “The Balian” system. Some information which should be prepared when the registering process, included the name of the art studio, address, phone, username, password, and art studio’s profile. The art studio were enabled to log into the system when their registration already confirmed by the admin. Figure 8 showed the interface of *Daftarkan Sanggar* menu.

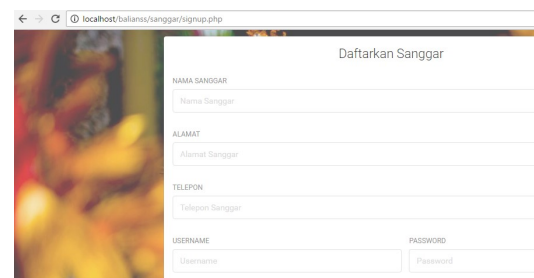


Figure 8: *Daftarkan Sanggar* Menu

About Us menu loaded information about the developers of the system. Credits of developers were displayed as an appreciation for them.

Log in menu was a menu that appearing interface for anyone who wants to log into the system. There were three kinds of users (entities), that were the customer, art studio, and admin. Section 5.1 to 5.3 loads the availability of system’s functionalities for those three users.

5.1 Customer Entity

Customers were able to log in with an interface as shown in Figure 9 below.

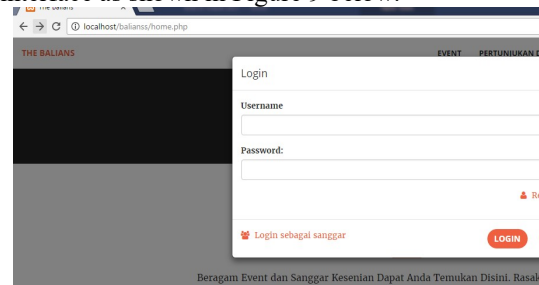


Figure 9: Interface for Customer Login

Customer who had registered in the system could log in with their username and password. Figure 8 showing several buttons at the interface, like log in button (as a customer), close button, registration button for the customer who looks for registration, and a button for log in as an art studio.

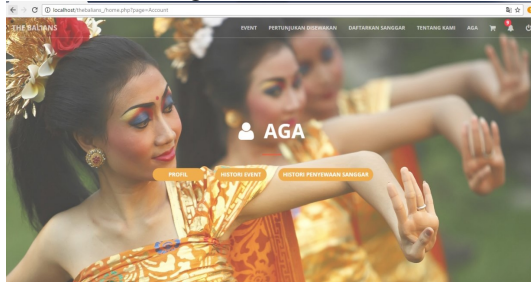


Figure 10: Customer's Dashboard

Customer's dashboard loaded some features includes customer's profile, booked events histories, booked art studios/artist histories, shopping cart, and notification. A registered customer had authorization for using and enjoying all the reserved features like online ticket booking and event booking.

Customer who already in the system could book an event ticket. Figure 11 below showing interface of ticket booking process by the customer.

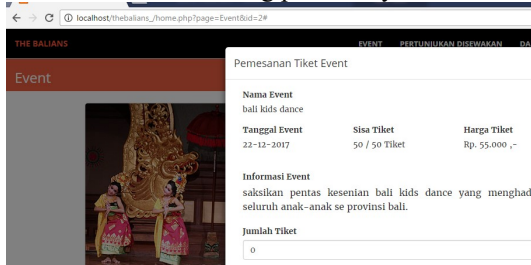


Figure 11: Ticket Reservation of Event

Figure 11 showed information in a ticket booking process, included event's name, date, tickets remaining, price, and another information related to the ticket. Everyone was able to see information about the event, but only a registered user who could make an online reservation for the ticket.

Customers were able to book various tickets from all the registered art studio. All the booked tickets would be collected into the customer's shopping cart. Figure 12 shows the interface of customer's shopping cart.



Figure 12: Customer's Shopping Cart

All the item in the shopping cart would be checked out later. After the checkout process, the customer should confirm some information included invoice number, the amount in Rupiah (Rp), and payment receipt. The customer should upload the payment receipt to the system, then the admin would check the receipt and approved it if the uploaded receipt is appropriate.

After booking, the customer would receive a notification which displayed on the customer's dashboard. Figure 13 shows the interface when a customer received a notification.

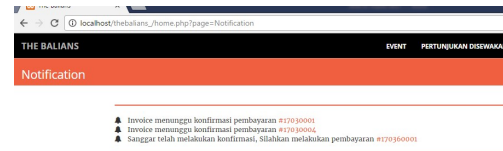


Figure 13: Notification on the Customer's Dashboard

Notification system was useful because all the user would be noticed any important things by the system. Information which would notify by the system includes information about the transaction, art studio booking, and information about events which would be held.

5.2 Art Studio Entity

Art studio could log into the system by choosing Log in menu, then pressing link-button "Log in sebagai sanggar", which in English means "Log in as art studio". The system would load an interface for art studio to log in. Figure 14 shows the interface of it.

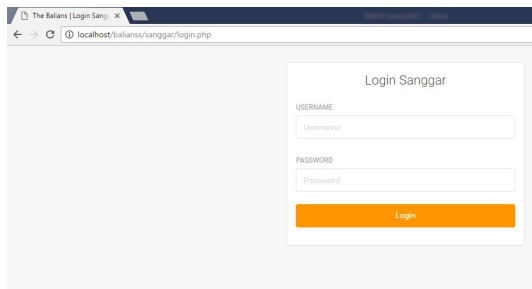


Figure 14: Interface for Art Studio Login

The system would display a dashboard after an art studio had log into the system. Figure 15 shows the interface of the art studio's dashboard. Art studio could make use of several facilities. Those facilities were adding and editing attraction or artist data, adding and editing list of event, adding and editing attraction or exhibition schedule, and printing invoice for the customer who made a reservation to the art studio.

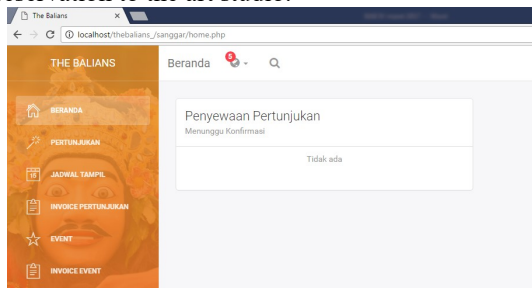


Figure 15: Art Studio's Dashboard

Some available menus at the art studio's dashboard were: Dashboard, as the front page of the system; *Pertunjukan*, as an interface for processing list of attraction or artist provided by the art studio like inserting, updating, and deleting data; *Event*, as an interface for processing list of to be held event like inserting, updating, and deleting, *Invoice Pertunjukan* dan *Invoice Event*, as an interface for invoicing process.

Pertunjukan menu at the dashboard's panel was a menu for processing list of attraction or artist which provided by art studios who registered in the system. The art studio was able to add some variations of provided attraction or artist, to promote it at the system. An art studio could add attraction or artist by filling a form with information the name of attraction or artist, type, booking price, more information, and image of it. The filled form then saved into the database and would appear on the dashboard.

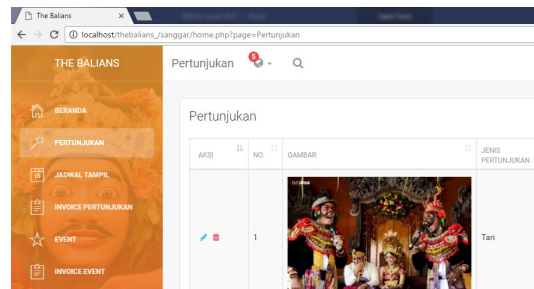


Figure 16: Pertunjukan Menu

Event menu on the art studio's dashboard panel was a menu for processing event. The event here means an attraction of exhibition which would be held at a certain time. An art studio which wanted to hold an event could input the event into the system. There was a form which should be filled with some information like the name of the event, held time, information of the event, ticket price, quantity of the ticket, and a picture for the event. The filled form then saved into the database and would appear on the dashboard. When a customer log into the system, they could book a ticket for that event and would get an e-ticket.

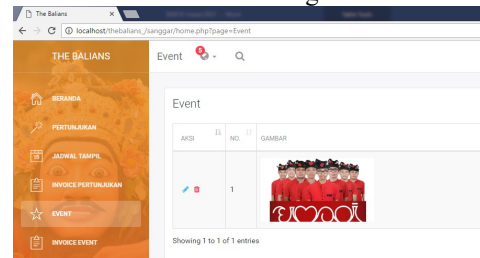


Figure 17: Event Menu from the Art Studio's Session Login

Jadwal Tampil menu at the dashboard panel was an interface for scheduling events. Art studio could set the range of performing per day, thus the customer was able to make a reservation based on their choices time.

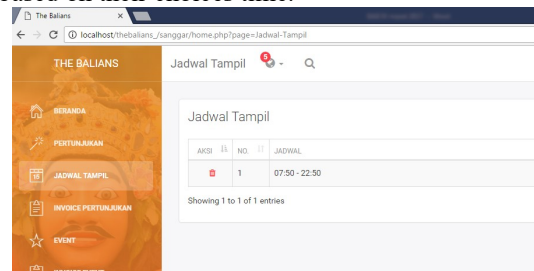


Figure 18: Jadwal Tampil Menu

Invoice Pertunjukan menu at the art studio's dashboard panel was enabling art studio to know about the payment status of the customer who booked an event from this art studio. Admin would verify the booking when a customer finished the

payment transaction. Customer's ID number would be there on the invoice.

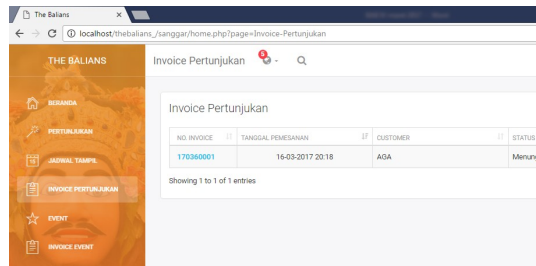


Figure 19: Invoice Pertunjukan Menu

Art studio could see all the customers who booked artists for an attraction or exhibition, and their transaction data at once. Admin would verify the transaction when the customer had finished payment process.

5.3 Admin Entity

Admin (system's administrator) entity in the geographic information system "The Balian's" had duties to maintained the data which goes to the system, whether it is from customers or from art studios. The data here means registration of art studios and tickets or events booking from the customers.

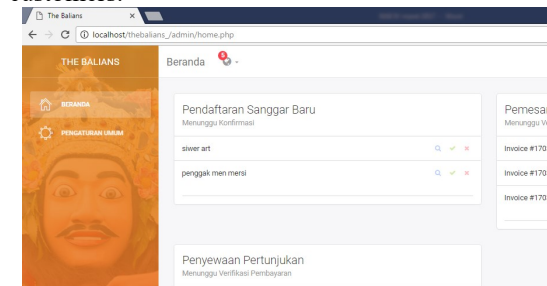


Figure 20: Administrator's Dashboard

Figure 20 showed the dashboard of admin entity. There are several menus here, the menus were Dashboard and General Setting. Dashboard filled with information included art studio's registration data, tickets booking transaction and events booking transaction. All the data which streamed to the system would be verified by the admin.

Admin had authorities to verify the art studios which had registered. Before a verification and confirmation from admin, the art studio could not log into the system yet. The art studio should wait until verified and confirmed by the admin.

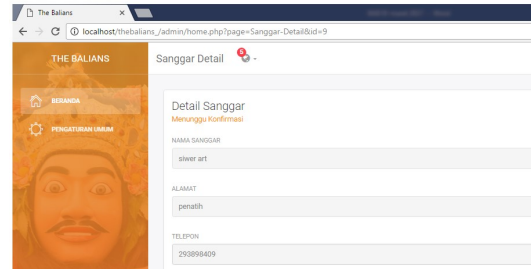


Figure 21: Art Studio Verification Process

The system providing interfaces for the admin who wants to checking the input data. Admin could checklist of art studio which has finished the registration process. Admin also could confirm the data if the verified data has appropriated. The art studio could log into the system and enjoyed all the features of the system if it had verified and confirmed by the admin.

Another authority of admin is verifying booked tickets from customers. Customers who had booked tickets must finish the payment transaction. They could upload the transaction receipt and admin would verify the receipt. Figure 22 shows the interface of verification process by the admin.

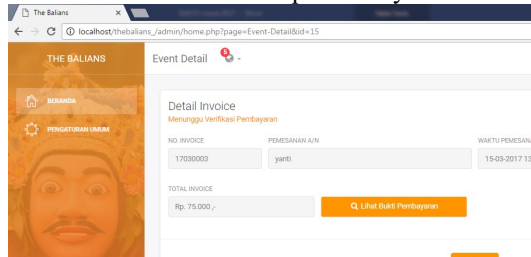


Figure 22: Verification of Event Ticket Reservation

Figure 22 showed an interface of the verification process. The admin would verify a user who booked event tickets and uploading the transaction receipt to the system.

5.4 Measurement using Likert Scale

Geographic information system "The Balian's" were analyzed through a survey using 10 respondents. The 10 respondents then given questionnaires as the assessment instrument. All the questionnaires then analyzed and compared to the Likert scale's range. This scale has some category, ranged from 0 to 100. Interval tables and interpretation percentage on the Likert scale are presented as follows, which would be the based on the analyzing process.

Table 1. Likert Scale Interpretations

Scale	Category
0% – 19,99%	Strongly disagree
20% – 39,99%	Disagree
40% – 59,99%	Neutral
60% – 79,99%	Agree
80% – 100%	Strongly agree

Table 1 listed ten variables were used for the analysis of “The Balian’s”. Each of variables marked by the 10 respondents. Assessment grouped into 5 categories, those were Strongly Agree (SA), Agree (A), Neutral (N), Disagree (D), Strongly Disagree (SD). Those 5 categories based on the scale and category at Table 1 and were sorted from the most positive to the most negative value. Respondents gave marks based on their experience when using “The Balian’s”. The questionnaires then calculated, and the calculation is presented as follows:

questionnaires was given the following score: 5 points for Strongly Agree, 4 points for Agree, 3 points for Neutral, 2 points for Disagree, and 1 point for Strongly Disagree. Referring to the scoring rules, the total score for variable 1 is:

$$(4 \times 5) + (3 \times 4) + (3 \times 3) + (0 \times 2) + (0 \times 1) = 41 \dots\dots (1)$$

The value of percentage index could be calculated if the highest score (Y) and the lowest score (X) were known. The highest and the lowest scores for all variables were equal, i.e 50 (obtained from 5×10) for (Y) and 10 (obtained from 1×10) for (X). The final percentage index of variable 1 was calculated as follows:

$$\% \text{ index} = \text{total score} / Y \times 100 \dots\dots (2)$$

The percentage index of variable 1 which calculated by the formula (2) is 82%. The value of 82% belonged to Strongly Agree category from Table 1. It means that respondents strongly agree with the statement (variable) 1, which is application’s interfaces are attractive and easy to understand.

Calculations using Likert scale were continued until all the variables are calculated. The results of the calculation are shown in Table 3 belows.

Table 2. Result of Questionnaires

No	Variable Statements	Number of Respondents				
		SA	A	N	D	SD
1	Interfaces of the application/website are interesting and easy to understand	4	3	3	0	0
2	The content's colors are appropriate and consistent	6	4	0	0	0
3	The font color matches to the background	3	3	4	0	0
4	Font types and size are appropriate and easy to read	5	2	3	0	0
5	The insert, update and delete process are easy to understand	4	6	0	0	0
6	The information presented is clear and easy to understand	7	3	0	0	0
7	The size, shape, and color of every button are appropriate	4	5	1	0	0
8	The output reports have conformity to the user needs.	5	5	0	0	0
9	The system's input is easy to understand	5	5	0	0	0
10	The system facilitates art studios to monitoring the growth of data based on their transaction and rates from the customer	4	1	5	0	0

Interpretation process started by counting the scores of every variable. Each statement on the

Table 3. Result of Variables Calculation

Variable Number	Percentage Index (%)	Result
1	82	Strongly Agree
2	92	Strongly Agree
3	78	Agree
4	84	Strongly Agree
5	88	Strongly Agree
6	94	Strongly Agree
7	86	Strongly Agree
8	88	Strongly Agree
9	90	Strongly Agree
10	78	Agree

Eight of 10 variables were valued Strongly Agree, while the two left was valued Agree. This condition means “The Balian’s” run appropriate, because all the 10 variables counted in the positive range.

Although showing good results of the analysis, this study has some limitations. “The Balian’s” only developed in form of a website. Related to the advance of mobile technology, it would be better if “The Balian’s” was integrated to a mobile application. The system did not yet provide a navigation feature which can direct the user to an

event. Navigation feature will help the user to get a direction immediately without opening another third-party map-apps.

6. CONCLUSIONS

Geographic information system “The Balian” aimed to provide a reservation system and promotion media at once, for Balinese artist and art studios in Bali. “The Balian” was developed using PHP programming language, MySQL database and cloud computing with SaaS deployment model. There are three entities who were handled by the “The Balian”, they were the art studio, administrator, and the user. The main features of “The Balian” were attraction reservation, event ticket reservation, and online payment for those booked. Measurement of success rate using questionnaires showed that the system run appropriately. However, this research only produced a website as the system. In the future, this research hopefully could be developed for mobile devices and added of direction feature which will help the people get the directions to the place of the exhibition.

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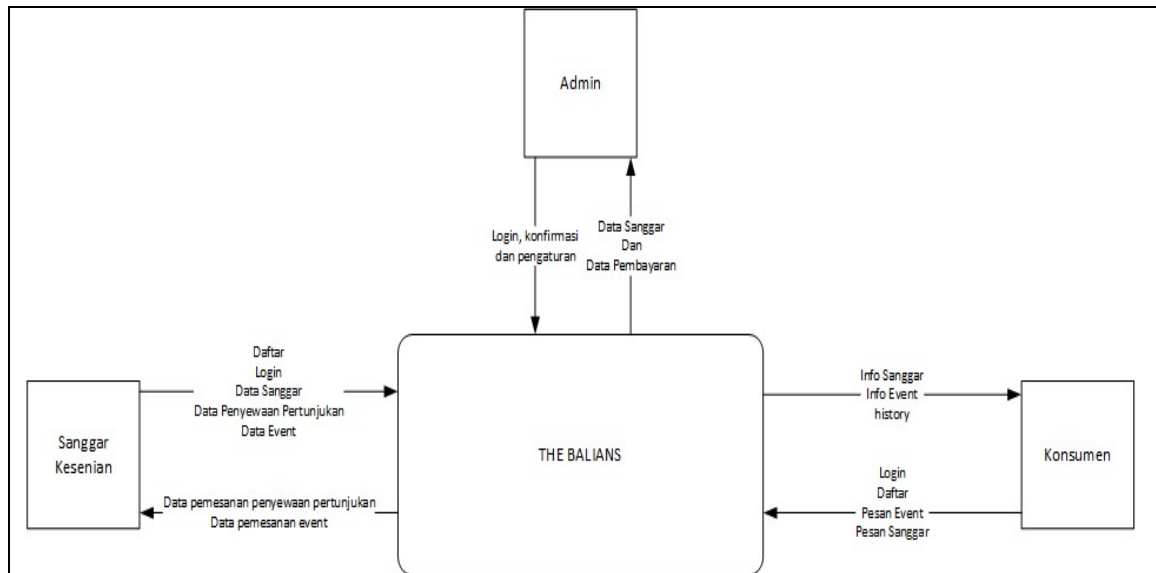


Figure 21: Context Diagram

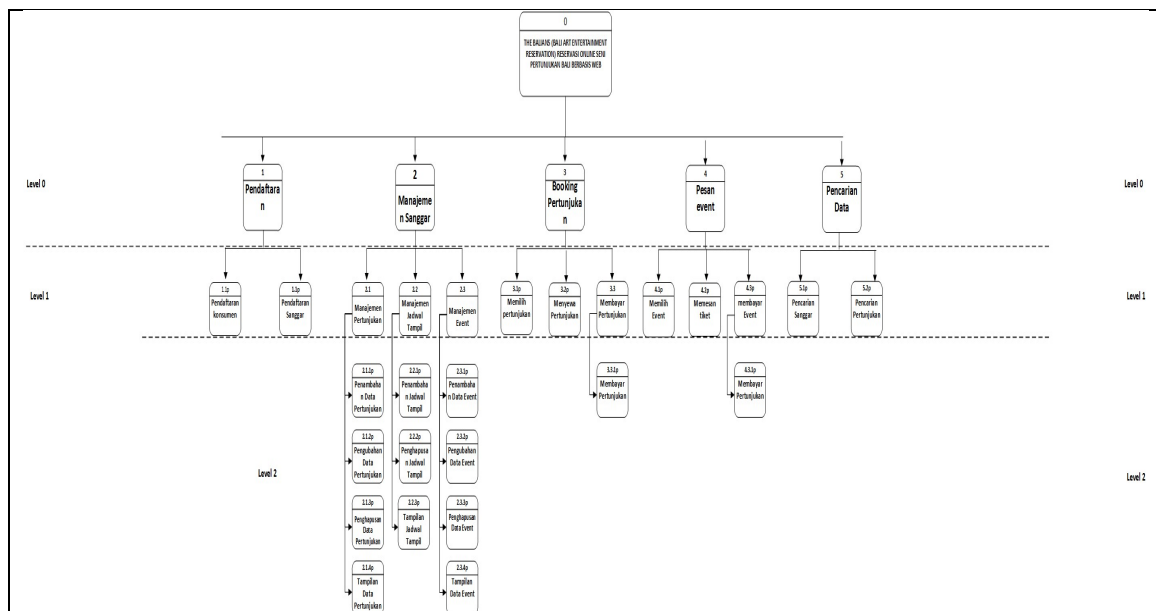


Figure 22: Hierarchy Diagram