

DEVELOPMENT OF AUCTION MODULE SIAPSIAPNIKAH.COM USING EXTREME PROGRAMMING METHOD AND CROWDSOURCING CONCEPT

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Abstract

Wedding organizer is a business that provides products or services related to wedding ceremony and arrange their customer wedding. Wedding organizer began use internet as a media to advertise and promote their products and services. Moreover, Indonesia people using internet to get the information about wedding organizer easier. In fact, when the customers find and choose wedding organizer, price is a high priority to considering. In addition to find wedding packages, the customers want to find the products and services except a package and proper to their budget. From that fact, this research will discuss on auction module development of siapsiapnikah.com website application. On develop a module, researcher will apply auction system as a solution to find suitable price on wedding products and services. To implement auction system in the website properly, researcher using crowdsourcing concept to get more price from more than one wedding organizer on a customer needs. Furthermore, researchers use Extreme Programming as a developing method and Codeigniter as a framework. The result of this research is a website application that has auction system to help customer finding suitable wedding organizer and price. The customers will get prices from many wedding organizer depends on customer needs.

Keyword: crowdsourcing, codeigniter, extreme programming, online auction, wedding organizer.

1. Introduction

Internet has become a common media that used to socialization, advertising, promotion, exchange of information and conduct a business online. As well as Wedding Organizer (WO), they began using the internet as a media for advertising, promotion, providing information and getting the customers. In addition, on the customer or WO service user side, internet becomes a media that they used to find information about WO and comparing reputation to choose a WO.

In Indonesia, there are wedding directory website has built to connect members to WO, such as weddingku.com and bridestory.com. There are 509 WO has already joined to weddigku.com. The amount of WO that did not have a website is 403 WO. On weddingku.com, there is a message feature to connect between the members and WO. To search and select WO, customers are looking by using the keyword category, location etc. To help customers to select WO, this website provides rating and testimony feature to compare reputation of WO.

Researcher has been distributed a questionnaire to 55 respondent to know their priorities consideration when they choose wedding organizer. Accordance with the survey result, 40% respondent has a price priority as consideration when they choose wedding organization. That is means respondent considering and make the cost proper with their budget. As a function of auction, this system can deliver an optimal price, which is proper with customer budget and products/services from wedding organizer.

The background above can become a potential to build a system that using the auction method in choosing WO. In this system will be applied crowd-sourcing concept, where the customer has a desire and a need for marriage. Then, WO can give prices according to customer requirements. Customers can choose WO based on reputation, service and prices WO submissions. Thus, customers can consider the price, service and experience in selecting WO accordance with the customer's wishes and budget.

The problem formulations in this research are:

- a. How to design and build a website application that can help the customers to get the information until choosing WO that proper with the customer wants?
- b. How to design and build a website application that can help WO to introduce, advertise, and promote their products/services to the customers?
- c. What is website concept that can help WO to get their customers without design and build their personal website?
- d. How to design and build a website application with a feature that can help the customers to choose and select WO with suitable price?

The objective of this research is are to design and build a website application that can help the customers to get the information until choosing WO that proper with the customer wants and to design and build a website application that can help WO to introduce, advertise, and promote their products / services to the customers. Moreover, the objective of this research are to design and build a website application using crowdsourcing concept and to design and build a website application with a feature that can help the customers to choose and select WO with suitable price.

The boundaries of this research are choosing wedding organizer system on the website is only auction system, resource data of research material is only taking from wedding organizer that located in Bandung. Also, this website is not provide an online transaction, this website application is only can be accessed using website media, this website application is only to use by user in Indonesia,

The benefits from this research are wedding organizer can increase their revenue company; can introduce, advertise and promote their products/services to the customer; can get customers easier. In addition, the benefits of this research are customers can get the information about wedding organizer easier; choose WO that proper with their wants easier; can choose and get WO with suitable price.

2. Wedding Organizer

Wedding Organizer (WO) is a business that provide organize service or activities arrange that will to do in a wedding ceremony. This business coming up because of has an opportunity to give a solution for inefficient time from the people who life in crowded cities. Usually WO provides wedding invitation service, wedding dress, wedding gift, etc. The customers must be selective to choose trusted WO. In WO side, WO requires information about costumer preferences to their business [2].

Wedding Organizer is working start from arrange a pre-wedding, the main event of the wedding until honeymoon trip. WO will handle what is desired by the couple from wedding planning checklist, budget analysis, consultation wedding, unique wedding ideas, treatments before the wedding day, photography, music, food, flowers and decorations, vehicles, equipment rental weddings, etc [3].

3. Online Auction

Auction is the market where the price is variable and based on a competition among the participants who want to buy or sell products and services. Auction is one of types of dynamic pricing, which is the price of the products are varies, depends on characteristics of the customers demand and supply situation. There are a variety of dynamic market prices, such as offering, barter and negotiation between the buyer and the seller. More than that, auctions can occur when there may be thousands buyers and sellers [4].

4. Implementation of Crowdsourcing concept

The term of crowd-sourcing is start from outsourcing. Outsourcing is a concept changing a job from a company, institution or organization or individual. For example, we know that around in 2003, many big vendors like Microsoft, SunMicrosystem, IBM, Hewlet-Packard, and other vendor give a job such as testing, gap detection of the software in a company in India or China. Therefore the company in India and China got the revenue and job where diverted to them, and then the vendor got an objective valuation of their software. Crowd-sourcing is defined from "Crowd" and "Sourcing" (verb from the source), which means resources. When combined (still in free translation) will mean a thing or concept system based resource crowd. Crowd-sourcing concept is because of many participated people without depending on education background, nationality, religion, beginner or professional, for everyone who want to give their contribute or solution from the problem that give to individual, company or institution, whether with salary or not [1].

Crowd creation system is one of crowdsourcing category. The purpose crowd creation is to get results satisfactory. Examples of this concept are the creation crowd YouTube, Wikipedia, 99designs [7]. Crowd-sourcing concept itself will help and make easy for information searcher to get information from many sources. In the website that will build by researcher, there have many users, which are more than one member and more than one WO. Implementation crowd-sourcing concept in the website will help the customer to find and choose WO more quickly.

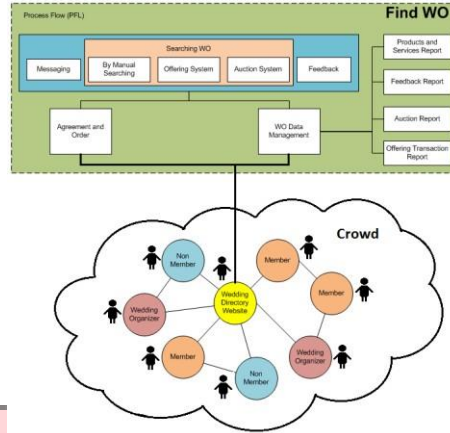


Figure 1. Implementation crowdsourcing concept on siapsiapnikah.com

5. Research Methodology

Extreme Programming (XP) is a discipline of software development based on values of simplicity, communication, feedback, and courage. In XP, each project contributors are members of "Whole Team", a team of business/development/testing handle all aspects of development. The center of team's thinking is "customer", one or more businesses that work with them every day [5].

XP uses a simple form of planning and analyzes to decide what to do next and be responsive when there are features that will be developed in the future as the development of the user requirements. XP is use when developing applications based on the user and has used by a small team.

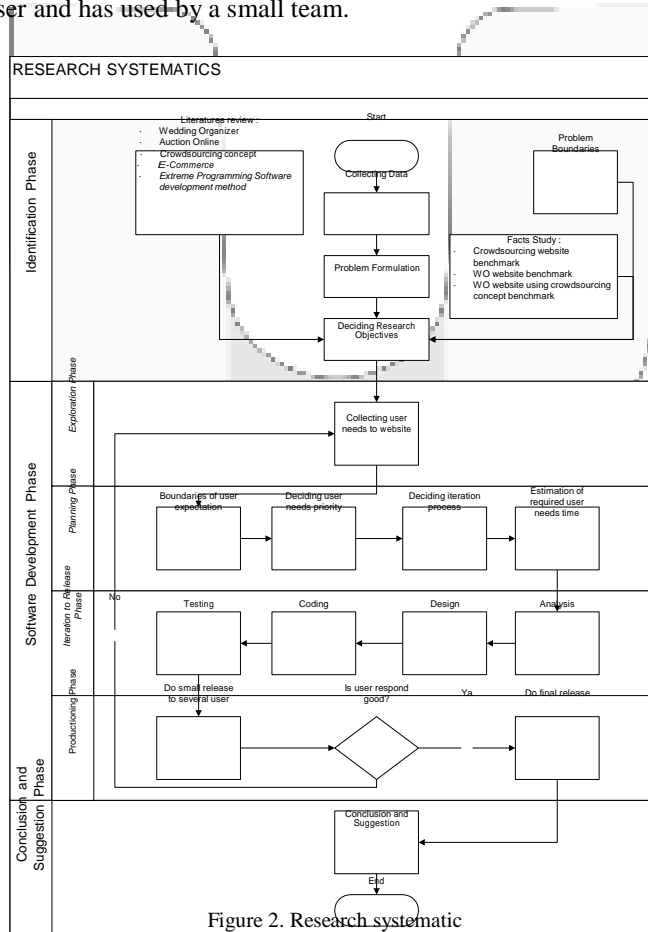


Figure 2. Research systematic

Research systematic is a diagram that explained or illustrated the steps to do a research.

a. Identification phase

At this phase, the researchers identify ideas and facts that occurred as to provide a background in making this website. Moreover, at this phase, the researchers describe the problems faced to ease navigation data collection in order to get relevant data. Then the researchers determine the purpose of research is based on literature studies, fact studies and problem boundaries.

b. Software development phase

At this phase, the researchers used phases in Extreme Programming (XP) software development method. The first phase is the Exploration Phase, researchers finding deeper into the specification needs of users website.

The second phase is the planning phase, the researchers limited the desire and prioritize needs of user. This is being able to estimate the creation of websites for a limited time. Then the researchers will plan phases and tasks in website development.

The third stage is the iteration to release phase, researchers performed the steps in develop a websites that analyze user needs to be applied on the website, and researcher coding and developing the progressive software and responsive to produce a prototype. Finally, the researchers tested the software and compared with expectations.

The fourth stage is production, researchers conducted tests to multiple users to know the response of users to the website. Thus, users can provide feedback or comments that would be a result in a decision whether the application is worthy to release or need more development.

c. Conclusion and suggestion phase

At this phase, the website that has been built will be evaluated as a whole and given advice making it possible to do the improvement and development to create a new version.

6. Analysis and Design

Siapsiapnikah.com website application will build using crowd-sourcing concept, where the website application provides a lot of information from more than one *wedding organizer*. This information is for the customer to find, choose and will using WO services. This website application can help the customer to choose WO that proper with their needs and budget.

6.1. Auction Module Application Functionality

There are functionalities that will build in auction system of siapsiapnikah.com website application:

- a. *Open new tender*. Based on auction method, tender is an object to bidding products, services, wants or needs. This function used by member to post their wedding needs. The form to open new tender is consist of auction title, wedding date, auction close date, location, total of invitation and many wedding products categories to make detail of member needs.
- b. *Pricing*. This functionality used by WO. After member post their wedding needs, WO can give prices to tenders depends on member requirements. A tender can consist of more than one price from many WO.
- c. *Close a tender without choosing WO*. This function used by member to close a tender without WO winner. Member can close a tender without choosing WO if they did not get suitable WO and price.
- d. *Close a tender with choosing WO*. This function used by member to close a tender with WO winner. Member can close a tender with choosing WO if they get suitable WO and price. Before member close and choose a WO, member can see WO's profile to compare WO's reputation by rating and review.
- e. *Request List*. This function used by WO to approve member's request. Member request WO to be a winner of an auction. WO can approve or cancel the request. Before that, WO can see the information of member.
- f. *Close pricing based on auction close date*. This function is use to automatically close based on auction close date. In this condition, WO cannot give prices and just waiting to a result whether member choose a WO or close without choose WO. One day before auction close date happen, system will send a notification to member. This notification is to warning member to choose WO more quickly and give information that a tender will be close tomorrow. Then, if auction close date happen, system will stop WO to give prices. In addition, system will send a notification to member.

6.2. Application Result

There are User Interface result from the website application has been built.

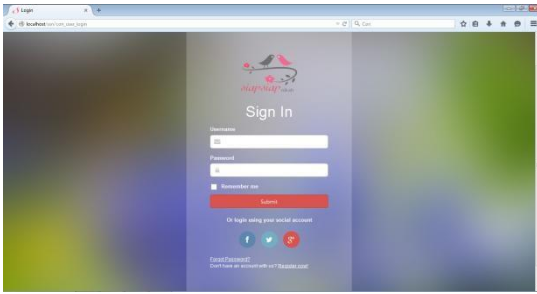


Figure 3. Login page

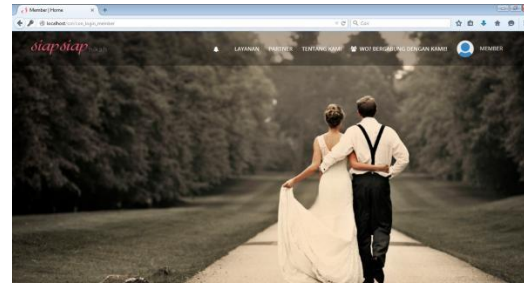


Figure 4. Member home page.

In Figure 3 described login page for all users. To be able to use the auction feature, users are required to become a member and log in first. Submit button will check the similarity username, password and user type with the data that already exists in the database. These checks will determine the user will direct to some page based on a role.

The main page of the members described in Figure 4. After login is successful then the member will be direct to this page. On the main page, there is searching wedding organizer feature that has described on Figure 5. Searching feature is consist of search by province and city, search by WO name, auction system and offering system. To use auction system, user have to click an icon button to direct to my tender page. In addition, in the link of auction system on main page, there are steps to use auction system. So, user can use this system easier and follow the procedures.

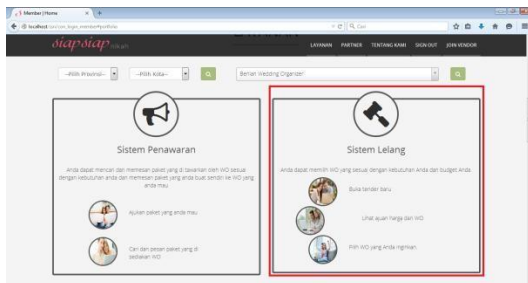


Figure 5. The link that direct member to auction system

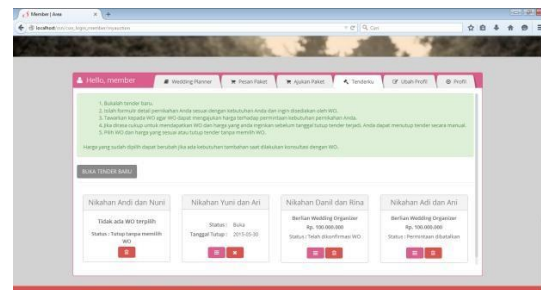


Figure 6. Member's tender.

My tender page consists of opened or closed by the member and there is a button to open a new tender. There has displayed on Figure 6, these pages provide information the steps to using auction system. In addition, this page displays the information about price that would get when members closing the tender. Every tender have many status, and will be decide what a functions that can members do. Three buttons will appear accordance with tender status, which are display the detail of a tender, close a tender and delete a tender.

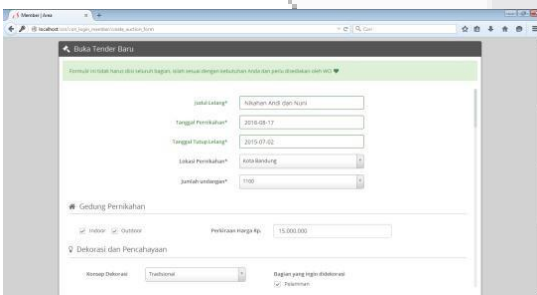


Figure 7. Create new tender form.

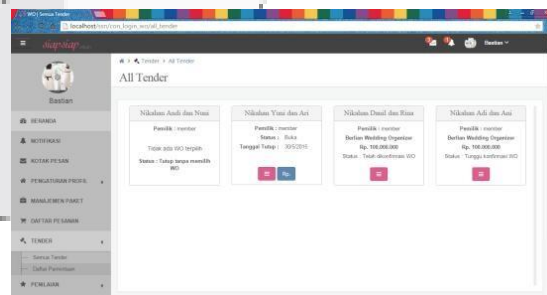


Figure 8. Display all tender on WO side page.

To open a new tender, members are not required to fill all sections of the form. As seen in Figure 7, the title of the auction, the wedding date, the auction close date, the location of the wedding, and the number of invitations have to filled by member. However, to fill the details of products and services categories that provided by WO, members be advised to fill in accordance with the needs of their marriage. Each category has different details and has a different stuffing budget. Thus, WO can know the desires and needs of the members in detail as well as the budget has provided in each product category and wedding services.

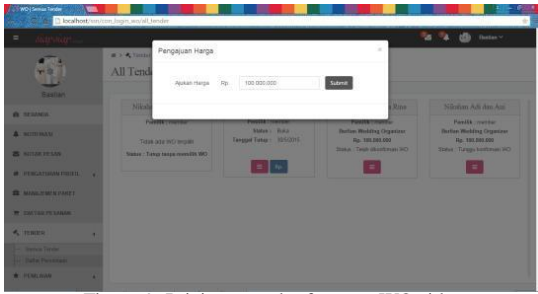


Figure 9. Pricing a tender form on WO side.

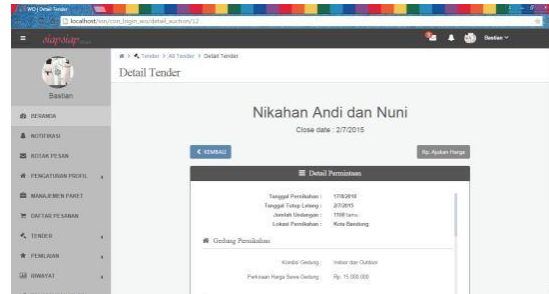


Figure 10. Display tender detail on WO side.

Figure 8 is a display of all tenders in the WO side. Same with my tender page on member side, the existing tenders in WO side has actions that accordance to the tender status. If tender status is open, then WO can submit price to that tender. Price submission form has displayed on Figure 9.

In Figure 10 and Figure 11, has described tender detail page on WO side and side members. On WO side, there has not a price list because to prevent that WO make a lowest price and make member choose them. List price submissions on member side are not only to see the price but also to compare between WO. Member can see the WO's profile and review before they choose which WO and price that they want.

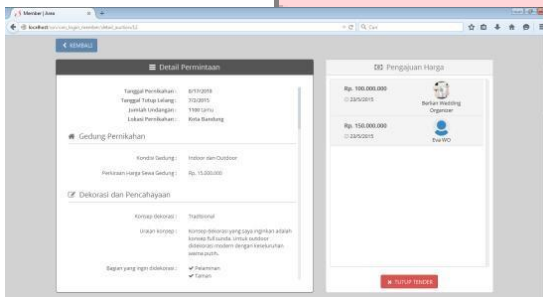


Figure 11. Display tender detail on member side.

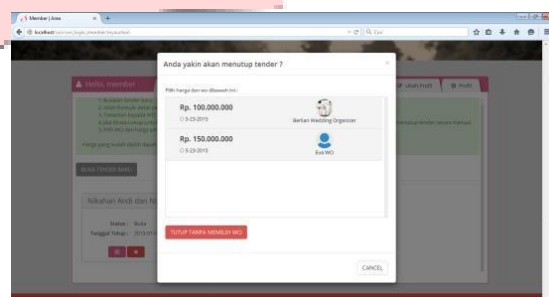


Figure 12. Display choice of WO and price of a tender.

Figure 12 has described that the members will close a tender. In this view, there are two options for members, which are choosing a WO to close a tender or close a tender without choosing a WO. If the member would close a tender and choosing WO then the display will be show on Figure 13, then if the member would close a tender without choosing a WO then the display will be show on Figure 14.



Figure 13. The display when member will close a tender and choosing a WO.

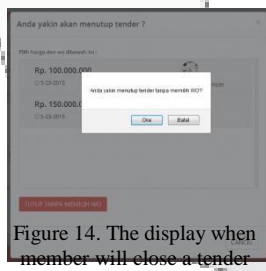


Figure 14. The display when member will close a tender without choosing a WO

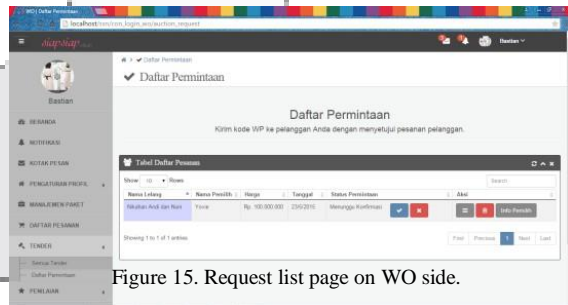


Figure 15. Request list page on WO side.

After that, if the members close a tender and choose a WO, selected WO will receive a request. Figure 15 has illustrated the display of request list on WO side. The request list is consisting of member's requests from the auction results. There have two options for a request, which are request acceptance or request rejection. In addition, there are actions to remove and cancel the request, to see tender details and see the information about chooser.

7. Testing

In this research, researcher has conducted three testing method. There are unit testing, system testing and acceptance testing using SERVQUAL scale. The purpose of the testing is to know the weakness of application and can become feedback or input requirement for the next version or development of application.

7.1. Unit Testing

In this testing, researcher gives two scenario types, which are test-to-pass and test-to-fail. Test-to-pass is a testing that input the true data with the expectation result is successful. Whereas, test-to-fail is a testing that input the wrong data with the expectation result is fail because the data input is wrong. In addition, the test will use two browsers application, which are Mozilla Firefox and Google Chrome. Researcher do 17 task related to auction module. The testing planning described on Table1 and the testing result described on Table 2.

Table 1. Unit testing plan

Code	Detail Activity		Testing	Code	Detail Activity		Tetsing
A1-01	Open new tender		Test to pass	A8-01	Pricing	Through home page	Test to pass
A1-02			Test to fail	A8-02			Test to fail
A2-01	Open the detail opened tender (member side)		Test to pass	A9-01		Through all tender page	Test to pass
A3-01	Open the detail closed tender (member side)		Test to pass	A9-02			Test to fail
A4-01	Open the detail opened tender (WO side)	Through home page	Test to pass	A10-01	Close tender and choose WO		Test to pass
A5-01		Through all tender page	Test to pass	A11-01	Close tender without choose WO		Test to pass
A6-01	Open the detail closed tender (WO side)	Through home page	Test to pass	A12-01	Delete a tender		Test to pass
A7-01		Through all tender page	Test to pass	A13-01	Approve request		Test to pass
				A14-01	Cancel request		Test to pass

Table 2. Unit testing result

Browser Apps	Result (succeed/total)
Mozilla Firefox	17/17 (100%)
Google Chrome	17/17 (100%)

7.2. System Testing

System testing is a testing that complete by user. In this testing start from the system has done to build. This testing has two techniques, which are structural techniques and functional techniques. In this testing, researcher chooses functional techniques to know, whether the application is work properly or not [8]. Researcher has tested the application to seven customers and three WO. The system testing result has described more detail on Table 3.

Table 3. System testing result

Member side			WO side		
No.	Task	Result (succeed/failed)	No.	Task	Result (succeed/failed)
1.	Open new tender	10/10 (100%)	1.	Open all tender page	3/3 (100%)
			2.	Open a tender detail	3/3 (100%)
2.	Check detail tender	10/10 (100%)	3.	Pricing a tender	3/3 (100%)
			4.	Open request list page	3/3 (100%)
3.	Close tender without choose WO	10/10 (100%)	5.	Open chooser info	3/3 (100%)
			6.	Open detail tender	3/3 (100%)
4.	Close tender and choose WO	9/10 (90%)	7.	Approve a request	3/3 (100%)
			8.	Cancel a request	3/3 (100%)
5.	Delete tender	10/10 (100%)	9.	Delete a request	3/3 (100%)

8. Acceptance Testing

Acceptance testing is a testing that complete after system testing has done. This testing is complete by user to know whether the application has fulfill the user requirement or not and to know whether the user is satisfied with the result of application or not [8]. In this testing, researcher has used SERVQUAL scale as dimension of questionnaire. SERVQUAL scale has used to measure service quality in various service industries, and some studies have applied the SERVQUAL model to measure in the context of e-service by rewording its items [6]. The testing user feedback result has described more detail on Table 4.

Table 4. Acceptance testing result using SERVQUAL Scale

No.	Scale	Question	RA	A	D
1.	Web Design	Are the navigation, menu and function on this website easy to use and easy to understand?	31%	69%	0%
2.		Is the design of this website such as placing icons, pictures and colors make you comfortable to use this website?	31%	69%	0%
3.	Reliability	Is this website accommodate the user to find the suitable wedding organizer and price?	70%	30%	0%

No.	Scale	Question	RA	A	D
4.	Reliability	Is this website accommodate the user to accept request except package order?	0%	100%	0%
5.	Responsiveness	Is the website provide a mechanism to support user activities?	62%	38%	0%
6.		Is the website provide a mechanism to support the communication between user and website owner?	54%	38%	8%
7.	Security	Is the website provide some mechanism to make sure that user data are save?	46%	46%	8%
8.		Is the website provide some mechanism to protect user activity and data?	62%	38%	0%
9.	Fulfillment	Is this website has achieve the goal?	62%	38%	0%
10.		Is this website helpful to find suitable wedding organizer and price?	80%	20%	0%
11.		Is this website helpful to advertise and promote WO's product and service?	33%	67%	0%
12.		Is this website helpful to get the customers more easily?	67%	33%	0%
13.	Personalization	Is this website gives value added to customer?	54%	46%	0%
14.	Information	Is this website provide updated product and service information?	60%	40%	0%
15.		Is this website provide the information that easy to understand?	54%	46%	0%
16.		Is this website provide facilities to make updated product and service information from WO?	67%	33%	0%
17.	Empathy	Is the website provide a system to make a good communication between users?	38%	54%	8%
18.		Is the website have contacts information?	77%	23%	0%

Note : RA = Really Agree; A = Agree; D = Disagree.

9. Conclusion and Suggestion

Siapsiapnikah.com website application is an application wedding directory website, which is to help the customers to find the products or services on Wedding Organizer accordance with their needs. On this website, application has built a system that can help the customers to find and choose WO that proper with the customer's needs and budget. In addition, this website provides the information about WO and member can give a review to a WO. Therefore, other members can see the reputation of a WO.

Auction system is a system on siapsiapnikah.com, which is a system that using the auction method. In this system provides the detailed of customer demand for their wedding, then to be able for WO to submit prices on tenders. This system provides information on the proposed price and WO reputation as things to consider when the customer choosing WO. The benefit of this system is to provide prices that proper with the customer's needs. The chosen price is possible to change when the customer consult with chosen WO. It is possible to add new needs and make changes price.

For further development, these applications can be added features commentary on each tender to ask for more details from WO to customers. So, can obtain more information from the details given by the customer and can provide a more accurate price. In addition, give a expectation total price on each tender and the website design should more interesting and the navigation should be more clear.

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