

Android-based E-questionnaire for wifi services measurement

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ABSTRACT

In the Banyuwangi regency area, there is a wifi service specifically for students, government agencies, and urban and rural communities. Hopefully, everything can be done quickly and easily by utilizing internet services. In this study, researchers created an information system to determine service levels. An application system made based on Android using a questionnaire. The application is made based on Android in the form of an E-Questionnaire that can help to access and find out the level of utilization of wifi service.

Keywords:

Wifi

Banyuwangi

Android

E-Questioner

I. Introduction

The internet can facilitate all life activities from various fields. So, to support its development, each region is required to always be proactive in every progress made. This demand seeks to improve Human Resources. For this reason, Banyuwangi Regency facilitates wifi services to meet internet service users who increasingly dominate every activity and activity of the community.

In Banyuwangi, the need for the internet has dramatically increased. The increase is influenced by Banyuwangi people who use technology in their daily lives, such as the use of computers, laptops, and smartphones with internet services. However, the government needs to provide support for the utilization of services in Banyuwangi communities. So it is necessary to provide training to human resources, such as regional user institutions, communities, and students.

Along with the need for internet services, Banyuwangi Regency provides wifi services for the community. The utilization of these services impacts the use of services both positively and negatively. The author conducted a study of the Utilization of the Use of District Wifi to find out how much influence the wifi service provided.

According to [3], the questionnaire information system measures the scale of the need for additional learning materials. Thus, these measurements can increase the effectiveness and efficiency of work processes. While in this study, the authors make information systems in the form of an Android-based application called E-Questionnaire. In research [4], the app made based on Android can help prospective new students when they register at SMA N 9 Manado. This application can help prospective students to see registrant data and announcement of election results. This application can help prospective students to view information data from schools and contact the admission committee of SMA N 9 Manado. Besides, this application can manage registrant data and print prospective student data in pdf format.

Whereas in the research [6], the New Android-based Student Admission Information System was built using the agile method. This system is built to adjust to the changes that exist in the acceptance of new students, because at the stages that exist in agile development is dynamic by involving users (prospective applicants from SMP / MTs). In this application, new students from SMP / MTs do not have to come directly to Vocational School August 17, 1945, and the committee can manage participant data using a database so that it has a history of recording data and facilitating the making of PPDB announcements. In this study for the realization of the application, the researcher uses programming language in the form of Flutter and Visual Studio Code. Where applications are made using by helping the questionnaire data retrieval process quickly and easily for using and knowing the results of its use, the processed data can provide information in the form of data and graphics on the



level of utilization of wifi services in Banyuwangi. So that with this android-based application service can help the process of distributing questionnaires and finding information on the use of wifi services quickly and practically.

II. Method

This study's research method is the waterfall, which is one of the life cycles of software development. Systems development processes [2] are problem identification, system design, implementation, testing, testing, and maintenance. Results not by the study's objectives; the stages of the research will be evaluated starting from identifying the problem.

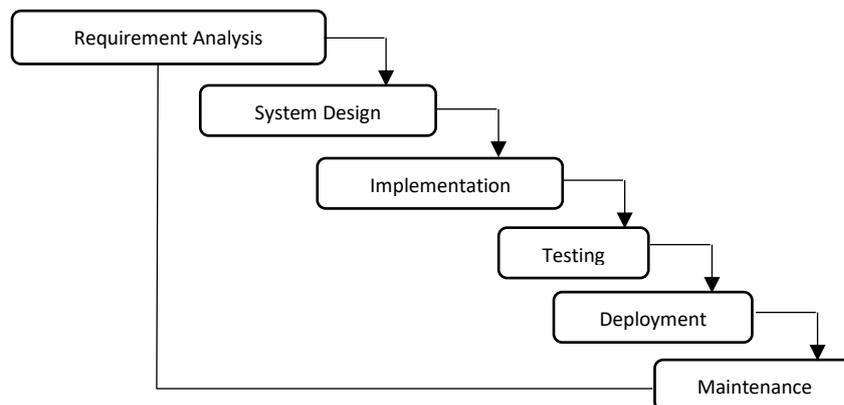


Fig. 1. Waterfall model

A. Waterfall Model

1. System requirements are the first step to find out the application needs to be made. Elements that must be according to needs are system design, appearance, and an interface that must be adjusted to the requirements.
2. System design is the stage of presenting the application in the form of an application display, which will be operated by the user.
3. Implementation is the stage of making an application or coding by the system requirements and the system design created.
4. Testing is the stage in which applications that have prepared system requirements and system designs are included to test application data.
5. The trial is the stage of completing the test as a whole application whether it complies with the application requirements
6. Maintenance is the overall system maintenance stage if there are changes in terms of both software and hardware.

B. Data Collection Method

Based on this research, the data collection uses 2 methods, namely an interview and questionnaire. The interview method is a way of collecting data or information by asking some questions verbally to obtain answers verbally as well. In this case [1], the interview is a dialogue space that is used to get information that is carried out by the interviewer to the respondent to obtain information needed by the interviewer. This method is carried out to collect data about the description of research objects, especially those relating to the use of wifi in the Banyuwangi district environment.

The questionnaire method is used to obtain data by giving questions to respondents in writing, both directly and indirectly. Implement this method using a list of questions compiled in a plan submitted to some respondents to obtain specific information. The questionnaire consisted of 15 questions regarding wifi services, internet usage, and wifi utilization in the Banyuwangi district. This questionnaire data income process uses an android-based application called E-Questionnaire.

C. System Design

The system design in this study consists of system analysis and system design. System analysis uses the Unified Modeling Language (UML) that will include Business Process, Use Case Diagrams, Activity Diagrams, and System Design.

The business process describes the workflow of the E-Questionnaire application system. The process starts with the admin login in the application for filling in the questionnaire data. After data was inputted into the application, the respondent can fill out the personal data and answer the questionnaire. Based on the data respondents, the system will calculate the value of the survey automatically. Thus, the results of the system given the total accumulation of the process. The Business Process flow is shown in Fig. 2.

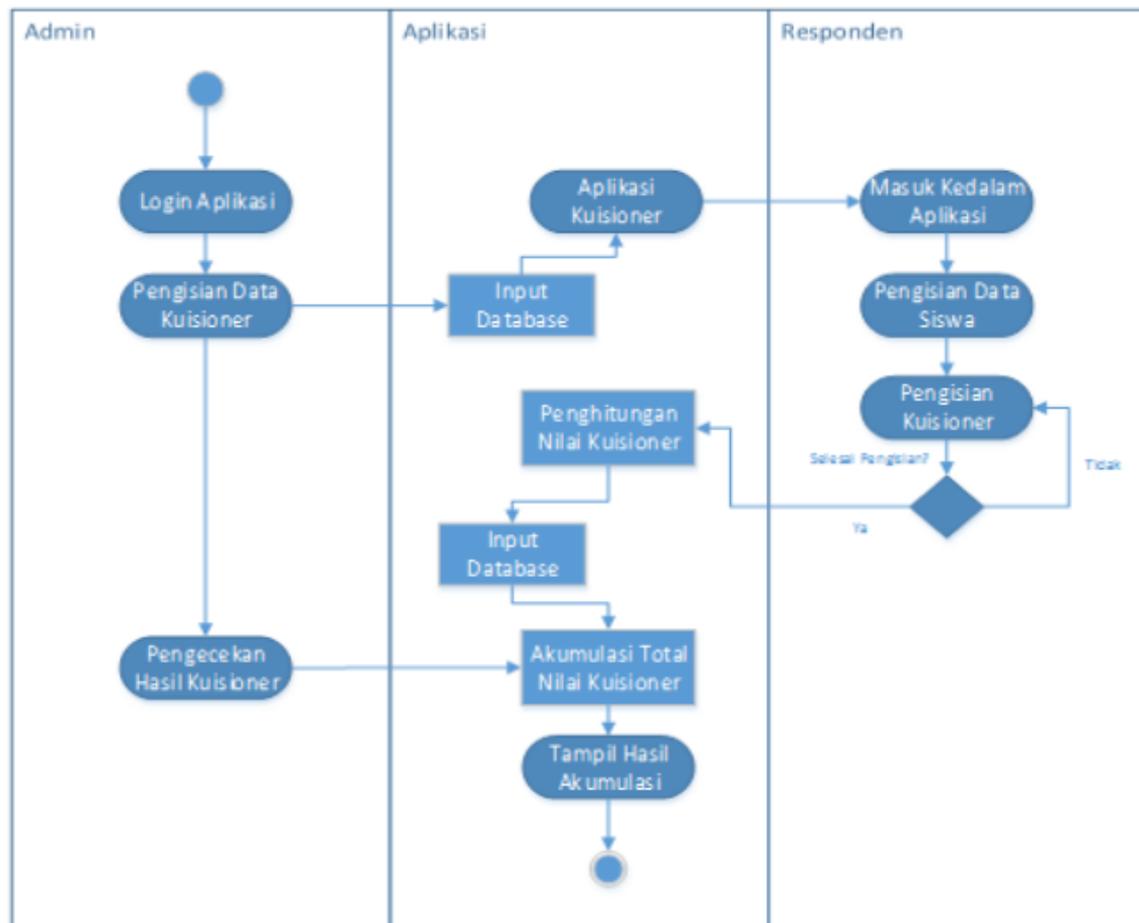


Fig. 2. Business process

The use case diagram describes the use of the questionnaire application and explains the tasks of the users contained in the E-Questionnaire application. In this case, the user is divided into 2 parts, namely admin and respondent. An admin can run the application or access the entire application starting from user data input, respondent data, input data questioners, and performing the questionnaire calculation process. A user is the respondent of the questionnaire. Users can only see the respondent's data and fill in the answers to the survey.

Activity diagrams explain the flow of programs contained in the application. In this case, the activity diagram is divided into several parts, Activity Diagram Login, Activity Admin Diagram in General, Activity Diagram Respondents, Activity Data Diagram Questions, Activity Diagram Percentage Value Data, Activity Diagram Respondents, and Activity Data Diagram Answers. The answer data activity diagram explains that when the admin inputs, updates, and deletes the answer data and the weight of the values from the questionnaire answer. The activity diagram of the answer data is shown in Fig. 3.

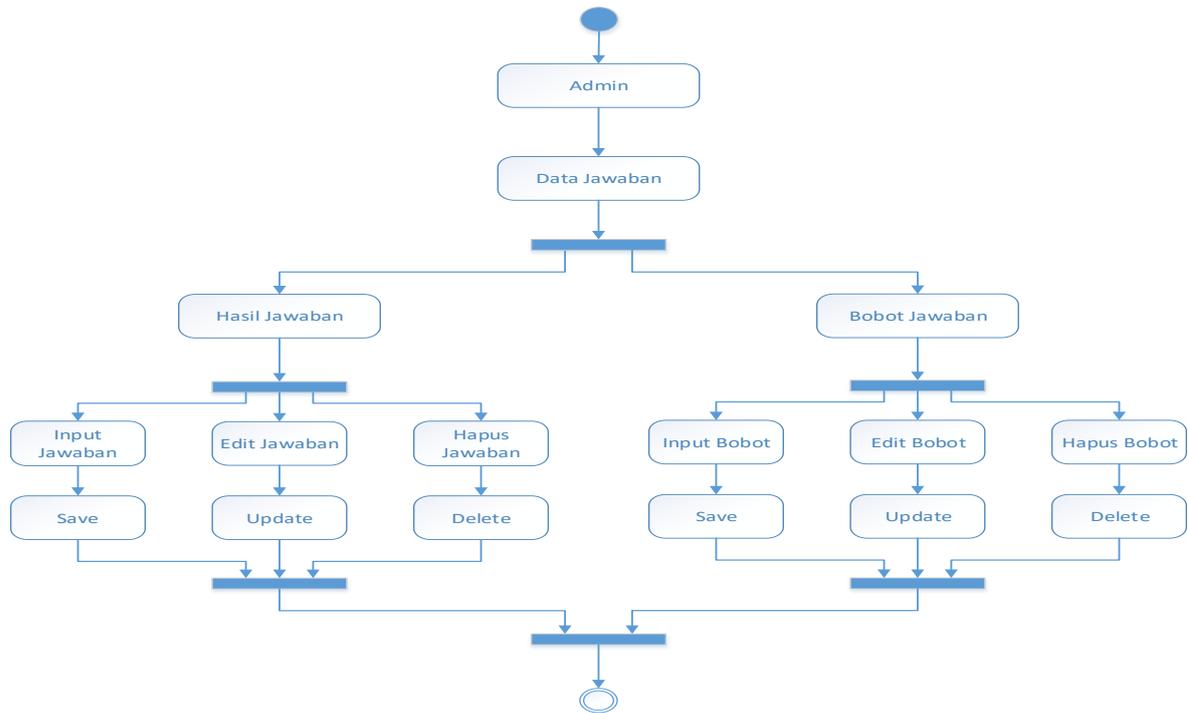


Fig. 3. Use case diagram

The system design of this research creates the forms which implement in E-Questionnaire. The form is divided into two-part, namely admin and respondent. The admin form consists of the login form, the form of the respondent group, the question form, and the report form. While for the respondent's form, the respondent's initial form and questionnaire filling form.

On the admin page, there are some menus, namely questionnaires, respondents, and survey results. On the respondents' menu, the admin can see the number of respondents who filled out the questionnaire along with the assessment process. On the survey results menu, admin can get information about the level of utilization of wifi usage from respondents based on questionnaire questions filled. The admin page form is shown in Fig. 4. The respondent form is used for respondents to fill in the biodata before filling in the questionnaire. The sample form is shown in Fig. 5. The questionnaire filling form is used respondents to fill in the questionnaire by the respondent, as for the example form shown in Fig. 6.

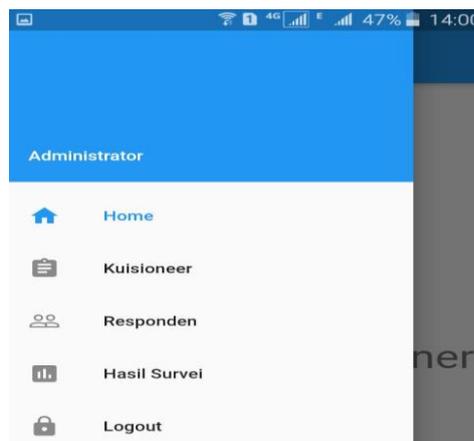


Fig. 4. Admin page form

The screenshot shows the registration form for the 'Kuisioneer' application. The form is titled 'Kuisioneer' and includes the following fields:

- Pilih Jenis Identitas (Dropdown menu)
- No. Identitas (Text input field)
- Nama Lengkap (Text input field)
- Nomor Handphone (Text input field, with a character count of 0/10)
- Pilih Jenis Kelamin (Dropdown menu)
- Pilih Sekolah (Dropdown menu)
- Pilih Kelas (Dropdown menu)

A blue button at the bottom is labeled 'Isi Kuisioneer'.

Fig. 5. Respondent form

The screenshot shows the questionnaire filling form. It contains two questions:

1. Apakah anda pengguna internet ?
 - Sangat Setuju
 - Setuju
 - Cukup
 - Tidak Setuju
 - Sangat Tidak Setuju
2. Saya telah terbantu dengan adanya internet ?
 - Sangat Setuju
 - Setuju
 - Cukup
 - Tidak Setuju

A blue button labeled 'Simpan' is located at the bottom right of the form.

Fig. 6. Questionnaire filling form

III. Result and Discussion

This Android-based application can help the digital questionnaire process and easily and quickly determine the level of utilization of wifi services. Some information can be used as a material to review the evaluation to increase the use of wifi services in the Banyuwangi district. This information is presented in the procedural and graph calculations of the 15 (fifteen) questions that have been submitted. The information related to the respondent to the questions asked for one school for the procedure can be seen in Fig.7(a), and the graph in Fig. 7(b). While, the data of all respondents from all schools (this research data), is shown in Fig. 8.(a) with the graph in Fig. 8.(b).



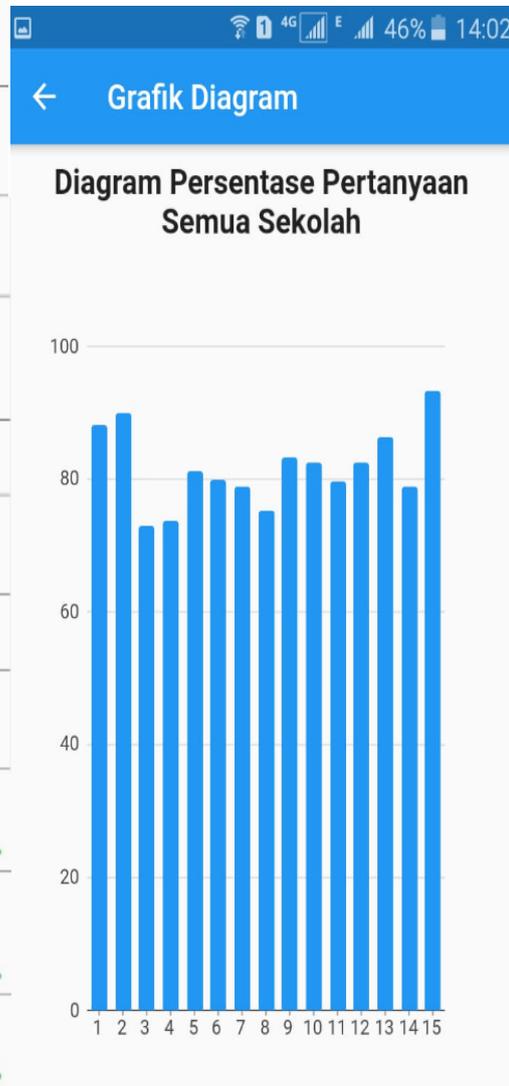
(a)

(b)

Fig. 7. Percentage of one school question (a) data and (b) the graph

Based on all the respondents' process data from questions to the questionnaire, the data is processed by the Likert scale method. After that, the data is calculated using existing methods; the information generated is the level of utilization of Wifi services at each school and all schools or respondents. The information presented can be seen in Fig. 9.(a) for the level of usage of one school and Fig. 11.(b) for the level of utilization of all respondents.

← Persentase Pertanyaan	
Hasil Persentase Pertanyaan Semua Sekolah	
1. Apakah anda pengguna internet ?	Persentase : 88.18%
2. Saya telah terbantu dengan adanya internet ?	Persentase : 89.91%
3. Saya dirumah ada koneksi internet (speedy atau operator lainnya) ?	Persentase : 72.99%
4. Apakah saudara mengetahui adanya layanan internet gratis dari pemerintah untuk kalangan pelajar ?	Persentase : 73.64%
5. Apakah saudara tahu dengan layanan wifi dan bagaimana mengaksesnya ?	Persentase : 81.07%
6. Apakah saudara memanfaatkan layanan Wi-fi?	Persentase : 79.95%
7. Sangat mudah untuk mengakses (menggunakan) layanan Wi-fi ?	Persentase : 78.97%
8. Kecepatan koneksi yang anda peroleh saat menggunakan layanan Wi-fi sangat memuaskan ?	Persentase : 75.37%
9. Penggunaan Wifi untuk tugas sekolah ?	Persentase : 83.32%
10. Apakah wifi untuk keperluan sosial media (facebook, twiter dll) ?	Persentase : 82.52%
11. Apakah wifi untuk membaca berita ?	Persentase : 79.72%
12. Apakah penggunaan wifi untuk bekerja (mendapatkan penghasilan) ?	Persentase : 82.43%
13. Apakah penggunaan wifi membantu masyarakat Banyuwangi ?	Persentase : 86.40%
14. Program Wi-fi dapat membantu mempercepat proses pembangunan di Kabupaten Banyuwangi ?	Persentase : 78.83%
15. Saya setuju dengan adanya program Free Wifi di Kabupaten Banyuwangi ?	Persentase : 93.32%



(a)

(b)

Fig. 8. Percentage of All Questions (a) data and (b) the graph

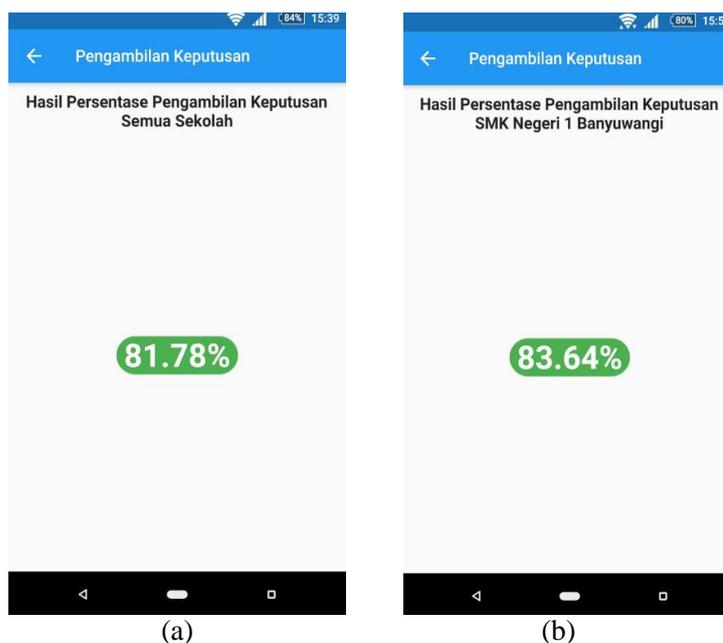


Fig. 9. Utilization rate of (a) all respondents and (b) one school

IV. Conclusion

The application of e-questioner can help in the process of retrieving questionnaire data digitally. This application can speed up the process of spreading, filling, processing, and can provide information on utilization rates for wifi services. Based on the existing data, the study results can inform the utilization of wifi services in the Banyuwangi district.

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