



## Design and Development of the Android-Based 'Desa Bersinar Banyumas' Application

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### Abstract

Narcotics are natural, synthetic, or semi-synthetic substances that produce hallucinations and are addictive. Drug abuse can have a negative effect on the user's psyche and also death. BNN implements the Drug Clean Village or Desa Bersinar program to create a drug-free environment. Volunteers or officers collect data on drug users manually by filling in data into a form. In collecting data on drug users, volunteers or BNN officers cannot synchronize data so data collection is prone to duplicate data. The application of computer technology to the Android application can be used as a solution to overcoming the problem of data collection on narcotics users in the Bersinar Village area. The application created with an Android-based application can be used anytime and anywhere. The purpose of this research is to make the Desa Bersinar (Drug Clean) application to record Android-based narcotics users and to conduct testing on the Desa Bersinar application. The research method used in making the Desa Bersinar application is to use the Agile Development System method. The Agile method consists of several stages, namely plan, design, develop, test, deploy, review, and maintenance. From the results of this study it is a Bersinar Village application will be produced that can help volunteers or BNN officers in Banyumas Regency in recording narcotics users in Bersinar Village.

**Keywords:** *Desa Bersinar, Narcotics, Android*

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### 1. Introduction

Narcotics are natural, synthetic, or semi-synthetic substances that can cause hallucinations, decreased consciousness, and cause addiction. Narcotics have an extraordinary role in the medical field because they can be used as a medicine for healing and have a calming effect. Excessive use of narcotics can cause addiction and abuse can be subject to legal sanctions [1].

The consequences of drug abuse in addition to having a negative effect on the user's psyche can also cause death. To create a healthy and drug-free environment, the BNN is implementing a program, namely the Drug-Free Village program, abbreviated as the Desa Bersinar program. The Desa Bersinar program is a regional unit at the sub-district / village level that has certain criteria where there is the implementation of Drug Prevention, Eradication, Abuse, and Illicit Distribution (P4GN) activities [2].

To resolve the problem of drug abuse and distribution, the Banyumas Regency BNN formed the Desa Bersinar [3]. Currently, in recording drug users, manual methods are still used by volunteers or BNN officers, where the data collection process is carried out by filling in data using a data collection form that requires time, energy, and high costs [4].

The use of computer technology in this Android application is a solution to overcome the problem of recording drug users in the Belshinar village area. The Desa Bersinar application allows volunteers and BNN employees to quickly record drug users in remote areas. Because the Desa Bersinar application is Android-based, you can use the application you created anytime and anywhere. One of the software development methods is the agile method [5].

The agile method is one of the most effective and agile software development methodologies. The agile method was chosen as the object of this study because the agile method is one of the most popular methods today. After all, it offers flexibility, so that developers can return to an earlier phase if changes are needed [6].

Based on the background of the problems above, research was carried out to design and build the Desa Bersinar Banyumas application based on Android.

### 2. Literature Review

The research that will be conducted by researchers is related to the title of the design of the application of the Desa Bersinar. Banyumas is based on Android, then there are differences with previous research.

First, the research entitled "Development of an Android-Based Anti-Drug Application as an Information Service Media for Class VIII Students of SMP Negeri 1 Pasuruan" was conducted by Risma Rahmaningtyas and Hadi Warsito Wiryosutomo in 2019. Research on an

Android-based anti-drug application as an information service media for students of SMPN 1 Pasuruan. This research uses the Research and Development (R&D) development model. The results of this research are in the form of an Android-based anti-drug application that can be accepted and used as an information service media for students of SMPN 1 Pasuruan [7].

Second, the research entitled "Collaboration of Web-Based Anti-Drug Applications and Android in Anticipating Drug Problems" was conducted by Efmi Maiyana, Mira Susanti, and Yuninda Tria Ningsih in 2020. Research on how to design and build a mobile application in order to provide drug education to the public about the dangers of drugs. This study uses the Research and Development (R&D) method by collaborating between the website and Android. The results of this study are in the form of web and Android collaboration in the form of a mobile application that is very useful in providing education to the public about drugs and increasing partner skills [8].

Third, a study entitled "Design and Construction of Android Applications for Teacher Performance Assessment Using the Agile Development Method at MAN 1 Malang Regency" was conducted by Yopi Firdha Pradana and Wiwin Kuswinardi in 2020. This study is about the design and construction of an Android application for teacher performance assessment using the Agile Development method at MAN 1 Malang Regency with the Scrum methodology. The results of this study are in the form of an Android application for teacher performance assessment that facilitates the implementation of teacher performance assessments and the recapitulation of assessment results [9].

Fourth, a study entitled "Design of Financial Report Recording Applications Using the Agile Development Scrum Method" was conducted by Hasya Sabila, Budi Praptono, and Isnaeni Yuli Arini in 2021. Research on the design and construction of a web-based Financial Report Recording Application at Kedai Intikopi. The purpose of this study is to create an application to minimize errors in financial recording and to find out the financial condition of the Kedai Intikopi company. The research method used is the Agile Development Scrum method. The results of this study are a financial report recording application that has been tested using black box testing and ISO 9126 [10].

### 3. Method

This study uses the Agile Development System method in creating the Desa Bersinar application based on Android. The Agile method consists of 5 stages as shown in the following figure 1.

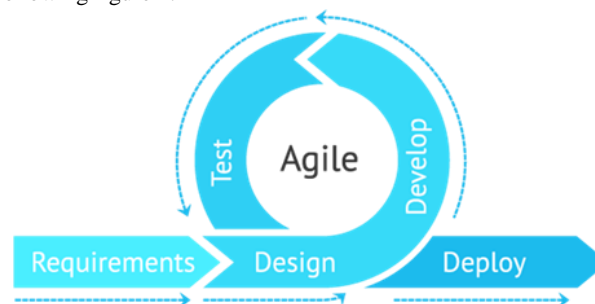


Fig. 1: Agile Development System [11],[12],[13],[14],[15]

1. **Requirements;** In this step, the development team and users work together to identify and collect the needs that must be met by the software to be developed.
2. **Design;** This step involves creating an information architecture and visual design of the software to be created, including the user interface and other important elements.
3. **Develop;** The software coding process is carried out based on the agreed design. Development takes place iteratively, with results that can be shown in each cycle.
4. **Test;** After development, the software is thoroughly tested to ensure its quality and detect potential errors or bugs.
5. **Deploy;** Software that has been tested and declared ready to use will be implemented or distributed to users.

## 4. Result

### 4.1. Requirement

In the requirement stage, the researcher describes what the system needs to be created. The system creation will meet the following needs:

- 1) Admin/volunteer logs in
- 2) Admin/volunteer displays information about recording drug users in the community.
- 3) Admin/volunteer displays a form for drug users.
- 4) Admin/volunteer displays reporting on the Prevention and Eradication of Abuse and Illicit Trafficking of Narcotics and Narcotics Precursors (P4GN).

### 4.2. Design

At this stage, the researcher creates a UML (use case diagram, activity diagram, class diagram, sequence diagram), wireframe, and interface design using the Figma application. User Interface to make it easier for users to use the 'Banyumas Bersinar' application.

#### 4.2.1. Use Case Diagram

Use Case Diagram is a modeling of the system to be developed, which shows the interaction between actors and the system. In the development of the Desa Bersinar application, there are two actors or roles that can access the application features. As in Figure 2, admins and volunteers can access the main menu, community, forms, and reporting.

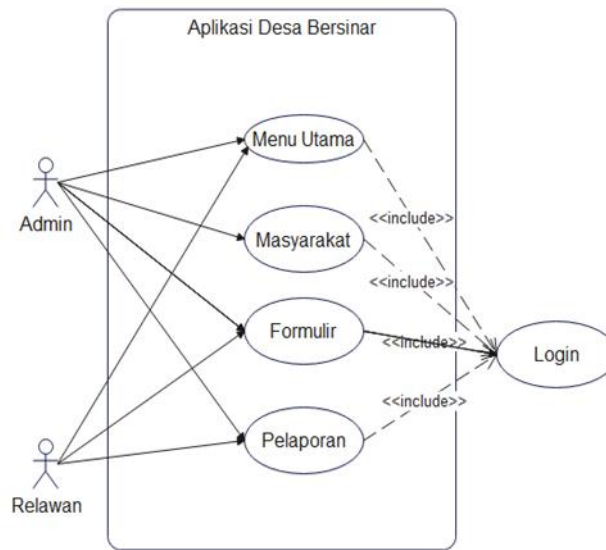


Fig. 2: UseCase Diagram

4.2.2. Class Diagram

A Class Diagram is a relationship that exists in a class along with an explanation of the initialization of each class in detail in a system model. The following is the Class Diagram of the Desa Bersinar application:

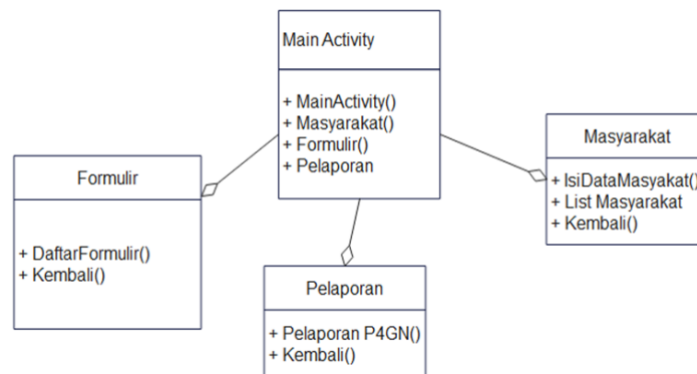


Fig. 3: Class Diagram

Figure 3 shows the structure of the expert system application for diagnosing drug users. The Class Diagram consists of the main activity class, form class, reporting class, and community class.

4.2.3. Sequence Diagram

A Sequence Diagram is a diagram that explains the interaction between objects in the system in detail. The following is the Sequence Diagram of the Desa Bersinar application:

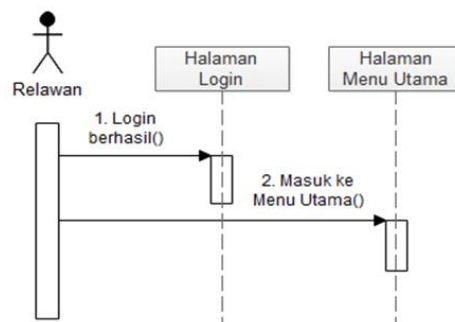
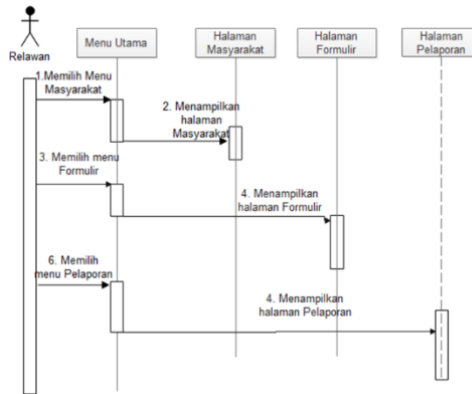


Fig. 4: Main Menu Sequence Diagram

Figure 4 displays the main menu page after the volunteer has successfully logged in.



**Fig. 5:** Menu Selection Sequence Diagram

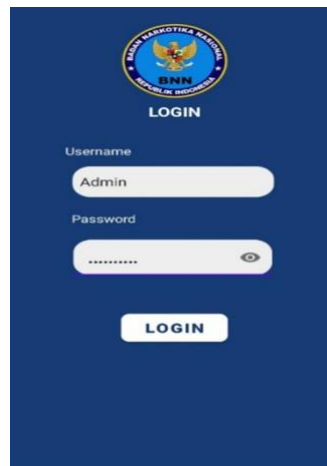
Figure 5 displays the menu selection on the main menu page made by the volunteer.

### 4.3. Implementation

The following are the results of designing the Desa Bersinar Banyumas application using the Agile method.

#### 4.3.1. Login Page

The login page is displayed after the splashscreen display. Admin/volunteer fills in the username and password and clicks login if the username and password match, it will automatically enter the main menu page.



**Fig. 6:** Login Page

#### 4.3.2. Main Menu Page

The Main Menu Page is displayed after the Admin/volunteer has successfully logged in. The Main Menu Page consists of 3 (three) menus, namely the Form, Community, and Reporting Menus. Users can enter one of the menus by clicking on the selected menu.



**Fig. 7:** Main Menu Page

### 4.3.3. Form Page

The Form Page is displayed after the Admin/volunteer clicks on the form menu. The Form page consists of 5 (five) menus for filling out forms, namely: Talent Interest Form, Urica Form, Post-Rehabilitation Assessment, Screening Form, and WHOQol-BREF Quality of Life. Users can enter one of the menus by clicking on the selected menu.



Fig. 8: Form Page

### 4.3.4. Community Page

The Community Menu page is displayed after the Admin/volunteer clicks on the Community Menu. The Community Page consists of 2 (two) menus, namely: Fill in Community Data and Community List.



Fig. 9: Community Page

### 4.3.5. Reporting Page

The Reporting Page is displayed after the Admin/volunteer successfully clicks on the Reporting Menu on the Main Menu. The Reporting Page is used to fill in reporting data related to narcotics.

Fig. 10: Reporting Page

#### 4.4. Testing

During the testing phase, developers run a series of tests to evaluate the game mechanics and identify potential errors at an early stage. This study uses black box testing techniques to test the functionality of the application. The results of the black box testing conducted obtained a percentage of successful features of 100%. This result was obtained based on the scenario conducted in the Black box test which can be seen in table 1

**Table 1:** Blackbox Testing Result

Section Test	Details	Expected Results	Checklist
Login	Entering the correct email and password	Displaying the main page	√
	Entering the wrong email and password	Does not display the main page	√
	Entering the correct email and wrong password	Does not display the main page	√
	Entering the wrong email and correct password	Does not display the main page	√
Main Page	Pressing the Community menu	Displaying the community page	√
	Pressing the Form menu	Displaying the form page	√
	Pressing the Reporting menu	Displaying the reporting page	√
	Pressing the Profile icon	Displaying the profile page	√
Community Page	Pressing the Community Data Fill menu	Displaying the Community Data Fill page	√
	Pressing the back button	Displaying the Mastarakat main page	√
	Pressing the Community List menu	Displaying the Community List page	√
	Pressing the back button	Displaying the Mastarakat main page	√
Community Data Fill Detail Page	Filling the field	Displaying input	√
	Pressing the Finish button	Saving the community data	√
	Pressing the back button	Displaying the Community page	√
Community List detail page	Pressing one of the community lists whose assessment score will be viewed	Displaying the assessment result score	√
	Pressing the back button	Displaying the community page	√
Form page	Pressing the Talent Interest Form menu	Displaying the Talent Interest Form page	√
	Pressing the Post-Rehabilitation Assessment Form menu	Displaying the Post-Rehabilitation Assessment Form page	√
	Pressing the Urica Form menu	Displaying the Urica Form	√
	Pressing the Screening Form menu	Displaying the Screening Form page	√
	Pressing the Quality of Life Form menu	Displaying the Quality of Life Form page	√
	Pressing the back button	Displaying the main Form page	√
Interest and Talent Form detail page	Pressing the select client button	Displaying client data	√
	Pressing the examination date	Displaying the date selection	√
	Pressing the OK button	Displaying confirmation of date selection	√
	Filling out the interest and talent form	Displaying the selected input	√
	Pressing the finish button	A pop-up appears confirming whether the data will be saved or not	√
	Pressing the "Yes" or "No" button	If you press "Yes" then a pop-up will appear that the data has been successfully saved and return to the form menu page If you press "No" then you will remain on the interest and talent form page	√
Post-Rehabilitation Assessment Form detail page	Pressing the select client button	Displaying client data	√
	Pressing the examination date	Displaying the date selection	√
	Pressing the OK button	Displaying confirmation of date selection	√
	Filling out the Post-Rehabilitation Assessment form	Displaying the input of questions that have been	√
	Pressing the finish button	A pop-up appears confirming whether the data will be saved or not	√
	Pressing the "Yes" or "No" button	If you press "Yes" then a pop-up will appear that the data has been successfully saved and return to the form menu page If you press "No" then you will remain on the talent interest form page	√
Urica Form Detail Page	Pressing the select client button	Displaying client data	√
	Pressing the examination date	Displaying the date selection	√
	Pressing the OK button	Displaying confirmation of date selection	√
	Filling out the Urica form	Displaying the input that has been selected	√
	Pressing the finish button	A pop-up appears confirming whether the data will be saved or not	√
	Pressing the "Yes" or "No" button	If you press "Yes" then a pop-up will appear that the data has been successfully saved and return to the form menu page If you press "No" then you will remain on the talent interest form page	√
Screening Form Detail Page	Pressing the select button Client	Displays client data	√
	Presses the examination date	Displays the date selection	√
	Presses the OK button	Displays confirmation of date selection	√
	Fills out the screening form	Displays the selected input	√
	Presses the Finish button	A pop-up appears to confirm whether the data will be saved or not	√
	Pressing the "Yes" or "No" button	If you press "Yes" then a pop-up will appear that the data has been successfully saved and return to the form menu page If you press "No" then you will remain on the talent interest form page	√

## 5. Conclusion

From the research results, it can be concluded that the design of the Android-based Banyumas Desa Bersinar Application was successfully implemented, as evidenced by passing the black box test. The final results obtained based on black box testing conducted by employees of the Banyumas Regency National Narcotics Agency and other external parties obtained an average black box value of 100% in black box testing with the equivalence partition technique on the Desa Bersinar application.

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