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Design of A Website-Based Mental Health Early Detection Information System

(Case Study: Hu'u Subdistrict)

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Mental health problems in Hu'u Sub-district are related to the high number of attempted suicides, indicating a lack of access to early detection of mental health disorders. This study aims to design and build a website-based mental health early detection information system to facilitate the early identification of mental health problems in adolescents. The system was developed using the Personal Extreme Programming (PXP) method and the Strengths and Difficulties Questionnaire (SDQ) as a testing instrument. The development process was carried out in two iterations for 30 days. The system was tested using the black box method and User Acceptance Testing (UAT). The results of black box testing show that the system functions correctly and according to the expected functionality. UAT testing involving students and the Rasabou Health Center showed an average score of 90% and 90.04%. These results show that the system is effective in detecting mental health disorders and has met expectations by user needs.

***Keywords*: Early Detection, Information System, Mental Health, PXP, SDQ.**

I. INTRODUCTION

Hu'u sub-district, Dompu district, faces serious challenges related to mental health issues, especially the high rate of suicide attempts. Based on data from the Rasabou Community Health Center, suicide attempts are among the top 10 most common cases, with an average of at least one case every month. In 2021, there were 10 cases, increasing to 13 cases in 2022, and by early 2023, there had already been 5 suicide attempts. The majority of suicide attempters are in the productive age range, which is 15 years and above. This situation shows the importance of urgently addressing mental health issues in the region.

Negative publicity on social media was one of the factors that exacerbated the situation. Easy access to information about suicide can lead to imitation effects, especially among vulnerable youth. This phenomenon is known as the Copycat effect or Werther effect, where a high-profile suicide event can influence others to commit similar acts [1]. In Hu'u Subdistrict, there have been many cases of attempted suicide that led to death using the same method of suicide using pest medicine (Nate). The majority of Hu'u people work as farmers, making buying and selling pest medicines a common thing for the Hu'u community. However, after a spate of suicides using these agricultural drugs, the government finally imposed a ban on the buying and selling of farm drugs to minors to prevent abuse. Other factors influencing attempted suicide among the Hu'u Sub-district community include a lack of knowledge about the importance of mental health, economic problems, and so on.

Based on data obtained from interviews with the head of the Mental Health Division of the Rasabou Health Center, perpetrators with cases of attempted suicide committed in the range of 2020-2023 tend to be successfully saved thanks to interventions from the Health Center and Hospital. However, the incidence of suicide attempts is still relatively high. Currently, health centres conduct manual mental health surveys and tests to identify patients with mental health disorders. However, this manual method is inefficient and time-consuming, and suicides still occur frequently. Just one suicide is a significant problem that requires immediate attention, as the impact on the family and community is severe. Prompt and appropriate treatment is needed to prevent further tragedy and improve overall mental well-being.

People with poor mental health are more likely to experience lower levels of mental well-being [2]. Therefore, early detection of mental health is critical to prevent and treat more serious mental health problems. Manual mental health consultations are often expensive, and not all parts of Indonesia have adequate access to mental health services. The application of information technology in mental health services is expected to be one of the solutions to facilitate public access to better, faster, and more affordable mental health services to impact the welfare of individuals and communities positively.

Based on the problems described above, this research aims to implement the Personal Extreme Programming (PXP) method in developing a website-based information system to detect early symptoms of mental health disorders in Hu'u Sub-district, Dompu Regency. The design of this information system is expected to be an effective solution in identifying the possibility of

mental health disorders. The system allows at-risk individuals to get the attention and help they need immediately, thereby preventing suicide attempts and improving the overall mental well-being of the community. This information system was developed using the PXP (Personal Extreme Programming) method. The PXP method allows for adaptive development and focuses on user needs by involving rapid iteration and direct feedback from users, so the built system will be more responsive and in line with users needs.

This information system will be equipped with key features, such as a survey to identify early symptoms of mental health disorders, educational articles related to mental health, recommendations containing educational videos related to mental health problems, and a test result history feature. With these features, it is hoped that the community will find it easier to access better, faster, and more affordable mental health services, thus positively impacting the welfare of the community. Hopefully this system can contribute to raising awareness and understanding of the importance of mental health and provide an effective tool for early detection and intervention of mental health problems in Hu'u Sub-district and beyond.

II. LITERATURE REVIEW

The creation of this website-based mental health early detection information system refers to previous studies. Over the past ten years, from 2014-2024, several similar studies will be used as references as follows:

The first research conducted in 2020 contains discussions on creating an early detection system for children's emotional and mental health that will be used to *screen* emotional health in early childhood. Screening of children's mental and emotional health is carried out using the Strength and Difficulties Questionnaire (SDQ) questionnaire and the Forward Chaining process with the interpretation of screening results in the form of regular, borderline, or abnormal, which has been proven by testing on data from 30 children from Sahabat Anak foundation in Jakarta with an accuracy value of 100% [3].

The second research conducted in 2023 contains discussions related to the creation of an expert system for diagnosing mental health conditions that can be used by people with an age range between 18-23 years to detect indications of mental health disorders based on symptoms experienced by users identified from data on 23 symptoms and 4 types of mental disorders that have been prepared by researchers as data sources. Apart from that, this expert system can also provide information to users regarding handling solutions based on the detection results that have been carried out [4].

The third research conducted in 2020 contains discussions about designing and creating a web-based sales and auction information system at the Ricardo Corner MLG company using the Personal Extreme Programming (PXP) method. Researchers use the iterative development method to break down the system development process into small stages to facilitate system creation based on a predetermined priority list. The results of the final test using Acceptance Test Criteria show that the system built is by the client's requirements [5].

The fourth research conducted in 2023 discusses designing and manufacturing inventory management information systems using the Personal Extreme Programming (PXP) method. The creation and development of this information system were carried out iteratively, with six iterations and a working time of 174 days. The results of the tests that have been carried out, the results show that the system is in accordance with user needs [6].

The fifth research conducted in 2022 contains discussions on the description of early detection of mental health status in the South Atambua Health Center working area community. Where mental health detection is carried out using the Self Reporting Questionnaire (SRQ). The results showed that 50 respondents were identified as experiencing mental emotional disorders, 89 respondents experienced anxiety symptoms, and 61 respondents experienced symptoms of depression. These results indicate a variety of mental health symptoms experienced by the South Atambua community [7].

The sixth research conducted in 2022 discusses screening children's mental health at the Jakarta Special Development Institute (SDI) using the Strengths and Difficulties Questionnaire (SDQ). A total of 73 children who had just entered or were transferred to LPKA class II Jakarta in May-December 2022 filled out a questionnaire consisting of 25 question items regarding emotional, behavioural, hyperactivity, peers, and difficulties and strengths, each with 5 question items. Reliability and validity tests were conducted, showing that the questionnaire items were valid. The final results showed that the SDQ scores of new SDI class II Jakarta students were within normal limits and indicated that they did not have behavioural and emotional disorders [8].

From the study conducted in the previous research, it can be concluded that the use of the Personal Extreme Programming (PXP) method proved effective in developing the information system because the iterative approach and adjustments based on priorities can produce a system that suits user needs. In addition, the Strengths and Difficulties Questionnaire (SDQ) has the advantage of effectively evaluating the mental health of children and adolescents. SDQ can provide an overview of an individual's psychological strengths and difficulties. Implementing the Personal Extreme Programming (PXP) method and the SDQ questionnaire in developing this website-based mental health early detection information system is expected to be a more targeted solution in detecting and dealing with mental health problems for adolescents in Hu'u District.

III. RESEARCH METHODOLOGY

In this research, the system development method used is the Personal Extreme Programming (PXP) method. The following are the stages of system development described in the illustration of the research flow chart in the Figure 1.

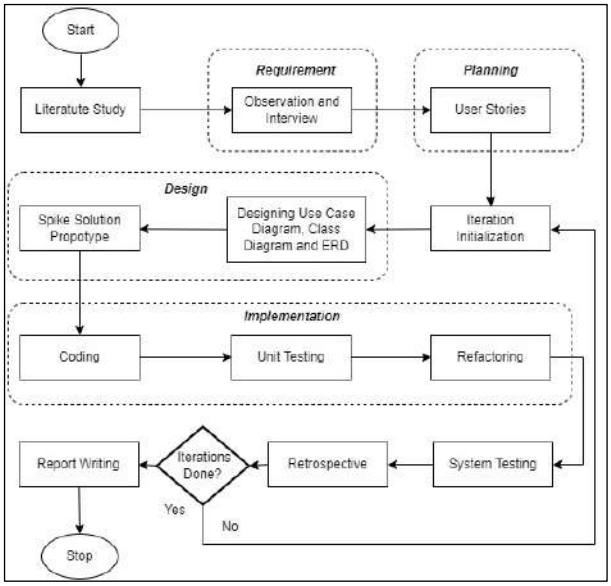

Fig 1. Research Flow Chart

The research flow in Figure 1 illustrates the stages that have been passed in this research. The research began with a literature study, followed by the requirements stage through interviews and direct observation with the Rasabou Health Center. Next, planning or planning of system requirements is carried out, then followed by iteration initialization. After prioritizing the system features created in the previous stage, the next stage is the design stage, where the system design is compiled. After the design, the system is implemented through the implementation stage, which consists of coding, unit testing, and refactoring. Next, system testing is carried out to ensure that the system functions properly. Next, enter the retrospective stage, which is the evaluation of the system that has been made. This is done to determine whether there are improvements in the next iteration.

A. Literature Study

This research begins by conducting a literature study, where information and data are collected through books, journals, and sharing reading references related to mental health early detection information systems, Strengths and Difficulties Questionnaire (SDQ), Personal Extreme Programming (PXP) method, and other data and information relevant to the topic of this research [9].

B. Requirements

Requirements are the first stage in the PXP method. At this stage, an analysis of system requirements is carried out [10]. Related data was obtained through observations and interviews with the head of the Mental Health field at Rasabou Health Center.

C. Planning

Planning is a continuation of the requirements stage, at this stage the researcher makes a list of User Stories containing the data needed and the estimated time planning needed to work on the system. These data were obtained through interviews and observations at the previous stage. User Stories can be seen in Table I:

TABLE I. USER STORIES

No	User Stories Code	Title	Description	Acceptance Criteria	Estimated (Days)
1	US-01	Landing Page	As a user, I would like to know brief information about the website I will access.	A landing page displays brief information about the website and menus that users can access.	2
2	US-02	Register	As a new user, I want to sign up for an account to access all the features.	A register page that contains *inputs* that the user can fill in to register the account to be used.	2
3	US-03	Login and Logout	As a user, I want to be able to login to access features in the system and logout to exit the system.	There is a login page with username and password input and a login button that registered users can access. There is also a logout menu that can be used to exit the system.	3
4	US-04	Dashboard	As a user, I want to see the features I can access after logging *in*.	A dashboard page that contains a snapshot of the latest articles and recommendations, as well as information related to accessible features such as articles, recommendations, surveys, and history.	2

No	User Stories Code	Title	Description	Acceptance Criteria	Estimated (Days)
5	US-05	View and manage the article	As an admin, I want to view and manage the mental health article data that will be displayed on the website.	There are pages used to add, edit, and delete articles.	3
6	US-06	View and manage recommendation	As an admin, I want to view and manage the data of mental health recommendation videos displayed on the website.	A page is used to add, edit, and delete recommended videos.	3
7	US-07	Manage survey	As an admin, I want to create, add, edit, and delete user surveys.	A page manages surveys by adding, editing, and deleting survey questions.	5
8	US-08	Fill out the survey	As a user, I would like to fill out a mental health survey to find out my mental health status.	There is a page to fill out a survey with various questions to determine the user's initial mental health diagnosis.	3
9	US-09	View and manage the survey history list	As an admin, I want to view and manage the list of survey histories that users (students) fill out.	There is a page to view and manage student survey history, there is also a menu that can be used to change the handling status if needed.	5
10	US-10	View student survey history	As a user (student), I would like to see the history of surveys I have previously completed.	There is a page to view the results and details of the previous survey history, including the survey time, score, diagnosis results, and treatment status.	2
Total					30

D. Iteration Initialization

At the iteration initialization stage, iterations are determined based on the User stories compiled at the planning stage [10]. In this study, iterations are divided into 2 stages. Each iteration is done with an estimated time of 15 days. iteration division is done based on features, as detailed in Table II below:

TABLE II. ITERATION INITIALIZATION

No	US Code	Title	Estimated (Days)
Iteration-1			
1	US-01	Landing Page	2
2	US-02	Register	2
3	US-03	Login and Logout	3
4	US-04	Dashboard	2
5	US-05	View and manage the article	3
6	US-06	View and manage recommendation	3
Velocity			15
Iteration-2			
7	US-07	Manage surveys	5
8	US-08	View and manage the survey history list	3
9	US-09	Fill out the survey	5
10	US-10	View student survey history	2
Velocity			15

E. Design

The next stage is the design stage, which includes making entity relationship diagrams (ERD), use case diagrams, class diagrams and designing prototypes for the interface of the mental health early detection information system to be built.

E.1. Entity Relationship Diagram (ERD)

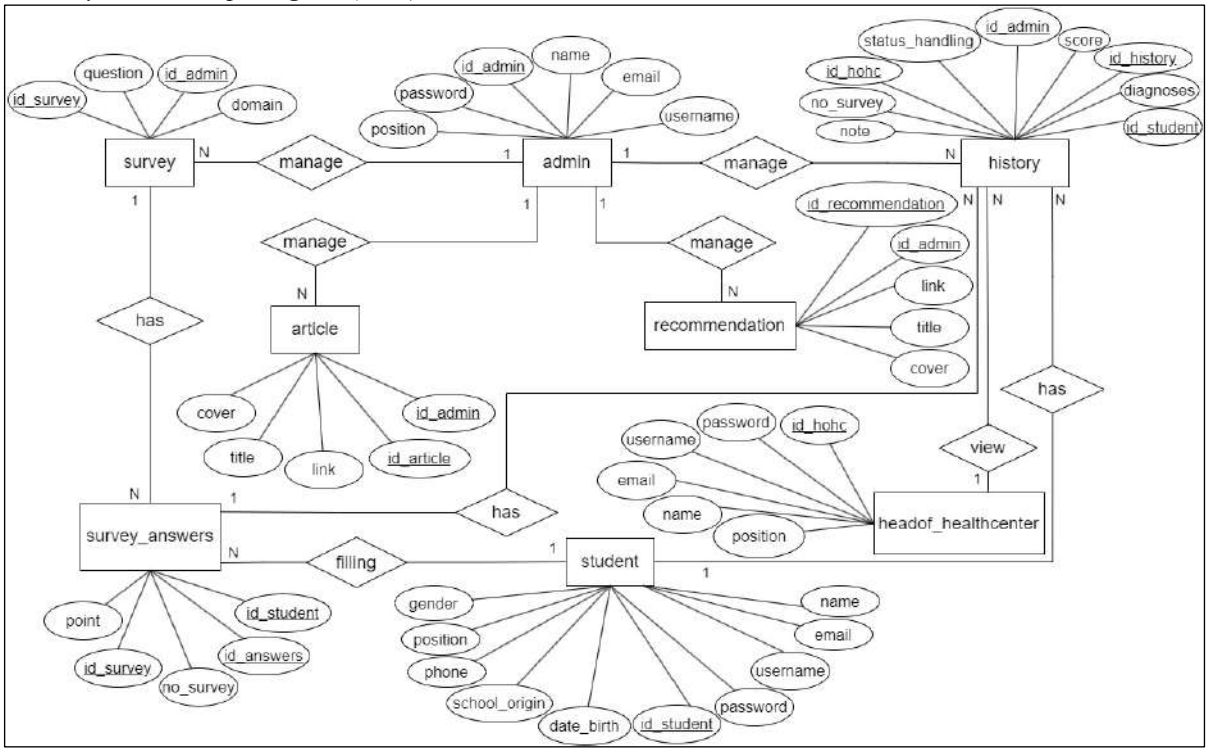

Fig 2. Entity Relationship Diagram (ERD)

Figure 2 displays the Entity Relationship Diagram (ERD) structure design for the web-based mental health early detection information system. ERD is a general concept of data model used for database design [11]. The ERD design of the website-based mental health early detection information system includes 8 entities, including: "admin" with 6 attributes, "headof_healthcenter" with 6 attributes, "student" with 10 attributes, "article" with 5 attributes, "recommendation" with 5 attributes, "survey_answers" with 5 attributes, "survey" with 3 attributes, and "history" with 9 attributes. The ERD also includes 9 relations that connect each existing entity.

E.2. Use Case Diagram

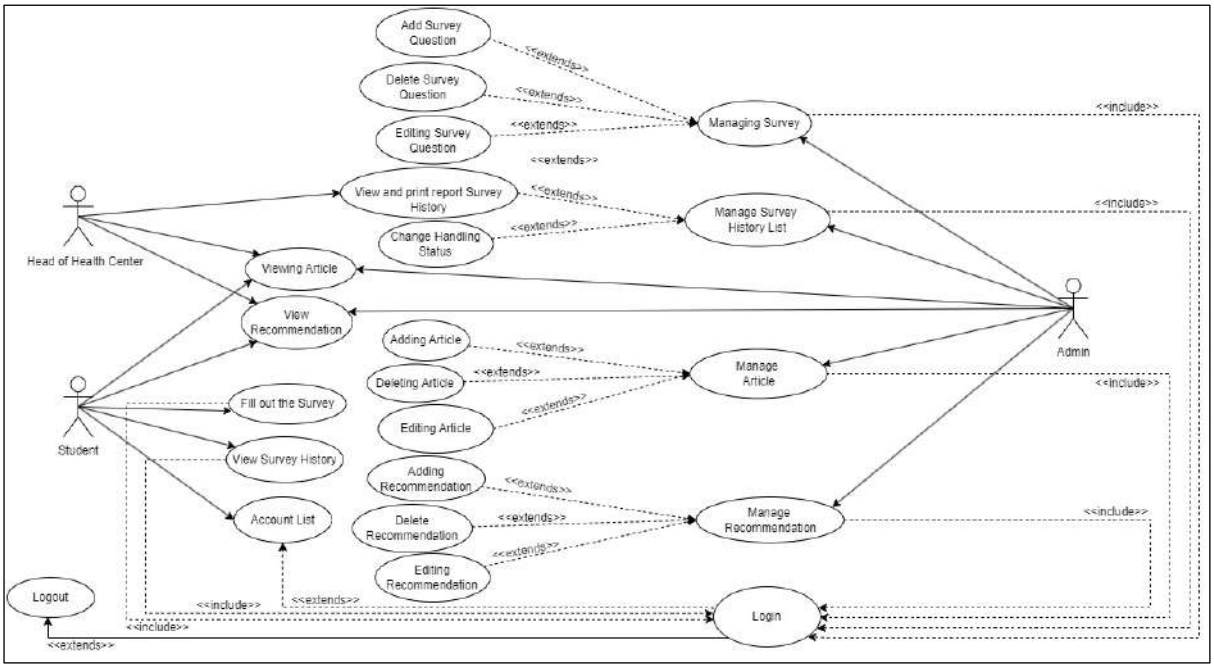

Fig 3. Use Case Diagram

Figure 3 shows the draft use case diagram for the website-based mental health early detection information system. This use case diagram will describe the expected functionality of the system being built [12]. This system has 3 levels of actors who can perform various actions, including "Admin" with 6 actions, 2 of which can be done without login. "Students" with 5 actions, 2 of which can be done without login and 'Head of Health Center' with 3 actions 2 of which can be done without login.

E.3. Spike Solution Prototyping

Spike solution prototyping or user interface design describes the visual concept of how the system will be presented [13].
The following is a view of the dashboard page:

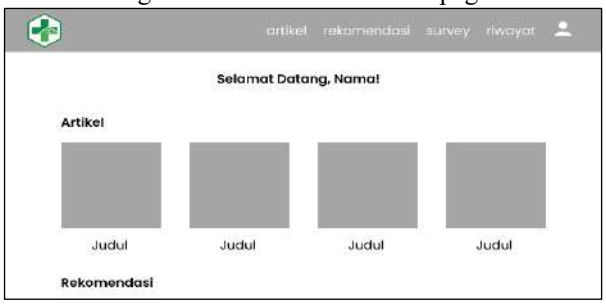

Fig 4. Prototype Display Of Dashboard Page

Figure 4 shows the interface design for the dashboard page. After logging in, the user will access this page, which displays several example of reccommended articles and videos.
The following is a view of the history page:

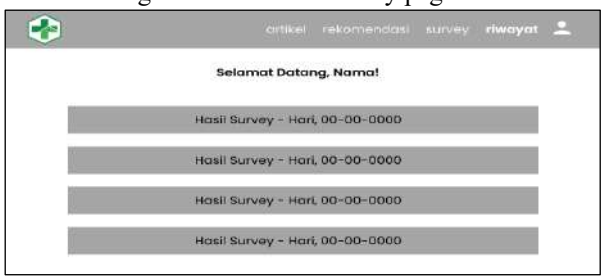

Fig 5. Prototype View Of History Page

Figure 5 shows the interface design of the history page that the user can access after logging in. This page contains the results of survey tests that users have carried out, including information on the time of submitting the survey, survey score details, diagnosis results, and treatment status obtained by users from the results of previous surveys.

F. Implementation

The implementation stage continues with the design stage. The system coding process begins concerning the design made in the previous stage. This phase consists of three stages, including coding, unit testing, and refactoring [14].

G. System Testing

System testing is carried out after the implementation stage is complete; testing is carried out using black box testing and User Acceptance Testing (UAT) methods, testing is carried out at SMA Negeri 1 Hu'u, the school was chosen as a test location because it can represent the adolescent population in Hu'u District. In addition, the Rasabou Health Center will also conduct testing to determine whether the system is in accordance with user needs. It is hoped that an overview of the system's effectiveness in detecting mental health disorders in the area can be obtained.

H. Retrospective

The last stage of the PXP method is retrospective. In this stage, evaluation and conclusions will be made regarding the implementation and previous test results. In addition, this stage includes a comparison between the implementation results and the original plan that was made.

IV. RESULT AND DISCUSSION

This chapter will discuss the research process and results of each iteration which, includes the iteration initialization stage, implementation, and system testing during the research. The application of the Personal Extreme Programming (PXP) method in making mental health early detection information systems is adjusted to the User Stories that have been compiled in the previous planning stage. Overall, during the research process, there were 13 User Stories, which were then divided into 2 stages of iteration work as described in the table below:

TABLE III. OVERALL USER STORIES

No	US Code	Title	Implementation (Day)
1	US-01	Landing Page	2
2	US-02	Register	2
3	US-03	Login and Logout	3
4	US-04	Dashboard	2
5	US-05	View and manage the article	3
6	US-06	View and manage recommendation	1
7	US-07	Manage surveys	2
8	US-08	Fill out the survey	3
9	US-09	View and manage the survey history list	2
10	US-10	View student survey history	2
11	US-11	View survey score results	4
12	US-12	View survey result details	3
13	US-13	Print survey history	1
Total			30

Table III is a table of user stories that have undergone changes and additions during the research process, including US-11, US-12, and US-13. There were also changes in the implementation time for US-06, US-07, and US-09, which were completed faster than the estimated time. The remaining work time was then allocated to work on new user stories, so the total work time was by the time estimated at the planning stage. There are 13 User Stories, which are then divided into 2 iteration stages.

A. Iteration 1

TABLE IV. ITERATION INITIALIZATION ITERATION 1

No	US Code	Title	Estimated (Days)	Implementation (Day)
1	US-01	Landing Page	2	2
2	US-02	Register	2	2
3	US-03	Login and Logout	3	3
4	US-04	Dashboard	2	2
5	US-05	View and manage the article	3	3
6	US-06	View and manage recommendation	3	1
Velocity			15	13

Iteration 1 consists of 6 user stories with an estimated execution time of 15 days. Changes in implementation time occurred in creating the US-06 feature, which was previously estimated at 3 days and then completed in 1 day. The total implementation time of the first iteration was completed in 13 days. Implementation of iteration 1 is described through the following stages:

A.1. Database Implementation

Working on iteration 1 starts by creating a database with the name "sidak", followed by the creation of 5 tables, including the actor table "admin", "headof_healthcenter", and "student", as well as tables for the "recommendation" feature and the "article" feature.

A.2. Class Implementation

After the database is created, the next step is to create a system class coding, which is divided into 3, namely, class models containing "Admin", "Head", "Students", "Articles", and "Recommendations". Class controllers containing "Home", "Register", "Login", "Admin", "Dashboard", "Article_Controller", and "Recommendation_Controller". Class views containing "landingpage", "login", "register", "dashboard", "template", "article", "manageArticle", "articleStudent", "recommendation", "manageRecommendation", and "recommendationStudent".

A.3. Interface Implementation

Based on the results of the coding that has been done in the previous stage, the system interface is produced as follows:

A.3.1. Landing Page

Fig 6. Landing Page

Figure 6 shows the landing page, the first page the user accessed when entering the system. This page provides access to the register and login menus. There is also an article and history menu that can be accessed without logging in first.

A.3.2. Register

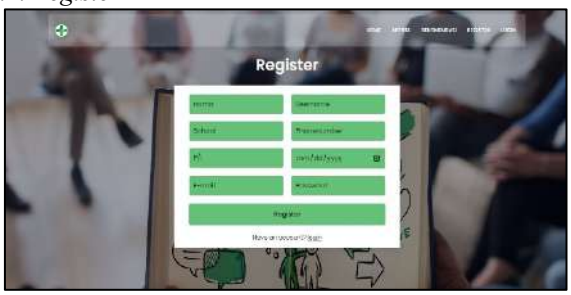

Fig 7. Register Page

Figure 7 displays the register page which contains data input forms that users will use to register an account on the system.

A.3.3. Login

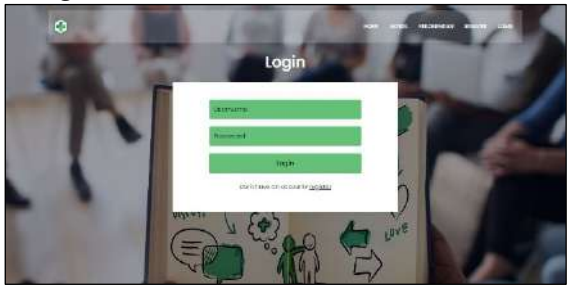

Fig 8. Login Page

Figure 8 displays the login page. To enter the system, the user inputs the username and password data that has been registered to enter the system.

A.3.4. Dashboard

Fig 9. Dashboard Page

Figure 9 displays a dashboard page containing a snapshot of 4 articles and 4 recommended videos related to the latest mental health uploaded by the admin.

A.3.5. View and Manage Article

Fig 10. Article Management Page

Figure 10 displays the manage articles page, where admins can add, delete and edit mental health-related articles that will be uploaded to the system.

A.3.6. Article Page

Fig 11. Article Page

Figure 11 shows the articles page, where users can view and access links to available mental health articles.

A.4. System testing

System testing in iteration 1 was carried out using the black box method. The black box method is a testing method that focuses on the functional specifications of the software [15]. The following are details of the test results for the first iteration:

TABLE V. BLACK BOX TESTING ITERATION 1

No	Testing Activity	Result
1	The function of viewing the landing page	Successful
2	Register function	Successful
3	Login and logout function	Successful
4	Function to view the dashboard page	Successful
5	Function to view the article page	Successful
6	The function of managing article	Successful
7	Function to view the recommendation page	Successful
8	Function to manage recommendation	Successful

Based on the test results using the black box method detailed in Table 5 above, it can be concluded that the system features in the first iteration successfully functioned as they should.

B. Iteration 2

After iteration 1 is completed, the next step is working on iteration 2. Iteration 1 work is completed faster than estimated, making iteration 2 work start earlier, user stories iteration 2 can be seen in the following table:

TABLE VI. ITERATION INISIALIZATION ITERATION 2

No	US Code	Title	Estimated (Days)	Implementation (Day)
1	US-07	Manage surveys	5	2
2	US-08	Fill out the survey	3	3
3	US-09	View and manage the survey history list	5	2
4	US-10	View student survey history	2	2
5	US-11	View survey score results	3	4
6	US-12	View survey result details	3	3
7	US-13	Print survey history	1	1
Velocity			22	17

Iteration 2 consists of 7 user stories with an estimated working time of 22 days. There were additional user stories US-11, US-12 and US-13 and changes in the implementation time for creating system features that were faster than the estimated time so that iteration 2 could be completed in 17 days. Implementation of iteration 2 is described through the following stages:

B.1. Database Implementation

Working on iteration 2 starts by adding 3 tables to the previously created "sidak" database, the 3 tables added are tables related to the survey and history features including the "survey" table, the "answer_survey" table, and the "history" table.

B.2. Class Implementation

After the table is added to the database, the next step is to create a coding class that is divided into 3, namely, class models containing "Survey", "History" and "Answer_survey". Class controllers containing "Survey_Controller" and "History_Controller". And class views that contain "survey", "manageSurvey", "fillSurvey", "viewScore", "student history", "viewRiwayat" and "listRiwayat".

B.3. Interface Implementation

Based on the results of the coding that has been done in the previous stage, the system interface is produced as follows:

B.3.1. Manage Survey

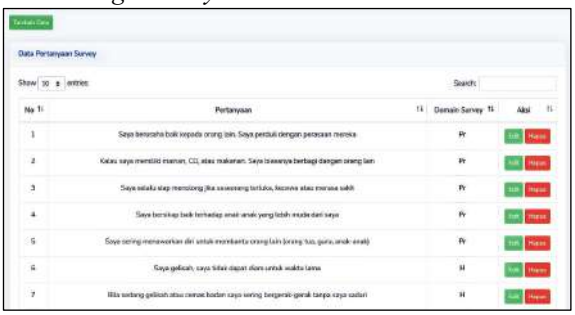

Fig 12: Manage Survey Questions Page

Figure 12 displays the manage survey questions page, where admins can add, delete and edit survey questions and domains.

B.3.2. Fill out the Survey

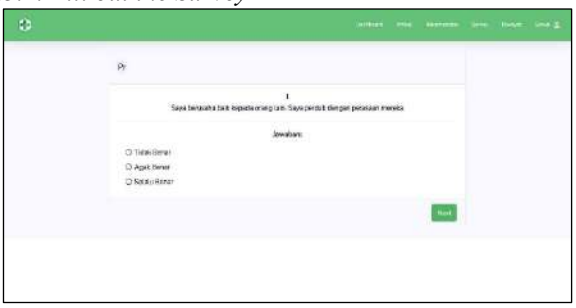

Fig 13. Survey Filling Page

Figure 13 displays the survey page for students. It has questions with 3 answer options and a next button that directs the user to the next question.

B.3.3. View and Manage Survey History List

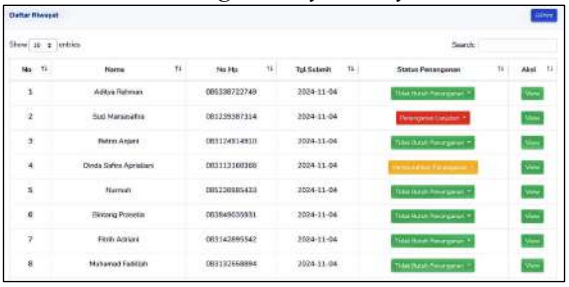

Fig 14. Manage Survey History Page

Figure 14 displays the managed survey history page. On this page, student data such as name, cellphone number, and date of submission will be displayed. Admins can also view the details of the survey filling results and change the user's handling status if needed.

B.3.4. View Survey Result Details

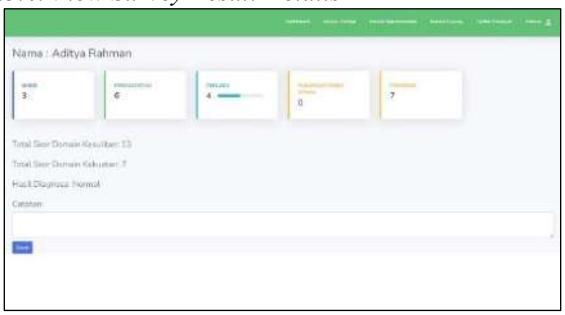

Fig 15. Survey Result Details Page

Figure 15 displays a detailed page of student survey results that admin and related users can access. The page also has a note feature to recap the counseling results for users with a handling status of "Advanced Handling".

B.3.5. Print Survey History

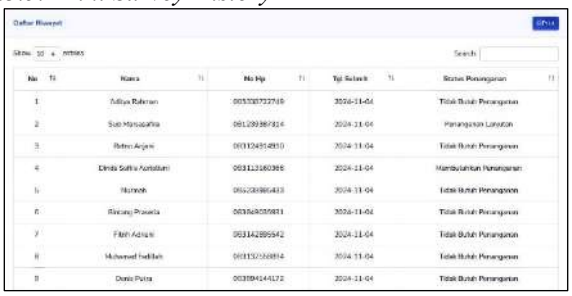

Fig 16: Survey History Print Page

Figure 16 displays the survey history list page that the Head of Health Center can access. The Head of the Health Center can view and print the history of filling out student surveys through the print menu.

B.4. System testing

System testing in iteration 2 was carried out using the black box method, which focuses on the functional specifications of the software [15]. The following are details of the test results for iteration 2:

TABLE VII. BLACK BOX TESTING ITERATION 2

No	Testing Activity	Result
1	The function of managing surveys	Successful
2	Survey filling function	Successful
3	Function to view survey score results	Successful
4	Function to view survey history (student)	Successful
5	Function to view survey history list (admin)	Successful
6	Function to view survey history list (Head of Health Center)	Successful
7	Function to manage survey history list	Successful
8	Function to view survey result details	Successful
9	Survey history print function	Successful

The test results using the black box method, as detailed in Table 7 above, show that the system features in the second iteration have functioned properly.

Based on the research results, all features in iteration 1 and iteration 2 of the website-based mental health early

detection information system that was built successfully function and can be used according to user needs.

C. User Acceptance Testing (UAT) Results

Testing with the User Acceptance Testing (UAT) method on a website-based mental health early detection information system is carried out in 2 stages. Testing with the UAT method is carried out to identify the usefulness and suitability of the system to user needs before the system is implemented or released [16].

There are 10 questions used in the test, with 9 positive questions and 1 negative question each. For positive questions the maximum weight value is 5 while for negative questions the maximum weight value is 1.

C.1. UAT By The Health Center

UAT testing by the Health Center involved the Head of the Mental Health Division and the Head of the Rasabou Health Center. The test results can be seen in the following table:

TABLE VIII. UAT TESTING RESULT BY THE HEALTH CENTER

Question	Calculations	Percentage
Question 1	(4.5/5) x 100%	90%
Question 2	(4.5/5) x 100%	90%
Question 3	(4.5/5) x 100%	90%
Question 4	(4/5) x 100%	90%
Question 5	(4/5) x 100%	80%
Question 6	(4.5/5) x 100%	90%
Question 7	(4.5/5) x 100%	90%
Question 8	(4.5/5) x 100%	90%
Question 9	(4.5/5) x 100%	90%
Question 10	(5/5) x 100%	100%
Average Testing Percentage		90%

Based on Table 8 above, the calculation results of the percentage of UAT testing by the Health Center get an average value of 90%.

C.2. UAT By Students

UAT testing by students involved 30 students. The test results can be seen in the following table:

TABLE IX. UAT TESTING RESULT BY STUDENT

Question	Calculations	Percentage
Question 1	(4.5/5) x 100%	90%
Question 2	(4.4/5) x 100%	88%
Question 3	(4.5/5) x 100%	90%
Question 4	(4.43/5) x 100%	88,6%
Question 5	(4.4/5) x 100%	88%
Question 6	(4.53/5) x 100%	90,6%
Question 7	(4.3/5) x 100%	86%
Question 8	(4.6/5) x 100%	92%
Question 9	(4.56/5) x 100%	91,2%
Question 10	(4.3/5) x 100%	86%
Average Testing Percentage		90,04%

Based on Table 9 above, the calculation results of the percentage of UAT testing by students get an average value of 90.04%.

The results of UAT testing conducted by the health of center and students showed an average score of 90% and 90.04%. With these scores, it can be concluded that the system received a good assessment, indicating that most of the system features are in accordance with user expectations and needs.

D. Survey Completion Data

TABLE X. SURVEY COMPLETION DATA

No	Diagnosis Result	Amount
1	Normal	25
2	Borderline	4
3	Abnormal	1

Test results from 30 students at SMAN 1 Hu'u provide an initial picture of the mental health condition of adolescents in Hu'u Sub-district. Most students were in the Normal category, but some were in the Borderline and Abnormal categories, which require further attention. These detection results can be an early indication of mental health trends in the area.

V. CONCLUSION AND SUGGESTION

Based on the results of the research,that has been done, the use of the Personal Extreme Programming (PXP) method is very suitable for the development of a website-based mental health early detection information system. System development with the PXP method allows for changes and adjustments at each iteration such as adding user stories and adjustments to the system feature processing time. The system was tested using two methods where testing with the black-box method showed that the features of this information system were running well. In addition, testing with the User Acceptance Testing (UAT) method conducted by students and the Rasabou Health Center resulted in an average score of 90% and 90.04%, which indicates that this system is by user expectations and is feasible to use. This system makes it easier for Health Center officers to detect mental health problems early by filling out the SDQ questionnaire among the people of Hu'u Subdistrict. It makes it easier for the health of center officers to record the history of detection results that have been carried out. Based on the test results that have been carried out,the system can function effectively and provide benefits in accordance with the desired objectives. Therefore, this system can be maximally utilized by related parties to help detect and treat mental health problems in Hu'u Sub-district, Dompu Regency.

Based on the results of this study, future research should consider adding other detection instruments so that the system can be used by all groups, expanding the scope of its use, and adding features such as online consultation services to the system. Thus, it is expected to increase the accuracy and effectiveness of the system in detecting and treating mental health problems more thoroughly.

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