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Design of a web-based project planning system using the Laravel framework at PT. Globalindo Lestari Utama

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ABSTRACT

PT. Globalindo Lestari Utama is a technology startup company engaged in information and communication. As a growing startup, PT. Globalindo Lestari Utama requires an effective project management system to overcome various challenges such as difficulty in monitoring work progress, unstructured task delegation, and unclear work estimate recording. In addition, reporting via WhatsApp groups is often missed because it is mixed with other chats, thus hampering the efficiency of project monitoring. This study aims to design and implement a web-based project planning system using the Laravel framework. This system is designed to provide features for monitoring work progress, managing and assigning structured tasks, and recording accurate work estimates. The project manager will create project data, then delegate tasks to the lead developer. The leader will break down these tasks and delegate them again to the developers. The method used in this study is the Waterfall model, which includes the stages of needs analysis, system design, implementation, testing, and maintenance. The Laravel framework was chosen because of its ability to provide a strong structure, security, and ease in developing web applications. The implementation of this system aims to improve the efficiency of project management and ensure that project reports and updates are no longer missed in group chats. The results of the implementation show a significant increase in the efficiency of project management at PT. Globalindo Lestari Utama. This system allows project managers and leader developers to document, manage, and delegate tasks more effectively. The conclusion of this study is that a web-based project planning system using the Laravel framework can overcome project management problems at PT. Globalindo Lestari Utama and improve the company's overall performance.

Keyword : Project planning; Laravel; Waterfall.

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1. INTRODUCTION

Developments in the field of information technology, especially internet technology, facilitate and assist various fields of work related to ease of access, distance and time. The dissemination of information that previously tended to be done manually and relatively slowly, can now be done faster and more efficiently. This affects many aspects of life, including companies and agencies in carrying out their business processes (Megawati, 2018).

Planning in a project is very important, everything must start from a plan and must be agreed upon between stakeholders involved in the project. Along with the development of information technology, many companies or agencies have begun to use computers in project management, to help with automation and calculations. According to Heryant (2015) the definition in the guidebook (A Guide to the Project Management Body of Knowledge), a project is a temporary effort carried out to produce a unique product or service. The initial stage in the project cycle is planning and design (Husen, 2009).

PT. Globalindo Lestari Utama is a technology startup company engaged in the field of information and communication. As a growing startup, PT. Globalindo Lestari Utama requires an effective project management system to overcome various challenges such as difficulty in monitoring work progress, unstructured task delegation, and unclear work estimate recording. In addition, reporting via WhatsApp groups is often missed because it is mixed with other chats, thus hampering the efficiency of project monitoring.

This study aims to design and implement a web-based project planning system using the Laravel framework. This system is designed to provide features for monitoring work progress, structured task management and assignment, and accurate work estimate recording. The project manager will create project data, then delegate tasks to the lead developer. The leader will break down the tasks and delegate them again to the developers.

2. RESEARCH METHOD

The research method used for application development is the waterfall method. The Waterfall method is a method that provides a sequential or sequential approach to the software life cycle. The Waterfall method has the following stages:

1) Analysis and definition of needs

System services, constraints, and objectives are determined by the results of consultation with users which are then defined in detail and function as system specifications.

2) System and software design

The system design stage allocates system requirements for both hardware and software by forming the overall system architecture. Software design involves identifying and describing the basic software abstractions system and their relationships.

3) Implementation and unit testing

At this stage, the software design is realized as a series of programs or program units. Testing involves verifying that each unit meets its specifications.

4) System integration and testing

The individual units of a program or program are combined and tested as a complete system to achieve these goals to ensure whether they meet the software requirements or not. After testing, the software can be delivered to the customer.

5) Operation and maintenance

Usually (though not always), this stage takes the longest. The system is installed and used in real life. Maintenance involves correcting errors not discovered in previous stages, improving the implementation of system units, and enhancing system services as new requirements emerge.

3. RESULTS AND DISCUSSION

The results of this study are discussed through the stages in the Waterfall Method used or applied in building the Web-Based Project Planning System Design at PT. Globalindo Lestari Utama Using the Laravel Framework.

A. Analytic System

1. Running System Analysis

   At this stage, an interview was conducted with the company regarding the project planning process at PT. Globalindo Lestari Utama which is engaged in information and communication. It was established with the aim of a digital advertising application that allows users to get rewards through interaction with advertisements.

   From the results of the interview, information was obtained regarding the ongoing project planning data processing process. The project planning data processing process carried out in the company is still manual, namely there is no integrated reporting system starting from data recording, data storage to report generation such as compiling project data, compiling work and delegating work tasks to developers.

2. System Requirements

From the system analysis above, a Web-Based Project Planning System Design was built at PT. Globalindo Lestari Utama Using the Laravel Framework to improve the data processing process needed in planning and design activities.

a) The system can store data and provide information about project planning data at PT. Globalindo Lestari Utama.
b) The system can delegate work task data easily and quickly.
c) The system provides the required features such as project data processing, implementation time, work data processing, task delegation and team data.
d) The system can display project reports, work tasks and statistical data summaries.

3. User Requirements

Users of this system are divided into five categories, namely administrators, project managers, lead developers and developers. This grouping is done based on the access rights and responsibilities that each user has to the system.

Table 1. User Categories

User	Description
Admin	Users who have access rights to manage developer member data
Project Manager	Users who have access rights to manage project data
Lead Developer	Users who have access rights to manage task data and delegate tasks
Developer	Users who view all job task data provided by lead developers

B. System Design

At this system design stage, namely creating a system design starting from process modeling such as external entity diagrams, data flow diagrams, then relations between tables and system displays, including the following:

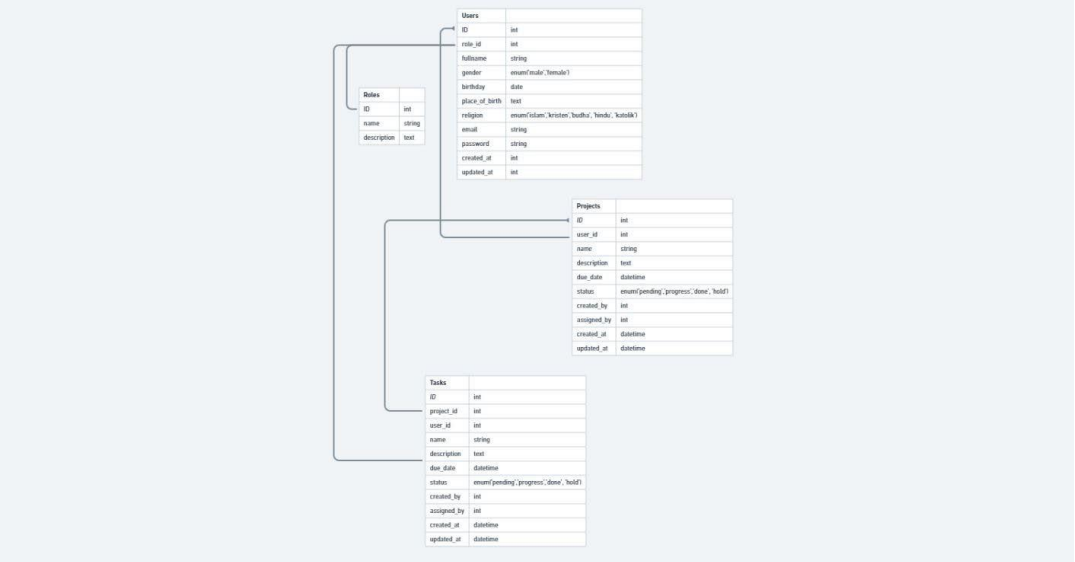
1. Identification of External Entities

Table 2. External Entity

User	Input	Output
Admin	Creating user accounts and granting role access	- User data report - Role data information
Project Manager	Project data and setting deadlines	- Project data report - Deadline time information
Lead Developer	Project data and setting deadlines	- Task data report - Developer task delegation information
Developer	Users who view all task data provided by lead developers	- Task data report - Information on completed task and progress

2. Entity Relationship Diagram

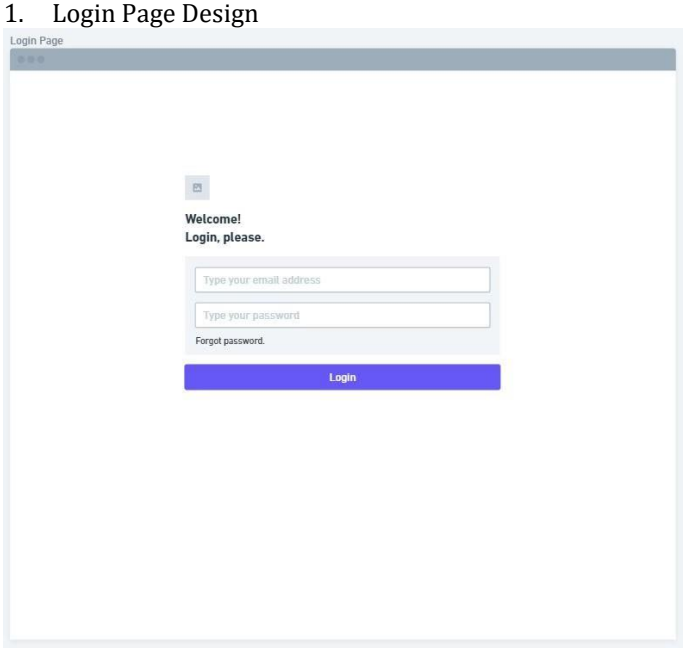
Relations indicate the maximum number of entities that can relate to entities in another entity set. Database relationships explain the arrangement of tables and attributes in tables and table relationships. The database relationship design for the project planning information system at PT. Globalindo Lestari Utama is as follows:



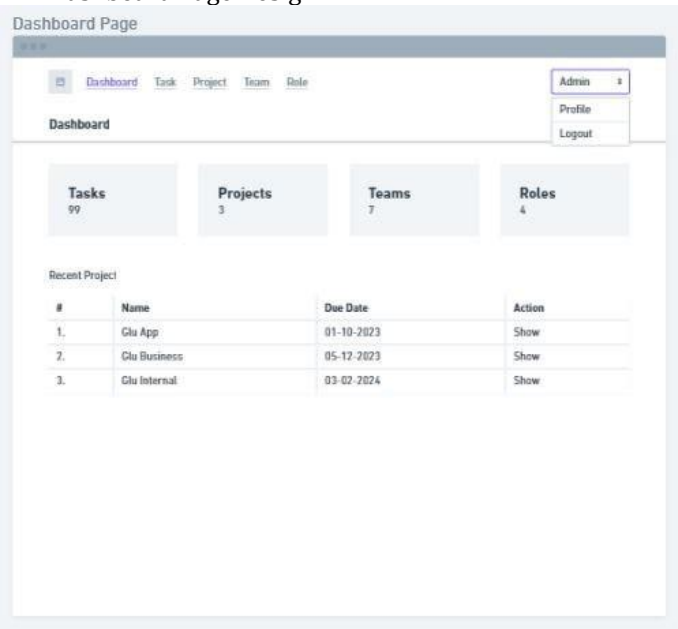
C. System Interface Design

After define a users, database design, the next step is to design a user interface so that users can more easily understand the system that will be produced. The user interface design is as follows:

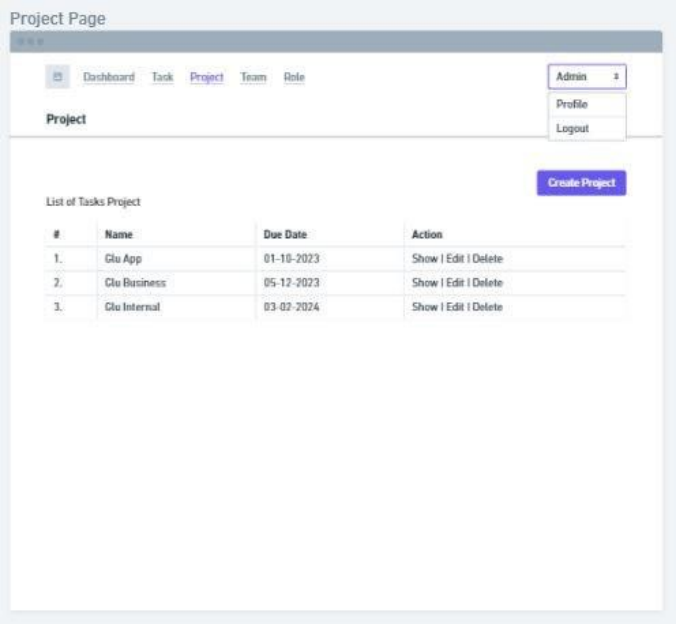
1. Login Page Design



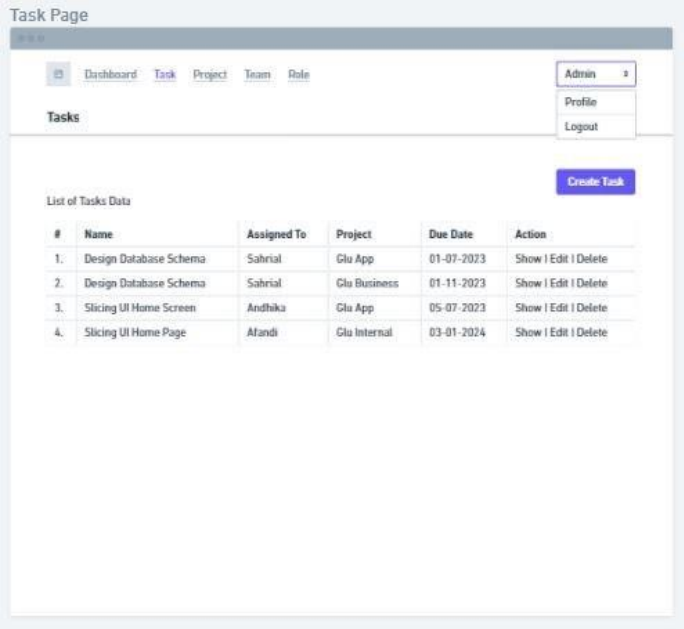
2. Dashboard Page Design



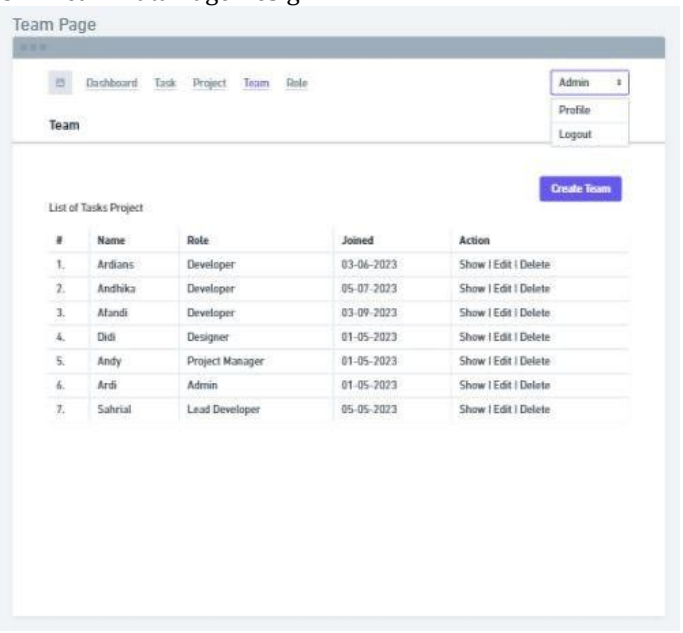
3. Project Data Page Design



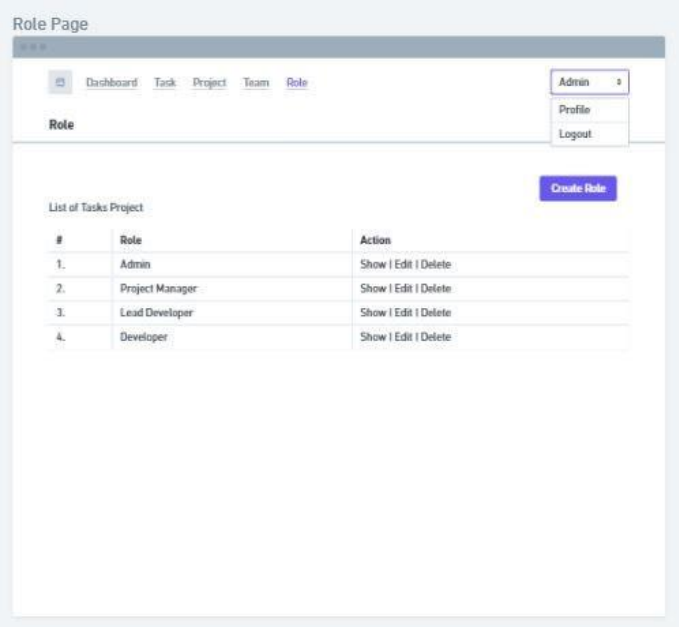
4. Task Data Page Design



5. Team Data Page Design



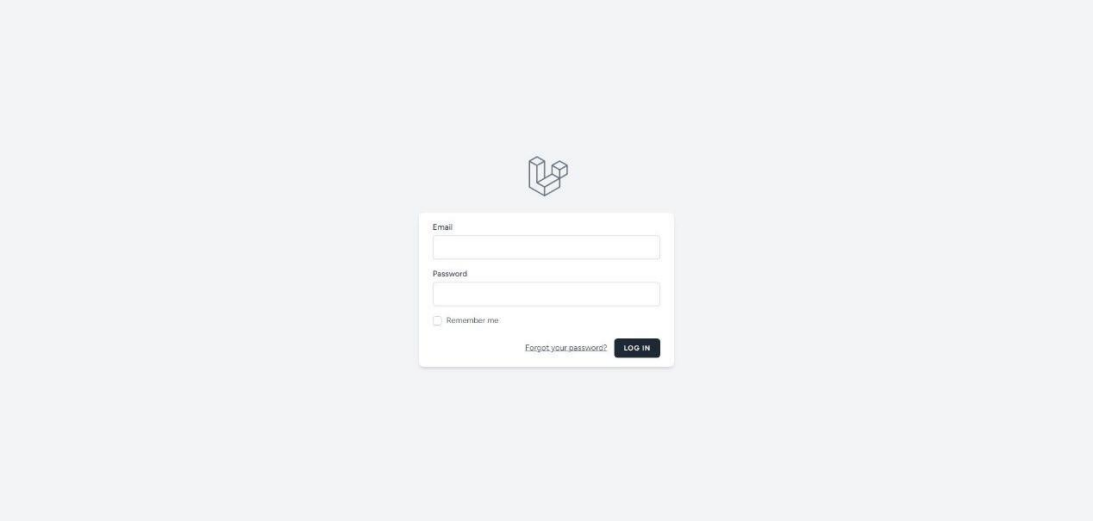
6. Role Data Page Design



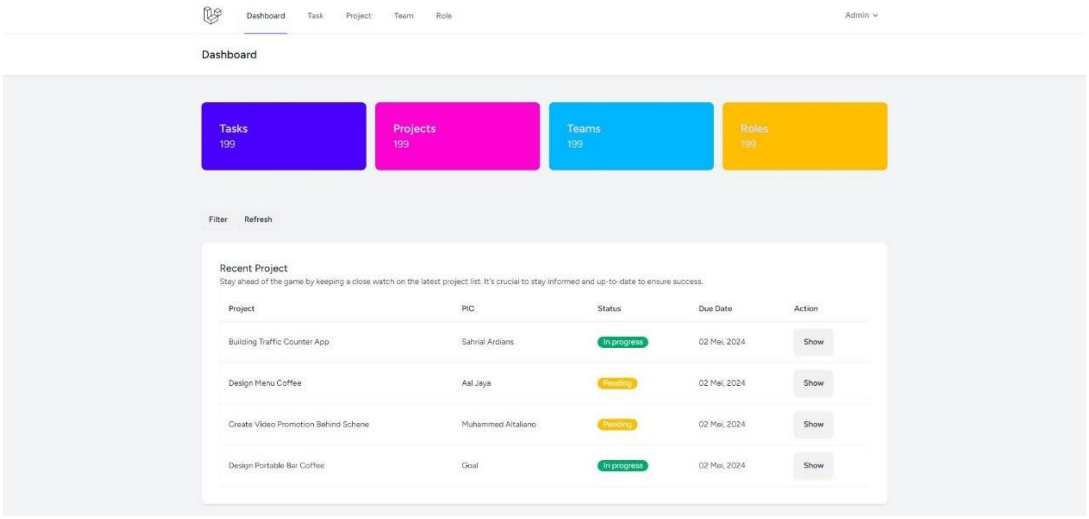
D. System Implementation

In the implementation stage, the coding of the PT. Globalindo Lestari Utama project planning information system software is carried out in accordance with the design results obtained in the previous stage. Coding is done using the PHP programming language using the Laravel Framework and MySQL database management for data storage. The following is the implementation in the form of system displays:

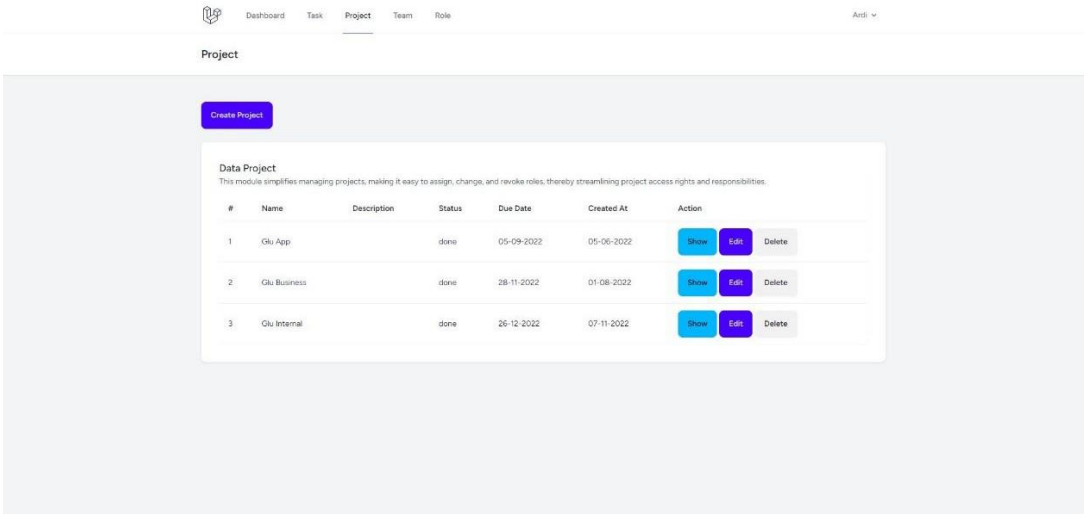
1. Login Page Display



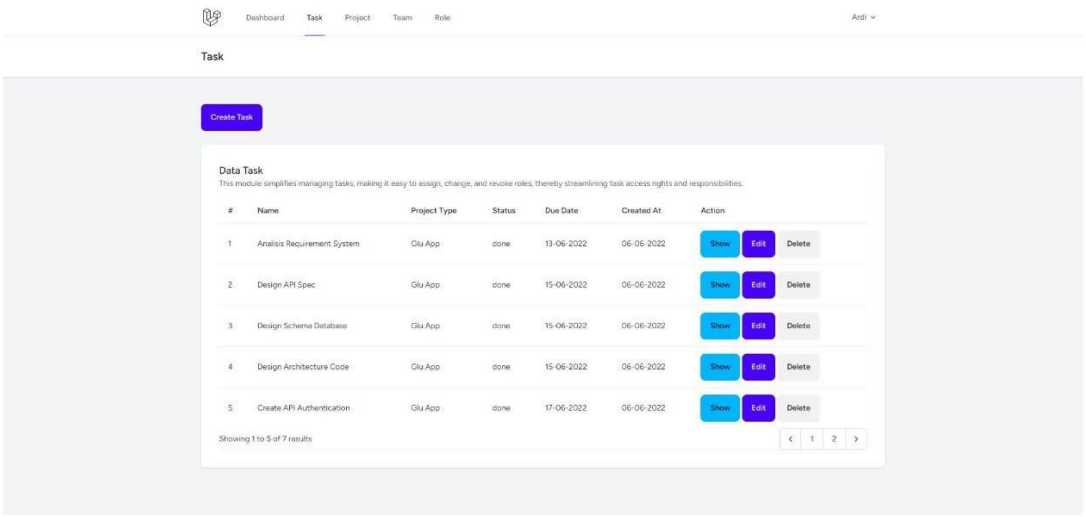
2. Dashboard Page Display



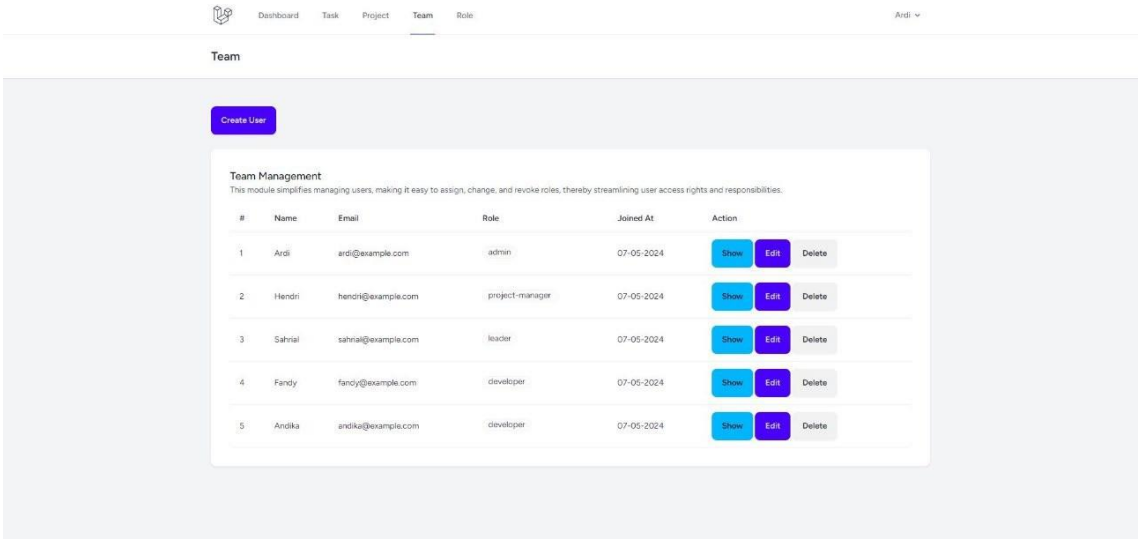
3. Project Data Page Display



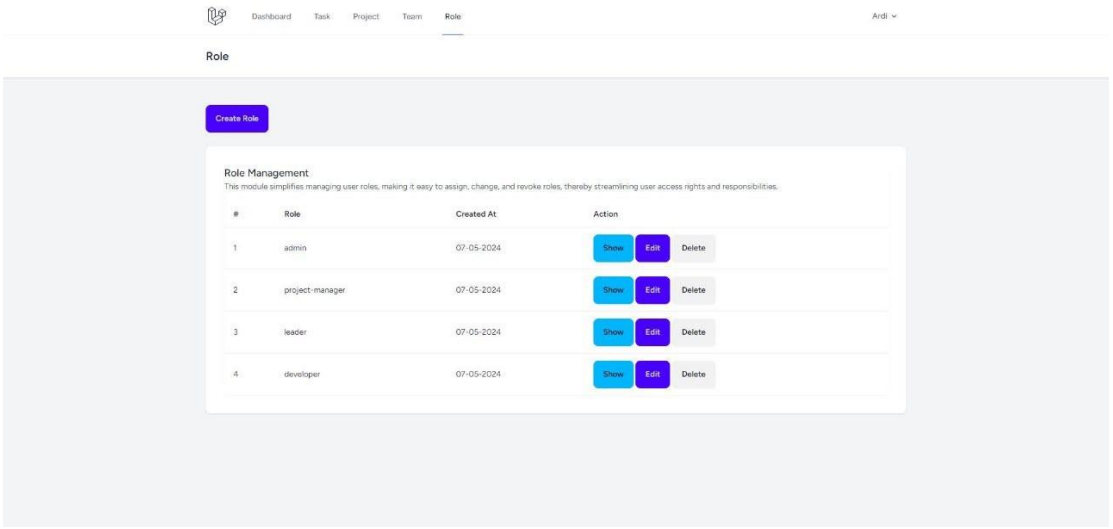
4. Task Data Page Display



5. Team Data Page Display



6. Role Data Page Display



4. CONCLUSION

Project work and implementation consist of various processes and procedures that must be completed together between the admin, project manager and leader. The use of a project planning information system needs to be done to provide convenience in the application development project process, such as creating project data, setting a project timeline, project delegation to the leader and job breakdown and job delegation to the developer team to be run. This design provides a solution to the problems that exist in the company and the method used is waterfall which is based on the company's needs in processing data and information related to procedures and technical implementation of the work.

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