Electronic counseling applications using framework code igniter

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Abstract. This research includes students, the counseling teacher concerned, and student guardians. In addition to related campuses, the world can also be a reference for the same institution to use the results of this research, so that the scientific benefits of this research can be felt by many people which can have an impact on time savings, distance and reduce the use of paper to record student counseling. In this study, we will make an application that can be interpreted between counseling and counseling participants, where counseling participant data can be recorded correctly, and the data can be used to monitor the progress of the counseling participants themselves with counseling. The problems in this study are 1. The absence of applications that can help record the current counseling process, 2. Difficulties in finding data about counseling participants, who have done previous counseling, 3. The desire to reduce the use of printed materials. So the purpose of this research is to create applications that can process data and store counseling participant data that can be used with counseling, applications that will be made web-based, and applications made using the PHP programming language, with MySQL databases and web-based sites using the Code igniter framework, and we call this application E-Counseling.

1. Introduction
This research includes students, counseling teachers concerned, and student guardians. Because of the large number of students involved in this research, a system acceptance test will be held using a questionnaire, and the results of the questionnaire will be processed and used as a reference whether or not the research carried out is successful or not. In addition to the related campus, the world can also be a reference for the same agency to use the results of this research, so that the scientific benefits of this research can be felt by many people who can impact on time savings, cutting distances and reducing the use of paper for recording student counseling.

In this study, we will make an application that can be interpreted between counseling and counseling participants, in which the counseling participant's data can be recorded properly, and the data can be used to monitor the progress of the counseling participants themselves by the counseling [8,9].

2. Research Problems
2.1. Identification of problems
The problems in this study are 1. The absence of applications that can help to record the current counseling process, 2. Difficulties in finding data on counseling participants, who have done counseling before, 3. The desire to reduce the use of printed materials.

2.2. Research Restrictions
The scope of the problem is as follows, 1. Research is focused on providing solutions so that counseling can easily record the data of counseling participants, 2. Research is focused on making applications that will be used in facilitating the recording of counseling participants.

3. Research Objectives and Benefits
3.1. Research purposes
So, the purpose of this study is to create an application that can process data and store counselling [8,9] participant data that can be used by counseling, applications that will be made web-based, and the application is made using the PHP programming language, with a MySQL database and website-based using the Code igniter framework [4], and we call the application is E-Counseling.

3.2. Benefits of research
The benefits of this research are expected 1. It can make it easy for counseling to save and process counseling participant data, 2. It can reduce the use of printed materials, 3. It can also be used by agencies that have the same problem.

4. Research Method
4.1. Types of research
The type of research we use is applied research (Applied Research) because the results of the research can be directly used/applied to solve problems faced and the implementation of e-business design using the information systems development (ISD) method [1]. The traditional systems development life cycle (SDLC) method provides structured and formal steps. However, these methods need to be changed to suit the conditions of information technology and needs that are increasingly complex and require great flexibility and responsiveness. Various modern methods are available for the development of complex or desired systems that are quickly realized, for example, prototyping, joint application design, object-oriented development, and component-based development.

For the development of E-Counseling in this cluster, a combination of structural and formal SDLC advantages, as well as prototyping and component-based development will be applied, 1. In this research, E-Counseling Application Prototype will be made, 2. Research results in the form of the E-Counseling Application Prototype.

4.2. Method of collecting data
Data collection methods used in this study are, 1. Observation method. Observation or direct observation of the research object. Observation technique is done by structured observation by preparing a list of data requirements and data sources, 2. Literature study method. Data collection methods obtained by studying, researching, and reading books, information from the internet, journals, relating to counseling, and the Code igniter framework.

4.3. Research Stages

Figure 1. Diagram of Research Stages

a. Identification of problems
Referring to the background of this study, the problems that can be identified are as follows:

1) There is no application that can help to record the current counseling process.
2) Difficulties in finding data on counseling participants, who have done counseling before.
3) The desire to reduce the use of printed materials.

b. Formulation of the problem
The main problems that will be examined in this study are:

1) There is no application that can help to record the current counseling process.
2) Difficulties in finding data on counseling participants, who have done counseling before.
3) The desire to reduce the use of printed materials.

c. Restricting the problem
1) Research is focused on providing solutions so that counseling can easily record participant counseling data.
2) Research is focused on making applications that will be used to facilitate the recording of counseling participants’ data.

5. Results and Discussion
5.1. System planning
The system design determines how the system will meet these objectives, in this case: hardware, software, network infrastructure; user interface, forms and reports, and special programs, databases, and files that will be needed. System design is an advanced stage of system analysis [13] where the system design depicts the system to be built before coding in a programming language. In the design of a system can’t be separated from the results of the analysis. The system design in this study can be seen in Figure 2.

![Figure 2. Research Concept](image-url)
From the research concept, it can be explained as follows, with the problems faced, then focus on solving the problem, then from the limitation of the problem an application is made to be able to solve the problems faced, by creating a web-based front end and backend application by utilizing a Code igniter framework[2,3,4,5] and applications we call it E-Counseling.

5.2. Deployment Diagram
Deployment diagram [13] is a diagram that can provide an explanation of how various physical elements compile and run the system in a network that is formed. The network architecture formed is a collection of nodes in the form of hardware and software that configure runtime software components with processors and other equipment. Deployment describes the details of how components are deployed in the system infrastructure, where the components will be located (on a machine, server or pc), how the network capabilities at that location, server specifications, and other things that are physical. A node is a server, workstation, or other hardware that is used to deploy components in the actual environment. Relationships between nodes (for example TCP/IP) and requirements can also be defined in this diagram. In this information system there are components that support the course of E-Counseling Applications are[11, 12, 14]:
1. Code igniter Framework, tools used to create E-Counseling Applications.
2. Xampp Web Server used to connect databases with E-Counseling Applications.
3. The server where the database and localhost are stored, as well as the client.
4. Monitor screen to display the E-Counseling web prototype.

Figure 3. Deployment of E-Marketing Application Diagram

Code Igniter is a PHP framework that is claimed to have the fastest execution compared to other frameworks. Code Igniter has a concept called MVC. MVC is an extension of the Model, View, Controller, workflow framework specifically here Code Igniter. The Code Igniter work system has several stages that must be passed. The work flow can be seen as follows[4]:
Figure 4. Code igniter workflow

From Figure 4 about the work system Code Igniter, can be explained as follows:
1. Index.php is the initial controller that initializes the need to run Code Igniter.
2. Router / Routing is the part that determines the activities that must be carried out when there are requests / requests from clients / browsers.
3. Caching is a part that checks whether data has been requested or not. If the cache is active, it will be sent directly to the client / browser regardless of the normal workflow.
4. Security, before the application is sent, the data will be filtered first as security.
5. The controller is the controller of the application, and will immediately process according to requests / requests requested, namely models, libraries, helpers, plugins and scripts.
6. View is a part of presenting information to the client / browser in accordance with the requested request (after passing through stages 1 through 5).

5.3. Designing Architectural Infrastructure

This stage will explain the form or design of Web-Based E-Counseling Applications, which are used to process the information needed by counselling [8,9] participants. The infrastructure design of the E-Counseling Application is as follows:

Figure 5. Infrastructure Design

In figure 5, you can see the infrastructure design model, which consists of:
1. Web server, database server, and application server, a location where the database and application are located.
2. The monitor screen, displaying the results of information processing data, can be seen in Figure 6.

![Figure 6. Display of E-Counseling Applications](image)

5.4. Interface Construction

This section will explain the implementation or construction of the appearance of the E-Counseling Application Web Based Base using the Code igniter framework [6, 7, 10, 11]. To explain the results of the construction will be given from each view, both the display input, output, navigation, and pages in the application that was built, and the application that is built refers to user requests for display and data that appears.

Website interface design using Model View Controller (MVC) based on Code igniter Framework and E-Counseling program design. MVC Model View Controller (MVC) method is a method used to create an application by separating data from the display and how to process it. The MVC method will divide an application into the following three groups [11]:

a. The model, which functions as a data manager in the application domain, carries out commands for requests for information and responds to instructions for changing a state.

b. View functions to translate information sent from the model into a form suitable for interacting with users. Usually in the form of one or more user interface elements.

c. The controller accepts input from the user and responds by making calls to model objects.

![Figure 7. MVC Concept](image)
In designing this system, the MVC model is applied to the Code igniter framework. Code Igniter is a website programming framework using the php language. This framework was written by Rick Ellislab who became CEO of Ellislab, Inc. and published under license under Apache / BSD Open Source[11].

![Figure 8. Initial view of the E-counseling application Backend Menu Login](image)

![Figure 9. Display of Backend E-Counseling Application](image)

Appearance of the E-Counseling back end application in Figure 9 consists of:

a. Management Menu  
b. News Menu  
c. Consultation Menu  
d. Interaction Menu  
e. User Management Menu

The main menu is used to manage the contents of the content consisting of a web identity which is to fill in the website's identity to display the front page of the e-counseling application, the main menu that serves to fill the articles on the front page of the e-counseling application, new pages, and page categories.

6. Conclusions

Based on the discussion of the results of the research discussed in the previous chapter, in the study of Website-Based E-Counseling Applications Using Framework Code igniter conclusions and suggestions can be drawn as follows:

This application was created to facilitate counseling in providing services to counseling participants. With this E-Counseling application data from the counseling, results can be stored well, safely, and can also reduce the use of printed documents. The results of this research are the prototype of the E-Counseling application that can be applied directly as a solution to the problem that occurs in the counseling service unit. The resulting data can be used by other counseling officers. The suggestion that we can convey is that this application can be developed and improved for the better by utilizing renewable technologies in the field of information technology.

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