Jurnal Mantik
Volume 4 Number 1 May 2020, pp. 392-398 E-ISSN 2685-4236
https://iocscience.org/ejournal/index.php/mantik/index

Mysql Database Processing Information System Using The System Development Life Cycle (SDLC) Method At Quality Guarantee Agency Working Unit At National University

Achmad Faqihuddin[1], Iwan Wahyuddin[2], Novi Dian Nathasia[3]

Program Studi Sistem Informasi,
Fakultas Teknologi Komunikasi Dan Informatika, Universitas Nasional, Jl. Sawo Manila, RT.14 / RW.3, Ps. Sunday, Kec. Ps. Minggu, Kota Jakarta Selatan, Special Capital Region of Jakarta 12520

email: faqihaditiya29@gmail.com[1], iwan_wyd@yahoo.com[2], novidian@civitas.unas.ac.id[3]

ARTICLEINFO

Article history:
Received: 04/14/2020
Revised: 15/05/2020
Accepted: 25/01/2020

Keywords:
BPM, Database, Unit, National University, System Development Life Cycle (SDLC)

ABSTRACT

The National University Quality Assurance Agency (BPM) is a form of quality assurance organization at the National University to guarantee the fulfillment of quality standards in the management of education, research and community service. However, the database system at BPM is not sufficient enough to do the data processing that is needed, namely where BPM does not have master data yet. Therefore, a database system design is needed so that BPM has its own system to facilitate the processing of data in each unit, and later each unit is able to upload the regulations made based on access to the Quality Assurance Unit (UPM) itself . In managing this data MySQL database software and PHP programming language are used for the server idea. The purpose of building a database system at BPM is so that data processing of existing regulations can be more flexible and efficient..

1. Introduction

A database is a collection of various data and information that is backed up and arranged neatly on a computer system to get data and information systematically from a database. This database is like a database cabinet. In principle, the database includes two components, namely Data and Information. The goal is how to process data so that it can become the desired information by carrying out the process of adding, deleting, retrieving and editing data easily.

At this BPM of course a lot of data is needed, but unfortunately this BPM does not have master data yet. Therefore, this database system was built to allow BPM to have access rights to facilitate BPM and its units in finding and retrieving certain data in the database [1]. Imagine if all databases from each unit entered the system, it would be very difficult to process data from each unit and it would take a long time.

The Quality Assurance Agency (BPM) will later contain data from various units in the National University / Quality Assurance Unit (UPM). These data are in the form of regulations from each UPM, which includes standard rules, guidelines and rules for daily and monthly activities. BPM itself has access to process the Rector's Decree regulation data, which in this regulation can be viewed and downloaded PDF files with their UPM. This database system is expected to bridge the formation of a centralized data processing system.

2. Literature Review

2.1. Theoretical Basis

According to Ladjmudin (2013), "A database is a collection of application programs that process and execute the required data which includes the process of searching, adding, rejuvenating and deleting".

"MySQL is a database server that is used to store data in a database and manipulate necessary data [3]. This data manipulation includes adding, changing, and deleting data in the database" (Buana: 2014).

Buana (2014), "MySQL is a database server that is often used in the PHP programming language".

"PHPMyAdmin is a tool that is very easy to use to manage MySQL databases and servers visually, so there is no need to have to write SQL queries every time you perform database operation commands" (Nugroho: 2013). This tool is quite popular, when installing the phpMyAdmin triad package we will get this facility, because it is included in the installed xampp[4].

2.2. Entity Relationship Diagram (ERD)

Accredited "Rank 4"(Sinta 4), DIKTI, No. 36/E/KPT/2019, December 13th 2019.

ERD is a data modeling technique that describes and expresses a relation in a diagram / model. In this relation, it can be stated that this ERD is primarily located in the data object or Entity and its Relationships, which are connected to the next entity.

"Entity Relationship Diagrams (ERD) are the most important data modeling tools / techniques to help and organize data from a project to entities, then what are the relationships from one entity to another" (Simarmata: 2016).

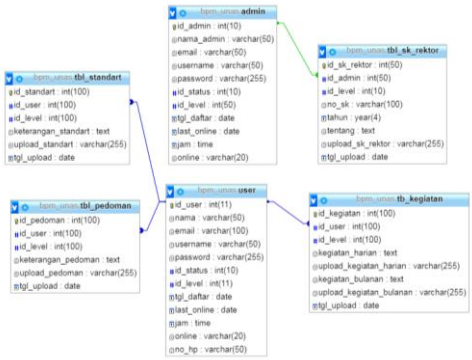

Fig 1. Entity Relationship Diagram BPM Database

3. Methodology

There are several steps that must be done in designing a database. Database System Development Life Cycle are these stages. Below this is the life cycle of a database from design to operation[5].

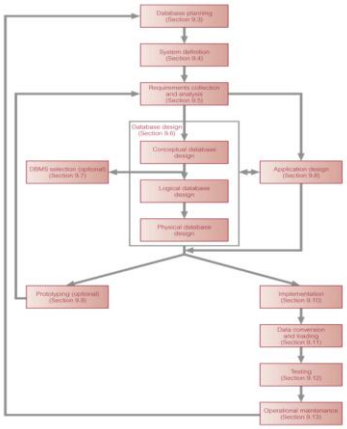

Fig 2. Database System Development Life Cycle

The following is an explanation of these stages:

a) Database Planning
   Preparing the database that you want to create, then describing what will later start with the collection of data, design and format of the data, then what the mission and purpose of the database are made.
b) System Definition
   Identify the user view in a database and determine its role.
c) Requirement Collection and Analysis
   The process of gathering what data is needed and then analyzing it.
d) Database Management System (DBMS)
   At this stage that is to choose the software used to implement the database created. Like Oracle, MySQL Server and others[6].
e) Application Design
f) Intermediary application between user and database to run User Interface and Transaction Design.
g) Prototyping (optional)
   Describe the database that will be made systematically with the aim that before the database can be run before it is evaluated for its completeness.
h) Implementation

Accredited "Rank 4"(Sinta 4), DIKTI, No. 36/E/KPT/2019, December 13th 2019.

Realizing the database that has been designed in accordance with the existing design and then in construction using DDL, DML and 3GL / 4GL.

i) Data Conversion and Loading
Convert the old data and then adjust to the new format and enter the data into the database that has been prepared.

j) Testing
See the condition of the database after it is used and then carry out the assessment process with the criteria for Performance, Adaptability, Robustness, Learnability, Recoverability[7].

k) Operational Maintenance
Monitoring databases regularly, then making sure the database is running properly and paying attention to anything that needs updating.

4. Results And Discussion

The following displays the MySQL operating interface:

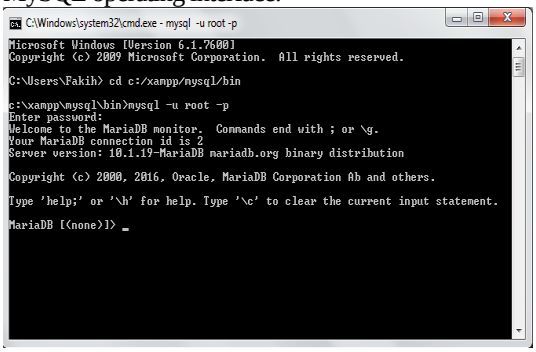

Fig 3. MySQL Command Prompt Operating Interface

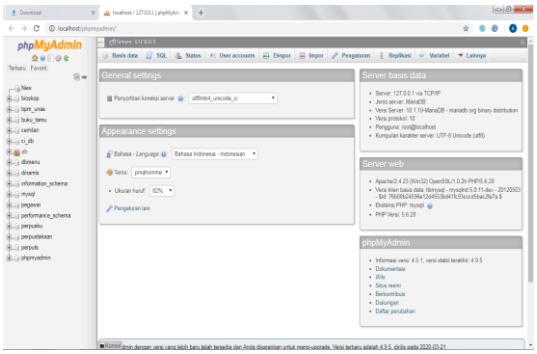

Fig 4. MySQL PHPMyAdmin Operating Interface

Here are the ways / commands in making a database. Database name **"bpm_unas"**: CREATE DATABASE bpm_unas;

If the above query is successfully made, then more or less will display a message like this:

Query OK, 1 row affected (0.02 sec)

Then to see all the MySQL databases that already exist or that have been created, by entering the command:

SHOW DATABASES;

The following is the query that was made: Database bpm_unas.

To display all tables that already exist or that have been created in a database by running the command:

SHOW TABLES;

After running the command, then all the tables in a database that are needed will be displayed.

Following is the database structure display with the name bpm_unas, along with the tables:

Accredited "Rank 4"(Sinta 4), DIKTI, No. 36/E/KPT/2019, December 13th 2019.

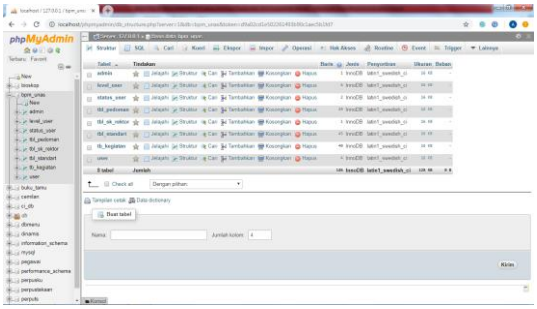

Fig 5. Table Structure Of The bpm_unas Database

a. Admin Table

Below is the structure for creating an admin table:

Table 1.
admin Table Structure

No	Column Name	Type	Size
1.	id_admin (PRIMARY KEY)	INT	10
2.	nama_admin	VARCHAR	50
3.	email	VARCHAR	50
4.	username	VARCHAR	50
5.	password	VARCHAR	255
6.	id_status	INT	10
7.	id_level	INT	50
8.	tgl_daftar	DATE	
9.	last_online	DATE	
10.	jam	TIME	
11.	online	VARCHAR	20

BPM has access rights as an admin, here is the result of the admin table creation:

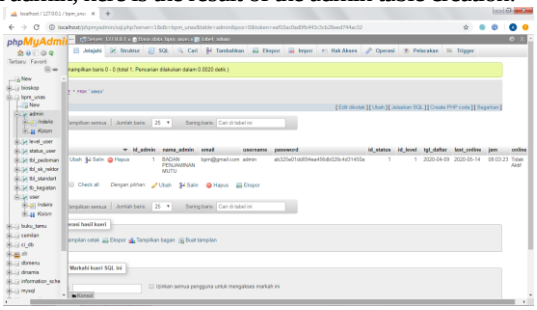

Fig 6. Admin Table In MySQL PHPMyAdmin

b. Level_User Table

Following is the structure for creating a level_user table:

Table 2.
Level_user Table Structure

No	Column Name	Type	Size
1.	id_level (PRIMARY KEY)	INT	11
2.	Level	VARCHAR	50

The following are the results of creating a level_user table:

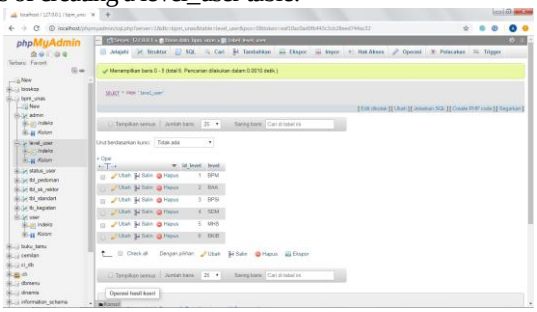

Fig 7. level_user Table In MySQL PHPMyAdmin

Accredited "Rank 4"(Sinta 4), DIKTI, No. 36/E/KPT/2019, December 13th 2019.

c. Status_User Table

The following is the structure for creating a status_user table:

Table 3.
Status_user Table Structure

No	Column Name	Type	Size
1.	id_status (PRIMARY KEY)	INT	20
2.	status_level	VARCHAR	20

status_user shows the user is active or inactive, the following results display:

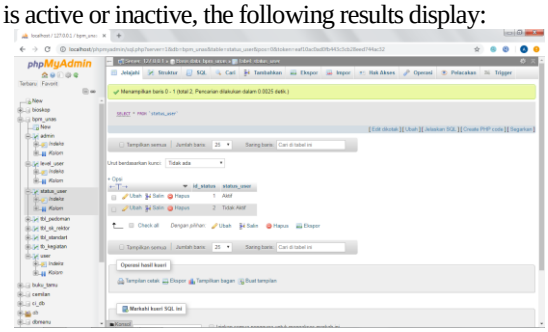

Fig 8. status_user Table In MySQL PHPMyAdmin

d. Tbl_Pedoman Table

Following is the structure for creating the tbl_pedoman table:

Table 4.
tbl_pedoman Structure

No	Column Name	Type	Size
1.	id_pedoman (PRIMARY KEY)	INT	100
2.	id_user	INT	100
3.	id_level	INT	100
4.	keterangan_pedoman	TEXT	
5.	upload_pedoman	VARCHAR	255
6.	tgl_upload	DATE	

In tbl_pedoman these display the guideline data that has been uploaded by each unit (UPM), with the following appearance:

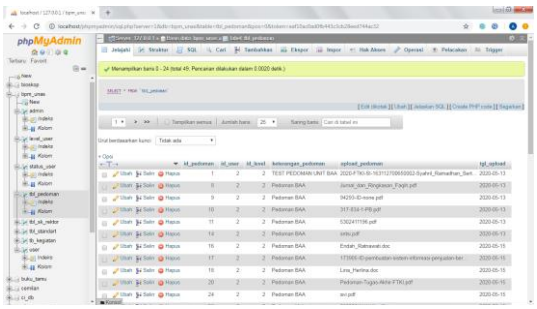

Fig 9. tbl_pedoman Table In MySQL PHPMyAdmin

e. Tbl_sk_rektor table

Following is the structure for creating the tbl_sk_rektor table:

Tabel 5.
tbl_sk_rektor Structure

No	Column Name	Type	Size
1.	id_sk_rektor (PRIMARY KEY)	INT	50
2.	id_admin	INT	50
3.	id_level	INT	10
4.	no_sk	VARCHAR	100
5.	tahun	YEAR	4
6.	tentang	TEXT	
7.	upload_sk_rektor	VARCHAR	255
8.	tgl_upload	DATE	

On this tbl_sk_rektor displays the Chancellor's Decree, the following results display:

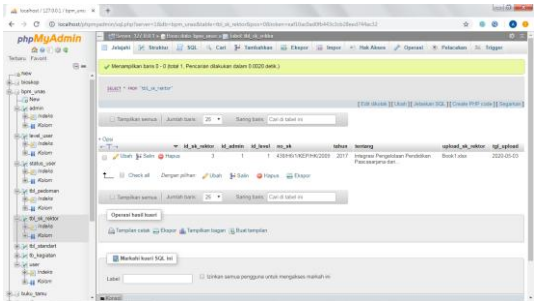

Fig 10. tbl_sk_rektor Table In MySQL PHPMyAdmin

f. tbl_standart table

Following is the structure for creating a tbl_standart table:

Table 6.
tbl_standart Structure

No	Column Name	Type	Size
1.	id_standart (PRIMARY KEY)	INT	100
2.	id_user	INT	100
3.	id_level	INT	100
4.	keterangan_standart	TEXT	
5.	upload_standart	VARCHAR	255
6.	tgl_upload	DATE	

In tbl_standart this displays the standard data that has been uploaded by each unit (UPM), here is how it looks:

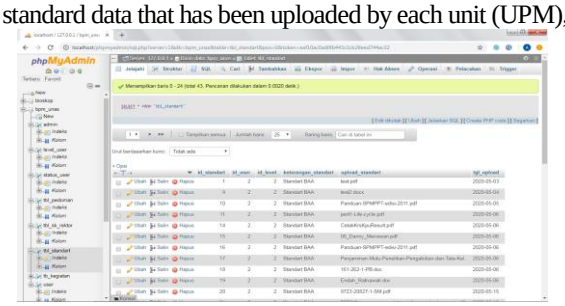

Fig 11. tbl_standart Table In MySQL PHPMyAdmin

g. tb_kegiatan table

The following is the structure for creating the tb_ kegiatan table:

Table 7.
tb_kegiatan Structure

No	Column Name	Type	Size
1.	id_kegiatan (PRIMARY KEY)	INT	100
2.	id_user	INT	100
3.	id_level	INT	100
4.	kegiatan_harian	TEXT	
5.	upload_kegiatan_harian	VARCHAR	255
6.	kegiatan_bulanan	TEXT	
7.	upload_kegiatan_bulanan	VARCHAR	255
8.	tgl_upload	DATE	

In tb_kegiatan this displays daily and monthly activities that have been uploaded by each unit (UPM), the following looks:

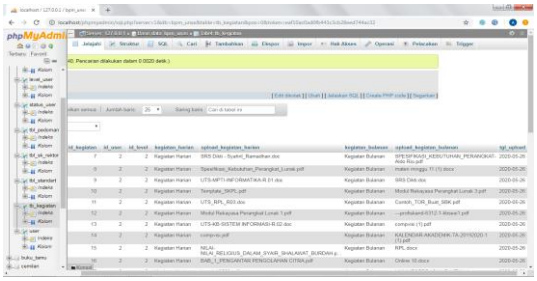

Fig 12. tb_kegiatan Table In MySQL PHPMyAdmin

Accredited "Rank 4"(Sinta 4), DIKTI, No. 36/E/KPT/2019, December 13th 2019.

h. User table

Below is the structure for creating user tables:

Table 8.
user Table Structure

No	Column Name	Type	Size
1.	id_user (PRIMARY KEY)	INT	11
2.	nama	VARCHAR	50
3.	email	VARCHAR	100
4.	username	VARCHAR	50
5.	password	VARCHAR	255
6.	id_status	INT	10
7.	id_level	INT	11
8.	tgl_daftar	DATE	
9.	last_online	DATE	
10.	jam	TIME	
11.	online	VARCHAR	20
12.	no_hp	VARCHAR	50

User table to find out the date of the list, active status or not and the online time for each unit (UPM), here is how it looks:

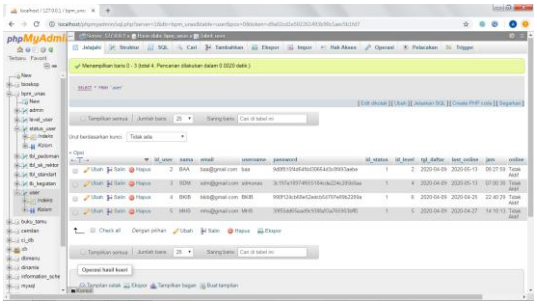

Fig 13. user Table In MySQL PHPMyAdmin

5. Conclusions

a. The database system in BPM is a database system that is managed by BPM itself and several UPMs, so that later the quality assurance system that is within the scope of the National University can run well than before.
b. This database system was built to facilitate the Quality Assurance Agency (BPM) and other units in processing data or files in the form of regulations, so that BPM also has its own master data.

6. Reference

[1] Saputra, Alhadi. "Manajemen Basis Data MySQL Pada Situs FTP LAPAN Bandung", Berita Dirgantara Vol.13 No. 4, Desember 2012:155-162.
[2] Bancin, Aswin. "Sistem Penjaminan Mutu Perguruan Tinggi", Jurnal Manajemen Pendidikan Vol.9 No.1, Juni 2017. ISSN : 1979-6684.
[3] Elhoseny, Mohamed. Metawa, Noura. Darwish, Ashraf. "Intelligent Information System To Ensure Quality In Heigher Education Instutions, Towards An Automated E-University", Int. J. Computational Intelligence Studies, Vol. 6 No. 2, December 2017.
[4] Mulyani, Hasta, Sri. "Sistem Informasi E-Document Pada Badan Penjaminan Mutu Akademik Universitas Respati Yogyakarta", Jurnal Teknologi Informasi Vol. 9 No. 26, Juli 2014.
[5] Sutanto. Widyawati. Anjayanto Ari. "Perancangan Sistem Informasi Pengelolaan Asrama Di Lembaga Penjaminan Mutu Pendidikan (LPMP) Banten Menggunakan Metode Rapid Application Development (RAD)", Universitas Banten Jaya Vol. 4 No. 1, Februari 2020.
[6] Ryan, Tricia. "Quality Assurance In Higher Education: A Review Of Literature", Academia Quality And Accredition Vol. 5 No. 4, December 2015.
[7] Alawiyah, Faridah. "Penjaminan Mutu Pendidikan Tinggi", Juni 2012.
[8] Tsolakidis, Anastasios. Chalaris, Manolis. Chalaris, Loannis. "Quality Assurance Information System-The Case Of The TEI Of Athens", International Journal on Integrated Information Management Vol. 2, March 2015.
[9] Uchtiawati, Sri. Zawawi, Irwani. "Penerapan Penjaminan Mutu Pendidikan pada Sekolah Menengah Atas berstandar Internasional", Jurnal Kebijakan dan Pengembangan Pendidikan Volume 2, Nomor 1, Januari 2014; 52-56, ISSN: 2337-7623; EISSN: 2337-7615.
[10] Sucipto. "Perancangan Active Database System pada Sistem Informasi Pelayanan Harga Pasar", Jurnal INTENSIF, Vol.1, No.1, Februari 2017. ISSN: 2549-6824.

[11] Yuliansyah, Herman. "Perancangan Replikasi Basis Data MySQL Dengan Mekanisme Pengaman Menggunakan SSL Encryption", Jurnal Informatika Vol. 8, No. 1, Januari 2014.
[12] Sulaiman, Ahmad. Wibowo, Udik Budi. "Implementasi Sistem Penjaminan Mutu Internal Sebagai Upaya Meningkatkan Mutu Pendidikan Di Universitas Gadjah Mada", Jurnal Akuntabilitas Manajemen Pendidikan. Volume 4, No. 1, April 2016 (17-32).
[13] Silman, Fatos. Gokcekus, Huseyin. Isman, Aytekin. "A Study On Quality Assurance Activities In Higher Education In North Cycprus", International Online Journal Of Education Sciences Vol. 4 No. 1, July 2012.
[14] Zenita, Handha. Fiati, Rina. "SDLC Model For Implementation Of E-Blangko On Departement Of Population And Civil Registration". Kumpulan jurnaL Ilmu Komputer (KLIK). Volume 06, No. 01, Februari 2019. ISSN: 2406-7857.