Consistency Analysis of the Database of Scientific Papers Lecturer on the Website Karyaku.di.uns.ac.id Uses a Key Performance Indicator

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Abstract

Karyaku.di.uns.ac.id is a website that provides information systems data papers lecturer University Eleven Maret Surakarta. The database used in this system is MySQL. Analysis of the database is performed to check the level of consistency of database based on Key Performance Indicators that have been obtained. The results obtained there is such analysis is there are multiple columns in the table that contain the data that is not consistent. Completion can be done one of them is to make adjustments on the column data type.

Keywords: Database, Key Performace Indicator, MySQL, dan Consistency.

Data and information is an important component in a database. A database is a collection of information stored on the computer. The making of the database aiming to make it easier to search for data or data retrieval in a particular database quickly and easily. A database is a collection or a collection of data that is mechanical, divided, formally defined and controlled. Control of the centralized database system, which is usually owned and also held by an organization [1].

There are several aspects to note in the construction of the database, one of which is the consistency of the data. Consistent in language means the focus on a field which we will not be moving towards another field before the Foundation of the field of the first really strong [2]. In the database, the data consistency means to keep the integrity of data and to avoid duplication of data.

1. Introduction

Many ways can be used to measure the level of consistency of the data on the database. One that can be used is to wear a Key Performance Indicator. Key Performance Indicator is a quantitative measure of a set of commonly used through the company or industry to measure and compare performance in terms of fulfilling their operational and strategic objectives. The making of the database karyaku.di.uns.ac.id using the database MySQL-phpMyAdmin and adopt the scheme star for their colleagues.

1.1. Understanding The Database

A database is a collection of computer data that is integrated, organized and stored with the aim to facilitate users in accessing the data. A database is a collection of interrelated data to one another, stored in the computer and is used by certain software to manipulate it [3].

As for the function of the database is to classify data and information so that it is easy to understand, prevent the occurrence of data duplication and inconsistencies in the data, simplify data access, maintaining data quality and information, helps the process of data storage Besa, and improve the performance of applications that require data storage.

1.3. Key Performance Indicator

Key Performance Indicators are the measurable value that indicates how effectively the company's key business objectives. Key Performance Indicators used to measure the qualitative parameters tend to

2. Research Methodology
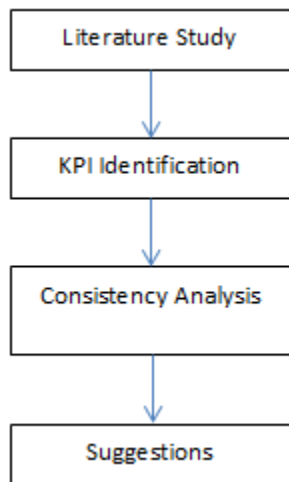
Here is a flowchart method research conducted:

Figure 1. Flowchart Of Research Methods

3. Discussion

3.1. KPI Identification

Based on the analysis of KPIs that have been done, so here are some of the factors that affect the level of consistency of the data on the database:

1. Action against the limitations of input data (e.g. using a radio button, checkbox,

1.2. MySQL

The MySQL database software is one that is quite popular and widely used on windows as well as Linux operating systems. MySQL is available for free and can be accessed by everyone. The advantages of MySQL is can be used for multi-user, query data fast, and has the official license.

be a difficult measurement. Matrix of key performance indicators describing the performance of the performance achieved by a company as well as the object of the company's strategy.

or select or input automation and also disable input).
2. Measure many of his lack of consistency of the data from the actual amount of data.
3. Measure the ability to reduce the lack of consistency of the data. the intent when implementing the solutions given is capable in reducing inconsistent data.
4. Measure the proximity with the consistency of the data that is to say how close to the level of consistency in the data from the application of the solution to the consistency of the data.
5. Measure the degree of consistency in restricting centering data of significance is how the value of the percentage of reduction of the lack of consistency of data
6. Measure the compliance testing within the limits of the input it means measuring how well behaved user in the input data input constraints when applying the above

3.2. Database Schema

The following is the schema of the database that is used on the website: Karyaku.di.uns.ac.id
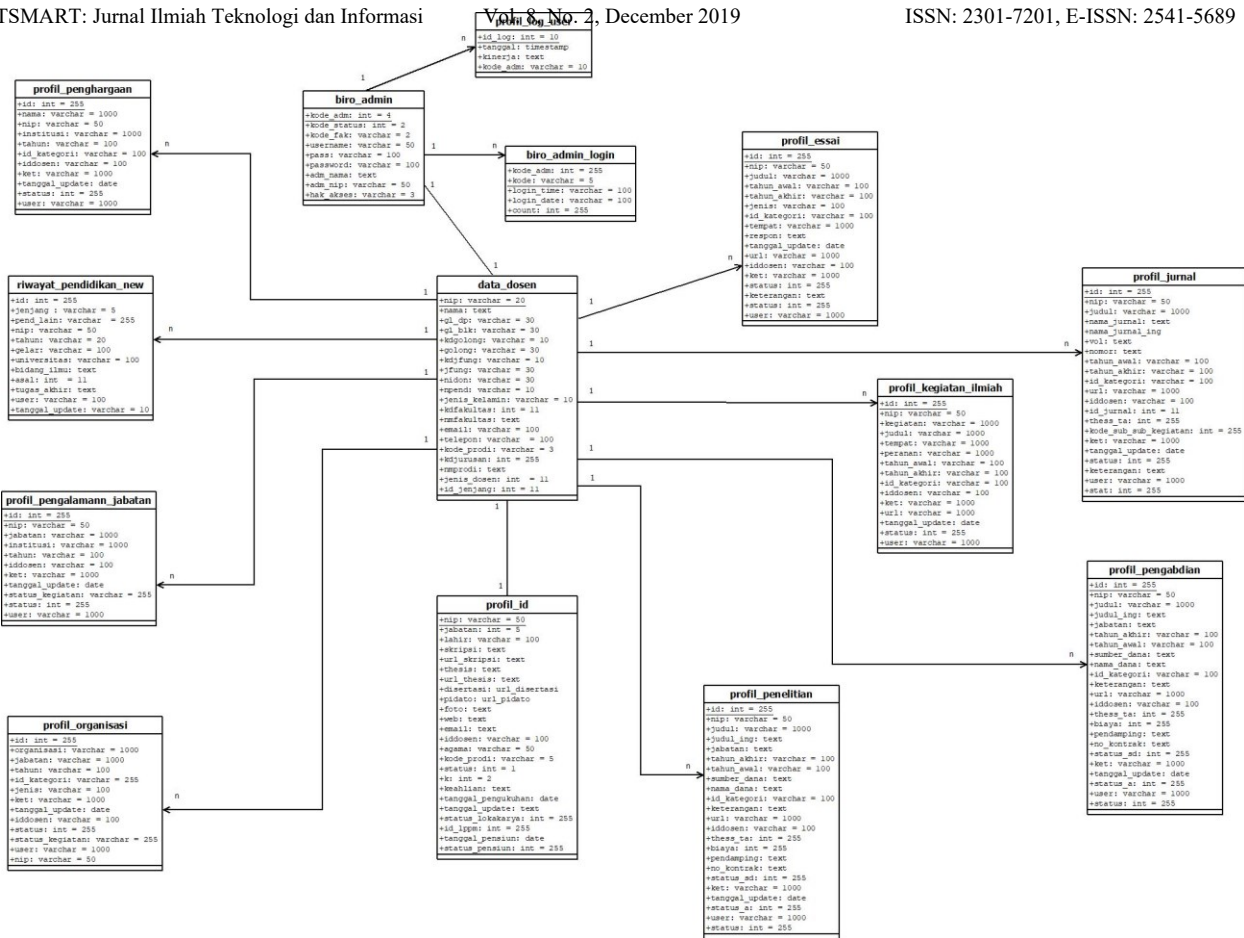
Gambar 1. Skema Database Karyaku.di.uns.ac.id

3.3. Data Consistency Analysis

The analysis is performed on a table biro_admin, data_dosen, profil_id, tables of scientific papers, research table, table, table service and a table whose journals. Analysis of the consistency of the data is performed on a column in each – each table occurrence of potential errors that can cause data inconsistent data. Process analysis is done by querying the data in each column that you want to check the consistency factor.

Table 1. Analysis The Consistency Of Table

Table Name	Column Name	Query Data	Explanation
Data_dosen	nmfakultas	Select distinct(nmfakultas) from data_dosen	There are 23 different faculty name from total 10 faculty who should can be filled
Profil_id	Lahir	Select distinct(lahir) from profil_id	The absence of charging format makes the data format is not uniform
	agama	Select distinct(agama) from profil_id	There are 14 religion in the total column of 5 compulsory religion filled
Penelitian	Judul	SELECT `judul` FROM `profil_penelitian` WHERE	There are 34 data is damaged, that is, the existing data is replaced by

Table	Column	SQL	Description
		judul LIKE '%#%'	random characters
	tahun_awal	SELECT tahun_awal FROM profil_penelitian WHERE tahun_awal LIKE '%A%'	The format of the data is inconsistent. A lot of data that does not correspond to the format of the date-month-year
Kegiatan ilmiah	Peranan	Select distinct profil_kegiatan_ilmiah.peranan from profil_kegiatan_ilmiah inner join data_dosen where profil_kegiatan_ilmiah.nip = data_dosen.nip	There are 226 the role data (unique) conducted a lecturer on scientific activities. But some of them have the same meaning or meanings.
Pengabdian	Jabatan	Select distinct(jabatan) from profil_pengabdian inner join data_dosen where progil_pengabdian.nip = data_dosen.nip	There are 174 Office data (unique) on this column. Due to the absence of a choice of data into the charging benchmark.
Essai	Jenis	Select distinct(jenis) from profil_essai	There are 493 unique data on column types. There is some data that does not fit with the context column.
Jurnal	Vol	Select distinct(vol) from profil_jurnal	The format of the data in this column is not clear

Based on the results of the analysis that has been done then, recommendations that can be done to improve the consistency of the data on the database karyaku.di.uns.ac.id is as follows:

Table 2. Repair Table

Table Name	Column Name	Suggestions
Data_dosen	nmfakultas	To prevent data inconsistency that occurs on the field name of the faculty, then it can use predictive dropdown or checkbox that contains the names of the appropriate faculty.
Profil_id	Lahir	To prevent data inconsistency that occurs on a field born there are some solutions that can be done to reduce data errors or varicosity. The first is the uniform format of the input in the form of birth. In the form of birth, should be given a caption should fill the data in the form of the place date of birth, date of birth. The second way is by separating the place date of birth containing the type varchar and date of birth in the form of the character date.
	Agama	To prevent data inconsistency that occurs in the religious field, then it can use predictive dropdown or checkbox that contains the names of the appropriate religion in Indonesia. For Example Islam, Catholicism, Christianity, Hindhu, Buddha.
Penelitian	Judul	To resolve the error, the data can be used periodically checking on the database or perform incremental validation to verify the user, so as to enhance the security of data.
	tahun_awal	There are a few solutions that can be done by decreasing errors or varicosity of the data. The first is the uniform format of the input in the form of charging of the year. On the form of the input year, preferably

		given information should fill the data in the form of years only. The second way is by changing the data type of the input form and become a date or year
Kegiatan ilmiah	Peranan	To prevent data inconsistency that occurs in perenan, then the field can be used in the input dropdown or checkbox that contains these roles are customarily done lecturer to follow his example, scientific activities: participants, author, speaker, Keynote Speaker, Advisors, and others
Pengabdian	Jabatan	Solutions that can be done is to make the input validation on the form input or use the dropdown options such as input or checkbox
Essai	Jenis	Solutions that can be used is to provide such input options dropdown or checkbox
Jurnal	Vol	The meaning or context of the data in the column vol (volume) is the volume of a journal which is usually a number. Int data type should be used in order to uniform the input data.

4. Conclusions and Suggestions

4.1. Conclusion

Based on the analysis that has been done then, there are 9 columns that contain data are not consistent. Inconsistency Data factor is caused by several factors, namely: (1) data types that are not appropriate to the context or meaning of the columns that are used. For example, in a column of data type varchar wears a year. This makes the user can input the characters freely. (2) absence of the raw format on a column that is already clear the contents of the data. For example in the areas of religion, the user should be given only 5 input options in accordance with the recognized religions in Indonesia. (3) damage to data caused by outsiders who try to corrupt data. There are several methods that can be done to reduce the error rate or varicosity of the data. The first is the uniform format of the input in the form of charging of the year. On the form of the input year, preferably given information should fill the data in the form of years only. The second way is by changing the data type of the input form and become a date. Damaged data or experiencing disabilities removal will be done to reduce the amount of data that is not consistent.

4.2. Suggestion

Suggestions that can be used for further research is to apply a different database schema on the database karyaku.di.uns.ac.id and do the normalization of data to maintain the consistency of the data.

Literature

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