



## Data Visualization Application "JIRA" at PT. Jati Piranti Solusindo Using the Metabase

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### ARTICLE INFO

### ABSTRACT

#### Article history:

Received: 04/14/2020

Revised: 04/28/2020

Accepted: 05/01/2020

#### Keywords:

*Data visualization,*

*ETL,*

*JIRA,*

*metabase,*

*mysql,*

*web-based*

DBMS is always growing rapidly every year. It means, each company has moved to data digitalization, including PT. Jati Piranti Solusindo. This company has an application that is often accessed for corporate projects. A lot of data on the application that makes the Project Management Officer waste more time to read data from one project. To shorten the time of the PMO of PT. Jati Piranti Solusindo, it needed charts that make it easier for them to access project data. Data visualization is a solution for translating abstract data into more visual information. The results of this visualization are effective because the graphic is easy to read, attractive graphics and can be accessed on a web-based basis.

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## 1. Introduction

Every company must have data, be it employee data, customer data, asset data and others. The current digital era, many companies have stored data digitally, because seeing the development of the Database Management System (DBMS) every year continues to increase. This can be proven by the graph in Figure 1.

P.T. Jati Piranti Solusindo uses the application "JIRA: Issue & Project Tracking" as an application that aims to create and assist a project in order to easily communicate with clients, communication here is related to the project, such as initiation in starting a project, preparing modules to be used in the application to be made, informing the existence of bugs on the application made, and helping the client after the application is handed over to the client.

The data in this JIRA application consists of 120 tables and there are more than 20 tables which are often accessed for company project needs. Each table has more than 200 data. This large amount of data makes the Project Management Officer (PMO) take a long time to read data from 1 project. For this reason, with this research, the author will make Data Visualization in the JIRA Application.

An effective way to present detailed data into information that is easily accepted is by means of abstraction into visual information. Data visualization is seen by various fields of science as one of the tools of modern communication. The main purpose of data visualization is to communicate information clearly and efficiently to its users through selected information charts, such as tables or graphs.

Effective visualization helps users in analyzing and reasoning about data and evidence, so that complex data becomes easy to understand and useful.

This research will use an application called Metabase, Metabase is a tool used for business intelligence based on open source. This application allows users to process their own data, and display it in an easily understood format, such as bar graphs or detailed tables.



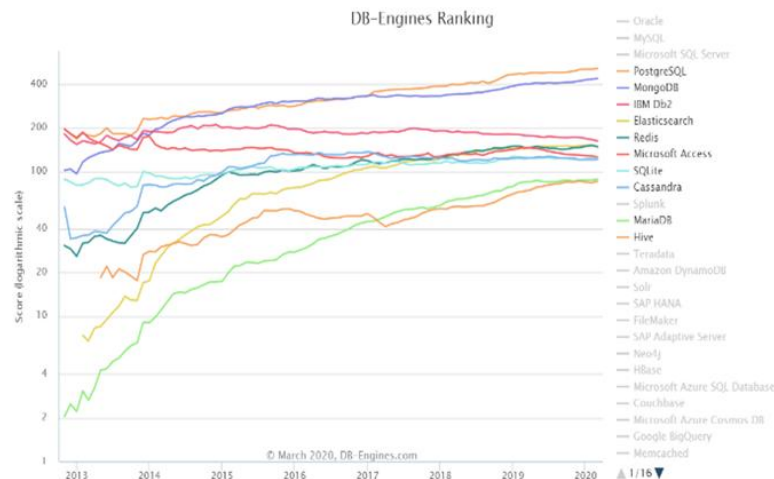


Fig 1. DB Engines Ranking

## 2. Study of Literature

Julia Ferlin, Fitra Abdurrachman, Alfi Rusydi in the study "Classification of Customer Intent to Know the Level of Customer Satisfaction using the Support Vector Machine Method in Restaurants Bakso President" stated that their research uses Metabase with the help of cloud databases provided by HerokuApp. Dashboard visualization results there is a trend graph about customer reviews based on customer intent each month for the entire year. Then, there is also a pie chart which contains the percentage of each intent number from all review data. The coloring of padapie charts and intent trend charts has the same color which is green which shows the percentage of reviews with class or category "Other, bright purple is a review with direct intent class, bright blue is a review with quit intent class and dark blue is a review with the complaint intent class. Information about the 10 most reviews is also displayed in the first line, then in the last line there are all comments with the classification of customer intent.

Wisnu Kurniawan in his research "Conversation Monitoring System in Online Stores using the Latent Dirichlet Allocation (LDA) Case Study Case: BerryBenka.com Online Store" states that his research uses the Metabase for making dashboards. The results of using the dashboard using the Metabase can be proven to be used as a means to display the results of LDA topic modeling and provide a responsive display on the mobile phone screen.

Nadiar A. Syaripul and Adam M. Bachtiar in their research "Open Data Interactive Data Visualization of DKI Jakarta Provincial Government: Regional Economic and Financial Topics" using a mobile platform with the Ionic 2 framework provided the results of 83.6% of respondents could read visual analysis and interpret take insight from the data, as many as 14.0% of respondents can read visual analysis but cannot take insight, and by 2.4% of respondents cannot read visual analysis. 2.4% of responses that cannot read visual analysis are not due to poor visualization, but rather due to technical factors on the platform used.

Dwi Fajar Saputra in "Data Visualization in the Library Management System" states that the design of data visualization is made by utilizing the author's metadata and title. The trial of this research was conducted on the Cendana version of the Senayan Library Management System (SLiMS) application by adding a javascript type code file. The results obtained in the form of tree diagrams that illustrate the relationship between authors so that collaboration and competence of each author can be known that the data is already stored in the database.

M. Fikry, Sumarno and Indrianawati in the study "Evaluation of Data Visualization System Development. Case Study: Data Management in MOHA" states that the need for presentation of data and information in the data visualization system is adjusted to the main tasks and functions (tupoksi) of work units in the Ministry of Home Affairs. In this study, researchers used a comparison between the results of data identification based on the duties of the Ministry of Home Affairs and the results of the identification of the Ministry of Home Affairs data visualization system so that data analysis could be performed. From



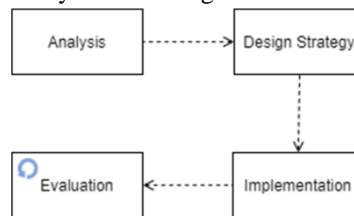


the results of the analysis, it can be seen that the Ministry of Home Affairs' vista system only fulfills 71.11% of the data and information presentation needs in the Ministry of Home Affairs.

Dessy Aryanti and Johan Setiawan in the study "Visualization of Sales and Production Data of PT Nitto Alam Indonesia for the period 2014-2018" using *Visual Data Mining (VDM)* and the Exploratory Data Analysis (EDA) method of this research has succeeded in producing a dashboard. The results of the exploration of sales and production data can be seen that the sales pattern in the last five years has no trend, cyclic, or seasonal patterns with the highest sales peak located in the fourth quarter ( Q4) in 2017 amounted to 6.552%.

### 3. Research methods

This research is a development study with the stages as shown in Figure 2.



**Fig 2.** Research Method Diagram

#### a. Analysis

The first step is to do a problem analysis, analysis of user requirements, and analysis of algorithm selection. Problem analysis is carried out to find out the problem of open data users on regional economic and financial topics. Analysis of user needs is carried out to ascertain user requirements for data. Meanwhile, algorithm selection analysis is performed to sort out the most efficient algorithm according to available resources and user needs.

#### b. Design Strategy

Based on the analysis obtained, then a problem solving strategy is made, this strategy includes a data design strategy and architectural design.

#### c. Implementation

Design Strategy is implemented on selected data and architectural technology.

#### d. Evaluation

Ongoing evaluation by the developer to continuously improve the system

### 4. Results and Discussion

**TABLE 1**  
DATA VISUALIZATION RESULTS

Label	Count
Total External User	1,181 Users
Total Internal Users	1,168 Users
Most Issues in One Project	3,441 Issues
Most Project Versions in One Project	78 Project Versions
Most Project Components / Modules in One Project	170 Project Components / Modules
Most Closed Issue in One Project	2,875 Closed Issues
Most resolved Issue in One Project	1,329 Resolved Issues
Average Issue Resolution Time	818.12 Hours / 34,088 Days
Best Issue Resolutions Time	0 Hours
Worse Issue Resolutions Time	92,808 Hours / 3,867 Days / 10,594 Years

The results of data visualization based on Table 1, the total number of projects is 445 projects and the details are as follows:

- The project with the most issues is in the UOB MWP 3.0 Internal project with a total of 3441 shown in Figure 3.
- The largest number of project versions is in the internal BNI-WMS project project with a total of 78.





- c. *Closed issue* the most is in the UOB MWP 3.0 Internal project with a total of 2875
- d. *Resolved issue* the most is in the ISSM-Investment Portal Internal Project project with a total of 1329.
- e. The average issue resolution time is 818.12 hours.
- f. The worst issue resolution time was 92,808 hours shown in Figure 4.
- g. The most modules are in the CIMB Niaga-Avantrade Java JIVE Internal Upgrade project with a total of 170 modules shown in Figure 5.



Fig 3. Most Project Issues

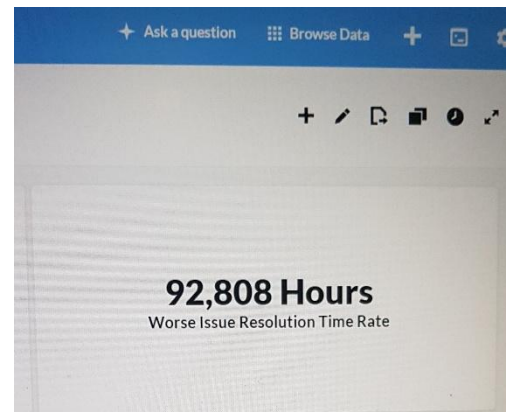


Fig 4. The Worst Issue Settlement Time

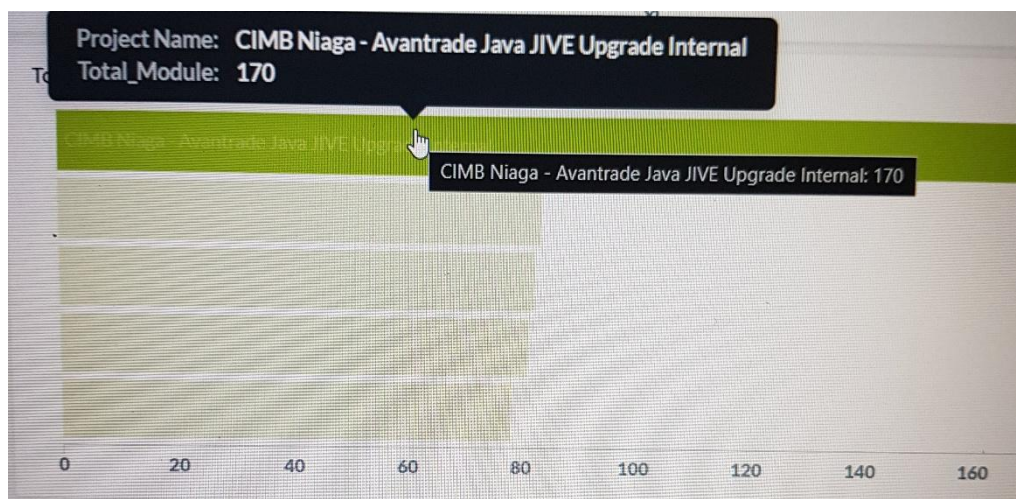


Fig 5 - Most project modules

## 5. Conclusion

Based on the results of the study, the following conclusions can be drawn

- a. The results of this study indicate that data visualization with Metabase produces clearer visuals and is easier to read when compared to seeing data directly on the JIRA application.
- b. This data visualization can already be used by PMO (Project Management Officer) using web-based



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