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Application Of Business Intelligence in Decision Support in Providing Assistance to Business Actors in Deli Serdang Regency Using The Decision Tree Algoritm

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ABSTRACT

This research shows that the application of BusinessIntelligence can Increase accuracy and efficiency in decision – making process regarding the distribution of aid to business actors in Deli Serdang Regency. With the business Intelligence tools used, we are able to identify business actors who need the most hel and have the potential to grow and develop to become business actors who are on the rise. The results of data that has been managed and processed can show that the results of data produced can reduce inappropriate decision making and increase satisfaction for beneficiaries. It Is hoped that the implementation of Business Intelligence tools can become a role model for other regions in an effort to increase the empowerment of Business Actors.

Keyword : Business Intelligence; **Data Mining**; **Decision Making**

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1. INTRODUCTION

In recent years, Business Actors in Deli Serdang Regency have faced various challenges in developing thei businesses. One of the main challenges is limited access to government assistance. The selection process for aid recipients is often subjective an less transparent, so that it is not optimal in distributing resources. This study aims to overcome these problems by proposing the application of business intelligence in decision making system for providing assistance to Business actors.

To support the decision support system, the data mining process is userd. Data Mining is a technique used to find information in a database **(Nofri Dodi et al., 2023).** The business intelligence System is a combination of data collection, data storage, and knowledge management with analysis tools to present complex internal and competitive information to planneers and decision makers **(Zein Afrizal et al. 2020)** through the use of comprehensive data and the right algorithms, it is hoped tha more objective and effective recommendations can be produced, so that assistance can be right on target and have a significant impact on the growth of business actors in Deli Serdang Regency

2. RESEARCH METHOD

In this study will use Decision Support System and one of the data mining methods, namely the classification method using the decision tree algorithm.

Decision Support System (DSS) as a computer based system consisting of tree interacting components, a language system (a mechanism to provide communication between users and other Decision Support System components), a knowledge system (a repository of problem domain knowledge that exist in the Decision Support System or as data or as a procedure), and a problem processing system the relationship between the other two components, consisting of one or more general problem manipulation capabilities needed for decision making (Sumarno et al., 20216).

Before Entering the Decision tree algorithm, the classification method in data mining is explained first. In Data Mining there are several methods, namely classification, Sequencing, Association, Oulier Detection, Clustering, Regression and Forecasting. The Calssification Method Aims to estimate the class of an object whose label is unknown, in there are several algorithms that are often used in classification

method, namely logistic regression, Naïve Bayes, Decision Tree, Random Forest, K Nearest Neighbour and Artificial Neuralk Network.

In This Study, the decision tree algorithm will be user. Decision tree is a supervised learning algorithm thah is non parametric. Has a Hierarchical tree structure, consisting of root nodes, branches, internal nodes and leaf nodes.

3. RESULTS AND DISCUSSION

In This research, several stages will be used, namely collecting raw data, cleaning raw data and analyzing processed data. The following are the stages of the research process,

A. Collecting Data Row

In This Data collection requires several attributes, namely the name of business actor, how long the business actor has ben running this business, and the income of the last 1 month in running the business. The following is the business actor data that has been collected

	A	B	C	D	E
1	nomor	Nama UKM	Penghasilan	Bantuan	
2	1	MUSIAH	1000000	tidak	
3	2	EDI PRIANTO	1000000	tidak	
4	3	RIDHO AKBAR	1000000	tidak	
5	4	KIKI ANGGARINI	1000000	tidak	
6	5	JAUHARI	1000000	tidak	
7	6	DEDI YANTO	1000000	tidak	
8	7	KANAFILA	1000000	tidak	
9	8	M. DANI	1000000	tidak	
10	9	KUMAIDI	1000000	tidak	
11	10	RAMYANTO	1000000	tidak	
12	11	SUYONO	1000000	tidak	
13	12	DAHLAN	1000000	tidak	
14	13	NILA WATI	500000	ya	
15	14	USUP GINTING	300000	ya	
16	15	MISI	100000	ya	
17	16	IRWAN	1500000	tidak	
18	17	RADIMAN PURBA	2000000	tidak	
19	18	WARSINO JOKO	15000000	tidak	
20	19	HAMIDAH	2000000	tidak	
21	20	SUGIANI	3000000	tidak	
22	21	AZURA SUCI RAMADANI	1000000	tidak	

Fig 1. Data Collection

B. Data Processing

In This processing will directly use the rapid miner tool. In it use, we simply upload the data that we have prepared before into the rapid miner tool, after that it will enter into several poits, the first of which is to ensure that the data is correct

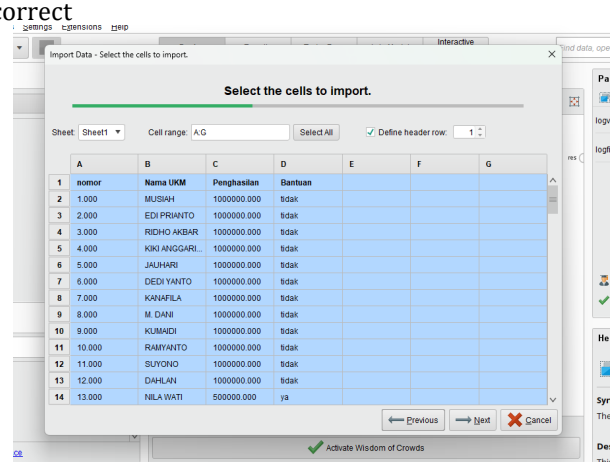


Fig 2. Data Collection

Next, after confirming the data, immediately determine the format of the data that has been imported

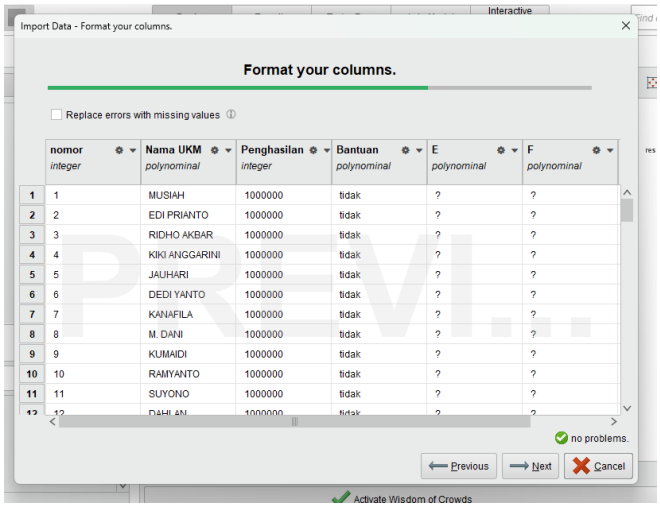


Fig 3. Format Data

After determining the table format, the next step is to place the data that will be processed later after the data is imported.

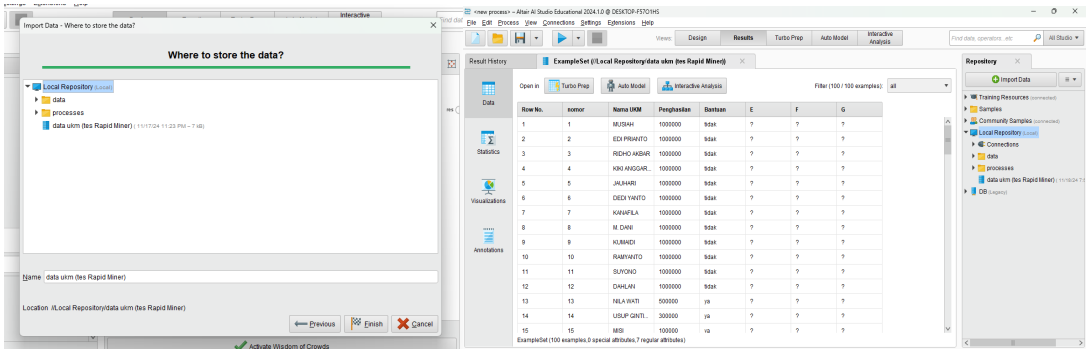


Fig 4 Data location placement

Next, go directly to the Design section of the Rapid miner application. In this design section, we will pull the data that has been uploaded earlier to be processed in rapid miner as shown in the image below

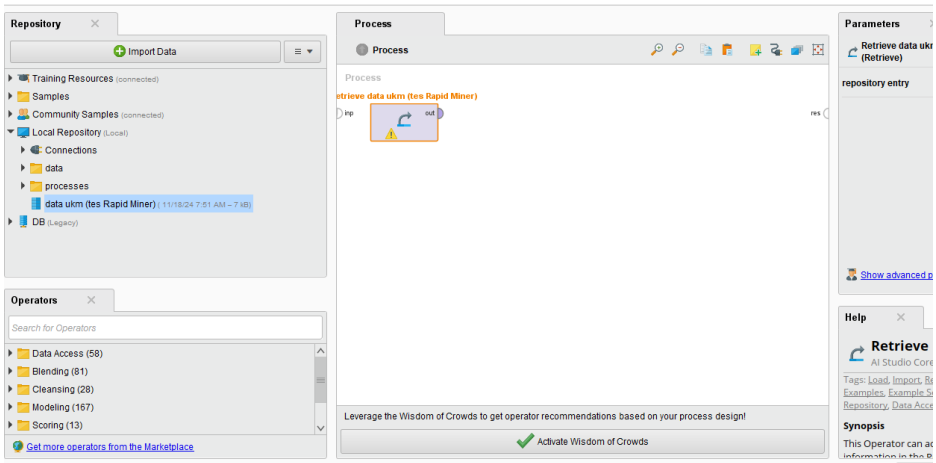


Fig 5 Design Rapid Miner

After it has been entered into the process section, then next please determine the role first in the operator section in rapid miner as shown in the image below.

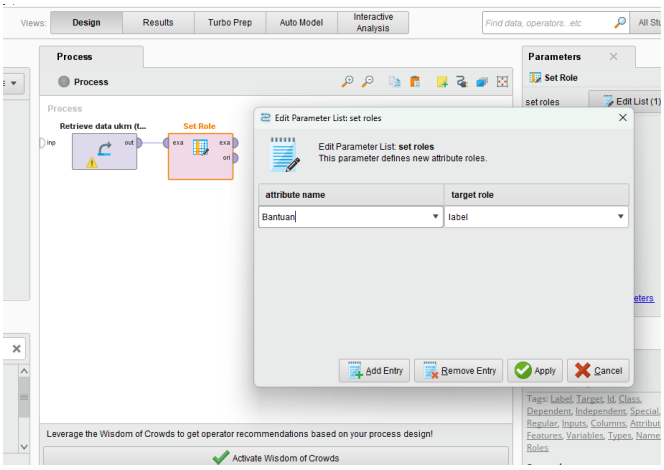


Fig 6 Design Rapid Miner Role

Next, after determining the role on the rapid miner, we immediately type in the operator section to use what algorithm to process the data. As explained earlier, the algorithm used is the Decision Tree algorithm.

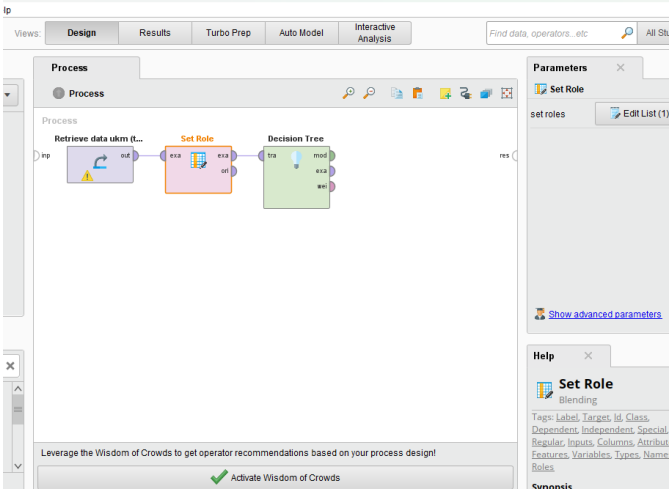
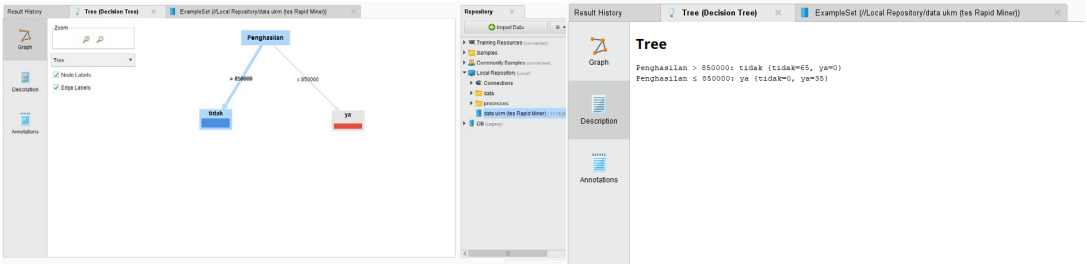


Fig 7 Algorithm Decision Tree

If the algorithm has been determined and the label has also been determined, then the next process is to simply drag the arrow on the algorithm to the res point in the right corner of the process panel. Then immediately click process, then the data will be processed according to the algorithm used. After being successfully processed, the results will come out which give a decision as shown in the image below



4. CONCLUSION

Based on the research above, by using the Rapid Miner tool as a data processor and Power BI for tools as data visualization. By using these tools, it can make it easier to make decisions from a lot of data and with good and correct visualization, it becomes easier to analyze a lot of data. Thus, for decision making from a lot of data, it is highly recommended to use Rapid Miner as a data processor using the Decision Tree algorithm

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