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JURNAL SYNTAX TRANSFORMATION

DETERMINING PROSPECTIVE RECIPIENTS OF THE INDONESIA SMART SCHOLARSHIP PROGRAM USING THE SUPPORT VECTOR MACHINE ALGORITHM AND SIMPLE ADDITIVE WEIGHTING

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ABSTRACT
Between the period from 2018 to the first semester of 2020, a total of 2.4 million students who owned the Kartu Indonesia Pintar (Indonesia Smart Card) were at risk of not being able to access the Program Indonesia Pintar due to delays in entering recipient data, misdirected targeting, and fund disbursement obstacles. During its implementation, there were issues with inaccurate data of Kartu Indonesia Pintar recipients, resulting in the beneficiaries not being entirely targeted correctly. According to Article 12 of Minister of Education and Culture Regulation No. 10 of 2020, schools, as educational units, are assigned the responsibility of managing the Smart Indonesia Program at the school level. This includes tasks such as proposing eligible student candidates for the Program based on criteria, monitoring and assisting the smooth process of receiving the benefits, and accommodating students who hold the Kartu Indonesia Pintar (KIP). However, schools faced difficulties in obtaining the eligibility data of potential Indonesia Pintar Program recipients through the school proposal format. The objective of this research is to determine the eligibility of potential Indonesia Pintar Program recipients using a combination of Support Vector Machine (SVM) and Simple Additive Weighting (SAW) techniques. The SVM model was trained using kernel tricks and parameter selection (C and gamma) based on data sourced from the DAPODIK application of students in SMK Negeri 1 Kota Bekasi for the academic years 2020/2021 to 2022/2023, with a dataset containing 2499 rows . This dataset was used to determine the eligibility of potential Indonesia Pintar Program recipients. The SAW method was then employed to calculate scores based on the weighting of attributes possessed by the students, which were subsequently ranked from the highest score. The Linear Kernel with parameter values C=0.1 and gamma=0.1 achieved an accuracy of 88.8% during the classification of test data, using 10% of the total dataset, which amounted to 250 rows of data. The combination of SVM and SAW methods resulted in the classification of eligibility for potential Indonesia Pintar Program recipients, ranked based on their scores using the weighted assessment with the SAW method.
Keywords : Education, Smart Indonesia Program, PIP, SVM, SAW

INTRODUCTION

Problem Background

The Smart Indonesia Program (PIP) is one of them policy The Indonesian government was initiated in the era of leadership President Ir. Joko Widodo via Regulation President No. 7 of 2014 (Shaluhiyah, 2020). Through the government's Smart Indonesia Program strive to improve access education . The Smart Indonesia program aims to improve access for child ages 6 (six) to 21 (twenty one) year in order to get service education until completion education universal/ compulsory secondary studied 12 years , prevent participant educate from possibility separated school as well as fulfillment need support for participant sufficient education _ need the school is like shoes , tools write , uniform etc. _

In the research entitled " Analysis satisfaction Recipient Financial assistance for the Smart Indonesia Program at State Elementary School 68, Air Putih Village, Talang Empat District Central Bengkulu Regency ” carried out by (Ahmad et al., 2023) found fact based on the results of the interview to a number of respondents that there is problems found in the PIP implementation process in the field such as recipients The Smart Indonesia Card (KIP) is not evenly distributed , so Lots poor students have not received Smart Indonesia Card and Recipients Incorrect Smart Indonesia Card (KIP). target .

In research entitled " Classification methods " conducted by (Wibawa & Putra, 2018) Classifier built based on class that has determined by the data set used as training data . There is several classification methods in data mining, namely Naïve Bayes, Support Vector Machine, Decision Tree Support, Neural Network and Fuzzy Logic (Pradhan, 2013). The Decision Tree Support method consists of from ID3, C4.5, C5.0 and Cart (Saranya & Porkodi, 2018). Naïve Bayes has strengths in non- mutual attributes dependency However sensitive to features too _ Lots so that accuracy become low (Wu et al., 2016). The Support Vector Machine method has excess capable classify a pattern that does not include the data used in the phase learning and can be implemented easily and with accurate results depending on the type of kernel used. The Decision Tree method has advantages in efficiency computing However own weakness in possible branching _ just empty and insignificant (Kim & Loh, 2001). The advantage that Neural Networks have is tolerance against noise however own weaknesses in stages processing becomes very long (Prieto et al., 2016). Fuzzy logic method has flexibility with an easy concept understandable will but own weakness there are no related ones yet knowledge standardized and uniform systematic _ about methodology solution problem control .

Classification process in completing problem appropriateness recipient scholarship Lots been the subject of various research . (Lukman et al., 2016) in his research entitled " Application Support Vector Machine (SVM) algorithm in selection Case Study scholarship : Yapimda Vocational School ” population The sample used was students class XI year 2011/2012 teachings at Yapimda South Jakarta Vocational School using technique proportional in determination sample . Research results The Support Vector Machine (SVM) method produces level accuracy amounting to 83.94%.

Research “ Naïve Bayes, Decision Tree and SVM algorithms for classification agreement financing customers Sharia Cooperatives ” conducted by Nurajijah and Riana (2019) compared SVM, Decision Tree and Naïve Bayes algorithms for classification agreement financing customers sharia cooperative . The SVM algorithm is used for classification financing customers sharia

cooperatives into the classroom jammed and smooth produce Best performance with value accuracy amounting to 89.86%.

On research entitled " Comparison of AHP and SAW in Systems Supporting the decision to choose a house as a residence " made by (Akila et al., 2021). The SAW method gives better results because weight price has not changed so this method is better in providing recommendations for adoption decision when there is cost attribute on weights and criteria based on mark criteria and weights existing preferences _ previously determined. The advantage of the SAW method over AHP is that the SAW method provides ranking so it can provide best alternative of a number alternative others (Florencia et al., 2022).

Another research entitled " Comparison of the Simpla Additive Weighting (SAW) Method and the Weighted Product (WP) Method in determining best employee (Case Study: PT. Matrixnet Global Indonesia)" conducted by (Nardiono, 2017) gave results that the Simple Additive Weighting method was better than the Weighted Product method because provide more precise and accurate ranking results .

In future research _ done , stage The beginning is the data collection process , after that it is carried out pre-processing / preprocessing uses a cleansing method to build an initial dataset . Next is done build a classification model using the Support Vector Machine (SVM) method from the initial dataset by dividing the dataset into training data and test data to obtain level desired accuracy (Duan et al., 2016). Trained model Then saved into the file that will be used in stage classification (Attaullah et al., 2022). Weighting of attributes given as a variable for the Simple Additive Weighting method in calculating score from classification with decent results to to the data to be predicted (Kartal et al., 2016).

Based on the background above , then the classification method using Support Vector Machine (SVM) is selected Because capable give level accuracy above 80% and the Simple Additive Weighting (SAW) method is the method used to determine priority recipient of the Smart Indonesia Program. Study scientific that will done that is Determination of Prospective Recipients Smart Indonesia Scholarship Program with Support Vector Machine Algorithm and Simple Additive Weighting into the system web- based as a tool help school in determining eligibility and sequence priority candidate recipient Smart Indonesia Program scholarship which will be proposed .

Problem Study

Identification Problem

Based on background of the problem in this research , then The problem can be defined as follows :

1. Difficulty in determining eligibility and priority list of candidates recipient Smart Indonesia Program scholarship .
2. Effectiveness of the selected model based on level accuracy and precision in determining rank candidate recipient Smart Indonesia Program scholarship .

Restrictions Problem

So that this research focuses on the objectives research , then limitation The problems in research are as follows :

1. The dataset used is sourced from Basic Education Data (DAPODIK) application from SMK Negeri 1 Bekasi City Period Year Teachings 2020 to 2022/2023.
2. Using the Support Vector Machine (SVM) and Simple Addictive Weighting (SAW) methods.

Formulation Problem

Formulation The problems in this research are :

1. How obtain eligibility data recipient Smart Indonesia Program scholarship using the Support Vector Machine (SVM) and Priority methods based on rank recipients of the Smart Indonesia Program using the Simple Additive Weighting (SAW) method?
2. How procedure testing to measure effectiveness from the Support Vector Machine (SVM) and Ranking data mining models using Simple Additive Weighting (SAW)?

Goals and benefits study

Research Objectives

The purpose of study determination appropriateness candidate recipient Smart Indonesia Program scholarship using The combination of Support Vector Machine (SVM) and Simple Addictive Weighting (SAW) methods is as follows :

1. Make system to determine eligibility and sequence priority candidate recipient The Smart Indonesia Program scholarship uses the Support Vector Machine (SVM) and Simple Additive Weighting (SAW) methods.
2. Obtain a data mining model with values minimum accuracy of 80% and recommendations priority candidate recipient of the Smart Indonesia Program.

Benefits of Research

This research is expected to provide extensive benefits both _ _ academic and practical :

1. Theoretical Benefits

Expand knowledge and insight specifically related use of the Support Vector Machine (SVM) and Simple Addictive Weighting (SAW) methods so that they can be applied in determining candidate recipient Smart Indonesia Program scholarship .

2. Practical Benefits

a. Makes it easy for school in determining candidate recipient Indonesia Program scholarship to apply for through proposal format mechanism schools on the SIPINTAR application on the page https://pip.kemdikbud.go.id.

b. Help team Indonesian program managers are smart in schools in determining and proposing candidate recipient Smart Indonesia Program scholarship

c. Push level suitability recipient Smart Indonesia Program scholarships in accordance with established criteria set .

METHOD

Research Methods

Research methods is a general strategy adopted in the collection and analysis of necessary data with a purpose answer problems faced . _ This research is research that uses quantitative methods . Quantitative methods are research methods used to examine populations or samples certain . The quantitative method in this research was obtained from the classification results appropriateness candidate recipient Smart Indonesia Program scholarship using the Support Vector Machine (SVM) data mining method and get rank eligible participants using the Simple Additive Weighting (SAW) method.

Selection method population and sampling

In this research , we used primary data source as the selected population . A total of 2499 data from all over participant educate from year teachings 2020/2021 to 2022/2023 with completeness supporting data attributes obtained researcher directly by using SQL query on database from Internal application that has been used at the address https://sisfo.smkn1kotabekasi.sch.id. The web application using sourced data from Basic Education Data (DAPODIK) application in 2022/2023 teachings . The dataset obtained is used as a data source that will be used at the stage of creating a machine learning model using Support Vector Machine (SVM) algorithm

Data collection methods

collection strategy by taking primary data which contains participant data educate with needs required attributes . _ analysis nature quantitative with purpose test hypothesis that has been set .

This research uses data collection methods to obtain information in making a decision step on each the process .

RESULTS AND DISCUSSION

The dataset used is sourced from Basic Education Period Data year 2020/2021 academic year until the year 2022/2023 teachings . Researcher do Retrieving data from existing application databases _ made by researchers . Application data source the originate from application Dapodik . The application that the researcher created is application support at SMK Negeri 1 Bekasi City and has been used in transactional processes in schools such as administration Practice Work Industry (Prackerin), data management in collaboration with industry couples , providing supporting data for miscellaneous taking decisions at school , Independent data updating by participants educate as well as management mark eraport . This application also functions as an integrator between Dapodik and applications others at school . _ _

Procedure retrieval of data from application Dapodik using the Application Programming Interface (API) provided by Dapodik through interface application on the web page https://sisfo.smkn1kotabekasi.sch.id which is then saved into the application's internal database . Data taken These include school data , periodic data schools , reference data , class data , Educator and Education Personnel (PTK) data, learning data, collaboration data schools with Industry and the World of Work (IDUKA), participant data Educate , periodic data participant education and welfare data participant students that contain data about participation participant educate on alleviation programs poverty from Government like ownership data Smart Indonesia Card (KIP), Healthy Indonesia Card (KIS), Card Prosperous Family (KKS) and Cards Family of Hope (KKH)/ Family of Hope Program (PKH).

Apart from using data from internal applications , researchers took data from the website https://pip.kemdikbud.go.id as supporting data to contain information recipient existing scholarships _ get Recipient Decree and history melting PIP scholarship . Data from the Ministry of Education and Culture's PIP website then integrated with data from Internal application based on participant_didik_id field .

Data used as initial dataset spread across several tables in mutual databases connected use column key already _ designed on previously built applications . Researchers need to map what data just do what is needed and do it query the database to get data on the columns needed to build the dataset.

Based on criteria recipient Smart Indonesia Program Scholarship , namely 1) Participants educate KIP holder ; 2) Participants educate from family holder Card Hope Family ; 3) Participants educate holder Card Prosperous Family ; 4) Participants students with status orphan orphaned / fatherless / orphaned / of school / nursery social / nursing home upbringing ; 5) Participants affected students _ disaster nature ; 6) Participants students who do not attend school (drop out) are expected return attending school ; 7) Participants students who experience it abnormality physical , victims of disaster , from parents who experience it termination connection work , located in the area conflict , and family convicts , are in institutions prison , has more than 3 (three) siblings surviving siblings _ household ; 8) Participants educated at the institution course or unit other non-formal education then Researchers need to determine which columns/fields will be used taken and used as a dataset.
Researcher determine The column /field taken as a dataset corresponds to the table following .

Table Error! No text of specified style in document.**. 1List of fields/ columns used as dataset**

NO	The column you want to retrieve	Column/field name	Column/Field Location
1	NISN	nisn	dbo_participant_didik
2	NAME	student's name	dbo_participant_didik
3	GENDER	jns_genitals	dbo_participant_didik
4	SPECIAL NEEDS	special_needs_id	dbo_participant_didik
5	TYPE OF STAY	type_residence_id	dbo_participant_didik
6	NUMBER OF SIBLINGS	number_of_siblings	dbo_participant_didik
7	PIP WORTH STATUS	worth_pip	dbo_participant_didik
8	PIP WORTH TYPE		dbo_peteman_didik refers to the pip_worthy_type table
9	FATHER'S OCCUPATION	father's_job_id >> job_id_type	dbo_peteman_didik refers to the job_type ref_table
10	FATHER'S INCOME	income_father_id >> income_parent_id	dbo_peteman_didik refers to the parent_income_ref_ref table
11	MOTHER'S JOB	Job_mother_id >> job_type_id	dbo_peteman_didik refers to the job_type ref_table

12	MOTHER'S INCOME	Income_mother_id >> income_parent_id	dbo_peteman_didik refers to the parent_income_ref_ref table
13	KIP OWNERSHIP	Punyakip >> dbo_kesejahteraan_pd >> jasa_kesejahteraan_id	dbo_kesejahteraan_pd refers to the reference table ref_kind_of_welfare
14	KKH OWNERSHIP	Punyapkh	dbo_kesejahteraan_pd refers to the reference table ref_kind_of_welfare
15	PPP OWNERSHIP	havekps	dbo_kesejahteraan_pd refers to the reference table ref_kind_of_welfare
16	PSC OWNERSHIP	got it kks	dbo_kesejahteraan_pd refers to the reference table ref_kind_of_welfare
17	KIS OWNERSHIP	havekis	dbo_kesejahteraan_pd refers to the reference table ref_kind_of_welfare
18	LABEL		dbo_kesejahteraan_pd refers to the reference table ref_kind_of_welfare

Data stored in the application database own a data structure that is different from the data requirements required for this research . So it needs to be done adjustment query to ensure the resulting output data according to the data format required to be processed by the Support Vector Machine (SVM) and Simple Additive Weighting (SAW) algorithms .

The field or column that is taken based on table 4.1 is derived from a number of different tables , then _ a merging / JOIN process is required on the table based on the key fields in each table . Researcher do query on database by using SQL (Structured Query Language) syntax up to obtained output as needed to build the initial dataset . SQL queries used by researchers is SQL syntax running on a MySQL database.

Output results from a given query on the database results the amount of data is 2499 rows of data with levels empty data in the column The father's income is 7 data , so it is necessary to carry out data cleaning at the next stage in pre data processing to overcome problem that .

Queries run on DBMS applications using Navicat tools _ will exported into a file in CSV (Comma Separated Values) format. The file is ready to be used as an initial dataset that will be used in the next stage , namely pre-processing data in applications that researchers create.

In the query results output file from the database is data stored in the tables available in the database. the file own column nisn , name , sex_id , special_needs_id , type_of_residence_id , number_of_siblings , worthy_pip , id_worthy_pip , father's_occupation , father's_income , mother's_employment , mother's_income , gotkip , gotpkh , gotkps , gotkks , gotkis , and label.

Determine Criteria and Weights

According to subsection (3.5), need to do conversion values on data attributes owned by participants educate . Conversion value in the column parents ' work done according to table 4.6.

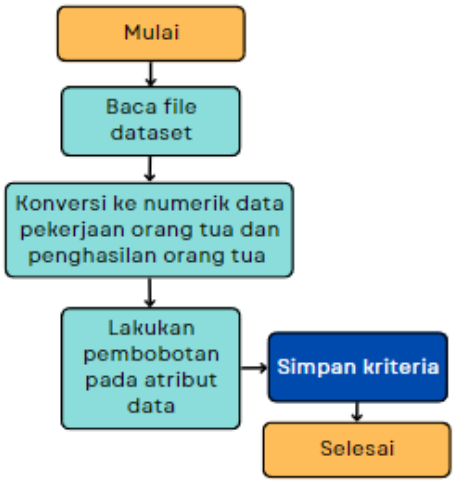


Figure Error! No text of specified style in document.**. 1Flow of determining criteria and weights**

The purpose of this stage is to provide data on criteria preferences and weights that will be used in the ranking process using the Simple Additive Weighting (SAW) method.

Model Testing

Split and Transform Data

To obtain data as training data and test data, researchers split the data from the dataset used using the train_test_split library from scikit.learn. From the dataset, a variable X is created which contains all the features of the data and a variable y which contains label/class information.

```
#Prediksi menggunakan SVM, atur Kernel Svm Manual
#map data ke x dan y
X = data.drop(labels='label',axis=True)
y = data['label']
```

Figure Error! No text of specified style in document.**. 2Mapping the dataset into variables X and y**

After the features in the data are mapped into variables X and y. Next, the data is split into several variables, namely x_train, x_test, y_train, and y_test. The data splitting process is equipped with a stratify parameter referring to the y variable to obtain sample data with a proportion of values that correspond to the sample size to be split using the test_size parameter.

For example, if the variable y contains the values 0 and 1 and the parameter test_size=0.1, it will produce sample data with a proportion of 10% of the data having the value y=0 and 90% of the data having the value y=1.

The syntax used to obtain sample data by random splitting using train_test_split with a test_size composition of 0.1 is

```
x_train, x_test, y_train, y_test = train_test_split(x, y,
                                   test_size=splitsize,
                                   random_state=randomState,
                                   stratify=y)
```

Figure Error! No text of specified style in document.**. 3Split data using train_test_split**

After splitting the data, 4 variables were obtained, namely x_train, x_test, y_train, y_test. x_train has a total of 1332 rows of data and 10 features. The x_test variable has 148 rows of data and 10 features. The y_train variable has 1332 rows, and the y_test variable has 148 rows.

After the split data process is complete, the x_train and x_test variables are then transformed using the minmax method from the sklearn.decomposition.MinMaxScalar() library into x_train_scaled and x_test_scaled variables. This process is carried out to change the values so that they are in the same range of values in the training data and test data and the transformation results will be saved into a file using the joblib library. The file containing the transformation configuration is used in the prediction process on new data.

```
scaler = MinMaxScaler()
scaler.fit(x_train)
x_train_scaled=scaler.transform(x_train)
x_test_scaled = scaler.transform(x_test)
```

Figure Error! No text of specified style in document.**. 4Transformation of x_train and x_test variables using the MinMaxScaler() library**

Comparing Support Vector Machine (SVM) models with kernel tricks

Support Vector Machine (SVM) has several types of kernels that can be used to optimize model performance, namely Linear kernel, Radial Basis Function (RBF), Polynomial Kernel and sigmoid kernel. Researchers compared the performance of several kernels by carrying out tests by manually finding the best values for the C and gamma parameters.

To obtain a hyperplane, it is necessary to decompose the features of the dataset. The decomposition technique used is Principal Component Analysis (PCA) with a value of n_component=2 to obtain a new matrix with 1x2 row vectors for each row.

SVM algorithm experiments were carried out using linear, RBF, Polynomial and Sigmoid kernels as well as several variations of the C and gamma parameters. The split data technique

used as test data is 148 rows, 10% of the total rows and the random_state parameter with a value of 0.

The C parameter is used to determine the model's tolerance for classification errors. Parameter C is a relative value that is important for optimizing the SVM algorithm. Meanwhile, the gamma parameter is used to determine the decision boundaries that determine the decision area of each kernel used.

Based on the table of results obtained from experiments on linear, poly, Radian Basis Function (RBF) and Sigmoid kernels with values C = [0.1, 0.5, 1, 10, 50, 150], gamma= 0.1, the number of test sizes is 10% of the entire dataset and random_state = 0 produces the highest accuracy of 88.8% with precision of 100%, recall of 65% and F1 Score of 78.8%.

System Implementation

Main page display

On this page information is displayed regarding what the Smart Indonesia Program is and the criteria for recipients of the Smart Indonesia Program. This page does not provide any processing, only displays information related to the Smart Indonesia Program.

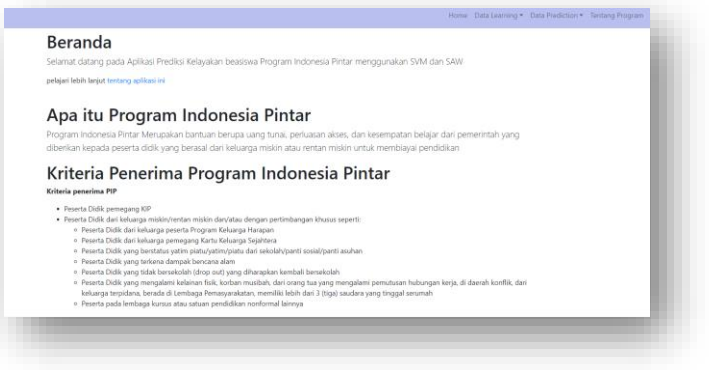


Figure Error! No text of specified style in document.**. 5Main page display**

In general, the system page display contains the Navbar, Content Area and Footer. In the navbar there are several main menus, namely Home, Data Learning, Data Prediction and About Program.

On the Data Learning menu there are sub menus, namely 1. Upload Data; 2. Data Preprocessing; 3. Training Data. The Data Prediction menu has 2 sub menus, namely 4. SAW Weighting Configuration; 5. Data Prediction.

Display the data upload page

This page provides an upload feature and displays a list of datasets that have been uploaded in CSV format and a button to delete the dataset.

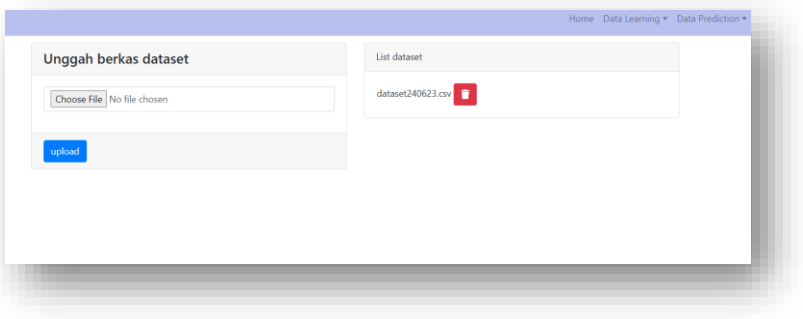


Figure Error! No text of specified style in document.**. 6Display the data upload page**

The files selected and uploaded in the menu will then be processed by the backend and saved in the./uploads folder and then named according to the dataset file name format<date><month><year>.csv. This is done to make it easier for researchers to select the dataset that will be used in the next stage.

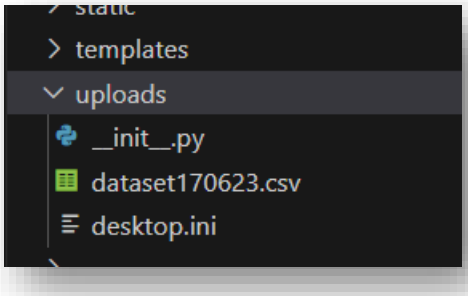


Figure Error! No text of specified style in document.**. 7File naming in the uploaded dataset**

Display of the pre-processing/pre-processing data page

The available dropdown form which can be accessed in the Data Learning -> Data Preprocessing menu will display a list of CSV files contained in the ./uploads folder.

At this stage the researcher selects an available dataset by reading the CSV file contained in the ./uploads folder and in the data preview column the data contained in the selected CSV file will be displayed.

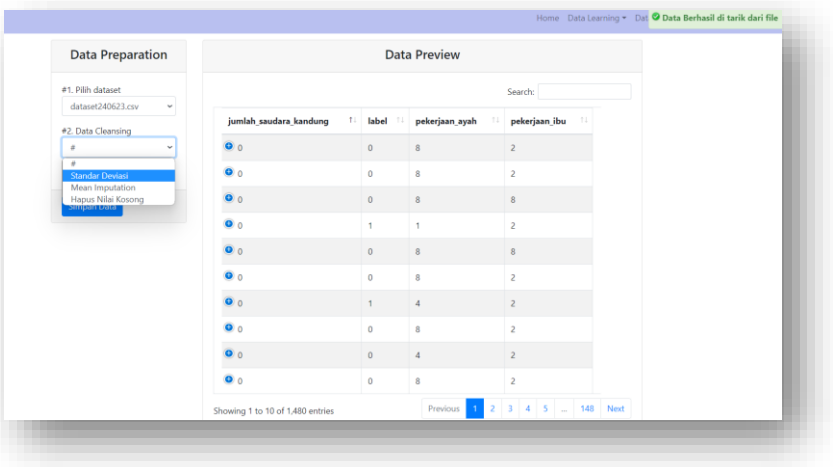


Figure Error! No text of specified style in document.**. 8Data Preprocessing page display**

In the preview data display, the data will be displayed in table format and in each row there is a blue button with an add icon. This button functions to display all data in downward row format. This data is other data in that row that cannot be displayed horizontally on each row.

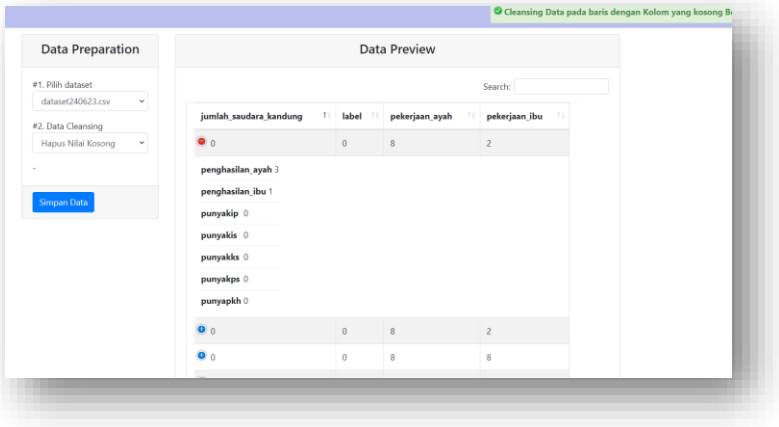


Figure Error! No text of specified style in document.**. 9Display expanded data in the table**

Display the training data page

On the training data page there are several sections on the page such as information on the Training dataset, which is a file that is used as training data for the model. This dataset is a file resulting from processing at the Data Preprocessing stage.

The variable input form that will be used in the SVM algorithm to be trained is provided on this page. The available input forms are the kernel to be used, Parameter C and gamma.

Correlation data from the dataset to be used is displayed in graphical form and a heatmap resulting from processing using the matplotlib and seaborn libraries.

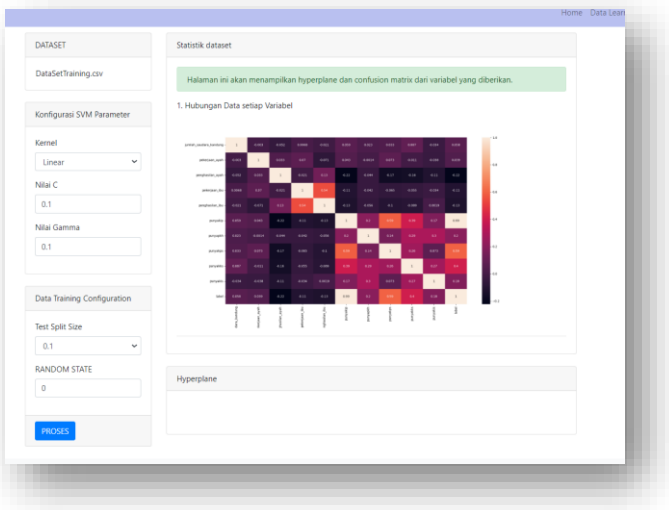


Figure Error! No text of specified style in document.**. 10Display the training data page**

After the process button is pressed, the application will process the request according to the value in the input form. After the training data process, a hyperplane and confusion matrix for the training data and test data will be displayed.

Display of the weighting configuration page

On this page, a weighting table is displayed based on the columns listed in the training data. The weighting and benefit/cost criteria given to the attributes are used to calculate the value of each attribute. The results of the calculations on the attributes will be added up and become a score column as a result of the weighting of the SAW process.

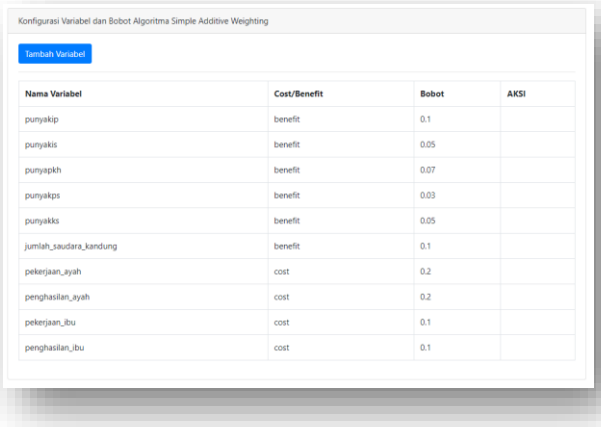


Figure Error! No text of specified style in document.**. 11Configure weighting and criteria for attributes**

To add attribute weighting variables to the SAW weighting menu, use the add variable button. The add variable page displays 1 dropdown form with options taken from the list of columns in the dataset, cost/benefit criteria, and a weight input form in the form of text input with number format restrictions.

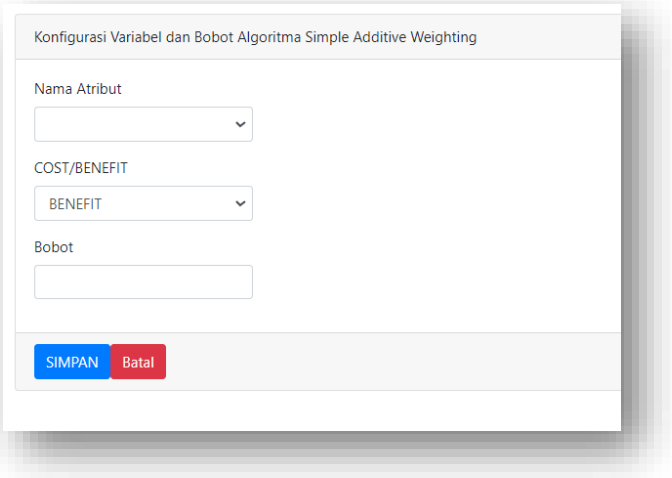


Figure Error! No text of specified style in document.**. 12Form adds weighting to SAW**

Prediction page display

On the prediction page, a file upload form is displayed where you can upload prediction data files. Users can fill in the data to be predicted using the prediction data format in the form of an excel file which can be downloaded from this page.

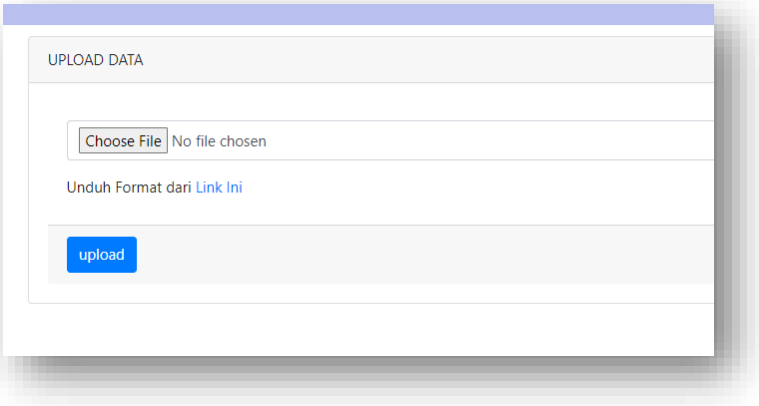


Figure Error! No text of specified style in document.**. 13Prediction data upload page**

After the user presses the upload button, the excel file will be sent and the predicted data is transformed using the data structure of the training data using MinMaxScalar() then the data is predicted using the SVM model which has been trained at the training data stage. Attributes with appropriate class / 1 will then have their weight calculated using Simple Additive Weighting (SAW) and then the results will be displayed on this page.

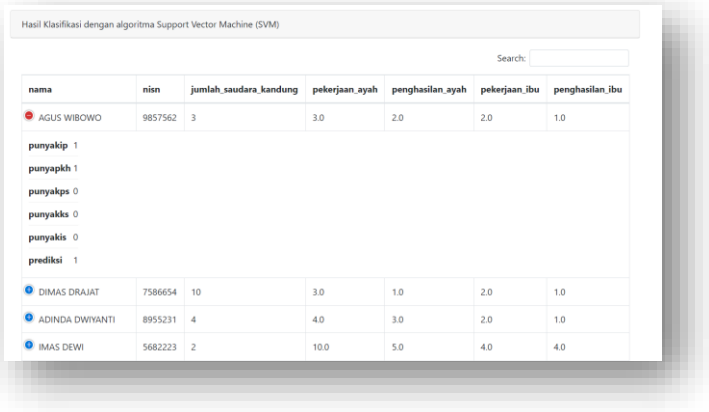


Figure Error! No text of specified style in document.**. 14Classification results with SVM**

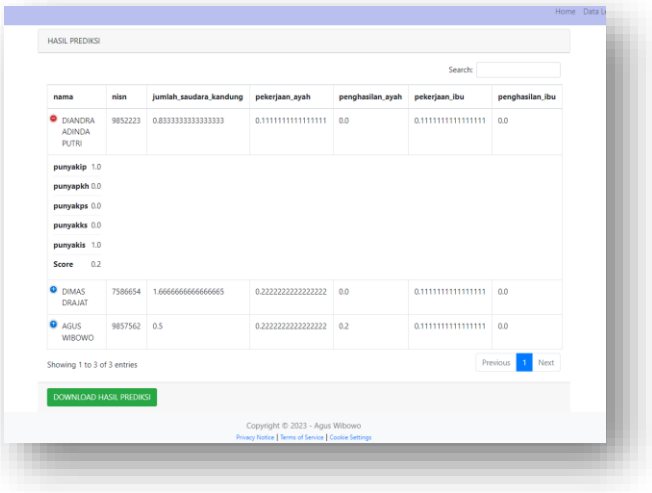
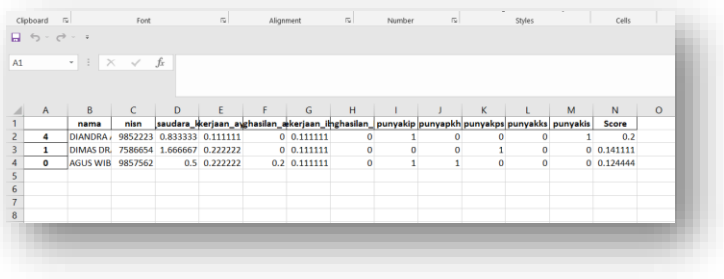


Figure Error! No text of specified style in document.**. 15 Ranking results using the SAW method**

Prediction results data can be downloaded using the Download Prediction Results button on the prediction results page. The downloaded file can be opened using a spreadsheet application such as Microsoft Office and LibreOffice Calc.



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1		nama	nisn	saudara_k	kerjaan_a	ghasilan_a	kerjaan_i	ghasilan_	punyakip	punyapkh	punyakps	punyakks	punyakis	Score	
2	4	DIANDRA ₹	9852223	0.833333	0.111111	0	0.111111	0	1	0	0	0	1	0.2	
3	1	DIMAS DR.	7586654	1.666667	0.222222	0	0.111111	0	0	0	1	0	0	0.141111	
4	0	AGUS WIB	9857562	0.5	0.222222	0.2	0.111111	0	1	1	0	0	0	0.124444	
5															
6															
7															
8															

Figure Error! No text of specified style in document.**. 16F i le export prediction results**

CONCLUSION

Based on formulation problem , goal research , Hypothesis and after get research results then it can be concluded as follows : Application of the Support Vector Machine (SVM) method can provide candidate data recipient scholarship after a classification process is carried out in accordance condition participant educate based on data attributes owned by participants students and the simple Additive Weighting (SAW) method is capable give recommendation order candidate recipient smart Indonesia scholarship program which has classification as a candidate recipient Smart Indonesia Program scholarship . This research is capable produce testing the data mining model with the Support Vector Machine (SVM) and Simple Additive Weighting (SAW) algorithms provides accurate results amounting to 88.8%.

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