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Cattle Disease Auxiliary Diagnosis System Based on Data Analysis

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Abstract
Real-time management of cattle disease symptoms and disease kinds is challenging because animals are unable to communicate their issues or distress. Finding the signs and symptoms of cattle diseases is a difficult challenge in the medical field. The primary goal of the proposed system is to identify the symptoms of cattle diseases and then forecast the relationship between symptoms, diseases, and treatments. Given the current system, it is challenging to both diagnose and administer the appropriate medicines for cattle diseases. The suggested method combines data science techniques to recognize the signs of cow sickness and forecast patterns. The proposed system employs the "Eclat algorithm" data science technique to identify the patterns. The system is intended to be developed as a real-time application that helps veterinarians treat cattle diseases. "Visual Studio" serves as our front end both technologies support more libraries and tools to deal with real-time applications, and "SQL Server" as the back-end technology.

Introduction

Data analysis and mining are being employed more and more frequently in animal husbandry as a result of the big data and artificial intelligence industries' rapid development. In this system, a sizable amount of electronic medical records from various cattle species are gathered, analysed, and mined to create an intelligent system for diagnosing bovine diseases. The manual procedure for diagnosing and treating cattle diseases is excessively complicated, time-consuming, and expensive. These systems do little more than gather data, store it in a database, and retrieve it later; they do not extract any information that might help medical professionals treat the cattle disease more effectively. The more well-known, well-known, and simple data science technique is association (or relation). In order to find patterns, we construct a straightforward association between two or more elements, frequently of the same sort. These systems do little more than gather data, store it in a database, and retrieve it later; they do not extract any information that might help medical professionals treat the cattle disease more effectively. The more well-known, well-known, and simple data science technique is association (or relation). In order to find patterns, we construct a straightforward association between two or more elements, frequently of the same sort. The "Eclat Algorithm" is employed in our project's Association Learning Algorithm to forecast the link between various objects utilizing data sets.

Proposed Work

Real-time management of cattle disease symptoms and disease kinds is challenging since animals cannot communicate the difficulties or suffering, they are experiencing. Finding the signs and symptoms of diseases affecting cattle is difficult in the medical field. Finding the signs of cattle diseases and then predicting the relationship between symptoms, diseases, and therapies is the main goal of the proposed method. Due to the current system, diagnosing cattle diseases and administering the appropriate medicines are both challenging.

The suggested method combines data science techniques to recognize the signs of cow sickness and forecast patterns. The proposed method uses a "Apriori algorithm" from data science to uncover patterns after using a "Lesk based algorithm" to identify the symptoms. The system is intended to be developed as a real-time application that helps veterinarians treat cattle diseases. Since both technologies enable additional libraries and tools to work with real-time applications, we use "Visual Studio" as the front-end technology and "SQL Server" as the back end technology.

Disease name	Symptom	Confidence
bruise	The color of the mouth is pale	0.88
Lack of milk	Breast enlargement injury	0.83
Uterine prolapse	Vaginal stench	0.7
gonorrhea	Low urine output and yellow color	0.9
trauma	Wound infection pain	0.83
...	...	...

Disease name	Symptom	Confidence
asthma	Abnormal body temperature, abnormal breathing	0.875
Spleen diarrhea	Abnormal mouth color, foreign matter in feces	0.81
Cold	Abnormal mouth color, loss of appetite	0.84
Ssis	Ruminant anomaly, Depressed	0.96
gonorrhea	Abnormal tongue,Low urine output and yellow color	0.82
...	...	...

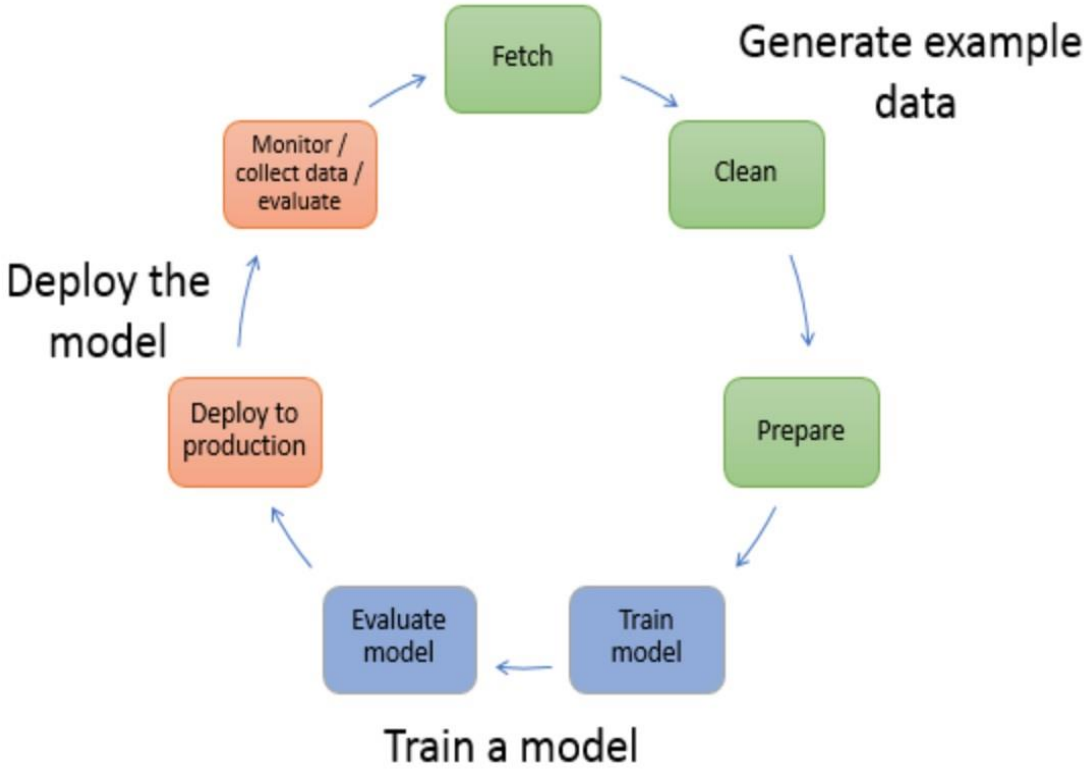
Methodology

Association Learning

The more well-known, well-known, and simple data science technique is association (or relation). In order to find patterns, we construct a straightforward association between two or more elements, frequently of the same sort.

For instance, using market-basket analysis, which tracks consumers' purchasing patterns, we may discover that a client consistently buys cream when they buy strawberries and advise them to do the same the next time they buy strawberries.

Using data sets, the "Eclat Algorithm" from our project's Association Learning Algorithm is used to forecast the link between various items.



Monitor/Collect Data

The first stage of data processing begins here. Here, we gather training datasets from a variety of websites, including www.kaagle.com, www.dataworld.com, www.data.gov.in, and others. The data is primarily in text format. Information compiled from several sources and combined into one. Excel sheets are used to store training datasets.

Fetch

In the next stage of the data processing procedure, we retrieve data from excel sheets. Although training datasets contain all relevant data, we retrieve the necessary data for processing based on our needs. Data containing information on the signs, causes, and treatments of cattle diseases are retrieved and fed into data science algorithms.

Clean

Here, cattle training datasets are cleaned by removing extraneous data and filling in blanks with the "binning method" of data preprocessing. Data cleaning entails deleting erroneous, useless, and noisy data.

Prepare

Here, the necessary formats are created from cleaned training datasets. We must convert data into numerical representations since some data science algorithms only accept data in numerical formats. Some data science methods require string conversion because they accept data in strings. We refer to this as prepping data for algorithmic input to develop the model.

Train Model

In this case, machine learning algorithms were used to process the data and create the model. After the model was created, it was tested to determine the accuracy and effectiveness of the methods.

Evaluate the Model

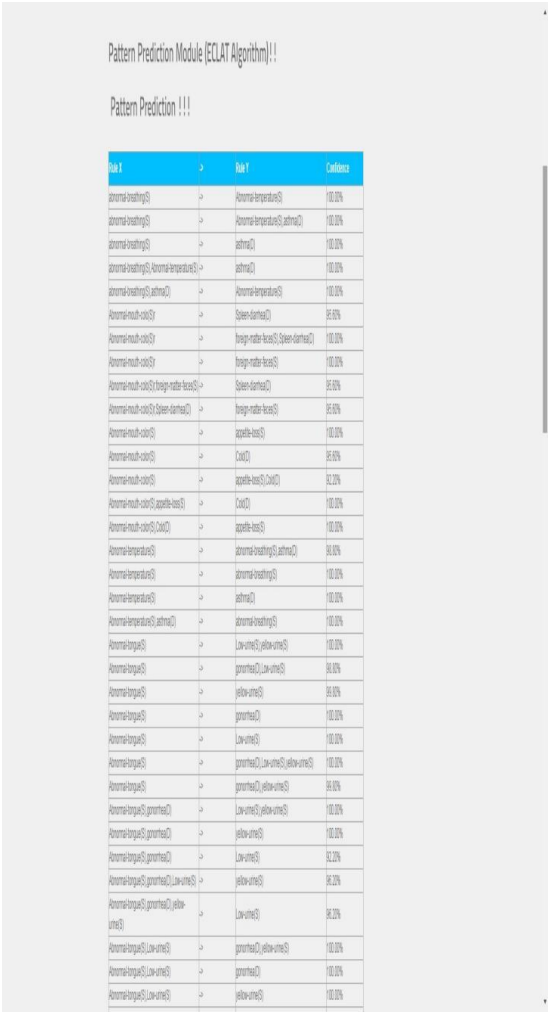
Here, training datasets are split into training and testing to determine the algorithm's correctness, and execution time is determined to determine the algorithm's efficiency.

Deployment

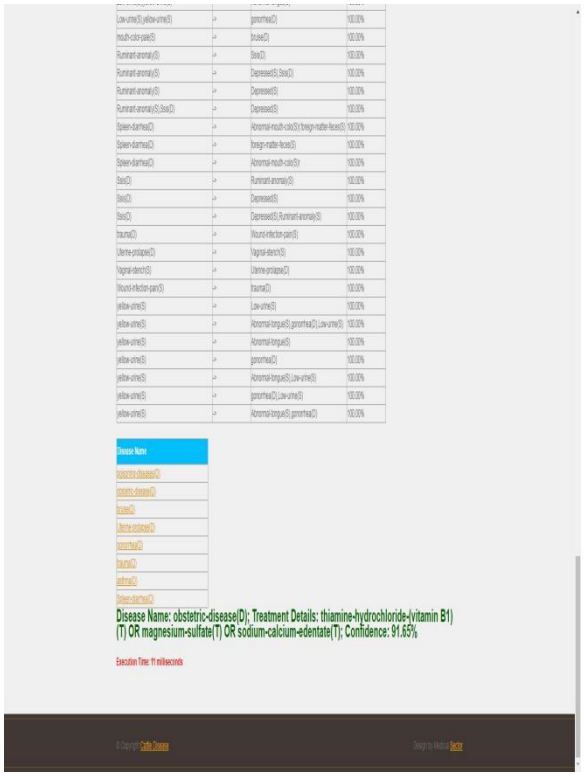
The system creates patterns relating to cattle disease symptoms, disease categories, and therapies once the model has been built and evaluated and we are ready to apply it. The term "deployment" relates to the application's use.

Experiment Results

Pattern Prediction



Treatments



Conclusion

Real-time management of cattle disease symptoms and disease kinds is challenging because animals are unable to communicate their issues or distress. Finding the signs and symptoms of cattle diseases is a difficult challenge in the medical field. This technique identifies the signs of bovine disease before estimating the relationship between symptoms, diseases, and therapies. Given the current system, it is challenging to both diagnose and administer the appropriate medicines for cattle diseases. Veterinary physicians can better diagnose and treat cattle diseases by using a system that is helpful for the medical industry.

Future Enhancements

To discover more connected patterns, more training datasets might be used. In order to determine the algorithm that produces the best results, more algorithms can be employed to find the symptoms, illness types, and therapies for cattle diseases.

References

1. N.Jafarpisheh and M.Teshnehlab, “Cancers classification based on deep neural networks and emotional learning approach,” Science, vol. 294, Dec. 2018, pp. 258-263, doi: 10.1049/iet-syb.2018.5002 /science.1765.
2. Y.Cheng, “A Development Architecture for the Intelligent Animal Care and Management System Based on the Internet of Things and Artificial Intelligence,” Okinawa, JAPAN刱vol. 24, Dec. 2019, pp.78-81.
3. H.Zhao and Q.Chen, “Research on symmetric fuzzy search of medical data outsourcing system under intelligent network,”Science, vol. 294, 2018, pp. 281-299, doi: 10.1186/s13638-018-1290-3/science.2315.

4. G.Caballero, F.Smarandache, “On Neutrosophic Offuninorms,”SYMMETRY-BASEL, vol. 369,2019, pp.11-65.
5. K.Mahmodi and M.Mostafaei, “Detection and classification of diesel-biodiesel blends by LDA, QDA and SVM approaches using an electronic nose,” vol. 258, 2019, pp. 114-119.
6. X .Jia and Y .Jin, “Region-Enhanced Multi-layer Extreme Learning Machine,” COGNITIVE COMPUTATION, vol. 11, 2019, pp. 101-109.
7. .Ming “Bovine disease clinical diagnosis and treatment technology and typical medical case,” PATTERN RECOGNITION. vol. 87,2015, pp. 1-16.
8. S.Tseng and Y.Lin, “Health Care Spoken Dialogue System for Diagnostic Reasoning and Medical Product Recommendation,”International Conference on Orange Technologies,Girsang A S,Kaburuan E R, 2018, pp. 182-189.
9. Q.Chen, M.Zhang, “Structural Risk Minimization-Driven Genetic Programming for Enhancing Generalization in Symbolic Regression,”IEEE TRANSACTIONS ON EVOLUTIONARY COMPUTATION. vol.23, 2019, pp. 703-717.
10. Divyansh Khanna, Rohan Sahu, Veeky Baths, and Bharat Deshpande, "Comparative Study of Classification Techniques to Predict the Prevalence of Heart Disease," International Journal of Machine Learning and Computing vol.5, 2015, pp. 414-419.
11. H.Tania, K.Lwin, “An intelligent mobile-enabled expert system for tuberculosis disease diagnosis in real time,” EXPERT SYSTEMS WITH APPLICATIONS. vol. 114, 2018, pp. 65-77.
12. Ishtiaq Ahmed, Donghai Guan, and Tae Choong Chung, "SMS Classification Based on Naïve Bayes Classifier and Apriori Algorithm Frequent Itemset," International Journal of Machine Learning and Computing vol.4, 2014, pp. 183-187.
13. Seungh wan Lee, Changyoon Lee, Donghee Kim, and Taeseon Yoon, "Comparison of West Nile Virus and Yellow Fever Virus Using Apriori Algorithm, Decision Tree, and Support Vector Machine(SVM)," International Journal of Machine Learning and Computing vol.6, 2016, pp. 155-159.