PREDICTIVE MODELING FOR CATTLE SURVIVAL RATES WITH LUMPY SKIN DISEASE

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Introduction

Lumpy Skin Disease (LSD), presents significant challenges in livestock management due to their diverse manifestations and potential economic impacts. Cattle afflicted with LSD leads to lasting damage and a range of adverse effects such as reduced milk production, impaired reproduction, and mortality. In this context, the project focuses on predicting the survival rates of LSD-affected cattle in the Mangalore region using a dataset sourced from government veterinary hospitals. By leveraging machine learning techniques and integrating diverse data sources, including medical, geospatial, and meteorological features, our research aims to enhance the understanding and forecasting of LSD dynamics, ultimately informing targeted interventions and resource allocation strategies in livestock health management.

Objectives

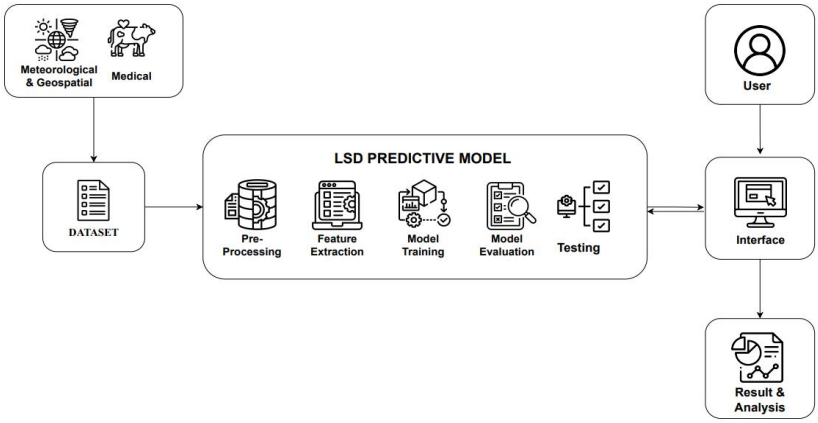
- To develop a diagnostic model capable of accurately identifying Lumpy Skin Disease in cattle.
- To establish a survival rate prediction model for cattle's diagnosed with Lumpy Skin Disease.
- Provide valuable insights into disease factors influencing survival rates, contributing to further research in cattle health and disease management.

Methodology

The project starts with the collection of diverse datasets containing crucial information about cattle, including demographic details, health history and

disease-related features. This raw data undergoes a preprocessing phase, where tasks such as cleaning and handling missing values are carried out. The processed dataset is then utilized in the development of predictive models. The predictive model focuses on diagnosing lumpy skin disease (LSD) and to predict the survival

rates of cattle diagnosed with LSD, considering factors like disease severity and treatment responses. The entire system is evaluated using metrics such as accuracy and survival analysis metrics. Subsequently, a user-friendly web interface is developed to facilitate practical use, allowing stakeholders to input cattle data and receive instant predictions regarding LSD diagnosis and potential survival rates.



Results and Conclusion

The project to predict the survival rate of cattle affected with lumpy skin disease holds several key advantages. By accurately forecasting outcomes, it facilitates early intervention and targeted treatment, reducing animal suffering and economic losses for farmers. Additionally, the identification of high-risk groups based on age, breed, and location allows for efficient resource allocation, prioritizing interventions where they are most needed. This targeted approach enhances disease control strategies, informing the development of tailored interventions to reduce transmission and mitigate impact. Moreover, the project contributes to scientific advancement by applying machine learning to a real-world veterinary problem, fostering interdisciplinary collaboration among stakeholder.

Scope for Future Work

- Collecting a larger dataset with more diverse samples can enhance model performance and generalizability.
- Including additional features such as genetic information and management practices can improve the predictive accuracy.
- Developing real-time monitoring systems and decision support tools can enable proactive disease management.