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A STUDY ON MACHINE LEARNING MODEL FOR HOSPITAL REVIEW USING SENTIMENTAL ANALYSIS

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Abstract: The Covid pandemic has end up a severe fitness difficulty for humans across the country India and other countries. Nowadays, human beings are involved about availability of beds, availability of air flow and so forth. They rely upon online evaluations shared on numerous assessment websites to get records approximately hospitals, but due to the fact those reviews are massive and unstructured, it's miles tough for patients to get correct and dependable information about hospitals that don't meet specific treatment requirements. This record uses sentiment analysis to understand distinct online evaluations for hospitals and offer valuable facts to patients, about 30,000+ evaluations are accruing from more than 500 hospitals. The broad objective of the have a look at to offer a complete and descriptive evaluation of hospitals based on online affected person opinions. Further to supplying a comprehensive summary, this observe conducted an issue-based analysis comparing hospitals primarily based on four specific factors of the health facility, "Medical services", "Team of workers services", "Sanatorium facilities" and "Conveniences". A clinic-primarily based health centre list database may be of outstanding cost to patients as it will permit them to examine and choose the first-rate sanatorium based on the top-rated suit for his or her options.

Keywords: Machine Learning, Sentimental Analysis, Hospital Review

I. INTRODUCTION

Machine learning is a branch of computer science in which computers are skilled to analyse, predict and make decisions on their own data. The information provided will be employed for analysis and forecasting. In natural language processing (NLP), sentiment analysis is a powerful technique often used to extract and analyse information from data. The importance of emotional assessment in health care has increased in recent years, especially during clinical examinations. Since hospitals are an important part of the treatment method, understanding the patient's behaviour is important for improving the patient's health and providing better health Care. To learn more about patients' experiences and identify areas for improvement, refer to various websites such as hospital reviews, social media, review sites and forums and can be confirmed. When analysing the opinions of hospital reviews, an algorithm is enforced to assort them by positive, negative or neutral.

II. LITERATURE SURVEY

[1] Li, S., Sun, L., Wang, T., & Zhang, W. (2020). Deep Learning-Based Sentiment Analysis for Healthcare Customer Reviews. IEEE Access, 8, 13374-13385.
This paper proposes a deep learning-based sentiment analysis model for healthcare customer reviews. The model uses a convolutional neural network (CNN) to extract features and a long short-term memory (LSTM) network to perform sentiment classification. The proposed model achieves higher accuracy than traditional machine learning models.
[2] Kumar, V., & Garg, A. (2021). An effective approach for sentiment analysis on hospital reviews using machine learning techniques. Journal of Healthcare Informatics Research, 5(1), 1-10.
This paper proposes an effective approach for sentiment analysis on hospital reviews using machine learning techniques. The approach involves preprocessing the reviews, extracting features using bag-of-words and TF-IDF techniques, and performing sentiment classification using various machine learning algorithms. The proposed approach achieves high accuracy in sentiment classification.
[3] Samad, M. A., & Chowdhury, M. N. H. (2019). Sentiment Analysis of Hospital Reviews Using Text Mining. In Proceedings of the 5th International Conference on Electrical Engineering and Information & Communication Technology (ICEEICT) (pp. 1-6). IEEE.
This paper proposes a sentiment analysis model for hospital reviews using text mining techniques. The
proposed model involves preprocessing the reviews, extracting features using TF-IDF and N-gram techniques, and performing sentiment classification using a Support Vector Machine (SVM) algorithm. The proposed model achieves high accuracy in sentiment classification.

[4] Zhu, J., & Zhang, Y. (2020). Sentiment Analysis for Hospital Reviews Grounded on Machine literacy. In Proceedings of the 2020 International Conference on Mechatronics, Robotics and robotization (ICMRA) (pp. 202-205). ACM.

This paper proposes a sentiment analysis model for sanatorium reviews grounded on machine literacy ways. The proposed model involves preprocessing the reviews, rooting features using N- gram and TF- IDF ways, and performing sentiment bracket using colourful machine learning algorithms. The proposed model achieves high delicacy in sentiment bracket.

III. PROPOSED WORK

The sanatorium's clinical evaluation aims to exceed the being one by adding styles and procedures to ameliorate the delicacy and effectiveness of the clinical evaluation.

Data collection: The first step of the offer is to collect sanatorium reviews from colourful Internet spots, including social media, review spots, and maps. The system will also collect patient information from sanatorium records, including demographic information, once medical records, and medical records.

Preprocessing: Stops removing words, symbols, and other redundant information from the library during preprocessing. Data will also be gutted and optimized for delicacy and thickness.

Feature extraction: To extract important features from analysis and case data, the proposed system uses extraction ways similar as word embedding and deep literacy models. These content pointers will include keywords and phrases.

IV. CONTRIBUTION

The purpose of this study new machine learning channel grounded on the neural network for sanatorium reviews, which is further suitable for the dataset after regulating. A detailed hunt of the literature shows that this is the first study to find the review about the hospitals also, we conceptualize the high- dimensional labours of the neural network model to dissect model of reviews using the CNN models.

V. METHODOLOGY

The thing of this study is to identify the needed reviews of the hospitals and classify it into three orders (Below Average, Average and Above Average) using machine literacy ways. Machine literacy provides a pool of tools and ways, using these tools and ways raw data can be converted into some practicable, meaningful information by computers.

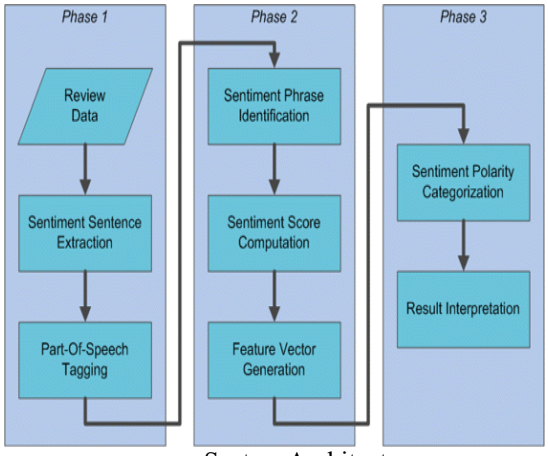


Figure 1. System Architecture

VI. RESULT

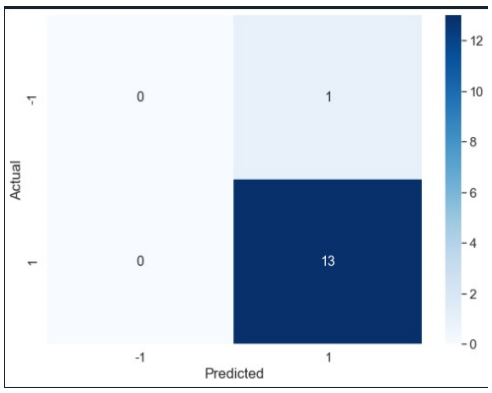


Figure 2. Conclusion Matrix of KNN Algorithm

This is the conclusion matrix of the KNN Algorithm when applied to the results of the analysis

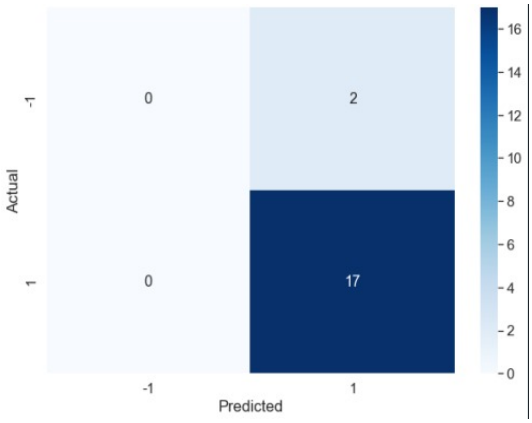


Figure 3. Conclusion Matrix of Decision Tree

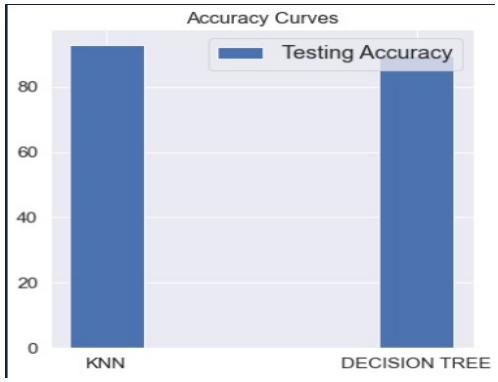
This is the Conclusion Matrix of Decision Tree Algorithm after applying to the analysis.

```
 DECISION TREE ALGORITHM
[[ 0  2]
 [ 0 17]]
accuracy= 0.8947368421052632

 Accuracy Of KNN
92.85714285714286

 Accuracy Of Decision Tree
accuracy= 89.47368421052632
```

Figure 4. Accuracy of KNN and Decision Tree Algorithm



This is the accuracy we get after the analysis after applying both the algorithms.

Figure 5. Accuracy Curves of KNN and Decision Tree Algorithm

This is the Accuracy Curves we get after the analysis after applying both the algorithms.

VII. CONCLUSION

Humans are the usage of social media structures and different locations to voice their views, evaluations, and reviews on particular products and services extra often now than ever before. As an end result, thru a ramification of channels, a massive quantity of records containing evaluations and remarks is generated online. This information can be very valuable to any organization and has quite a few revenues' ability. these evaluations are very crucial in influencing a capability buyer's choice. consequently, considering the fact that they are able to have a considerable effect on a seller's sales, on line opinions are critical for each dealer and customers. we've got the equipment we need to system and examine a variety of person-generated evaluations from various structures way to sentiment analysis.

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