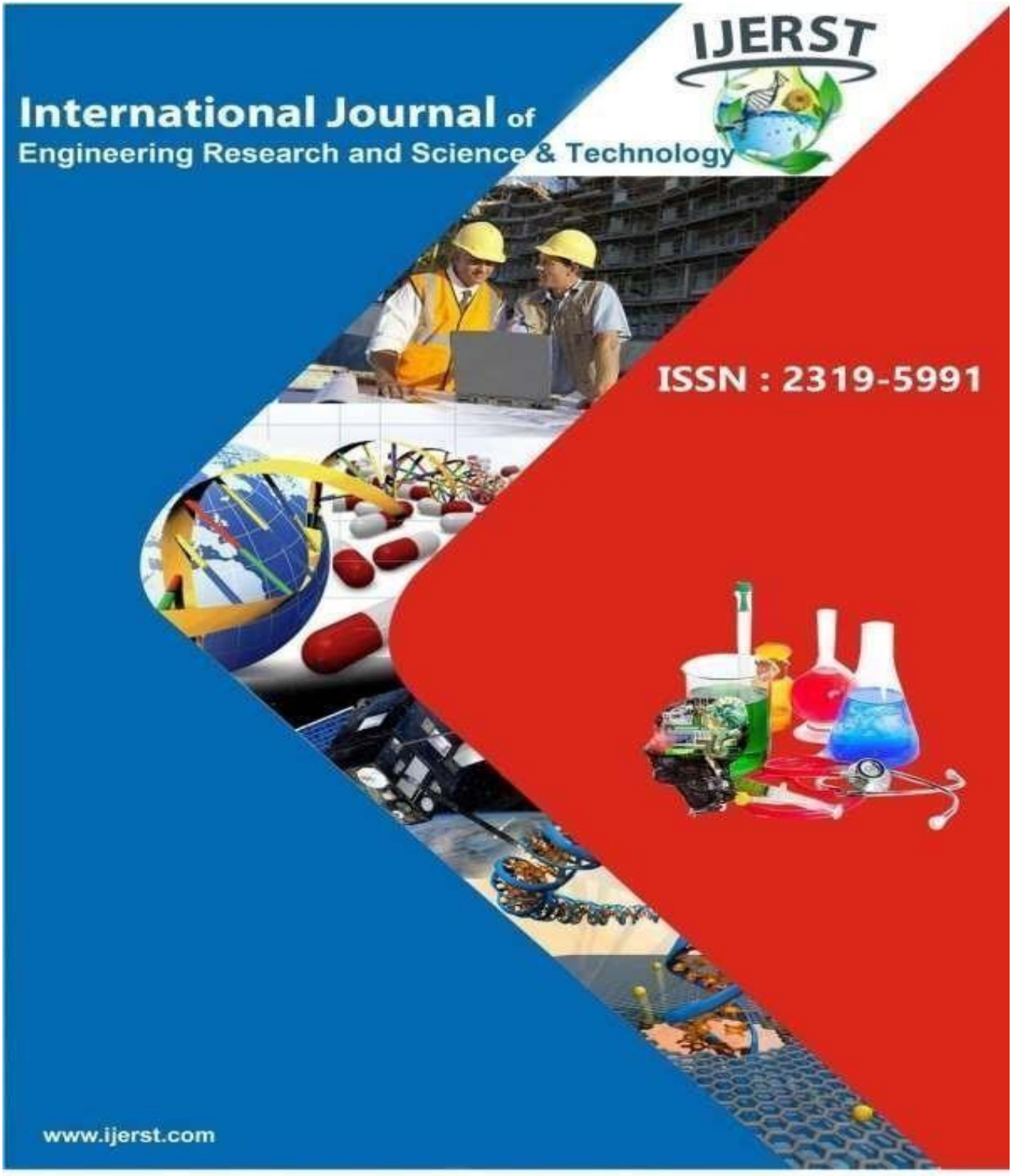

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CHILD MORTALITY PREDICTION USING MACHINE LEARNING TECHNIQUES

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ABSTRACT

Child Mortality alludes to mortality of children younger than 5. The kid death rate, in addition under-five death rate, alludes to the probability of biting the mud among birth and exactly 5 years recent. The mortality of kids in addition happens in embryo. The purpose is to analysis AI based mostly strategies for grouping of mortality vertebrate upbeat characterization brings concerning best truth. The examination of dataset by directed AI procedure (SMLT) to catch a couple of data's like, variable characteristic proof, uni-variate investigation, bi-variate and multi-variate examination, missing value medicines and dissect the data approval, data cleaning/getting prepared and knowledge illustration are done on the entire given dataset. Our examination provides a whole manual for responsiveness investigation of model boundaries on execution within the characterization of vertebrate upbeat. To propose AN AI based mostly and moreover, to seem at and examine the presentation of various AI calculations for the given dataset

1.INTRODUCTION

Child mortality, defined as the death of children under the age of five, remains a significant global health challenge despite substantial progress in recent decades. According to the World Health Organization (WHO), approximately 5.2 million children died before reaching the age of five in 2019, with the majority of these deaths occurring in low- and middle-income countries. Many of these deaths are preventable through timely interventions and improved healthcare systems.

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In recent years, there has been a growing interest in leveraging Machine Learning (ML) techniques to predict and prevent child mortality. ML models have demonstrated remarkable capabilities in analyzing large datasets and identifying patterns that may not be immediately apparent to human observers. By harnessing these capabilities, researchers and healthcare practitioners aim to develop predictive models that can assist in identifying high-risk populations, allocating resources efficiently, and implementing targeted interventions to reduce child mortality rates.

This introduction sets the stage for discussing the application of ML in predicting child mortality. In this context, we will explore the challenges associated with traditional approaches to assessing child mortality risk, highlight the potential of ML techniques in addressing these challenges, and outline the objectives and significance of developing predictive models in this critical area of public health. Additionally, we will discuss the ethical considerations and potential limitations of employing ML in predicting child mortality,emphasizing the importance of responsible and equitable deployment of predictive analytics in healthcare settings.

2.LITERATURE SURVEY

1)"Predicting Child Mortality"

AUTHORS: D. R. Hotchkiss, J. R. Gage, and M. A. Mhlanga

This study explores the relationship between child health indicators and child mortality using data from demographic and health surveys. The authors employ statistical techniques to identify significant predictors of child mortality and assess the potential for using these indicators in predictive modeling.

2)"Machine Learning Approaches for Predicting Child Mortality"

AUTHORS: A. K. Tripathy and S. Mishra.

This paper compares the performance of various machine learning algorithms, including decision trees, random forests, and support vector machines, in predicting child mortality using demographic and health survey data from multiple countries. The study evaluates the accuracy, sensitivity, and specificity of different models and discusses their implications for public health interventions.

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3)"Predicting Child Mortality in Resource-Limited Settings"

AUTHORS: B. Chakraborty et al

This research focuses on predicting child mortality in resource-limited settings using data from electronic health records. The authors employ machine learning algorithms, such as logistic regression and gradient boosting, to develop predictive models and assess their performance

4)"Predicting Neonatal Mortality Using Machine Learning"

AUTHORS:M.L. McQuiston et al.

This research focuses on predicting neonatal mortality, which accounts for a significant proportion of child deaths, using machine learning models trained on data from health facility records in Malawi. The study evaluates the performance of different algorithms and explores the potential for integrating predictive analytics into neonatal healthcare delivery.

5)"Using Machine Learning to Predict Neonatal Mortality in Ghana"

AUTHORS: E. A. Asamoah et al.

This study applies machine learning techniques to predict neonatal mortality using demographic and health survey data from Ghana. The authors compare the performance of logistic regression, decision trees, and gradient boosting algorithms and discuss the implications of their findings for targeted interventions aimed at reducing neonatal mortality rates.

3. EXISTING SYSTEM

The death rate of under-five children in India declined last few decades, but few bigger states have poor performance. This is a matter of serious concern for the child's health as well as social development. Nowadays, machine learning techniques play a crucial role in the smart health care system to capture the hidden factors and patterns of outcomes.

In an existing system, the system used machine learning techniques to predict the important factors of under-five mortality. This study aims to explore the importance of machine learning techniques to predict under-five mortality and to find the important factors that cause under-five mortality. The data was taken from the National Family Health Survey-IV of Uttar

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Pradesh. We used four machine learning techniques like decision tree, support vector machine, random forest, and logistic regression to predict under-five mortality factors and model accuracy of each model. We have also used information gain to rank to know the important variables for accurate predictions in under-five mortality data.

Disadvantages:

- Data visualization doesn't provide an important set of tools for gaining qualitative insights.
- Data visualization and exploratory data analysis are not all fields, and he would recommend diving deeper into some of the books mentioned at the end.

3.1 PROPOSED SYSTEM

The proposed model is to build a model to predict mortality. Collected data may contain missing values which may lead to inconsistencies. To get better results, the data should be preprocessed to improve the efficiency of the algorithm. Outliers should be removed and mutable conversions should also be performed. The data set collected to predict the given data is divided into training set and test set. In general, a ratio of 7:3 is applied to divide the training set and the test set. The data model created using machine learning algorithms is applied to the training set, and based on the accuracy of the test results, the prediction of the test set is made. The model can classify mortality. Different machine learning algorithms can be compared and the best algorithm can be used for classification.

Advantages:

- The Naive Bayes algorithm is an intuitive method that uses the probability of each attribute belonging to each class to make predictions.
- Random forest or random decision forest is a synthetic learning method for classification, regression and other tasks, which works by building an infinite number of decision trees at the time of training and generating class as methods of classes (classification) or predictive mean (regression) of individual tree

4. OUTPUT SCREENS

Registration page:

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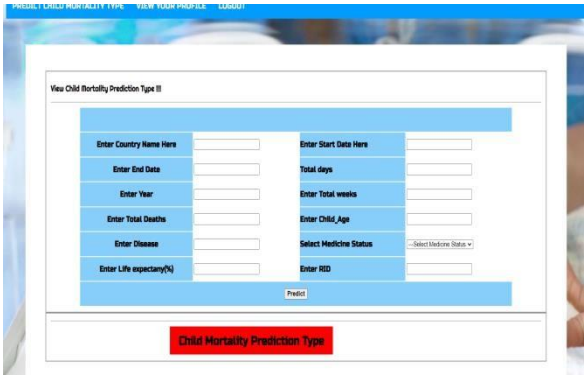
Remote User pages:

- Remote user can login with their username and password

- Remote User can login and view there profile

- Remote User can predict child mortality type



Service Provider pages:

- Service provider can login with their username and password

- Service provider can view all remote users

- Service provider can view datasets trained and tested results

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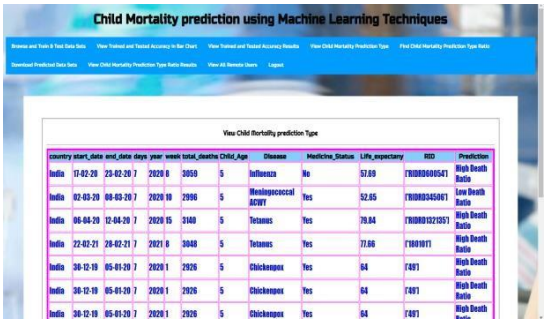
- Service provider can view trained and tested accuracy in bar chart

- Service provider can view trained and tested accuracy results in line chart

- Service provider can view trained and tested accuracy results in pie chart

- Service provider can view child mortality prediction type



- Service provider can view child mortality prediction type ratio details

- Service provider can view child mortality prediction type ratio results in line chart

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- Service provider can view child mortality prediction type ratio results in pie chart

5. CONCLUSION

The analytical method started from information improvement and process, missing worth, wildcat analysis and eventually model building and analysis. The best accuracy on public check set is higher accuracy score are going to be determine. This application will facilitate to seek out the Prediction of children's Mortality.

In conclusion, the utilization of machine learning (ML) for predicting child mortality presents a promising avenue for addressing a critical public health concern. ML models can effectively analyze vast datasets and identify intricate patterns to forecast child mortality rates. By recognizing key risk factors and vulnerable populations, these models empower policymakers, healthcare providers, and aid organizations to implement targeted interventions and allocate resources efficiently. However, challenges such as data quality, model interpretability, and ethical considerations must be carefully addressed to ensure the responsible deployment of ML in child mortality prediction. With continued research, collaboration, and refinement, ML has the potential to significantly contribute to reducing child mortality rates and improving child health outcomes on a global scale.

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