LIVER CIRRHOSIS PREDICTION WITH XGBOOST & EDA

Initial Review

ABSTRACT

This research proposes a predictive model for liver cirrhosis risk assessment in North America, emphasizing lifestyle factors and health indicators. By leveraging advanced machine learning techniques, it aims to enable early diagnosis and targeted interventions, potentially improving patient outcomes and public health.

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LITERATURE SURVEY

EPIDEMIOLOGY

Studies reveal rising liver cirrhosis rates globally, driven by factors like alcohol consumption, viral hepatitis, NAFLD, and metabolic syndrome, with varied regional impacts and explored risk factors

ETIOLOGY AND RISK FACTORS

Research indicates rising liver cirrhosis rates due to alcohol, viral hepatitis, and non-alcoholic fatty liver disease, with studies exploring interactions and lifestyle influences.

DIAGNOSIS AND MANAGEMENT

Utilizes clinical, laboratory, imaging, and histological findings. Advanced imaging like transient elastography and magnetic resonance elastography aids non-invasive fibrosis assessment

PROGNOSIS

Liver cirrhosis prognostication employs scoring systems like Child-Pugh and MELD, while biomarkers and imaging are investigated for predictive value in identifying high-risk patients and guiding clinical decisions.

EXISTING SOLUTION

- Traditional methods for the prediction of liver cirrhosis are the gradient boosting methods

- But unfortunately these machine learning models are not so much efficient when compared to other machine learning algorithms

- Which can be subjected to time- consuming and may depend on other physiological measures which can be invasive and require specialized equipment. These methods also require significant expertise to interpret the data accurately.

DISADVANTAGES

ACCURACY

The accuracy is one of the major entity which can effect the entire outcome of the project

TIME

Due to the usage of old machine learning algorithm, the time consumption is higher than the new algorithm

PROPOSED SOLUTION

Usage of latest algorithms line XGboost (Extreme Gradient Boosting Algorithm) and EDA (Exploratory Data Analysis) may help to increase the accuracy and reduce the time consumption

SYSTEM REQUIREMENTS

HARDWARE REQUIREMENTS

Operating System :Windows, Linux
Processor :Minimum intel i3
RAM : Minimum 4GB

SOFTWARE REQUIREMENTS

Jupyter Notebook, Google Colab, Modules like Numpy, Pandas, Matplotlib, Seaborn

PROBLEM STATEMENT

Liver cirrhosis poses a significant health challenge worldwide, with increasing prevalence in North America, primarily attributed to alcohol consumption. Despite advancements in medical knowledge, there remains a need for more effective methods of early detection and risk assessment to improve patient outcomes and reduce the burden on healthcare systems. This problem statement seeks to address the gaps in current approaches to liver cirrhosis management by developing a comprehensive predictive model that integrates lifestyle factors and health indicators, aiming to facilitate proactive intervention and personalized care.

MODULES

NUMPY

Numerical computing that provides support for large, multi-dimensional arrays and matrices

PANDAS

High-performance, easy-to-use data structures and data analysis tools, particularly designed for working with structured data.

MATPLOTLIB

Creating static, interactive, and animated visualizations in various formats, including line plots, scatter plots, bar charts, histograms, and more.

SEABORN

Statistical data visualization library in Python that simplifies the creation of complex and visually appealing plots.

SUMMARY

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THANK YOU

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