

Project Documentation

Project Title:

Revolutionizing Liver Care: Predicting Liver Cirrhosis Using Advanced Machine Learning

Team ID and Student Details:

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Abstract:

This project focuses on predicting liver cirrhosis using machine learning algorithms. A synthetic dataset comprising medical parameters like bilirubin levels, enzyme levels, protein levels, and demographic information is used to train and test the model. The aim is to assist healthcare professionals in early detection and treatment planning of liver-related diseases.

Tools and Technologies Used:

- Python
- Pandas and NumPy for data handling
- Scikit-learn for machine learning modeling
- FPDF for PDF generation
- Jupyter Notebook / Google Colab for experimentation

Methodology:

1. Data Collection: A synthetic dataset of 100 records is created.
2. Preprocessing: Handling missing values, encoding categorical variables.

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3. Model Building: Models such as Logistic Regression and Random Forest are used.
4. Evaluation: Accuracy, precision, recall, and F1 score are calculated.
5. Deployment: The model can be integrated into a medical decision support system.

Results and Discussion:

Initial models show promising accuracy in predicting liver cirrhosis. Future improvements may include hyperparameter tuning and testing with real-world datasets.

Conclusion:

This project demonstrates the potential of machine learning in medical diagnostics. Early prediction of liver cirrhosis can greatly improve patient outcomes.

GitHub Link:

<https://github.com/P-Hema/Liver-care.git>