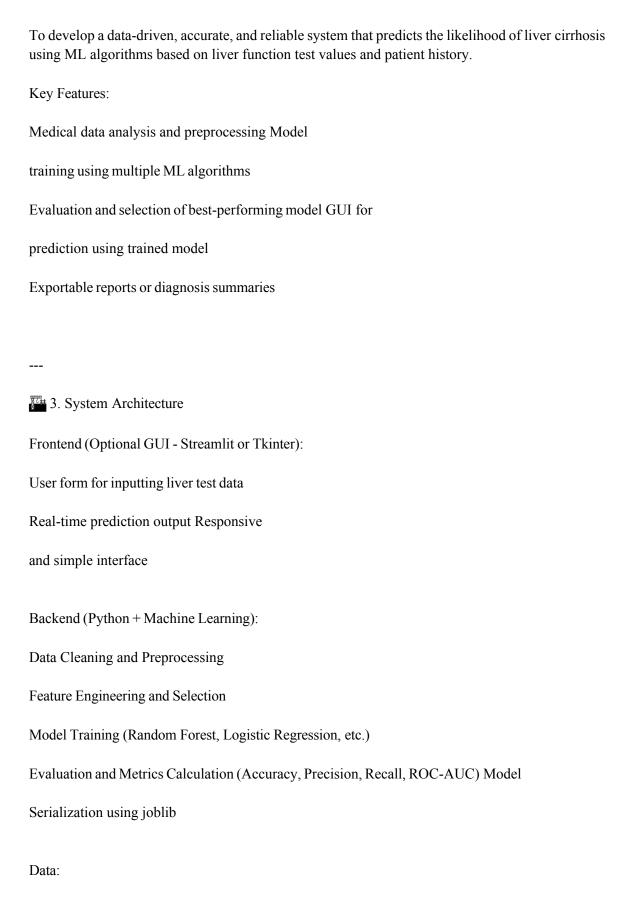
Revolutionizing Liver Care: Predicting Liver Cirrhosis Using Machine Learning Algorithms Team ID:
LTVIP2025TMID39323
Team Leader:
A.Hithesh
Team Members:
1.J. Aswini
2. D.Snehitha
3. Marakalakuppam Sandeep
1. Introduction Project
Title:
Revolutionizing Liver Care: Predicting Liver Cirrhosis Using Machine Learning Algorithms Overview:
This project leverages the power of machine learning to build a predictive model that can detect liver cirrhosis in patients using medical records. By analyzing clinical features from liver patient datasets, the system can assist medical professionals in diagnosing liver cirrhosis at early stages, enabling faster treatment and better patient outcomes.
2. Project Overview Purpose:



Liver Cirrhosis Dataset (CSV format)

Features include: Age, Gender, Bilirubin, Albumin, Enzymes, etc.

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**☼** 4. Setup Instructions

Prerequisites:

Python 3.8+

pip

Jupyter Notebook / VS Code / PyCharm Liver

Cirrhosis Dataset (CSV)

Installation & Setup:

# Clone the repository or download the code git clone https://github.com/your-username/liver-cirrhosis-ml.git

# Navigate to project folder cd liver-cirrhosis-ml

# Install dependencies pip install -r requirements.txt

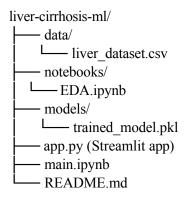
Run the Application:

# Run in Jupyter Notebook jupyter notebook main.ipynb

# OR run a Streamlit GUI (if implemented) streamlit run app.py

---

## 5. Folder Structure



► 6. Running the Application

# For notebook-based prediction jupyter notebook main.ipynb

# For GUI-based prediction streamlit run app.py

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5.7. ML Pipeline Stages Stage

Description

Data Loading Reading liver patient data

Preprocessing Handling missing values, encoding, scaling Feature Selection Correlation analysis, domain knowledge Model Training Using algorithms like Logistic Regression, RF Evaluation

Using metrics like Accuracy, Precision, AUC

Deployment Streamlit/Tkinter interface for predictions

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§8. Model Validation & Evaluation

Split data into training and testing sets Cross-validation for robust evaluation Metrics used: **Accuracy Precision** & Recall Confusion Matrix ROC-AUC Curve 9. User Interface Screenshots (If GUI used) Screenshot Name Page Home Page home.png Input Form Page input-form.png Prediction Output Page prediction.png Evaluation Metrics Page evaluation.png ↑10. Testing Tools Used: Jupyter Notebook (model testing) Streamlit GUI test (if used) Manual input/output verification Scikitlearn test set validation

```
Testing Coverage:
Input data validation
Model prediction correctness UI
prediction integration
Model evaluation metrics verification
11. Demo or Showcase
Optional video demo or screenshots can be linked here. Example:
[Insert YouTube/Google Drive link to project demo]
△ 12. Known Issues
Model accuracy depends on dataset quality No
SMS/email notification feature
No cloud deployment yet
GUI only supports basic input (no file upload)
₹13. Future
Enhancements Integration with
hospital systems Real-time API
deployment
```

Larger and more diverse datasets

Use of deep learning (CNN/LSTM) for advanced detection

Notification system for predictions

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## **2**14. Conclusion

The liver cirrhosis prediction system developed using machine learning offers a powerful and efficient tool for early disease detection. The integration of data science with healthcare not only improves diagnosis accuracy but also helps medical professionals make faster and more informed decisions.

Gitub Link: https://github.com/aswini10thclass-gif/Predicting-Liver-Care