

CHAPTER-9

9.1 ADVANTAGES:

Early Warning System

The system provides advance flood alerts based on environmental data, helping authorities and communities take preventive measures before disaster strikes. This reduces loss of life and property damage.

High Prediction Accuracy

By using advanced machine learning algorithms such as Random Forest and XGBoost, the system improves forecasting accuracy compared to traditional manual methods.

Real-Time Risk Assessment

The web-based application can instantly analyse rainfall, river level, and other parameters to provide immediate flood risk predictions.

Data-Driven Decision Making

Government agencies and disaster management authorities can rely on accurate data analysis to make informed decisions about evacuation and emergency response.

Cost-Effective Solution

Automated flood prediction reduces the need for constant manual monitoring and expensive infrastructure, making it an economical solution.

Scalable Architecture

The system can be expanded to cover multiple districts, states, or even nationwide implementation. It can also integrate with IoT sensors for real-time data collection.

User-Friendly Interface

The Flask-based web application provides a simple interface where users can input environmental parameters and receive flood risk levels easily.

Reduced Human Error

Automation minimizes manual calculation errors and improves prediction reliability.