Dengue Outbreak Early Warning from Weather Signals

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1. Introduction

Dengue fever is one of the fastest-growing mosquito-borne diseases, influenced by climatic conditions such as temperature, humidity, and rainfall. This project aims to develop an early warning system that predicts the risk level of a dengue outbreak based on daily weather parameters. The system provides timely alerts that can assist health authorities and the public in taking preventive measures.

2. Objective

To collect daily weather data and analyze its relation to dengue risk. To design a simple and interactive web-based application for predicting dengue risk levels. To create a heuristic model that evaluates temperature, humidity, and rainfall to compute a dengue risk score. To provide early warning signals in the form of Low, Medium, or High risk levels.

3. Methodology

The project uses a frontend web interface developed with HTML, CSS, and JavaScript. Users input daily weather data (temperature, humidity, rainfall). The system calculates a weighted score using heuristic logic. Based on the score, the system classifies dengue risk as Low, Medium, or High depending on environmental favorability.

4. Tools and Technologies

Frontend: HTML, CSS, JavaScript
IDE: Visual Studio Code
Platform: Web Browser
Version Control: Git & GitHub

5. Expected Outcome

The system will display real-time dengue risk levels based on entered weather data. It provides an easy interface for local authorities or users to monitor risk trends and plan preventive actions.

6. Advantages

Simple, user-friendly, and easily deployable. Requires only basic weather data inputs. Can be extended with live weather APIs for automation. Useful for health monitoring and community awareness.

7. Future Scope

Integrate with real-time weather APIs for automatic data fetching. Include data analytics and visualizations for historical trend analysis. Develop a mobile version for wider accessibility. Connect with GIS mapping for regional outbreak visualization.

8. Conclusion

The Dengue Outbreak Early Warning System provides a practical and lightweight solution for predicting dengue risks using weather parameters. It demonstrates how technology can support public health by transforming raw environmental data into meaningful, actionable insights.