Dengue Risk Prediction Project Report

Project & SDG

SDG 3 – Good Health & Well-being
This project predicts dengue outbreaks in cities to help health authorities reduce risks and allocate resources efficiently. Early prediction supports safer and healthier communities.

Dataset

- **Source:** Open-source health and weather data (e.g., Kaggle, WHO)
- **Features:** Weather (temperature, rainfall, humidity), city info, past dengue cases
- **Target:** Dengue outbreak risk (high/low)

Machine Learning Approach

- **Type:** Supervised Learning – Classification
- **Algorithm:** Random Forest
- **Workflow:** Data cleaning → Train/test split → Model training → Evaluation → Visualization

Results

- **Accuracy:** 0.87
- **Precision:** 0.86
- **Recall:** 0.87
- **F1-score:** 0.86

Key plots: Dengue cases per city, ROC curve, feature importance

Ethics & Reflection

- **Bias:** Some regions underrepresented
- **Privacy:** Health data anonymized
- **Fairness:** Predictions help all communities
- **Sustainability:** Early warnings reduce outbreaks and healthcare burden

Conclusion

Machine learning can effectively predict dengue risk, supporting SDG 3 by improving public health response.