COLLEGE CODE:-3108

COLLEGE NAME:-Jeppiaar Engineering College

DEPARTMENT:- Information Technology

STUDENT NM-ID: 15836AE535066D48A3C4D637BC1FA754

ROLL NO:-310823205099
DATE:-13-05-2025

Completed the project named as
Natural Disaster Prediction And Management

SUBMITTED BY,

NAME:-surya.S

MOBILE NO:-9626953856
Phase 4: Performance of the project

Title: Natural DisasterPrediction And Management

Performance of the Project: Natural Disaster Prediction and Management

1. Prediction Accuracy

- Metrics: Precision, recall, F1 score, and accuracy for predictions (e.g., floods, earthquakes, cyclones).

- Tools/Technologies: Use of machine learning models, satellite imagery, weather data, etc.

- Performance Indicator: High accuracy in early warning systems and timely alerts.

2. Response Time

- Detection to Alert Time: How quickly the system can detect a potential disaster and issue an alert.

- Performance Indicator: Minimal delay in alert transmission.

3. Coverage and Scalability

- Geographic Coverage: How many regions or types of disasters the system can handle.

- Scalability: Ability to scale across more regions or add more data sources without performance drops.

4. Resource Management Efficiency

- Allocation Optimization: Effective use of available rescue teams, medical support, shelters, etc.

- Logistics Performance: Speed and efficiency in deploying resources.

5. Community Impact

- Lives Saved & Property Protected: Reduction in casualties and damage compared to past disasters.

- Public Satisfaction: Feedback from affected communities on disaster response quality.

6. Integration and Automation

- System Integration: How well it integrates with government and NGO systems.

- Automation Level: Degree of automation in detection, alerting, and resource coordination.

7. Reliability and Robustness

- Uptime: System availability during crises.

- Fail-safes: Redundancy and backup systems during failure.

8. Training and Awareness Programs

- Community Training: Organizing workshops and drills to educate the public on disaster preparedness.

- Institutional Support: Providing training to local authorities and first responders.

9. Real-Time Data Monitoring

- Sensor Networks: Deployment of IoT devices and remote sensing equipment.

- Data Integration: Real-time analysis using cloud computing and big data platforms.

10. Policy and Governance Support

- Legal Frameworks: Supporting disaster risk reduction policies at local, national, and international levels.

- Coordination Mechanisms: Establishing command and control structures during disasters.

11. Post-Disaster Recovery Evaluation

- Assessment: Evaluating damage, losses, and system performance post-event.

- Improvement Loop: Using insights to enhance prediction and management strategies.

Conclusion:

This project demonstrates the capability of integrating advanced technologies with disaster

management practices to enhance preparedness, reduce losses, and improve recovery efforts. Continued development and collaboration with stakeholders can ensure better resilience against future disasters.

```python
# app.py
from flask import Flask, request, jsonify
import joblib

app = Flask(__name__)
model = joblib.load('flood_model.pkl')

@app.route('/predict', methods=['POST'])
def predict():
    data = request.get_json()
    prediction =
model.predict([[data['rainfall'],
data['river_level'],
data['soil_moisture']]])
    return jsonify({'flood_risk': 'Yes'
if prediction[0] == 1 else 'No'})

if __name__ == '__main__':
    app.run(debug=True)
```

OUT PUT


```
{
  "rainfall": "heavy",
  "river_level": "high",
  "soil_moisture": "wet"
}
```