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TECHNOLOGY -PROJECT NAME:

NATURAL DISASTER

SUBMITTED BY,

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Phase 5: Project Demonstration & Documentation

Title:

Natural Disaster Management System

Abstract:

The Natural Disaster Management System (NDMS) is a technology-driven solution aimed at minimizing the impact of natural disasters through early detection, efficient response coordination, and real-time communication. This project integrates Artificial Intelligence, Geographic Information Systems (GIS), and IoT sensors to monitor environmental changes and alert authorities and the public. The final phase focuses on live system demonstration, comprehensive documentation, and analysis of performance metrics. Visual assets like system screenshots, architecture diagrams, and code excerpts are included for clarity. The system is optimized for scalability, data security, and integration with emergency services.

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1. Project Demonstration

Overview:

The NDMS will be demonstrated in a live session to stakeholders, showcasing its functionality in disaster prediction, alert dissemination, and rescue coordination.

Demonstration Details:

- System Walkthrough: Real-time dashboard showing live sensor data and risk mapping via GIS.
- Disaster Prediction: AI-based predictions for floods, earthquakes, and cyclones based on real-time data.
- IoT Integration: Environmental sensors provide data like seismic activity, water level, and wind speed.
- Performance Metrics: Demonstrates system response time, accuracy of alerts, and map rendering speed.
- Security & Privacy: Demonstrates how the system ensures secure data handling during emergency communications.

Outcome:

Stakeholders will observe how the system can accurately predict disasters, provide timely alerts, and coordinate emergency responses using live data.

2. Project Documentation

Overview:

Detailed documentation covers all aspects of NDMS, from system design to usage and maintenance.

Documentation Sections:

- System Architecture: Diagrams showing AI processing, GIS layers, and sensor networks.
- Code Documentation: Source code for AI models, sensor APIs, and UI/UX components.
- User Guide: Instructions for the public and rescue personnel on using the alert app and dashboard.
- Administrator Guide: Back-end management guide for emergency services and technical teams.
- Testing Reports: Performance and stress test results, alert delivery success rate, and uptime analysis.

Outcome:

All stakeholders will have a comprehensive understanding of system architecture, usage, and scalability through this documentation.

3. Feedback and Final Adjustments

Overview:

After the demonstration, feedback will be collected for refinement.

Steps:

- Feedback Collection: Responses gathered via forms and verbal feedback from mentors and test users.
- Refinement: Performance issues or feature requests (e.g., better UI or faster alerts) will be addressed.
- Final Testing: System will be retested post-adjustments to verify stability and improvements.

Outcome:

NDMS will be optimized based on stakeholder feedback and prepared for deployment.

4. Final Project Report Submission

Overview:

A detailed final report summarizing all phases and technical details will be submitted.

Report Sections:

- Executive Summary: High-level summary of goals, development journey, and achievements.
- Phase Breakdown: Detailed reports on system design, sensor integration, GIS implementation, and AI modeling.
- Challenges & Solutions: Examples include false alerts, sensor data loss, and UI issues — with implemented fixes.

- Outcomes: Overview of system readiness, reliability, and emergency readiness.

Outcome:

A full report encapsulating the entire NDMS project lifecycle will be submitted for evaluation.

5. Project Handover and Future Works

Overview:

Project will be officially handed over with future roadmap.

Handover Details:

- Next Steps: Future work includes expanding sensor networks, adding mobile app features, and multilingual alert support.

Outcome:

NDMS will be handed over to emergency authorities with a roadmap for further enhancements.

Coding:

```
<!DOCTYPE html>
<html lang=”en”>
<head>
 <meta charset=”UTF-8”>
 <title>Natural Disaster Info</title>
 <style>
  Body {
   Font-family: Arial, sans-serif;
   Background: #eef;
   Padding: 20px;
  }
  H1 {
   Color: #003366;
  }
  .button {
   Background-color: #008cba;
   Border: none;
   Color: white;
   Padding: 10px 20px;
   Margin: 5px;
   Cursor: pointer;
```

```
  }
  .info {
    Margin-top: 20px;
    Padding: 15px;
    Background-color: #fff;
    Border-left: 5px solid #003366;
  }
 </style>
</head>
<body>
 <h1>Natural Disaster Information</h1>
 <button class=”button” on
onclick=”showInfo(‘earthquake’)”>Earthquake</button>
 <button class=”button” onclick=”showInfo(‘flood’)”>Flood</button>
 <button class=”button”
onclick=”showInfo(‘cyclone’)”>Cyclone</button>

 <div id=”disasterInfo” class=”info”>
  Click a button to see information about the disaster.
 </div>

 <script>
  Function showInfo(type) {
```

```
    Let info = {

      Earthquake: “An earthquake is the shaking of the surface of the Earth caused by sudden movements in the Earth’s crust.”,

      Flood: “A flood is an overflow of water that submerges land which is usually dry.”,

      Cyclone: “A cyclone is a large scale air mass that rotates around a strong center of low atmospheric pressure.”

    };

    Document.getElementById(“disasterInfo”).innerText = info[type];

  }

 </script>

</body>

</html>
```

Natural Disaster Information

Earthquake | Flood | Cyclone

Click a button to see information about the disaster.