SMART INDIA HACKATHON 2024

GLA UNIVERSITY MATHURA

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Real-Time Disaster Information Aggregation Software

- **Problem Statement ID – 1687**
- **Problem Statement Title- Real-Time Disaster Information Aggregation Software**
- **Theme- Disaster Management**
- **PS Category- Software**
- **Team ID- GLAUST34**
- **Team Name – Bit Battalion**

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Real-Time Disaster Information Aggregation Software

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❖ Proposed Solution

- **Automated Data Aggregation:** The software will automatically collect disaster-related data from social media, news portals, and other open sources using advanced algorithms.

- **Efficient Categorization:** It will categorize the aggregated data into relevant categories such as disaster type, severity, and affected regions, making it easier to process and analyze.

- **Real-Time Insights:** The solution provides real-time updates, enabling disaster response agencies to access critical information promptly and improve their decision-making process.

- **Innovation and Uniqueness:** The solution’s ability to combine data from multiple sources in real-time, particularly from social media, offers a unique advantage, ensuring comprehensive and timely information for disaster management.

- **User-Friendly Dashboard:** A user-friendly dashboard will present the categorized data, allowing for quick and easy access to the most relevant information.

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FEASIBILITY AND VIABILITY

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- **Technical Feasibility:** The use of existing tools like Puppeteer for scraping, Node.js for backend logic, and MongoDB for data storage ensures that the system is technically viable with current technologies.

- **Cost Efficiency:** Automation of data aggregation and categorization reduces labor costs, allowing resources to be redirected to critical disaster response activities, making the solution economically viable.

- **Scalability:** The use of scalable technologies like MongoDB and cloud-based deployment options ensures that the system can handle increasing data volumes and user demands.

- **Community Impact:** The platform’s ability to involve and empower communities by providing real-time information fosters trust and cooperation, enhancing the social viability of the system.

- **Market Demand:** With increasing reliance on real-time data for disaster management, the solution addresses a growing need, making it commercially viable for disaster response agencies.

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TECHNICAL APPROACH

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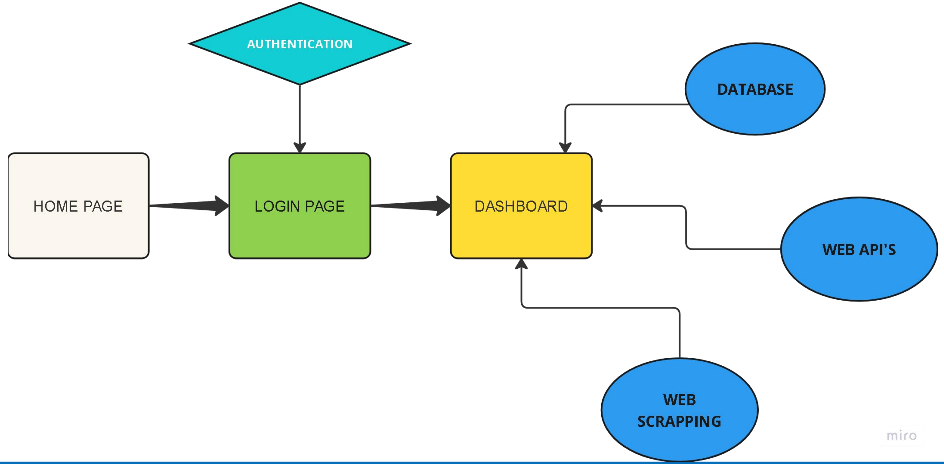
- **Scraping:** Task: Use Puppeteer (a Node.js library) for web scraping social media platforms, news websites, and other online sources to gather real-time disaster-related data.
- **Implement:** Task: Implement server-side logic with Node.js to categorize data into relevant disaster categories (e.g., floods, earthquakes, fires) and prioritize based on urgency.
- **Build:** Task: Build a responsive and user-friendly dashboard using HTML, CSS, and JavaScript to display aggregated data and visualizations.
- **Develop:** Task: Develop a notification system within the dashboard that can send real-time notifications to users about critical incidents.
- **Store:** Task: Store collected data in a MongoDB database. MongoDB's NoSQL nature allows for flexible and scalable data storage, ideal for managing diverse data types from various sources.



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IMPACT AND BENEFITS

- **Impact:**
    - **Enhanced Response Efficiency:** By aggregating real-time data and providing categorized insights, the system significantly improves the efficiency of disaster response teams in making timely decisions.
    - **Improved Situational Awareness:** Interactive maps and real-time notifications offer a comprehensive view of disaster situations, enhancing situational awareness for both responders and affected individuals.
    - **Effective Resource Allocation:** Categorized data helps prioritize disaster response efforts and allocate resources more effectively to areas in critical need.
    - **Increased Public Safety:** Real-time updates and notifications help keep the public informed about nearby incidents, contributing to overall safety and preparedness.
- **Benefits:**
    - **Timely Data Access:** Users receive immediate access to the latest disaster information, which is crucial for swift response and intervention.
    - **User-Friendly Interface:** The responsive dashboard offers an intuitive and accessible platform for viewing and interacting with disaster-related data.
    - **Comprehensive Data Integration:** Aggregating data from multiple sources provides a holistic view of disasters, leading to more informed decision-making.
    - **Scalable and Flexible Storage:** Using MongoDB for data storage ensures that the system can handle large volumes of data efficiently and scale as needed.

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RESEARCH AND REFERENCES

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- BOOTSTRAP
  - https://getbootstrap.com/
- NODE PACKAGE MANAGER
  - https://docs.npmjs.com/
- PUPPETEER
  - https://pptr.dev/category/introduction
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  - https://ndrf.gov.in/
- API INTEGRATION
  - https://rapidapi.com/hub