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DEPARTMENT OF COMPUTER ENGINEERING

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NAME	MATRICULE
FOFIE FOPA ELISABETH	FE21A189
MBISHU FABRICE YENVEN	FE21A232
EDI EDISON FORNANG	FE21A178
TAKOH CLOVERT NFUA	FE21A311
KIMBI CYRIL BONGNYU NFOR	FE21A216

COURSE INSTRUCTOR: DR NKEMINI Valery

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REQUIREMENTS ANALYSIS DISASTER MANAGEMENT SYSTEM

1. INTRODUCTION

In software development, the Requirements Analysis Report serves as a pivotal document, translating stakeholder needs into actionable requirements. It plays a vital role in guiding the development process by communicating, prioritizing, and analyzing requirements to ensure the successful delivery of the software project. Through thorough requirements analysis, potential risks are mitigated, stakeholder expectations are managed, and development efforts are aligned with project objectives. This report's significance lies in its ability to minimize rework, enhance stakeholder satisfaction, reduce project risks, and improve cost and time estimates.

A Disaster Management System, underscores the critical importance of requirements analysis in addressing complex challenges efficiently. This system, designed to monitor and respond to natural and man-made disasters, relies on comprehensive requirements gathering and analysis to provide real-time insights and proactive measures. By harnessing data from diverse sources, the system aims to minimize the adverse effects of disasters on lives, property, and the environment. The Requirements Analysis phase within the project seeks to capture, prioritize, and analyze requirements to ensure clarity, consistency, and feasibility, ultimately contributing to the system's effectiveness in disaster management.

2. REQUIREMENTS OVERVIEW

In this comprehensive section, we delve deeply into the gathered requirements for the Disaster Management System, meticulously categorize them into functional and non-functional segments, and thoroughly explore the roles of key stakeholders in shaping these requirements.

2.1 SUMMARY OF GATHERED REQUIREMENTS

Our journey towards understanding the Disaster Management System's requirements has been extensive and multifaceted, drawing insights from a myriad of sources including stakeholder interviews, meticulous technical documentation analysis, and rigorous review of industry standards. These requirements, serving as the bedrock upon which the system will be built, encapsulate a rich tapestry of user needs, system functionalities, and pertinent constraints.

The requirements reflect a nuanced understanding of the diverse needs of users spanning various segments of the population within Cameroon. They encompass not only the immediate needs of

individuals during disasters but also the strategic imperatives of local authorities and emergency responders. From the clarity of emergency reporting to the seamless management of alerts and the robustness of user authentication mechanisms, each requirement is meticulously crafted to ensure that the Disaster Management System stands poised to meet its objectives with unwavering efficacy and resilience.

2.2 CATEGORIZATION OF REQUIREMENTS

To provide a structured framework for the development of the Disaster Management System, the gathered requirements are systematically categorized into functional and non-functional segments. This categorization serves as a guiding beacon, illuminating the path towards a system that is not only operationally robust but also inherently adaptable to the dynamic challenges posed by disasters.

- **Functional Requirements:** At the heart of the system lie the functional requirements, delineating the precise actions and behaviors that the Disaster Management System must exhibit to meet the multifaceted needs of its users. From the swift responsiveness of emergency reporting mechanisms to the judicious management of alerts and the seamless authentication of users, each functional requirement is imbued with a sense of purpose and clarity, ensuring that the system stands ready to serve its users in their hour of need.
- **Non-functional Requirements:** Complementing the functional requirements are the non-functional requirements, which set the tone for the system's overarching performance, reliability, and security. From the scalability to accommodate sudden surges in usage during emergencies to the stringent data encryption protocols safeguarding user privacy, each non-functional requirement represents a cornerstone in the edifice of a robust and resilient Disaster Management System.

2.3 IDENTIFICATION OF KEY STAKEHOLDERS AND THEIR ROLES

At the heart of the requirements lie the invaluable contributions of key stakeholders, each playing a pivotal role in shaping the contours of the Disaster Management System. Their insights, experiences, and expertise serve as the guiding compass, ensuring that the system remains firmly rooted in the realities of the communities it seeks to serve.

- **End-users:** From individuals grappling with the immediate impact of disasters to communities banding together in the face of adversity, end-users form the beating heart of the Disaster Management System. Their needs, preferences, and experiences serve as the

bedrock upon which the system's functionalities are built, ensuring that it remains steadfastly aligned with their aspirations and expectations.

- **Government Agencies:** With their mandate to safeguard public safety and well-being, government agencies stand at the forefront of disaster response efforts. Their inputs, spanning the spectrum from strategic planning to operational execution, are instrumental in shaping the system's functionalities and ensuring its seamless integration into existing disaster management frameworks.
- **Insurance Companies:** For insurance companies, the Disaster Management System represents not only an opportunity to mitigate risk and enhance operational efficiency but also a means to foster greater resilience within the communities they serve. Their insights into risk assessment, resource allocation, and post-disaster recovery efforts provide invaluable inputs into the system's design and development, ensuring that it remains finely attuned to the imperatives of the insurance industry.

3. REQUIREMENTS PRIORITIZATION

In this section, we'll delve into the prioritization of requirements across various dimensions, including business, user, system, platform, and offline/online capabilities. Each dimension will be meticulously evaluated based on specific criteria to ensure coherence with the overarching objectives of the Disaster Management System.

3.1 BUSINESS REQUIREMENTS

Criteria:

- **Impact on Disaster Response:** Assessing the necessity of each requirement in enhancing the efficiency and efficacy of disaster response efforts.
- **Regulatory Compliance:** Evaluating whether the requirement ensures adherence to pertinent regulations, standards, and best practices in disaster management.
- **Strategic Alignment:** Determining the extent to which the requirement aligns with the strategic objectives and mission of the Disaster Management System.

3.1.1 PRIORITIZED BUSINESS REQUIREMENTS

1. **Impact on Disaster Response: Real-time Alerting System** Timely alerts are paramount for enabling swift decision-making and effective response coordination during

emergencies, significantly augmenting the system's overall capacity to mitigate risks and save lives.

2. **Regulatory Compliance: Data Privacy and Security Measures** Robust data privacy and security measures are indispensable for maintaining trust and compliance with data protection regulations, safeguarding sensitive information, and preventing unauthorized access or breaches.
3. **Strategic Alignment: Integration with External Systems** Integration with external systems enhances the system's functionality, interoperability, and data exchange capabilities, aligning with the strategic goal of creating a comprehensive and interconnected disaster management ecosystem.

3.2 USER REQUIREMENTS

Criteria:

- **User Needs and Expectations:** Evaluating how effectively each requirement addresses the needs, preferences, and expectations of end-users and stakeholders.
- **Usability and Accessibility:** Assessing whether the requirement enhances the usability and accessibility of the system for individuals with diverse abilities and technical backgrounds.
- **Feedback from Stakeholders:** Considering the insights and feedback gathered from stakeholders regarding the significance of each requirement.

3.2.1 PRIORITIZED USER REQUIREMENTS

1. **User Needs and Expectations: User Authentication and Access Control** Robust authentication mechanisms are pivotal for protecting user data, ensuring accountability, and preventing unauthorized access. Prioritizing user authentication enhances trust and confidence among users, fostering overall user satisfaction and system adoption.
2. **Usability and Accessibility: User-friendly Interface and Accessibility** A user-friendly interface and accessibility features augment system usability, making it easier for users to navigate and interact with the system, particularly during emergencies or high-stress situations. Prioritizing accessibility ensures inclusivity and facilitates effective utilization by individuals with diverse needs and abilities.
3. **Feedback from Stakeholders: Emergency Reporting and Incident Management**

Streamlined processes for emergency reporting and incident management cater to critical stakeholder needs, enabling efficient communication, coordination, and resource allocation during emergencies. Prioritizing these requirements reflects stakeholders' input and ensures that the system meets their expectations and operational requirements effectively.

3.3 SYSTEM REQUIREMENTS

Criteria:

- **Technical Feasibility:** Assessing the technical feasibility of each requirement within the constraints of available resources, technology stack, and development timelines.
- **Scalability and Performance:** Evaluating whether the requirement ensures scalability and optimal performance of the system, especially during peak usage periods and emergency situations.
- **Integration and Interoperability:** Determining how effectively the requirement facilitates seamless integration with external systems and data sources, enhancing interoperability and data exchange.

3.3.1 PRIORITIZED SYSTEM REQUIREMENTS

1. **Technical Feasibility: Scalability and Performance Optimization** Scalability and performance optimization measures are indispensable for ensuring that the system can handle surges in user traffic and maintain optimal performance during emergencies. Prioritizing these requirements guarantees the system's reliability and responsiveness under varying loads and operational conditions.
2. **Scalability and Performance: Integration with External Systems** Seamless integration with external systems enhances the system's functionality, interoperability, and data exchange capabilities, enabling efficient collaboration and information sharing with external stakeholders. Prioritizing integration ensures that the system can leverage existing resources and data sources effectively, enhancing overall operational efficiency and effectiveness.
3. **Integration and Interoperability: Integration with External Systems**
Integration with external systems facilitates data exchange, collaboration, and interoperability with government agencies, emergency services, and other stakeholders. Prioritizing integration ensures that the system can leverage external data sources and

services to enhance decision-making, response coordination, and resource allocation during emergencies.

3.4 PLATFORM REQUIREMENTS

Criteria:

- **User Reach:** Evaluating the extent to which each platform can reach and engage the target audience, including end-users, government agencies, and stakeholders.
- **Functionality and Features:** Assessing the capability of each platform to support essential functionalities and features required for effective disaster management and response.
- **Accessibility and Usability:** Determining the accessibility and usability of each platform, considering factors such as ease of navigation, intuitive design, and compatibility with assistive technologies.

3.4.1 PRIORITIZED PLATFORM REQUIREMENTS

Mobile Platform (Android and iOS):

1. **User Reach:** Mobile applications for both Android and iOS platforms will extend the reach of the Disaster Management System to users who prefer mobile devices for accessing information and responding to emergencies on-the-go.
2. **Functionality and Features:** The mobile applications will offer features tailored for mobile use, such as push notifications, location-based alerts, and offline access to essential resources, enhancing user engagement and responsiveness during emergencies.
3. **Accessibility and Usability:** Mobile applications will prioritize usability and accessibility, offering intuitive interfaces, gesture-based interactions, and support for accessibility features built into mobile operating systems, ensuring seamless navigation and usage for all users.

3.5 OFFLINE AND ONLINE CAPABILITIES

Criteria:

- **User Reach:** Evaluating how offline capabilities ensure accessibility to critical information and functionalities even in areas with limited or no internet connectivity, reaching users in remote or disaster-affected areas where online access may be unavailable.

- **Functionality and Features:** Assessing whether offline capabilities enable users to access cached data, view previously downloaded resources, and submit reports or requests offline, ensuring continuity of essential functionalities during internet outages or emergencies.
- **Accessibility and Usability:** Determining how offline features are designed with usability and accessibility in mind, offering clear guidance on offline functionality, seamless synchronization of data when connectivity is restored, and intuitive error handling to assist users in offline scenarios.

4. REQUIREMENTS CONSISTENCY AND COMPLETENESS

In this section, we delve into the thorough evaluation of the requirements' consistency and completeness for the Disaster Management System. It is paramount to ensure that the requirements are aligned, free from conflicts, and encompass all necessary functionalities and constraints to guarantee the system's effectiveness in disaster response scenarios.

4.1 EVALUATION OF REQUIREMENTS CONSISTENCY

Consistency among requirements is imperative to prevent contradictions and ensure a coherent framework for system development. Our evaluation focuses on cross-referencing requirements and identifying any discrepancies or conflicts that may arise.

4.1.1 ASSESSMENT:

- **Cross-Referencing:** Each requirement is systematically compared with others to identify any conflicting statements or overlapping functionalities.
- **Requirement Dependencies:** Dependencies between requirements are analyzed to ensure logical connectivity and avoid contradictions.

4.1.2 FINDINGS:

- **Consistency:** The requirements exhibit a commendable level of consistency, with minimal conflicts or contradictions identified during the evaluation process.
- **Clear Dependencies:** Dependencies between requirements are well-defined, ensuring that each requirement complements and supports others in achieving the system's objectives seamlessly.

4.2 ASSESSMENT OF REQUIREMENTS COMPLETENESS

Completeness of requirements is essential to ensure that all necessary functionalities, constraints, and user needs are adequately addressed. Our assessment focuses on evaluating if the requirements encompass all critical aspects of the Disaster Management System.

4.2.1 ASSESSMENT:

- **Functional Coverage:** We meticulously evaluate whether the requirements address all functional aspects of the system, including user interactions, data processing, and system behavior.
- **Non-Functional Coverage:** Our analysis extends to assessing if the requirements adequately cover non-functional aspects such as performance, security, usability, and scalability.

4.2.2 FINDINGS:

- **Functional Coverage:** The requirements comprehensively cover all functional aspects of the Disaster Management System. These include emergency reporting, real-time alerts, user authentication, and incident management, among others.
- **Non-Functional Coverage:** Non-functional requirements such as performance optimization, data security, accessibility, and integration with external systems are well-represented. This ensures that all critical aspects of system operation are addressed, enhancing its overall effectiveness.

5. FEASIBILITY ANALYSIS

In this section, we conduct a comprehensive feasibility analysis to assess the practicality and viability of implementing each requirement identified for the Disaster Management System. Our analysis considers various factors, including technical feasibility, financial implications, resource availability, and potential challenges or barriers to implementation.

5.1 TECHNICAL FEASIBILITY

Technical feasibility evaluates whether the proposed requirements can be implemented using available technology and infrastructure. We assess the compatibility of the requirements with existing systems, the complexity of development, and the availability of necessary expertise and tools.

1. **Assessment of Compatibility:** We examine whether the requirements align with the capabilities of existing technology platforms and infrastructure.
2. **Complexity Analysis:** We evaluate the technical complexity of implementing each requirement, considering factors such as data integration, system scalability, and software dependencies.

3. **Resource Availability:** We assess the availability of technical expertise, software development resources, and infrastructure required to implement the requirements effectively.

5.1.1 FINDINGS:

- **Compatibility:** Most requirements align well with existing technology platforms and infrastructure, leveraging widely-used frameworks and programming languages.
- **Complexity:** Some requirements, such as real-time data processing and integration with external systems, may pose technical challenges due to their complexity and dependencies.
- **Resource Availability:** Adequate technical expertise and resources are available within the organization, supplemented by external partnerships or consulting services if needed.

5.2 FINANCIAL FEASIBILITY

Financial feasibility evaluates the cost implications of implementing the requirements, including development costs, hardware and software expenses, and ongoing maintenance and support expenses.

1. **Cost Estimation:** We estimate the upfront and ongoing costs associated with developing and maintaining the system, including software development, hardware procurement, licensing fees, and personnel expenses.
2. **Budgetary Considerations:** We assess whether the projected costs align with the available budget and funding sources for the project.
3. **Return on Investment (ROI):** We analyze the potential benefits and value generated by implementing the requirements compared to the associated costs, considering factors such as improved disaster response effectiveness and operational efficiency.

5.2.1 FINDINGS:

- **Cost Estimation:** The estimated development and maintenance costs are within the allocated budget, considering the organization's financial resources and funding priorities.
- **Budgetary Considerations:** The projected costs align with the available budget, with provisions for contingencies and unexpected expenses.
- **ROI Analysis:** The anticipated benefits, including improved disaster response capabilities and community resilience, justify the investment in implementing the requirements, providing a positive ROI over the system's lifecycle.

5.3 RESOURCE CONSTRAINTS AND CHALLENGES

Resource constraints and challenges encompass factors such as time limitations, competing priorities, and external dependencies that may impact the feasibility of implementing certain requirements.

1. **Time Constraints:** We consider the project timeline and deadlines, identifying potential bottlenecks or delays that may affect the implementation schedule.
2. **Competing Priorities:** We assess the availability of human and financial resources, recognizing competing priorities within the organization that may affect resource allocation for the project.
3. **External Dependencies:** We identify dependencies on external stakeholders, regulatory approvals, or third-party vendors that may introduce delays or dependencies beyond our control.

5.3.1 FINDINGS:

- **Time Constraints:** The project timeline allows sufficient time for requirement implementation, with contingency plans in place to mitigate potential delays.
- **Competing Priorities:** Resources are allocated according to project priorities, with clear communication and coordination among teams to minimize conflicts and ensure smooth execution.
- **External Dependencies:** Dependencies on external stakeholders or regulatory approvals are identified and managed proactively through effective communication and collaboration.

6. IMPACT ANALYSIS

In this section, we conduct a detailed analysis of the potential impact of changes to requirements on various aspects of the project, including scope, schedule, budget, dependencies, and risks. Understanding these implications is crucial for effective project management and decision-making throughout the development process.

6.1 ANALYSIS OF IMPACT ON PROJECT SCOPE, SCHEDULE, AND BUDGET

Changes to requirements can significantly impact the project's scope, schedule, and budget. We analyze how modifications to requirements may affect these key project elements and develop strategies to manage any resulting challenges.

1. **Scope Impact:** Changes to requirements may result in expanding or narrowing the project scope. For example, adding new features or functionalities may broaden the scope, while removing certain requirements may reduce it.
2. **Schedule Impact:** Any changes to requirements can affect project timelines. Additional requirements may extend development time, while removing requirements may accelerate progress. Evaluating these impacts is crucial for maintaining realistic project schedules.
3. **Budget Impact:** Alterations to requirements can have financial implications, including additional development costs, resource reallocation, or changes in procurement needs. Understanding these impacts is essential for budget management and allocation.

6.2 IDENTIFICATION OF DEPENDENCIES

Requirements often have dependencies on other project elements, such as technical components, resources, and external stakeholders. We identify these dependencies to understand how changes to requirements may affect other aspects of the project.

1. **Technical Dependencies:** Changes to requirements may impact technical components or systems, requiring modifications to system architecture, integrations, or development tools. Identifying these dependencies helps in assessing the technical feasibility of requirement changes.
2. **Resource Dependencies:** Requirements may depend on human resources, equipment, or infrastructure. Changes to requirements can affect resource allocation, availability, or skill requirements, necessitating adjustments in project planning and staffing.
3. **Stakeholder Dependencies:** Stakeholders, including external parties like regulatory bodies or vendors, may be impacted by requirement changes. Understanding these dependencies helps in managing stakeholder expectations, communication channels, and collaboration efforts.

6.3 ANALYSIS OF IMPACT ON PROJECT RISKS

Changes to requirements can introduce or exacerbate project risks, affecting project outcomes and success. We analyze how requirement changes may influence project risks and develop strategies to mitigate them effectively.

1. **Risk Identification:** Changes to requirements may introduce risks such as scope creep, resource constraints, or stakeholder dissatisfaction. Identifying these risks early allows for proactive risk management.

2. **Risk Assessment:** We assess the likelihood and impact of identified risks, prioritizing them based on their potential to affect project objectives and success. This assessment informs risk mitigation strategies and resource allocation.
3. **Risk Mitigation:** Mitigating risks associated with requirement changes requires proactive planning and communication. Strategies may include stakeholder engagement, contingency planning, or iterative development approaches to address evolving project needs.

7. SWOT ANALYSIS

In this section, we conduct a detailed SWOT analysis to thoroughly evaluate the internal strengths and weaknesses of the project, as well as external opportunities and threats. Additionally, we compare the project with the existing system to provide a comprehensive understanding of its strategic position.

7.1 STRENGTHS

Strengths represent internal factors that contribute positively to the project's success. Identifying these factors allows the project team to leverage existing advantages effectively.

1. **Technological Advancements:** The project benefits from access to cutting-edge technology, including AI, IoT, and data analytics. This enables the development of a highly sophisticated disaster management system capable of real-time monitoring, predictive analytics, and efficient resource allocation.
2. **Expertise and Experience:** The project team consists of seasoned professionals with extensive experience in software development, disaster management, and related fields. Their collective expertise ensures high-quality deliverables and effective project execution.
3. **Stakeholder Support:** Key stakeholders, including government agencies, insurance companies, and end-users, are actively engaged and supportive of the project. Their collaboration provides valuable insights, resources, and buy-in, facilitating project success.

7.2 WEAKNESSES

Weaknesses denote internal factors that may hinder the project's progress or effectiveness. Identifying these areas allows for proactive mitigation strategies to address potential challenges.

1. **Resource Constraints:** The project faces limitations in terms of budgetary constraints and staffing availability. Limited resources may impact the project's ability to meet all

requirements within the specified timeline, leading to potential delays or compromises in quality.

2. **Complexity of Integration:** Integrating the new system with existing infrastructure and legacy systems poses technical challenges. Compatibility issues, data migration complexities, and interoperability concerns may arise, requiring careful planning and coordination.
3. **Dependency on External Factors:** The project's success is contingent upon factors outside its control, such as regulatory approvals, third-party dependencies, and changes in government policies. Uncertainties in these areas may introduce risks and delays to project implementation.

7.3 OPPORTUNITIES

Opportunities represent external factors that the project could leverage to its advantage. Identifying these opportunities enables strategic planning and resource allocation to maximize project benefits.

1. **Market Demand:** There is a growing demand for advanced disaster management solutions globally, driven by increasing environmental risks, urbanization, and the need for efficient response mechanisms. The project can capitalize on this demand to expand its market reach and impact.
2. **Partnership Opportunities:** Collaboration with government agencies, non-profit organizations, and technology partners presents opportunities for knowledge sharing, resource pooling, and mutual support. Strategic partnerships can enhance the project's credibility, visibility, and scalability.
3. **Technological Advancements:** Rapid advancements in technology offer opportunities to enhance the capabilities and effectiveness of the project. Leveraging AI, IoT, and data analytics enables the development of innovative features, predictive models, and actionable insights for disaster management.

7.4 THREATS

Threats represent external factors that could potentially pose risks to the project's success. Identifying these threats allows for proactive risk management and mitigation strategies.

1. **Regulatory Challenges:** Changes in regulations or compliance requirements may impact project implementation. Legal constraints, data privacy regulations, and bureaucratic hurdles may introduce delays or constraints to project execution.

2. **Security Risks:** The project may face security threats such as data breaches, cyber-attacks, or vulnerabilities in the system. Ensuring robust cybersecurity measures, encryption protocols, and access controls is essential to safeguard user data and system integrity.
3. **Competitive Landscape:** Competition from existing solutions or new market entrants poses a threat to the project's market share and adoption rate. Established competitors, proprietary systems, or alternative approaches may challenge the project's differentiation and value proposition.

The detailed SWOT analysis provides a comprehensive assessment of the project's internal strengths and weaknesses, as well as external opportunities and threats. By leveraging strengths, addressing weaknesses, capitalizing on opportunities, and mitigating threats, the project can maximize its chances of success and deliver value to stakeholders. Additionally, comparing the project with the existing system highlights its strategic position and potential for improvement, guiding strategic decision-making and resource allocation throughout the project lifecycle.

8. TRACEABILITY MATRIX AND REQUIREMENTS ANALYSIS TEST CASES

In this section, we combine the development of a traceability matrix with the test cases conducted during the requirements analysis phase to ensure comprehensive coverage and verification of requirements.

8.1 DEVELOPMENT OF TRACEABILITY MATRIX

The traceability matrix establishes clear links between project requirements, objectives, stakeholders, and test cases, facilitating requirements management and verification.

1. **Requirements:** Each requirement is listed in the first column, detailing its specific functionality, feature, or constraint.
2. **Project Objectives:** Requirements are linked to project objectives they aim to fulfill, ensuring alignment with broader project goals.
3. **Stakeholders:** Stakeholders associated with each requirement are identified to understand their specific needs and priorities.
4. **Test Cases:** Each requirement is mapped to corresponding test cases to verify its implementation and functionality.

8.2 ASSESSMENT OF TRACEABILITY COVERAGE AND GAPS

The traceability matrix is evaluated to assess the coverage of requirements, objectives, stakeholders, and test cases and identify any gaps or inconsistencies.

1. **Coverage Analysis:** We evaluate the extent to which requirements are linked to project objectives, stakeholders, and test cases to ensure comprehensive coverage.
2. **Gap Identification:** Any missing links or discrepancies in the matrix are identified as gaps, indicating areas where requirements may not be adequately supported or verified.

8.3 TRACEABILITY MATRIX EXAMPLE

Below is an example of a simplified traceability matrix incorporating test cases:

Requirement ID	Requirement Description	Project Objectives	Stakeholders	Test Cases
REQ-001	User registration and authentication	Objective 1	End-users	Test Case 1, 2, 3
REQ-002	Emergency alert creation	Objective 2	Government agencies	Test Case 4, 5
REQ-003	Volunteer notification	Objective 3	NGOs, Volunteers	Test Case 6
REQ-004	Incident reporting	Objective 4	Insurance companies	Test Case 7,8

8.4 ASSESSMENT FINDINGS

- **Coverage Analysis:** The traceability matrix demonstrates comprehensive coverage, with each requirement mapped to corresponding project objectives, stakeholders, and test cases.
- **Gap Identification:** No significant gaps or inconsistencies are observed in the matrix, indicating that all project components are adequately supported and aligned.

9. RISK ASSESSMENT

In this section, we conduct a comprehensive risk assessment to identify potential risks associated with the project requirements, evaluate their impact and likelihood, and provide recommendations for mitigating or managing these risks effectively.

9.1 IDENTIFICATION OF POTENTIAL RISKS

- **Incomplete Requirements:** Insufficiently defined or unclear requirements may lead to misunderstandings, rework, and delays in project delivery.
- **Scope Creep:** Expansion of project scope without proper control may result in increased costs, timeline extensions, and resource depletion.
- **Technological Challenges:** Complex integration requirements or reliance on emerging technologies may pose technical hurdles and implementation risks.
- **Resource Constraints:** Limited budget, staffing, or infrastructure may impact the project's ability to meet requirements effectively.
- **Stakeholder Conflicts:** Conflicting interests or divergent priorities among stakeholders may lead to disagreements and hinder requirement alignment.
- **Regulatory Compliance:** Changes in regulations or compliance requirements may necessitate adjustments to project requirements and increase project complexity.

9.2 EVALUATION OF RISK IMPACT AND LIKELIHOOD

Evaluation	Impact	Likelihood
Incomplete Requirements	High	Medium
Scope creep	High	Medium
Technological Challenges	Medium to High	Medium to Low
Resource Constraints	Medium	Medium to High
Stakeholder Conflicts	Medium	Medium
Regulatory Compliance	Medium	Low to Medium

9.3 RECOMMENDATIONS FOR RISK MITIGATION

1. **Requirements Management:** Implement robust requirements management processes to ensure clarity, completeness, and alignment with stakeholder needs throughout the project lifecycle.
2. **Scope Control:** Establish clear change control procedures to manage scope changes effectively and prevent scope creep. Regularly review and prioritize requirements to maintain focus on project objectives.

3. **Technology Assessment:** Conduct thorough assessments of technological requirements and capabilities to identify potential challenges early. Consider phased implementation or pilot testing for complex technologies.
4. **Resource Planning:** Allocate resources appropriately and monitor resource utilization closely to mitigate the impact of resource constraints. Seek additional funding or resources if necessary.
5. **Stakeholder Engagement:** Foster open communication and collaboration among stakeholders to resolve conflicts and promote consensus on project requirements. Establish clear channels for feedback and decision-making
6. **Regulatory Compliance Monitoring:** Stay informed about relevant regulations and compliance requirements, and proactively adapt project requirements and plans to ensure compliance. Engage legal or regulatory experts as needed.

10. RECOMMENDATIONS AND ACTION PLAN

In this section, we provide a detailed summary of the recommendations based on the findings of the requirements analysis, along with an action plan for addressing identified gaps, conflicts, or risks. We also prioritize next steps for moving forward with the project effectively.

10.1 SUMMARY OF RECOMMENDATIONS

1. Refinement of Requirements:

- Conduct a comprehensive review of project requirements to ensure clarity, completeness, and alignment with stakeholder needs.
- Address any ambiguities, inconsistencies, or missing information identified during the analysis.
- Document all changes or updates to requirements and obtain stakeholder approval before proceeding with implementation.

2. Stakeholder Engagement:

- Develop a stakeholder engagement plan outlining communication strategies, meeting schedules, and feedback mechanisms.
- Establish regular communication channels for soliciting feedback, addressing concerns, and keeping stakeholders informed of project progress.
- Assign responsibilities for engaging with stakeholders and managing stakeholder relationships effectively throughout the project lifecycle.

3. Scope Management:

- Implement robust scope management processes to control scope changes and prevent scope creep.
- Define clear project boundaries and objectives to maintain focus on delivering value within defined constraints.
- Establish formal change control procedures and governance mechanisms for evaluating and approving scope changes.

4. Risk Mitigation:

- Develop a comprehensive risk management plan to identify, assess, and mitigate potential risks associated with project requirements.
- Assign risk owners and develop contingency plans for high-priority risks to minimize their impact on project outcomes.
- Monitor risks closely throughout the project lifecycle and take proactive measures to address emerging risks as they arise.

5. Technology Assessment:

- Conduct a detailed assessment of technological requirements and capabilities to identify potential challenges or constraints.
- Evaluate alternative technologies or solutions to address technological risks effectively and ensure compatibility, scalability, and reliability.
- Consider pilot testing or proof-of-concept projects to validate technology choices and mitigate implementation risks.

10.2 ACTION PLAN

1.Requirements Refinement:

- Schedule meetings with stakeholders to review and refine project requirements based on the analysis findings.
- Document all changes or updates to requirements and circulate revised requirement documents for stakeholder review and approval.

2. Stakeholder Engagement Plan:

- Develop a stakeholder engagement plan outlining communication strategies, meeting schedules, and feedback mechanisms.
- Assign roles and responsibilities for engaging with stakeholders and managing stakeholder relationships effectively.

3. Scope Management Procedures:

- Establish formal change control procedures and governance mechanisms for managing project scope.
- Define criteria for evaluating proposed changes and establish a change control board to review and approve scope changes.

4. Risk Management Plan:

- Develop a risk management plan outlining risk identification, assessment, mitigation, and monitoring strategies.
- Assign risk owners and develop contingency plans for high-priority risks to minimize their impact on project outcomes.

5. Technology Assessment:

- Conduct a detailed assessment of technological requirements and capabilities, considering factors such as compatibility, scalability, and reliability.
- Explore pilot testing or proof-of-concept projects to validate technology choices and mitigate implementation risks.

10.3 PRIORITIZATION OF NEXT STEPS

1. Immediate Priorities:

- Address high-priority requirements, risks, and conflicts identified during the analysis to prevent potential project delays or setbacks.
- Focus on resolving critical issues that may impact project success or stakeholder satisfaction.

2. Iterative Development:

- Adopt an iterative approach to requirements refinement and project planning, allowing for continuous feedback and adaptation.
- Prioritize requirements based on stakeholder needs and project objectives to ensure the delivery of value-added features.

3. Continuous Improvement:

- Establish mechanisms for ongoing monitoring, evaluation, and improvement of project processes and outcomes.
- Encourage a culture of continuous learning and adaptation to ensure project success in dynamic environments.

4. Resource Allocation:

- Allocate resources strategically to support key project activities, such as requirements refinement, stakeholder engagement, and risk management.
- Prioritize resource allocation based on project priorities and resource availability to optimize project outcomes.

11. CONCLUSION

In this concluding section, we summarize the key findings from the requirements analysis, reflect on the significance of the requirements analysis process for the success of the project, and confirm the alignment between requirements and project objectives.

11.1 KEY FINDINGS FROM REQUIREMENTS ANALYSIS

Through the requirements analysis process, we have gained valuable insights into the needs, priorities, and expectations of stakeholders regarding the disaster management system project. We have identified and documented a comprehensive set of functional and non-functional requirements, covering aspects such as user management, emergency reporting and response, notification and communication, backend integration, and AI utilization. Additionally, we have conducted user research to understand user preferences, behaviors, and challenges related to disaster preparedness and response in Cameroon. The findings from user research have informed the design and development of a user-centric disaster management application tailored to the specific needs of Cameroonians.

11.2 SIGNIFICANCE OF REQUIREMENTS ANALYSIS PROCESS

The requirements analysis process plays a crucial role in ensuring the success of the project by laying the foundation for the development of a solution that meets stakeholder needs and objectives. By conducting a thorough analysis of requirements, we can:

- Identify and prioritize key features and functionalities essential for addressing stakeholder needs.
- Minimize the risk of scope creep, ambiguity, and misalignment with project objectives.
- Facilitate effective communication and collaboration among project stakeholders.
- Enhance the likelihood of delivering a high-quality solution that adds value to end-users and stakeholders.

11.3 CONFIRMATION OF ALIGNMENT WITH PROJECT OBJECTIVES

The requirements analysis findings confirm alignment between project requirements and objectives. By addressing the identified user needs and challenges, the disaster management system project aims to enhance disaster preparedness, response coordination, and community resilience in Cameroon. The documented requirements reflect a clear understanding of stakeholder priorities and preferences, ensuring that the proposed solution aligns with the overarching goals of the project.

In conclusion, the requirements analysis process serves as a critical foundation for the successful delivery of the disaster management system project. By systematically gathering, analyzing, and documenting requirements, we can develop a solution that effectively addresses stakeholder needs, fulfills project objectives, and delivers tangible value to the community. Moving forward, the insights gained from the requirements analysis will guide the design, development, and implementation phases of the project, ensuring that the final solution meets the expectations and requirements of all stakeholders involved.