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UNIVERSITI MALAYSIA PAHANG
AL-SULTAN ABDULLAH

BCS 3263
SOFTWARE QUALITY ASSURANCE

SEMESTER II 2023/2024

ASSIGNMENT: PROJECT PROPOSAL

PROJECT NAME: QUIZIFY

LECTURER'S NAME: ROSLINA BINTI MOHD SIDEK

SECTION: 01B

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Contents

1.0 PURPOSE AND SCOPE

PURPOSE:

This project proposes the development of a web-based management system for a quiz management system named ‘Quizify’. The objective is to design a user-friendly online application for the educational domain, where enabling users to engage with a diverse range of quizzes. The system will streamline essential operations, including manage user profile, manage subject, manage quiz and manage question.

SCOPE:

This document serves as te software quality assurance plans for the "Quizify" system. This document will be detailing the task and processure to ensure that the system delivery is effective and smooth. The importance factors that we should take in consideration are as follow:

i) Provide an overview of the SQA Planning document.
ii) Specify the SQA procedures that will be used to evaluate all phases of software development lifecycle.
iii) Determine the risks to the "Quizify" system and establish plans to overcome the risk

2.0 DEFINITIONS AND ACRONYMS

Software Quality Assurance (SQA) encompasses a comprehensive and methodical approach to ensure that software products and the various processes involved in the development adhere meticulously to predetermined requirements and standards of excellence. It is a multifaceted discipline that involves strategic planning, ongoing monitoring, meticulous reviewing, exhaustive testing, and continuous refinement of software development activities and deliverables. Through careful orchestration of these activities, SQA aims to detect and rectify defects and proactively identify areas for improvement, thereby enhancing the overall quality, reliability, and usability of software systems. In essence, SQA is the guardian of quality throughout the software development lifecycle, fostering a culture of excellence and continuous improvement within development teams and organizations.

Acronyms	**Definition**
SDLC	Software Development Lifecycle
SRS	Software Requirement Specification
SDD	Software Design Document
SQA	Software Quality Assurance
SQAP	Software Quality Assurance Plan

3.0 REFERENCES

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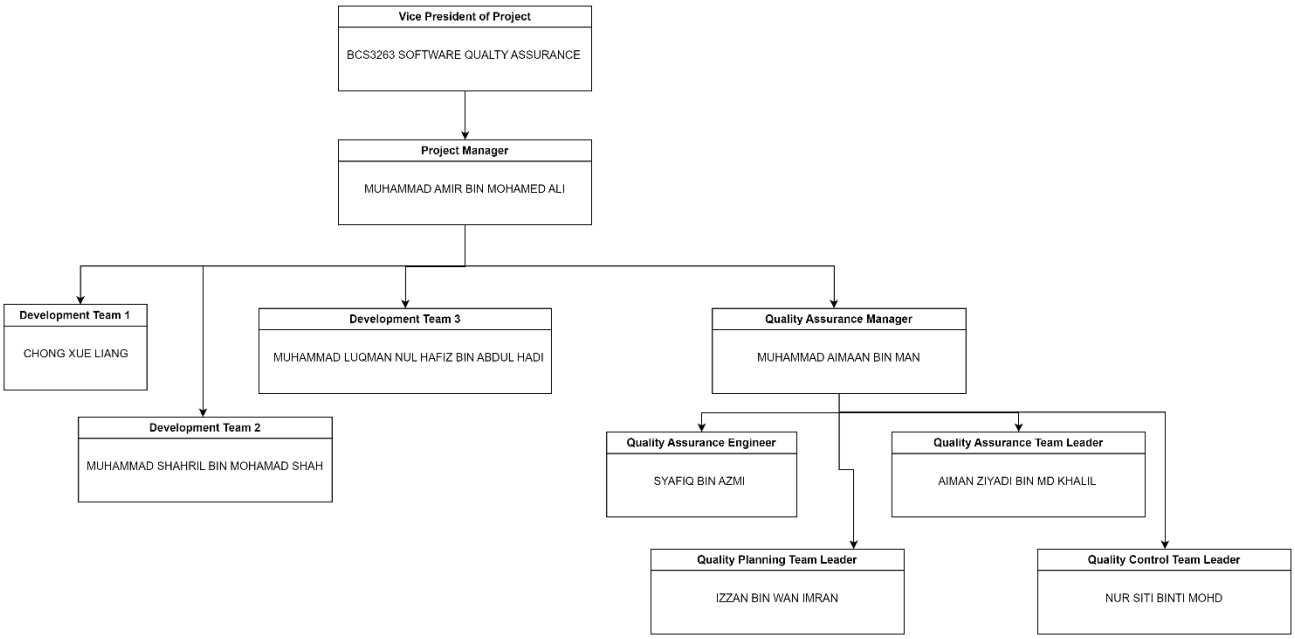
4.0 SQA PLAN OVERVIEW

4.1 ORGANIZATION AND INDEPENDENCE

Organization



Role	Assigned to	Responsibilities
Project Manager	MUHAMMAD AMIR BIN MOHAMED ALI	• Ensure quality standards and requirements are met • Monitor progress and adjust plans as needed • Define project scope, goals, and deliverables • Manage Question module
Development Team 1	CHONG XUE LIANG	• Develop software according to project requirements • Test and debug software to ensure quality • Document code and technical processes • Communicate progress and challenges to project manager
Development Team 2	MUHAMMAD SHAHRIL BIN MOHAMAD SHAH	
Development Team 3	MUHAMMAD LUQMAN NUL HAFIZ BIN ABDUL HADI	

		• Team 1: Develop user Account Module • Team 2: Develop Subject Module • Team 3: Develop Quiz Module
Quality Assurance Manager	MUHAMMAD AIMAAN BIN MAN	• Oversee testing activities to ensure software meets quality standards • Develop and implement quality assurance policies and procedures • Define testing strategies and methodologies • Collaborate with development team to resolve defects
Quality Assurance Engineer	SYAFIQ BIN AZMI	• Design and execute test plans and cases • Identify and report software defects • Conduct thorough analysis of test results • Document and communicate test findings
Quality Planning Team Leader	IZZAN BIN WAN IMRAN	• Lead the planning and execution of quality activities • Monitor and track progress towards quality goals • Provide guidance and support to team members • Assign tasks and responsibilities to team members
Quality Assurance Team Leader	AIMAN ZIYADI BIN MD KHALIL	• Review test plans and strategies • Monitor test execution and results • Lead and supervise the QA team

		• Coordinate testing activities and assignments
Quality Control Team Leader	NUR SITI BINTI MOHD	• Collaborate with other departments to improve quality processes • Develop and enforce quality control procedures • Supervise the quality control team's activities • Ensure compliance with quality standards and regulations

4.2 SOFTWARE PRODUCT RISK

Risk	Risk Description	Mitigation
User Profile Handling Risk	These functionalities are critical for ensuring the security, integrity, and privacy of user information. Any weaknesses or flaws in these processes could lead to unauthorized access, data breaches, or incorrect user data management, posing risks to the overall functionality and security of the software product.	Implementation of Strong authentication methods like multi-factor authentication should be employed to enhance login security, while regular security audits help identify and address vulnerabilities promptly. Role-based access control ensures users have appropriate access levels, and encrypting sensitive data adds an extra layer of protection.
Manage Subject Handling Risk	The system involves potential inconsistencies or errors in subject management tasks. This includes inaccuracies in adding, updating, deleting, or enabling/disabling subjects within the system. Such discrepancies can lead to	Implementing validation checks and user permissions to ensure accurate subject management. Providing training and guidelines for administrators on proper subject management procedures can also help mitigate the risk of

	confusion among users, incorrect quiz content, or disruptions in the availability of quizzes for users.	errors. Additionally, incorporating automated auditing and logging functionalities can aid in tracking changes made to subjects, enabling quick identification and resolution of any discrepancies.
Manage Quiz Handling Risk	The system involves the potential for errors or discrepancies in the quiz data due to manual input or manipulation. This includes inaccuracies in quiz details such as titles, dates, times, or subjects, which could lead to confusion or incorrect information being displayed to users. Additionally, there is a risk of unintentional deletion of quizzes or incorrect enabling/disabling of quiz statuses, resulting in loss of data or disruption of service.	Implementing validation checks and verification mechanisms during quiz creation and modification processes can help ensure the accuracy of entered data. This includes verifying the correctness of quiz details such as titles, dates, and subjects before allowing them to be saved or updated in the system. Secondly, providing user permissions and access controls can restrict the deletion or modification of quizzes to authorized administrators only, reducing the likelihood of accidental data loss or disruption.
Manage Question Handling Risk	The system pertains to potential inaccuracies or inconsistencies in the handling of questions within quizzes. This includes the addition, modification, or deletion of questions, as well as the designation of correct answers and enabling/disabling questions. Errors in these actions could result in incorrect assessments, negatively impacting the overall	Implementing robust quality assurance procedures and user permission mechanisms. This includes comprehensive user training to ensure administrators understand the correct processes for adding, updating, and deleting questions, as well as assigning accurate answers. Access controls based on user roles will limit unauthorized changes, while

	integrity and effectiveness of quizzes administered through the system. Additionally, inadequate tracking of question usage and categorization may lead to difficulties in organizing and retrieving relevant questions, further exacerbating the risk of inaccuracies and inefficiencies in quiz management.	version tracking and validation processes will ensure accuracy and protect against errors. Regular assessments of the question repository and quiz database will be conducted to maintain reliability and consistency.

4.3 TOOLS

Tool	Description
Laragon	It is a flexible developer server solution for Windows that integrates PHP, Apache and MySQL.
Laravel	It will serve as the foundation for creating and hosting the “Quizify” website. It will be employed to handle the client interactions and provide user interfaces.
MySQL	An open-source relational database management system. All data in "Quizify" will be stored and validate in MySQL.
Microsoft Word	A word processor developed by Microsoft. It mainly used for creating documents for customer. All progress should be written down in the documents as a record for reviewing.
GitHub	A version control system manages the repository of the system and version history.

4.4 STANDARD, PRACTICES, AND CONVENTIONS

Step of the life cycle	Intermediary Deliverable	Standard, Practices, or Conventions
Planning	Project Proposal	Quizify portfolio requirements
Planning	SQAP	IEEE Std 730-1-1995
Programming	Source Code	Laravel
Design	Mockups Design	Quizify portfolio requirements
Transition to Production	Technical Documentation	A local production criteria and checklist

4.5 EFFORT, RESOURCES, AND SCHEDULE

Effort:

- SQAP Development:

  Entails creating the Software Quality Assurance Plan (SQAP), which outlines quality processes, standards, and procedures aimed at upholding the project's overall quality.

- Documentation:

Effort, resource allocation, and schedule details will be documented and maintained throughout the project, with any changes or updates promptly documented and communicated to the project team.

- Manage User Account Module Development:

  This involves overseeing the creation and implementation of the user account module within the Quizify system, which includes functionalities such as user registration, login, profile management, and authentication.

- Manage Subject Module Development:

  This task involves supervising the development of the subject module within the Quizify system, which encompasses functionalities related to managing and organizing different subjects or topics, such as adding, editing, and deleting subjects.

- Manage Quiz Module Development:

  This entails managing the development process of the quiz module within the Quizify system, which includes functionalities for creating, editing, and administering quizzes, as well as features for users to take quizzes and view results.

- Manage Questions Module Development:

This task involves supervising the development of the questions module within the Quizify system, which includes functionalities for creating, editing, and managing questions that can be used in quizzes or assessments, as well as features for categorizing and organizing questions.

Resources:

- People: Development teams, quality experts, quality control team.
- Tools: Laragon, Laravel, MySQL, Microsoft Word, and GitHub.
- Equipment: Computer and database

Schedule:

Phase	Duration
SQAP Development	2-4 weeks
Documentation	Throughout the project
Overall modules development	6-8 weeks
Quality Assurance	Throughout the project

5.0 ACTIVITIES AND OUTCOME AND TASK

5.1 PRODUCT ASSURANCE

5.1.1 MODULE: MANAGE QUESTION (MUHAMMAD AMIR BIN MOHAMED ALI)

5.1.1.1 USABILITY

Usability Assurance Activities:

1. **Evaluate Interface Design:** Assess the intuitiveness and user-friendliness of the question-adding interface in the Laravel environment. Ensure administrators can easily input question text and answer options without confusion or unnecessary complexity.

2. **Evaluate Plans for Conformance:** Review the project plan to ensure alignment with usability goals. Examine the section related to interface design, confirming that it outlines steps to achieve intuitiveness and user-friendliness.

3. **Evaluate Products for Conformance:** Inspect the actual question-adding interface within the Laravel environment. Confirm that the interface design adheres to the plans outlined in the project documentation, focusing on aspects related to intuitiveness and user-friendliness.

4. **Evaluate User Feedback Integration:** Assess how feedback from usability testing sessions and prototype evaluations is integrated into the interface design process. Verify that suggestions for improving usability are systematically considered and implemented.

5. **Evaluate Plans for Acceptability:** Review the project plan to ensure it addresses stakeholder expectations for usability. Verify that acceptability criteria, such as ease of use and clarity, are clearly defined and aligned with user needs.

6. **Evaluate Accessibility Compliance:** Ensure the question-adding interface meets accessibility standards, providing an inclusive user experience for all administrators. Verify compatibility with assistive technologies and incorporate accessibility best practices.

7. **Evaluate Product Life Cycle Support for Conformance:** Examine the maintenance schedule for the question-adding interface module. Ensure regular updates include checks for usability improvements and support activities that address usability-related issues administrators report.

8. **Measure Usability**: Implement measurements and metrics, such as task completion time and user satisfaction scores, to evaluate the usability of the question-adding interface. Collect and analyze data to verify that administrators can easily input question text and answer options.

Outcome Tasks:

1. **Interface Evaluation:** Confirm that the question-adding interface is intuitive and user-friendly, enabling administrators to quickly input question text and answer options.

2. **User Feedback Integration:** Ensure feedback from usability testing sessions and prototype evaluations is systematically integrated into the interface design process to improve usability.

3. **Accessibility Compliance:** Verify that the question-adding interface meets accessibility standards, providing an inclusive user experience for all administrators.

4. **Continuous Improvement:** Incorporate usability improvements into the product life cycle, addressing issues identified through ongoing evaluation and feedback.

5.1.1.2 RELIABILITY

Reliability Assurance Activities:

1. **Evaluate Deletion Functionality Implementation:** Assess the implementation of the deletion functionality in the Laravel environment. Verify that it is robust and can permanently remove questions from the system without unintended consequences or data loss.

2. **Evaluate Plans for Conformance:** Review the project plan to ensure alignment with reliability objectives. Examine the section related to deletion functionality, confirming that it outlines steps to achieve robustness and prevent data loss during deletion operations.

3. **Evaluate Products for Conformance:** Inspect the actual deletion functionality within the Laravel environment. Confirm that the implementation adheres to the plans outlined in the project documentation, focusing on reliability aspects such as error handling and data integrity preservation.

4. **Evaluate User Acceptance Plans:** Review plans for user acceptance testing of the deletion functionality. Ensure that test cases cover various scenarios, including deletion of single and multiple questions, to validate Reliability under different conditions.

5. **Evaluate Product Life Cycle Support for Conformance:** Examine the maintenance schedule for the deletion functionality module. Ensure that regular updates include checks for reliability improvements and support activities focused on addressing reliability-related issues reported by users.

6. **Measure Reliability:** Implement measurements and metrics, such as error and successful deletion rates, to evaluate the Reliability of the deletion functionality. Collect and analyze data to verify that questions are permanently removed without unintended consequences or data loss.

Outcome Tasks:

1. **Functionality Evaluation:** Confirm that the deletion functionality is robust and can permanently remove questions from the system without unintended consequences.

2. **User Acceptance Testing:** Ensure that user acceptance testing validates the Reliability of the deletion functionality under various scenarios.

3. **Continuous Improvement:** Incorporate reliability improvements into the product life cycle, addressing issues identified through ongoing evaluation and feedback.

5.1.1.3 SECURITY

Security Assurance Activities:

1. **Evaluate Access Control Implementation:** Assess the implementation of access controls in the Laravel environment to restrict the deletion of questions. Verify that only authorized users have the necessary permissions to delete questions, preventing accidental or malicious deletions.

2. **Evaluate Plans for Conformance:** Review the project plan to ensure alignment with security objectives. Examine the section related to access control for question deletion, confirming that it outlines steps to implement robust access control mechanisms.

3. **Evaluate Products for Conformance:** Inspect the actual implementation of access controls within the Laravel environment. Confirm that the implemented access control mechanisms adhere to the plans outlined in the project documentation, focusing on preventing unauthorized deletions.

4. **Evaluate User Acceptance Plans:** Review plans for user acceptance testing of access controls for question deletion. Ensure that test cases cover various scenarios, including attempts to delete questions by unauthorized users, to validate the effectiveness of access controls.

5. **Evaluate Product Life Cycle Support for Conformance:** Examine the maintenance schedule for the access control module. Ensure that regular updates include checks for security improvements and support activities focused on addressing security-related issues reported by users.

6. **Measure Security:** Implement measurements and metrics, such as access control violation rates and successful deletion attempts by unauthorized users, to evaluate the effectiveness of access controls. Collect and analyze data to verify that unauthorized deletions are prevented.

Outcome Tasks:

1. **Access Control Evaluation:** Confirm that access controls are effectively implemented to restrict the deletion of questions to authorized users, preventing accidental or malicious deletions.

2. **User Acceptance Testing**: Ensure that user acceptance testing validates the effectiveness of access controls for question deletion under various scenarios.

3. **Continuous Improvement:** Incorporate security improvements into the product life cycle, addressing issues identified through ongoing evaluation and feedback.

5.1.2 MODULE: MANAGE SUBJECT (MUHAMMAD SHAHRIL BIN MOHAMAD SHAH)

5.1.2.1 USABILITY

Usability Assurance Activities:

1. **Evaluate Interface Design:** Review the intuitiveness and user-friendliness of the subject management interface within Quizify. Ensure administrators can seamlessly add, edit, and organize subjects without encountering unnecessary complexity.

2. **Evaluate Plans for Conformance:** Examine the project plan to ensure it aligns with usability goals for the subject management module. Scrutinize the section related to interface design, verifying its strategies to achieve intuitiveness and user-friendliness.

3. **Evaluate Products for Conformance:** Scrutinize the subject management interface within Quizify to ensure it adheres to the outlined plans, focusing on intuitive and user-friendly subject organization.

4. **Evaluate User Feedback Integration:** Evaluate the integration of feedback from usability testing sessions and user evaluations into the subject management interface design process. Ensure systematic consideration and implementation of usability improvement suggestions.

5. **Evaluate Plans for Acceptability:** Review the project plan to ensure it addresses stakeholder expectations for usability. Clarify acceptability criteria alignment with user needs, emphasizing ease of use and clarity in subject organization.

6. **Evaluate Accessibility Compliance:** Confirm the subject management interface complies with accessibility standards, providing an inclusive user experience. Verify compatibility with assistive technologies and integration of accessibility best practices.

7. **Evaluate Product Life Cycle Support for Conformance:** Review the maintenance schedule for the subject management module. Ensure regular updates prioritize usability enhancements and address reported usability issues promptly.

8. **Measure Usability**: Implement metrics such as task completion time and user satisfaction scores to evaluate subject management interface usability. Analyze data to ensure administrators can efficiently add, edit, and organize subjects within Quizify.

Outcome Tasks:

1. **Interface Evaluation:** Guarantee that the subject management interface enables smooth addition, editing, and organization of subjects within Quizify.

2. **User Feedback Integration:** Systematically incorporate feedback from usability testing sessions and user evaluations to improve overall usability.

3. **Accessibility Compliance:** Ensure adherence to accessibility standards to offer an inclusive user experience for all administrators.

4. **Continuous Improvement:** Integrate usability improvements into the subject management module's life cycle, addressing ongoing evaluation and feedback results.

5.1.2.2 RELIABILITY

Reliability Assurance Activities:

1. **Evaluate Subject Management Functionality Implementation:** Assess the implementation of subject management functionalities within the Quizify environment. Verify that it is robust and can effectively manage subjects without unintended consequences or data loss.

2. **Evaluate Plans for Conformance:** Review the project plan to ensure alignment with reliability objectives for subject management. Examine the section related to subject management functionalities, confirming that it outlines steps to achieve robustness and prevent data loss during subject management operations.

3. **Evaluate Products for Conformance:** Inspect the actual subject management functionalities within the Quizify environment. Confirm that the implementation adheres to the plans outlined in the project documentation, focusing on reliability aspects such as error handling and data integrity preservation.

4. **Evaluate User Acceptance Plans:** Review plans for user acceptance testing of subject management functionalities. Ensure that test cases cover various scenarios, including addition, modification, and deletion of subjects, to validate reliability under different conditions.

5. **Evaluate Product Life Cycle Support for Conformance:** Examine the maintenance schedule for the subject management module. Ensure that regular updates include checks for reliability improvements and support activities focused on addressing reliability-related issues reported by users.

6. **Measure Reliability:** Implement measurements and metrics, such as successful subject additions and modifications, to evaluate the reliability of the subject management functionalities. Collect and analyze data to verify that subjects are managed effectively without unintended consequences or data loss.

Outcome Tasks:

1. **Functionality Evaluation:** Confirm that the subject management functionalities are robust and can effectively manage subjects within the Quizify system without unintended consequences.

2. **User Acceptance Testing:** Ensure that user acceptance testing validates the reliability of the subject management functionalities under various scenarios.

3. **Continuous Improvement:** Incorporate reliability improvements into the product life cycle, addressing issues identified through ongoing evaluation and feedback.

5.1.2.3 SECURITY

Security Assurance Activities:

1. **Evaluate Access Control Implementation:** Evaluate the implementation of access controls within the Quizify environment to ensure the secure management of subjects. Verify that only authorized users possess the necessary permissions to modify or delete subjects, preventing unauthorized alterations.

2. **Evaluate Plans for Conformance:** Examine the project plan to ensure it aligns with security objectives related to subject management. Specifically, assess the section concerning access control for subject modification and deletion to ensure robust security measures are outlined.

3. **Evaluate Products for Conformance:** Inspect the actual implementation of access controls in the Quizify environment. Confirm that the implemented security measures align with the plans documented in the project, focusing on preventing unauthorized modifications or deletions of subjects.

4. **Evaluate User Acceptance Plans:** Review plans for user acceptance testing of access controls for subject management. Ensure that test cases encompass various scenarios, including attempts by unauthorized users to modify or delete subjects, to validate the effectiveness of access controls.

5. **Evaluate Product Life Cycle Support for Conformance:** Examine the maintenance schedule for the access control module related to subject management. Ensure that regular updates include security checks and support activities aimed at addressing security-related concerns reported by users.

6. **Measure Security:** Implement metrics such as access control violation rates and unauthorized modification attempts to evaluate the effectiveness of access controls. Collect and analyse data to ensure that only authorized modifications are permitted within the Manage Subject Module.

Outcome Tasks:

1. **Access Control Evaluation:** Confirm that access controls effectively restrict subject modification and deletion to authorized users, mitigating the risk of unauthorized alterations.

2. **User Acceptance Testing**: Ensure that user acceptance testing validates the effectiveness of access controls for subject management across various scenarios.

3. **Continuous Improvement:** Integrate security enhancements into the product life cycle, addressing issues identified through ongoing evaluation and feedback to enhance the security of the Manage Subject Module within the Quizify system.

5.1.3 MODULE: MANAGE USER PROFILE (CHONG XUE LIANG CB21133)

5.1.3.1 Usability – User Error Protection

Product Assurance Activities (User Error Protection evaluation)

Evaluate Login: Assess the correctness of login within the Laravel environment. Ensure that the user can be able to login to the system with correct email and password.

Evaluate Create Multiple Account: Verify the ID of each account. Ensure that each account have the own unique ID.

Evaluate Error handling: Test how the Laravel environment handles error handling, ensure that the system prompt suitable error message for each error action.

Evaluate Plans for Conformance: Review the project plan to make sure the evaluation objectives are clearly defined to test the user error protection of "Quizify". Ensure that the plan outlines steps to verify the user error protection accuracy, linking each entry to the respective user profile.

Evaluate Products for Conformance: Assess the actual implementation of the evaluated criteria. Execute the test cases to validate whether the login functionality and error handling conform to the specified requirements. Ensure that each account have their own unique ID which are often the only bases for user authentication and authorization.

Evaluate Plans for Acceptability: Assess the acceptability of the plan by checking if it aligns with the expectations. Verify that the plan addresses potential issues, like data duplication or incorrect linkage, ensuring the acceptability of correctness criteria.

Evaluate Product Life Cycle Support for Conformance: Execute the maintenance for manage user profile module according to the product life cycle. Ensure the regular update include checks the functionality of the module.

Measure Products: Evaluate the module in "Quizify" by using metrics and tools to evaluate the user error protection of manage login involve testing the various account to ensure the email and password is clearly linked to each other for every account.

Outcome Task:

Accuracy Verification: Confirm that the user can only login to the system with the correct email and password.

Error Handling: Confirm that the system will prompt error message with any issues related to user interaction handling.

5.1.3.2 Security – Authenticity
Product Assurance Activity (Authenticity Evaluation)

Authentication testing – Conduct a authentication testing for first-time login user.

Activities – For new user, a verification will be sent to the email to check and authenticate emails that had been registered in the system are authentic and connect to a real person.

Evaluate Plan for Conformance: Review the project plan to ensure the email verification will be sent and can be activate through email.

Evaluate Product for Conformance: Test the responsiveness of the verification function. Ensure the email verification will be sent to the email to validate user. Ensure that users cannot access the system unless activate the verification in their email address.

Evaluate Plans for Acceptability: Validate that the plans align with user expectation. With authentication to ensure the less of spam account using the system, the defined objectives are acceptable to stakeholder.

Evaluate Product Life Cycle Support for Conformance: Establish protocols for ongoing monitoring and optimization of the Manage User Profile module's security. Implement procedures to address any degradation in authentication and ensure the success of authentication.

Measure Product: Implementing measurement and metrics to evaluate the authentication of the system products involves collecting and analyzing data to ensure system stability within the Laravel environment. Utilize monitoring tool to track authentication method. Ensure the users cannot access to system without verifying themselves.

Outcome Tasks:

Authentication Metrics: Measure authentication within the Laravel environment, ensuring the authentication method is applied to the system. Record and analyze key metrics, including testing the function of authentication.

Accuracy Verification: Confirm that the user can only access to the system once they verify their email.

5.1.3.4 Usability – Learnability

Product Assurance Activities (Learnability Evaluation)

Observations: Observe and note down the users' first impression when they operate the manage user profile module without giving them any navigation and instruction. If the users can understand and operate it easily, then the system achieve the learnability approach which easy to use.

Measure task success rate: Measure the time taken for user to finish the task of the module. A higher success rate shows that the system is easy to understand and quickly to learn on how to use it.

Evaluate Plan for Conformance: Review the plans to make sure that the evaluation objectives are clearly defined to test the learnability of the module. Ensure the plans outline the metrics to measure the success rate.

Evaluate Product for Conformance: In this stage, the actual evaluation is conducted. First, find a tester that do not have the knowledge of this system. Without giving any navigation, observe the tester to operate the module and measure the success rate of the tester. Ensure that the tester can learn quickly by himself and perform a higher success rate. Then, the manage user profile module reach the learnability approach.

Evaluate Plan of Acceptability: Ensure that the results collected during testing phase are accepted. Define the user's impression and success rate to ensure the module reach the learnability approach.

Evaluate Product Life Cycle Support for Conformance: Ensure that on each phase of the life cycle of the manage user profile module, learnability is applied to ensure the module is user-friendly.

Measure Products: Measure the metrics including users' first impression and success rate. These metrics show the system reach the learnability approach.

Outcome Tasks:

Good First Impression: Ensure that the users feel relax and understanding throughout the system operation of the manage user profile module.

Higher Success Rate: Confirm that the users finish operate the module of the system with a high success rate.

5.1.4 MODULE: MANAGE QUIZ (MUHAMMAD LUQMAN NUL HAFIZ BIN ABDUL HADI)

5.1.4.1 USABILITY

Usability Assurance Activities:

1. **Evaluate User Interface:** Assess the intuitiveness and accessibility of the quiz management interface to ensure ease of use for administrators.
2. **Evaluate Quiz Creation Process:** Review the steps involved in creating a new quiz to identify any potential usability issues or inefficiencies.
3. **Evaluate Quiz Editing Functionality:** Assess the effectiveness of the features for updating and modifying existing quizzes to ensure a smooth editing process.
4. **Evaluate Question Management System:** Review the tools and options available for adding, updating, and deleting questions within quizzes to ensure efficiency and accuracy.
5. **Evaluate Quiz Navigation:** Assess the navigation flow within quizzes to ensure users can easily navigate between questions and sections.

Outcome Tasks:

1. **Interface Evaluation:** Assess and enhance the user interface design of the manage quiz module for improved usability.

2. **User Feedback Integration:** Gather and incorporate user feedback to refine the manage quiz module's features and functionality.
3. **Accessibility Compliance:** Ensure that the manage quiz module meets accessibility standards to provide an inclusive user experience for all users.

5.1.4.2 RELIABILITY

Reliability Assurance Activities:

1. **Evaluate Data Integrity:** Verify the integrity and accuracy of data stored and processed within the manage quiz module.
2. **Evaluate System Stability:** Assess the stability and robustness of the manage quiz module under varying usage conditions.
3. **Evaluate Error Handling:** Review the effectiveness of error handling mechanisms to ensure proper handling of exceptions and failures.
4. **Evaluate Performance Metrics:** Measure and analyze the performance metrics of the manage quiz module to identify potential bottlenecks or areas for optimization.
5. **Evaluate Backup and Recovery:** Assess the effectiveness of backup and recovery procedures to safeguard against data loss or system failures.
6. **Measuring Reliability:** Quantify the reliability of the manage quiz module through metrics such as uptime, error rates, and mean time between failures.

Outcome Tasks:

1. **Implement Data Validation:** Enhance data validation mechanisms to ensure data integrity and prevent the entry of incorrect or inconsistent information.
2. **Enhance Fault Tolerance:** Improve fault tolerance capabilities to enhance system stability and minimize disruptions caused by unexpected errors or failures.
3. **Optimize Performance:** Address performance issues identified during evaluation by optimizing code, improving database queries, or allocating additional resources.
4. **Refine Backup and Recovery Procedures:** Enhance backup and recovery procedures based on evaluation findings to improve data resilience and minimize downtime in case of system failures.

5.1.4.3 SECURITY

Security Assurance Activities:

1. **Evaluate Data Encryption:** Assess the implementation of encryption protocols to ensure that sensitive data, such as user credentials and quiz content, is securely encrypted during transmission and storage.
2. **Review Access Controls:** Evaluate access control mechanisms to verify that only authorized users have appropriate permissions to perform actions within the quiz management module, preventing unauthorized access and data breaches.
3. **Test Authentication Mechanisms:** Validate the effectiveness of authentication mechanisms, such as username/password authentication or multi-factor authentication, to ensure that only legitimate users can access the quiz management functionalities.
4. **Assess Vulnerability Management:** Conduct vulnerability assessments and penetration testing to identify and mitigate potential security vulnerabilities within the quiz management module, ensuring robust protection against cyber threats.
5. **Review Audit Trails:** Evaluate the completeness and accuracy of audit trails generated by the quiz management module to track user activities and detect any suspicious or unauthorized actions, facilitating forensic analysis and compliance with security policies.

Outcome Tasks:

1. **Access Control Evaluation:** Identify and rectify any deficiencies in access control mechanisms to prevent unauthorized access and ensure that only authorized users can perform actions within the quiz management module.
2. **User Acceptance Testing:** Gather feedback from end users through comprehensive testing to validate the effectiveness and usability of security features, ensuring that they meet user requirements and expectations.
3. **Continuous Improvement:** Implement measures to continuously monitor and enhance security measures based on evolving threats and feedback from security evaluations, promoting ongoing improvement in the security posture of the quiz management module.

5.2 PROCESS ASSURANCE

5.2.1 MODULE: MANAGE QUESTION (MUHAMMAD AMIR BIN MOHAMED ALI)

5.2.1.1 USABILITY IN DEVELOPMENT PROCESSES

Process Assurance Activities:

1. **Evaluate Life Cycle Processes for Usability:** Review the software development life cycle processes related to Laravel development. Ensure that usability is emphasized during the design, development, and testing phases, focusing on creating intuitive and user-friendly interfaces.
2. **Evaluate Environments for Conformance:** Assess the development and testing environments for usability within the Laravel environment. Ensure they conform to usability standards, including compatibility with different devices, screen sizes, and assistive technologies.
3. **Evaluate Subcontractor Processes for Conformance:** Review subcontractor processes for handling usability considerations to ensure alignment with project requirements and quality standards.
4. **Measure Usability:** Implement measurements and metrics, such as user satisfaction scores and task completion time, to evaluate the usability of the Laravel development processes.
5. **Assess Staff Skill and Knowledge:** Administer assessments or training sessions to gauge the skill and knowledge of the development and testing teams regarding usability principles.

Outcome Tasks:

1. **Process Improvement for Usability:** Identify and document improvements in the development processes for Laravel customization to enhance usability.

5.2.1.2 RELIABILITY IN DEVELOPMENT PROCESSES

Process Assurance Activities:

1. **Evaluate Life Cycle Processes for Reliability:** Review the software development life cycle processes related to Laravel development for reliability considerations. Ensure reliability is considered throughout the customization process, including error handling and fault tolerance mechanisms.
2. **Evaluate Environments for Conformance:** Assess the development and testing environments for reliability within the Laravel environment. Verify that they conform to reliability standards, including robustness testing and fault injection techniques.
3. **Evaluate Subcontractor Processes for Conformance:** Review subcontractor processes for handling reliability considerations to ensure alignment with project requirements and quality standards.
4. **Measure Reliability:** Implement measurements and metrics, such as error rates and system uptime, to evaluate the reliability of the Laravel development processes.
5. **Assess Staff Skill and Knowledge:** Administer assessments or training sessions to gauge the skill and knowledge of the development and testing teams regarding reliability principles.

Outcome Tasks:

1. **Process Improvement for Reliability:** Identify and document improvements in the development processes for Laravel customization to enhance reliability.

5.2.1.3 SECURITY IN DEVELOPMENT PROCESSES

Process Assurance Activities:

1. **Evaluate Life Cycle Processes for Security:** Review the software development life cycle processes related to Laravel development for security considerations. Ensure security is integrated throughout the customization process, including secure coding practices and vulnerability assessments.
2. **Evaluate Environments for Conformance:** Assess the development and testing environments for security within the Laravel environment. Verify that they conform to security standards, including encryption protocols and access control mechanisms.
3. **Evaluate Subcontractor Processes for Conformance:** Review subcontractor processes for handling security considerations to ensure alignment with project requirements and quality standards.
4. **Measure Security:** Implement measurements and metrics, such as vulnerability scan results and incident response times, to evaluate the security of the Laravel development processes.
5. **Assess Staff Skill and Knowledge:** Administer assessments or training sessions to gauge the skill and knowledge of the development and testing teams regarding security principles.

Outcome Tasks:

1. **Process Improvement for Security:** Identify and document improvements in the development processes for Laravel customization to enhance security.

5.2.2 MODULE: MANAGE SUBJECT (MUHAMMAD SHAHRIL BIN MOHAMAD SHAH)

5.2.2.1 USABILITY IN DEVELOPMENT PROCESSES

Process Assurance Activities:

1. **Evaluate Life Cycle Processes for Reliability:** Evaluate the software development life cycle processes pertinent to Quizify development. Ensure that emphasis is placed on usability throughout the design, development, and testing phases, with a focus on creating intuitive and user-friendly interfaces.
2. **Evaluate Environments for Conformance:** Evaluate the development and testing environments within the Quizify system for usability. Verify adherence to usability standards, including compatibility with various devices, screen sizes, and assistive technologies to ensure an optimal user experience.
3. **Evaluate Subcontractor Processes for Conformance:** Assess subcontractor processes related to usability considerations to ensure alignment with project requirements and quality standards set for Quizify development.
4. **Measure Reliability:** Incorporate measurements and metrics such as user satisfaction scores and task completion time to assess the usability of Quizify's development processes effectively.
5. **Assess Staff Skill and Knowledge:** Administer assessments or training sessions to evaluate the proficiency of the development and testing teams in understanding usability principles applicable to Quizify.

Outcome Tasks:

1. **Process Improvement for Reliability:** Identify and document opportunities for improvement in Quizify's development processes to enhance usability, fostering a more intuitive and user-friendly experience for stakeholders.

5.2.2.2 RELIABILITY IN DEVELOPMENT PROCESSES

Process Assurance Activities:

1. **Evaluate Life Cycle Processes for Reliability:** Examine the software development life cycle processes relevant to Quizify development, focusing on reliability considerations. Ensure that reliability is consistently addressed throughout the customization process, encompassing robust error handling and fault tolerance mechanisms.
2. **Evaluate Environments for Conformance:** Evaluate the reliability of the development and testing environments within the Quizify system. Confirm adherence to reliability standards, including rigorous robustness testing and fault injection techniques, to enhance system reliability.
3. **Evaluate Subcontractor Processes for Conformance:** Review subcontractor processes related to reliability considerations to ensure alignment with project requirements and established quality standards for Quizify development.
4. **Measure Reliability:** Incorporate measurements and metrics such as error rates and system uptime to effectively assess the reliability of Quizify's development processes.
5. **Assess Staff Skill and Knowledge:** Conduct assessments or training sessions to evaluate the proficiency of the development and testing teams in understanding reliability principles pertinent to Quizify.

Outcome Tasks:

1. **Process Improvement for Reliability:** Identify and document areas for improvement in Quizify's development processes to enhance reliability, fostering a more robust and dependable system for stakeholders.

5.2.2.3 SECURITY IN DEVELOPMENT PROCESSES

Process Assurance Activities:

1) **Evaluate Life Cycle Processes for Security:** Evaluate the software development life cycle processes relevant to Quizify development for security considerations. Ensure that security is seamlessly integrated throughout the customization process, encompassing secure coding practices and comprehensive vulnerability assessments.
2) **Evaluate Environments for Conformance:** Evaluate the security measures implemented within the development and testing environments of the Quizify system. Verify adherence to security standards, including robust encryption protocols and effective access control mechanisms, to safeguard sensitive data.
3) **Evaluate Subcontractor Processes for Conformance:** Review subcontractor processes pertaining to security considerations to ensure alignment with project requirements and established quality standards for Quizify development.
4) **Measure Security:** Introduce measurements and metrics such as vulnerability scan results and incident response times to assess the security posture of Quizify's development processes effectively.
5) **Assess Staff Skill and Knowledge:** Conduct assessments or training sessions to evaluate the proficiency of the development and testing teams in understanding security principles relevant to Quizify.

Outcome Tasks:

1. **Process Improvement for Security:** Identify and document opportunities for improvement in Quizify's development processes to bolster security measures, enhancing protection against potential threats and vulnerabilities.

5.2.3 MODULE: MANAGE USER PROFILE (CHONG XUE LIANG CB21133)

Product Assurance Activities:

1. **Usability – User Error Protection in Development Processes:**
   Evaluate Life Cycle Processes for User Error Protection: Review development life cycle processes related to Laravel environment customization. Ensure the user error protection is emphasized during design, customization and testing phase.
2. **Security – Authenticity in Development Processes:**
   Evaluate Life Cycle Processes for Authenticity: Review development life cycle processes related to Laravel environment. Identify the opportunity to integrate the functionality of authentication, including code optimization.
3. **Usability – Learnability in Development Processes:**
   Evaluate Life Cycle Processes for Learnability: Review development life cycle processes for learnability. Ensure the learnability is considered throughout all process.

Outcome Tasks:

1. **Usability – User Error Protection in Development Processes Outcomes:**

Process Improvement for User Error Protection: Identify and document improvement in the development process for Laravel framework to enhance user error protection.

2. **Security – Authenticity in Development Processes:**

Process Improvement for Authenticity: Identify and document improvement in the development process for Laravel framework to enhance authenticity.

3. **Usability – Learnability in Development Processes:**

Process Improvement for Learnability: Identify and document improvement in the development process for Laravel framework to enhance learnability.

Evaluate Life Cycle Process for Conformance

- Review the software development life cycle processes related to Laravel environment to ensure they conform to usability – user error protection, learnability and security – authenticity standards.
- Identify opportunities to integrate all considerations into design, implementation and testing phase.

Evaluate Environment for Conformance

- Assess the implementation and testing environment for manage user profile module within Laravel environment.
    - Ensure they conform to user error protection during manage login.
    - Ensure they conform authenticity during first-time login.
    - Ensure the interface is easy to understand and the manage user profile is easy to use.

Evaluate Subcontractor Processes for Conformance

- Review subcontractor processes for handling manage user profile module to ensure they align with project requirements and quality standards, considering user error protection, learnability and authenticity approach.
- Document any area of improvement in subcontractor process.

Measure Processes

- Implement measurement and metrics to evaluate the user error protection, learnability and authenticity of manage user profile module.
- Collect and analyze the results regarding to the operation of the tester and identify the area of improvement to ensure user error protection, learnability and authenticity within the processes.

Access Staff Skill and Knowledge

- Develop training plan based on assessment outcomes to enhance staff skills and knowledge in these areas.
- Conduct the training session to gauge the skill of the development and testing teams regarding user error protection, learnability and authenticity.

5.2.4 MODULE: MANAGE QUIZ (MUHAMMAD LUQMAN NUL HAFIZ BIN ABDUL HADI)

5.2.4.1 USABILITY IN DEVELOPMENT PROCESSES

Process Assurance Activities:

1. **Evaluate Life Cycle Processes for Usability:** Assess the usability of each stage in the development life cycle, ensuring that usability considerations are integrated seamlessly from requirement gathering to deployment.
2. **Evaluate Environments for Conformance:** Review development environments to ensure they adhere to usability standards and provide an optimal setting for designing and testing the quiz management module.
3. **Evaluate Subcontractor Processes for Conformance:** Assess subcontractor processes to verify that external contributors adhere to established usability guidelines and contribute effectively to the development of the quiz management module.
4. **Measure Usability:** Implement metrics and evaluation methods to quantitatively measure the usability of the quiz management module throughout the development process, identifying areas for improvement.
5. **Assess Staff Skill and Knowledge:** Evaluate the proficiency of development team members in usability principles and techniques, providing training and support as needed to enhance their skillset.

Outcome Tasks:

1. **Process Improvement for Usability:** Implement enhancements and refinements to development processes based on the evaluation results, ensuring that usability considerations are systematically integrated and optimized across all stages of the quiz management module's development lifecycle.

5.2.4.2 RELIABILITY IN DEVELOPMENT PROCESSES

Process Assurance Activities:

1. **Evaluate Life Cycle Processes for Reliability:** Review each phase of development, including design, implementation, testing, and maintenance, to ensure they contribute to the module's reliability.

2. **Evaluate Environments for Conformance:** Check development and testing setups to verify they meet reliability standards and provide necessary support.

3. **Evaluate Subcontractor Processes:** Assess subcontractors' adherence to reliability guidelines and contractual obligations.

4. **Measure Reliability:** Use appropriate metrics, methodologies, and tools to quantify the reliability of the quiz management module, such as mean time between failures (MTBF), mean time to repair (MTTR), failure rate, and availability.

5. **Assess Staff Skill and Knowledge:** Review team expertise and provide training for effective implementation of reliable solutions.

Outcome Tasks:

1. **Process Improvement for Reliability:** Implement enhancements to development processes based on evaluation findings to ensure continuous improvement in reliability standards and practices.

5.2.4.3 SECURITY IN DEVELOPMENT PROCESSES

Process Assurance Activities:

1. **Evaluate Life Cycle Processes for Security:** Review and assess each stage of the development life cycle to identify potential security vulnerabilities and weaknesses that could impact the security of the quiz management module. This includes analyzing requirements gathering, design, implementation, testing, deployment, and maintenance processes from a security perspective.
2. **Evaluate Environments for Conformance:** Ensure that the development and testing environments, including hardware, software, and network configurations, comply with established security standards and specifications to support secure execution of the quiz management module.
3. **Evaluate Subcontractor Processes for Conformance:** Assess the processes followed by subcontractors or third-party vendors involved in the development of the quiz management module to verify compliance with security requirements and standards specified in the project contract.
4. **Measure Security:** Utilize appropriate metrics, methodologies, and tools to quantify the security posture of the quiz management module, such as vulnerability assessments, penetration testing results, compliance audits, and security incident reports.
5. **Assess Staff Skill and Knowledge:** Evaluate the proficiency and expertise of the development team members involved in building the quiz management module to ensure they possess the necessary skills and knowledge to implement secure software solutions effectively. This assessment may include security training sessions, certifications, or knowledge-sharing activities.

Outcome Tasks:

1. **Process Improvement for Security:** Implement enhancements to development processes, environments, subcontractor agreements, and staff training to bolster security measures and mitigate potential vulnerabilities.

6.0 ADDITIONAL CONSIDERATIONS

6.1 CONTRACT REVIEW

Contract review for Quizify involves a meticulous examination of the terms, conditions, clauses, and legal obligations outlined within the agreement. Conducted by legal experts, professionals, or stakeholders, this process ensures a comprehensive understanding of the contract's implications, risks, and requirements before finalization. Key areas of focus include assessing the scope of work, project timeline, intellectual property rights, confidentiality and data security measures, indemnification and liability clauses, termination and exit strategies, and compliance with regulatory requirements. By identifying potential risks and ensuring alignment with intentions, the contract review aims to mitigate misunderstandings, clarify responsibilities, and protect the interests of all parties involved in the development and deployment of the Quizify system.

6.2 QUALITY MEASUREMENT

Setting specific targets for quality measures in “Quizify” involves defining metrics such as user acceptance rates, system loading time and defect density. The Quality Assurance team measures and tracks these KPIs on a regular basis during development process. They verify data acquired during testing and user input to determine whether the system fulfill the quality level.

6.3 WAIVERS AND DEVIATIONS

In Quizify, the process for handling waivers and deviations involves close collaboration between the project manager and the quality assurance (QA) team. When deviations from established standards occur, the project manager takes the lead in assessing their impact on project objectives, while the QA team ensures thorough documentation and data validation. Together, they make informed decisions on addressing the deviation, considering factors such as severity and available resources. Transparent communication channels are maintained to keep stakeholders informed throughout the process, and continuous improvement efforts, including root cause analysis and process enhancement, are undertaken to prevent similar deviations in the future, ultimately ensuring projects stay on track and quality standards are upheld.

6.4 TASK REPITITION

If a defect is identified during a task iteration in Quizify, our team has established procedures to address it promptly. The designated team carefully assesses the issue, identifies its root cause, and implements necessary corrective actions. The QA team plays a vital role in ensuring thorough documentation of the problem and its resolution. This documentation enhances subsequent iterations, minimizing the likelihood of encountering similar issues in the future and contributing to the continuous improvement of the Quizify system.

7.0 RISK TO PERFORMING SQA

7.1 COMMUNICATION STRATEGY

The communication strategy for Quizify prioritizes consistent updates to stakeholders, aiming to provide them with regular insights into identified risks within each module: manage account, manage subject, manage quiz, and manage questions. Scheduled reporting establishes a cadence for risk assessment and distribution, whether on a weekly, biweekly, monthly, or milestone-centric basis. This approach ensures stakeholders receive predictable updates, fostering ongoing awareness. Additionally, timely alerts are crucial for promptly communicating any significant changes or new risks within each module. Immediate alerts are particularly vital when risks have a substantial impact on the functionality, timelines, resources, or overall quality of the Quizify system.

For managing the Quizify's Manage User Profile Module, the communication strategy centers on maintaining a consistent flow of updates regarding scalability challenges, user account management functionalities, and security measures. Regular risk assessments and reporting occur at predetermined intervals, ensuring stakeholders stay informed and enabling prompt action when issues arise.

In the case of the Quizify's Manage Subject Module, the communication approach emphasizes open and efficient information sharing regarding subject management functionalities, organization methods, and any challenges related to subject data management or organization. Updates on quality assurance efforts, usability testing progress, and correctness evaluations are provided at regular intervals, fostering collaboration to address and overcome obstacles.

Similarly, for the Quizify's Manage Quiz Module, the communication strategy focuses on transparent and effective information exchange regarding quiz creation functionalities, assessment methods, and reliability assurance initiatives. Regular updates on correctness assessments, efficiency testing progress, and reliability assurance efforts are shared with stakeholders, facilitating prompt resolution of any issues affecting these aspects.

Lastly, the communication strategy for the Quizify's Manage Questions Module emphasizes clear and timely communication regarding question management functionalities, categorization methods, and any challenges encountered in managing question data or organization. Stakeholders receive regular updates on correctness assessments, efficiency testing progress, and reliability assurance efforts, enabling collaborative problem-solving and ensuring the overall quality of the module.

7.2 NON-CONFORMANCE PROCESS

The non-conformance process for Quizify involves established protocols for identifying and addressing potential risks or instances of non-conformance within the system's development and deployment. This begins with systematic risk assessment approaches such as brainstorming sessions, risk matrices, historical data analysis, or expert judgment to identify potential issues. Additionally, specific reporting channels are established, such as dedicated platforms, standardized forms, or regular meetings, to facilitate proper reporting of detected hazards by team members. Clear criteria for risk identification ensure consistent recognition and assessment of risks throughout the project lifecycle.

Within Quizify's user management module, the non-conformance process is intricately designed to identify and rectify various issues affecting user account management. Specific criteria are defined for recognizing non-conformances, including instances where security standards may not be met, user access bottlenecks are identified, or concerns regarding system reliability arise. These issues may manifest as unauthorized access attempts, delays in user registration, or inconsistencies in account permissions. To address these challenges, detailed corrective actions are implemented, aiming to align the user management system with security standards and organizational objectives. This systematic approach ensures the efficient and secure management of user accounts within Quizify.

In the context of Quizify's quiz scheduling module, the non-conformance process is tailored to identify and resolve issues related to quiz scheduling and administration. Clear criteria are established for identifying non-conformances, such as scheduling errors, inconsistencies in quiz parameters, or technical issues with the scheduling interface. These issues might result in quiz disruptions, scheduling conflicts, or inaccuracies in assessment timing. To address these challenges, systematic corrective actions are implemented, aiming to streamline the quiz scheduling process, ensure accuracy in timing, and enhance user experience. By adhering to this process, Quizify maintains the reliability and effectiveness of its quiz scheduling functionality.