UTM
UNIVERSITI TEKNOLOGI MALAYSIA

Malaysia-Japan International Institute of Technology (MJIIT)

SECD 2613-15 SYSTEM ANALYSIS AND DESIGN

20232024 – SEMESTER 2

PHASE 2 - INFORMATION SYSTEM GATHERING AND REQUIREMENT

ONLINE QUIZ PLATFORM

FACULTY OF MJIIT

GROUP 5

NAME	MATRIC ID
LING SIEW SIEW	A23MJ5060
ABDULRAHMAN SIAD TIFOW	A23MJ3061
HASSAN SAAD AHMED MOHAMMED	A23MJ3005

LECTURER: DR AMY HAMIDAH

TABLE OF CONTENT

1.0 OVERVIEW OF THE PROJECT

This project is entitled as the Online Quiz Platform which aims at developing a website applicable for conducting an internet-based quiz or test. It is designed to address the needs of educational institutions, companies and organizations that are in search of an effective and effective approach to assess the acquired knowledge and existing skills. Some specific goals include having the ability to create a customizable application for quiz creation, making sure that the application is scalable and executes fast, maintaining extensive reports feature, and lead, implement high levels of security and data protection, integrate easily with other platforms and applications, and improve participant experience. It is made for administrators to manage learning processes, for instructors to monitor their lessons, students focusing on their assignments and progress, and the technical team that is in charge of platform development and support. The definition of the project's tasks includes the following steps: the design of a web application; the organization of authentication and access control to the application's data; the integration of third-party tools; testing of the developed application; the creation of documentation that will contain information about the created application and its use; training of personnel as to how to use the created application. A time frame has also been estimated as well as the cost implication so as to achieve the desired project outcome. The following are the possible risks associated with the project and how they will be managed.

2.0 PROBLEM STATEMENT

face-to-face quizzes and assessments have limitations such as time, time zone differences and exhaust time consumed during the quizzes and assessments processes. As the current reality is filled with challenges and requires individuals, educational institutions, businesses and organizations to arrange remote assessment of knowledge and skills, it is necessary to turn to new efficient solutions. Some of the existing online quiz platforms might have some limitations such as unfriendly user interface, limited features and customization options, cannot accommodate multiple users or participants, and undeveloped or limited reporting features. However, some challenges associated with data security, privacy, and integration of a proposed system into an existing system may discourage users..

Hence, it makes sense to have a comprehensive and easily accessible online quiz that can fill these gaps. This platform should provide options for creating quizzes with the desired parameters, best integration with other systems and services, high workability when a large number of users use the platform, the ability to generate reports, and security features to protect user data. Through an interactional interface of administrators and participants which is quite interactive and even fun, the platform envisages to overhaul the traditional way quizzes and assessments are conducted to improve learning and organizational performance.

3.0 PROPOSED SOLUTIONS

1. Development of a User-Friendly Interface: Create a clear and user-friendly interface of the Web-based application that means to provide easy navigation and work with the tools for the administrators, instructors, and participants..

2. Customizable Quiz Creation Tools: Provide numerous options regarding the setting and forms of quizzes: the types of questions, time limits, grading/correcting options, multimedia features.

3. Scalability and Performance Optimization: Leverage the capabilities of modern technologies and develop scalable architecture that will allow serving a significant number of concurrent users and quizzes while maintaining high efficiency and quality of service.

4. Comprehensive Reporting and Analytics: Include comprehensive reporting capabilities to accommodate the administrators' and instructors' need concerning participant activity and performance, ratings, trends, and any other useful information on quiz results.

5. Security and Data Privacy Measures: Strong security measures such as confidentiality, integrity measures such as encryption, and user authentication measures as well as following privacy policies measures.

6. Engagement Features: The research will suggest incorporating features, which include the use of a leaderboard, a system of badges and awards, as well as options for social sharing in order to improve the experience of the participants by increasing their motivation and the level of cooperation.

   Mobile Compatibility: Make sure the platform works on different devices (PCs, portable computers, tabs, mobiles) and browsers to permit people to access and engage it whenever and wherever they want to.

7. Continuous Improvement and Support: Plus, invest into further development and constant updates to address the emerging problems, add new features and fix the broken functions to make the platform continually relevant to the users needs and benefit from new technological development.

4.0 INFORMATION GATHERING PROCESS

There are several steps and methods through which necessary information is collected for the project (Online Quiz Platform) in order to fulfill all possible user needs, features and even limitations. Explicitly elaborated below are the techniques and methods involved in data acquisition.

4.1 METHODS USED

Methods and tools used to gather this information included:

1. **Interviews**: It was also gathered through different types of key stakeholders counting educators, the IT, and corporate trainers and end-users.
2. **Questionnaires**: A questionnaire was developed aimed at assessing the current and preferred satisfaction from the platforms and features most commonly used, To this end, the survey was distributed to a sample consisting of a wider group of users and researchers in order to obtain numerical data and additional feedback..
3. **Observations**: It was done to identify and understand the existing usage of the today's typical online quiz systems along with certain auxiliary processes.

4.2 SUMMARY FROM METHODS USED

1. **Interviews**: Interviews were conducted with educators of various levels, including higher education, IT educators, and corporate trainers, and managers. These interviews got to be concluded in several points:These interviews got to be concluded in several points:

- **Customization Needs**: Participants of the future focused needs include the call for the ability to create quizzes in diverse formats as well as the possibility to incorporate different kinds of formats (audio/video/graphics).
- **Security Concerns**: It was observed that participants placed significant value in ensuring safety and privacy of data since several of them underlined the need for data protection standards.
- **Example**: A lecturer from a well-renowned university shared during the interview that the greatest limitation they have come across when implementing quizzes was the compatibility issue with the current Learning Systems. He stressed the importance of integration to ensure continuity of learning not interrupted by gains in other comprehensives.

2. **Questionnaires**: In order to collect data for the research thirty nine questions were included in the survey, out of which the survey was completed and returned by 170 potential users with an 82% response rate. The questionnaire entailed how the user is satisfied with the existing platforms in relation to its preferences on the platform features that it would like to see implemented. Key findings include:

- **Ease of Use**: According to the survey results, approximately 80% of the respondents consider accessibility, or user-friendly, interface as essential.
- **Comprehensive Reporting**: Thus, 76 percent of respondents reported that when selecting educational software, they must have detailed analytics and reporting that allows tracking student performance and engagement.
- **Example**: One lecturer said that their current platform does not provide the quality they require, and they need a platform that is easier to use since they need to create and administer tests often without spending a considerable amount of time to learn how to use a new platform to achieve their desired quality.

3. **Observation**: This information was gathered through the observation of different educational contexts with an aim of identifying how quizzes are carried out today. Observation results stated that:

- **Time Constraints**: Such traditional methods can be time-consuming and difficult to prepare due to their conceptual nature.
- **Geographical Limitations**: Online quiz platforms would consist of remote access to give them the privilege to take the quiz from their own comfortable place since it is important in the educational and academic fields.
- **Example**:From the observation made, the author was able to point out the fact that organizing and administering quizzes using paper-based methods proved to be cumbersome, time-consuming and full of errors. A stakeholder claimed the following about the desire and need for the design of an automated system to organize and manage this:

5.0 REQUIREMENT ANALYSIS (BASED ON AS-IS ANALYSIS)

The requirement analysis based on the As-Is analysis involves understanding the current system, identifying the gaps, and determining the requirements needed for the new online quiz platform. The As-Is analysis examines the existing processes and systems to uncover inefficiencies and areas for improvement.

1. As-Is Analysis Findings:

- **Manual Quiz Creation**: Currently, quizzes are created manually using word processors or spreadsheets, leading to inconsistencies and errors.
- **Paper-Based Quiz Taking**: Quizzes are taken on paper, requiring manual grading, which is time-consuming and prone to mistakes.
- **Limited Feedback**: Participants receive feedback days after the quiz, reducing its effectiveness.
- **No Centralized Database**: Quiz data is scattered across various documents and locations, making it hard to track performance and manage content.
- **Lack of Real-Time Analytics**: There is no real-time analytics or reporting available, hindering the ability to quickly assess quiz outcomes and participant performance.

2. Requirements Derived from As-Is Analysis:

- **Automated Quiz Creation and Management**: A system to create, store, and manage quizzes electronically to ensure consistency and reduce errors.
- **Online Quiz Taking**: An online platform for participants to take quizzes, eliminating the need for paper and manual grading.
- **Instant Feedback**: Immediate feedback for participants to enhance learning and retention.
- **Centralized Database**: A centralized repository for all quiz data to streamline content management and performance tracking.
- **Real-Time Analytics**: Real-time analytics and reporting tools to provide immediate insights into quiz results and participant performance.

5.1 CURRENT BUSINESS PROCESS (SCENARIOS, WORKFLOW)

SCENARIOS:-

i. **Quiz management by lecturers and teachers:**
Teachers and lecturers these days apply much effort on managing the process of giving quizzes, from preparation of questions manually to printing then setting time after that correcting and marking out grades. They do need a system that can create, set, publish and grade quizzes more efficiently.

ii. **Students preparation and studying:**
The same way it is hard for lecturers and teachers to deal with hard copy quizzes, it is also for students in terms of time wasting and difficulty to reach meant details or parts. A platform that provides all their needed quizzes will be their prior choice.

iii. **Distance studying:**
Students or even teachers that are on far distances can still work, collaborate and share their work together using the platform indeed of their different locations without having to waste their time, energy or fuel.

WORKFLOW:-

i. **Quiz Creation:**
In this stage, lecturers can print and distribute the questions after writing them down. Questions can be distributed through the platform itself or shared through email.

ii. **Quiz administration:**
Inside the platform, quizzes are held in a locked meeting room accessed by a passcode or can also be shared via email.

iii. **Quiz submission:**
Same as distributing and holding quizzes, they can be submitted through the platform or through email. All submissions will then be available for the person in charge (lecturer or teacher) to review and grade.

iv. **Grading:**

After submission of the quiz by students through either of the mentioned ways, The host can correct or grade the results manually inside the platform can list them in spreadsheets or gradebooks. Feedbacks can be provided for students to view.

v. **Record keeping and analysis:**

After grading results manually, the host can still find and access the data stored in the platform to analyze in the way they need.

5.2 FUNCTIONAL REQUIREMENT (INPUT, PROCESS AND OUTPUT)

The functional requirements entail describing the particular behavior or actions of the online quiz system. These requirements specify inputs that will be received from users and outputs that will be produced once the inputs are processed on the platform.

1. **Inputs**:

   User Registration: Users enter their desired username, valid email, and your desired password.

   Quiz Creation: Quiz details can be provided directly by users including quiz title, quiz description and individual quiz questions and possible answers.

   Quiz Taking: Quizzes, feedback sought from participants, participants type in their responses to the questions that will be polled during the meeting.

   Feedback Submission: This is because the user can be able to give their feedback on the quizzes formulated.

2. **Process**:

   User Authentication: Confirm users' identity such as through password dialog when logging into a system.

Quiz Management: Personally create and maintain quizzes that have been created by other people to easily access, store, and manage them.

Question Handling: Jumbling or arranging questions based on quiz properties is a good idea depending on what the user desires.

Answer Evaluation: Mark the responses that are received with the correct responses for the questions and determine the scores.

Feedback Analysis: Quiz Feedback and Development QUIT https://quizlet.com/667045642 for feedback and tips to improve the quiz.

3. **Outputs**:

User Dashboard: Share information such as: User's created quiz, user's taken quiz, user's scores.

Quiz Results: Give out the results of the quiz, detailing correct choices and the reasoning as to why they are right.

Certificates: If there was a quiz then issue certificates of completion for the quiz if this is part of the agreements.

Analytics Reports: Make it a point to provide detailed reports of the quiz, such as the score obtained by them, the exact time they took and the kind of questions that they found most challenging; this way the student can self-assess their performance too.

5.3 NON-FUNCTIONAL REQUIREMENT (PERFORMANCE AND CONTROL)

Non-functional requirements focus on the performance and control aspects of the online quiz platform. These requirements ensure that the platform operates efficiently, securely, and reliably under various conditions.

1. Performance:
    - **Scalability**: The platform should support a growing number of users and quizzes without degrading performance.
    - **Response Time**: The system should provide quick responses to user actions, with a maximum acceptable delay of 2 seconds for critical operations like loading quizzes and submitting answers.
    - **Availability**: The platform should be available 99.9% of the time, ensuring minimal downtime.
    - **Load Handling**: Capable of handling concurrent users efficiently, supporting up to 10,000 simultaneous users.

2. Control:
    - **Security**: Implement robust security measures, including encryption for data in transit and at rest, to protect user data and quiz content.
    - **Data Integrity**: Ensure that data is accurately and consistently stored and retrieved, with regular backups to prevent data loss.
    - **Usability**: Design the user interface to be intuitive and user-friendly, catering to users with varying levels of technical expertise.
    - **Maintenance**: Ensure that the platform can be easily maintained and updated, with minimal disruption to users.

5.4 LOGICAL DFD AS-IS SYSTEM (CONTEXT DIAGRAM, DIAGRAM 0, CHILD)

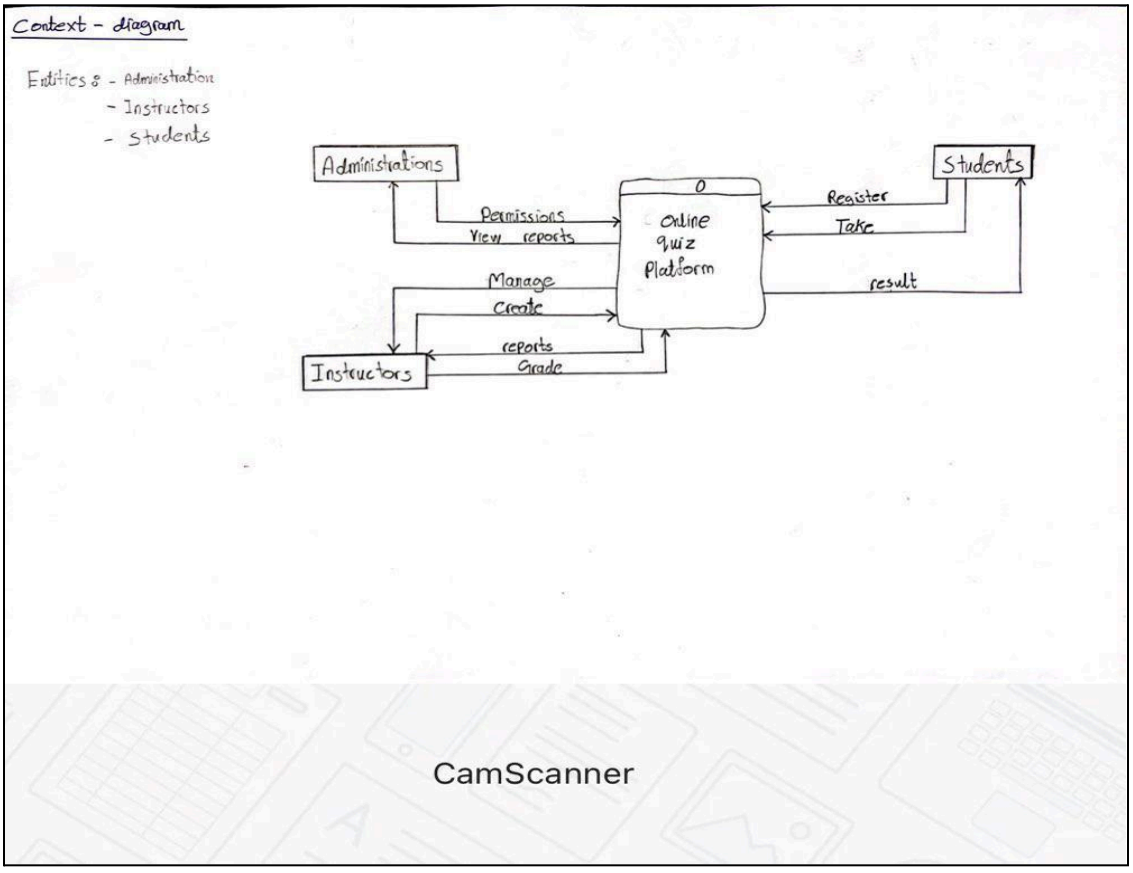

Figure 5.1 Context Diagram for Online Quiz Platform

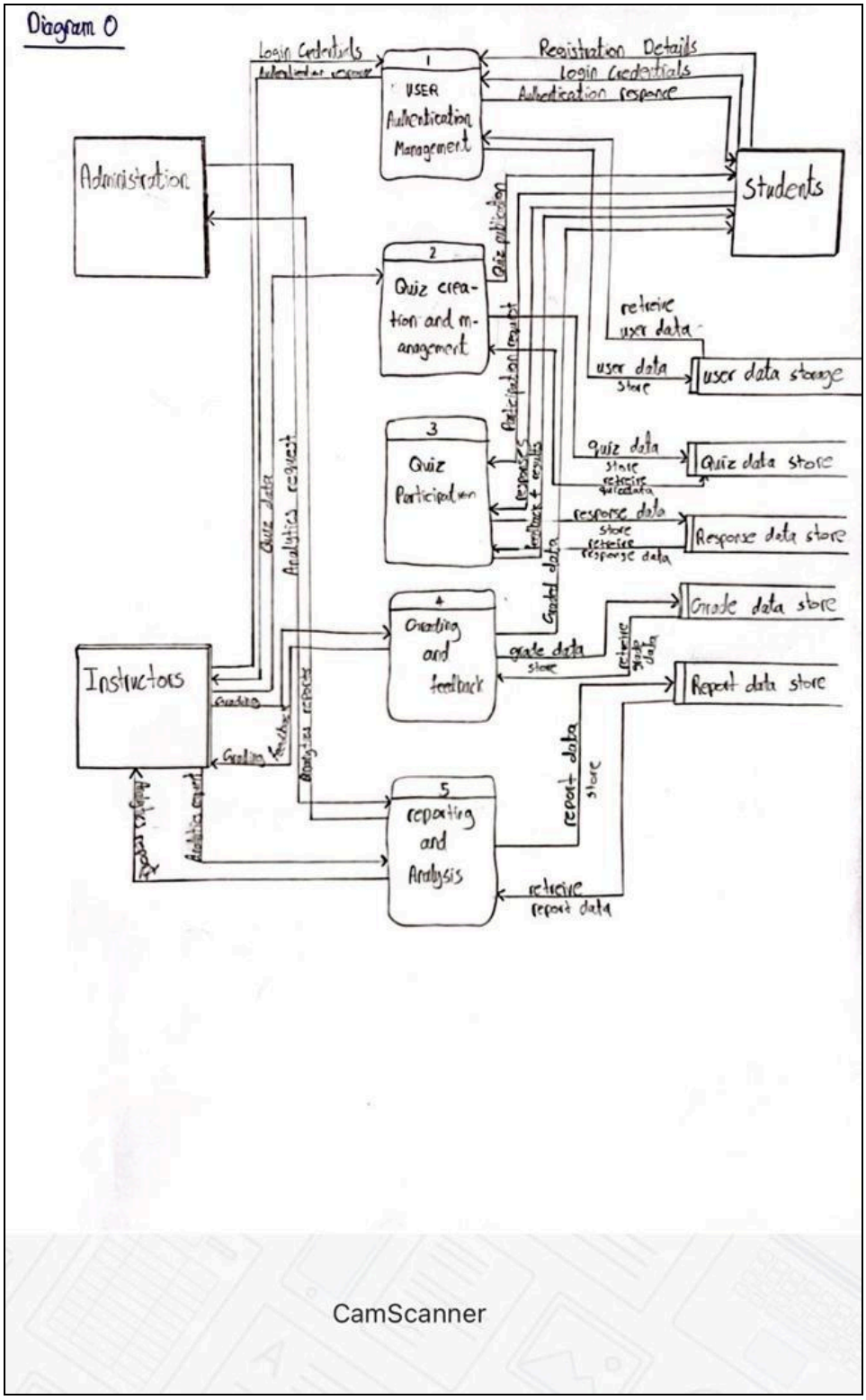

Figure 5.2 Diagram 0 for Online Quiz Platform

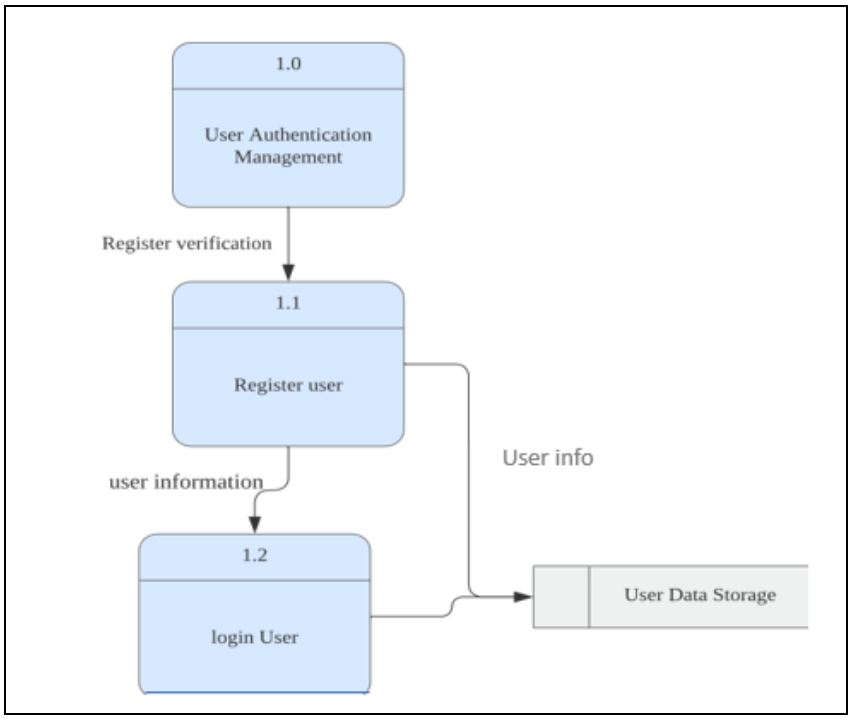

Figure 5.1 Child Diagram for Online Quiz Platform

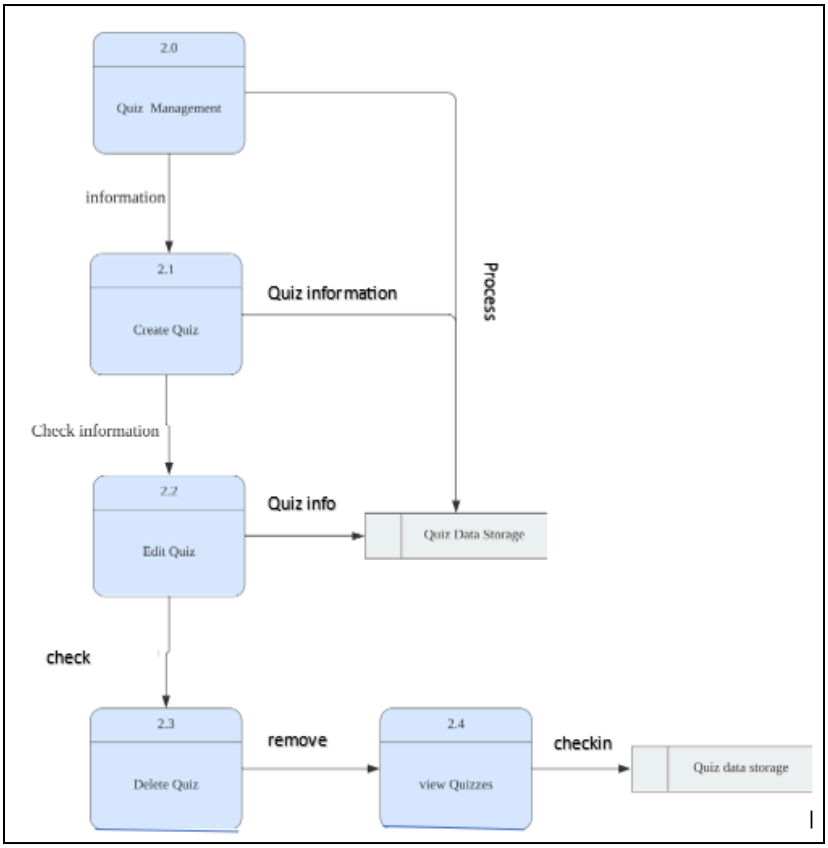

Figure 5.2 Child Diagram for Online Quiz Platform

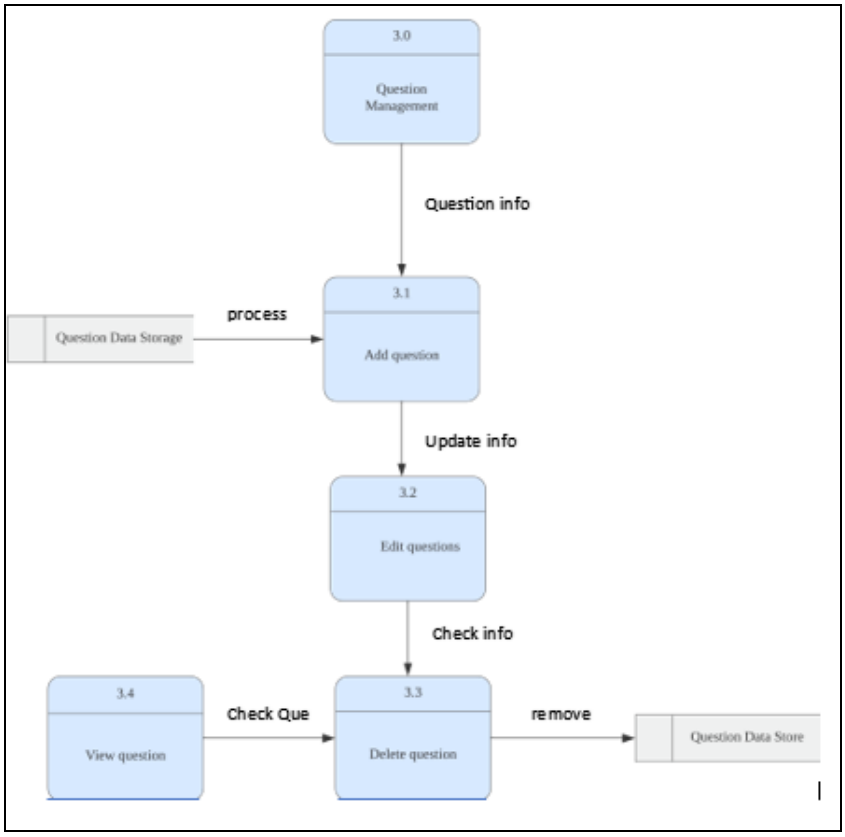

Figure 5.3 Child Diagram for Online Quiz Platform

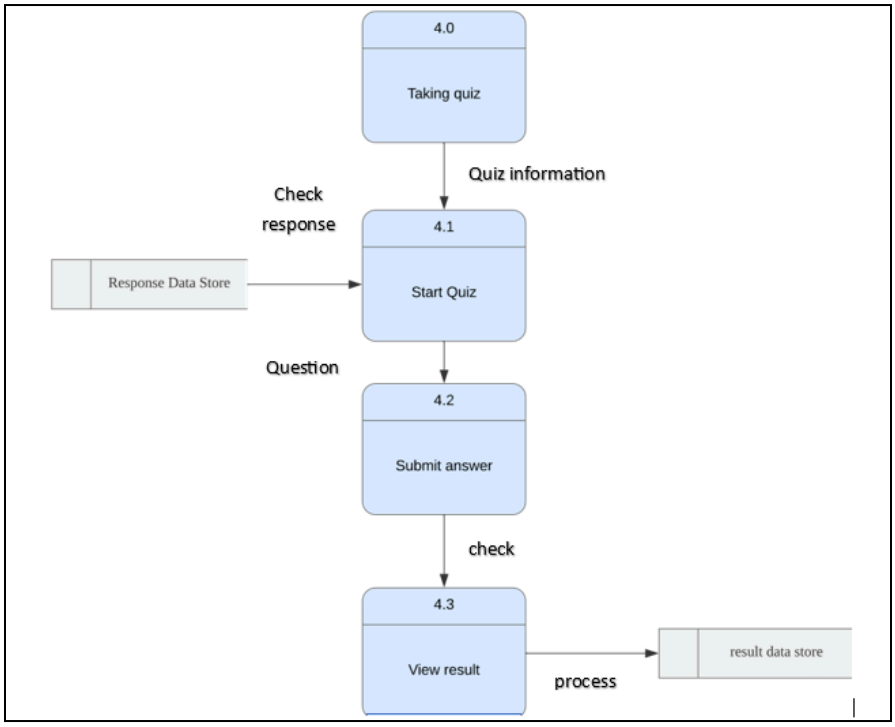

Figure 5.4 Child Diagram for Online Quiz Platform

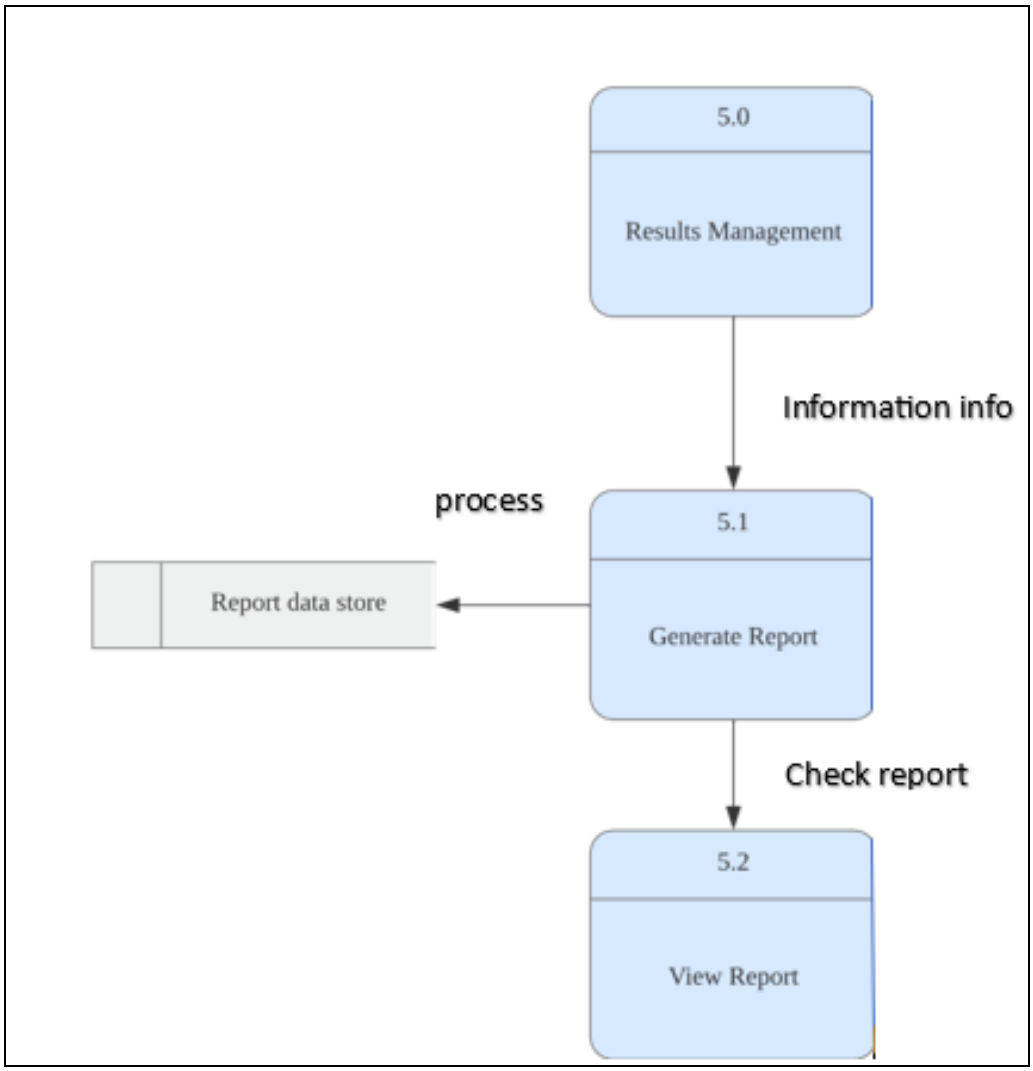

Figure 5.5 Child Diagram for Online Quiz Platform

6.0 SUMMARY OF REQUIREMENT ANALYSIS PROCESS

To begin with the analysis process for the online quiz platform, it is required to implement an as-is analysis to determine the limitations of the system. It unveiled the fact that the Quizzes are conducted in black and white on paper, and it is done personally and descriptively, and errors can easily occur. Such integrated action may lead to Inconsistencies and delays in feedback Mezi owns. Activity: Requirement analysis The first step towards building the Online Quiz Platform was to analyze the current system because the first step in any project is to understand the deficiencies of the current system that needs to be improved. The findings established that the current methods applied in the creation, implementation and management of quizzes are largely traditional, arithmetical and highly likely to contain mistakes. the irregularities,manpower contamination, and time delays due to these procedures attributed to its sporadic management and late feedback. The outcomes proved that online quiz taking was essential which signaled that within the few years before, the call for online quiz shall rise. . Computerized quizzes and associated feedback, database management systems, automated performance checks, and real-time performance analysis. Look at the methodology used in this research; data was obtained from observation studies and by administering questionnaires to many potential users, interviews with educators and IT trainers, and observational interviews. The shareholders provided suggestions that included instrumentation of test design methods that are easily configurable and portable, having high levels of regard for security, and incorporating easily navigable interfaces at the user end. They identified these specific ideas and defined them as a blueprint for the functional and non-functional needs for the new platform.

The functional requirements were generic in nature and were oriented towards the inputs that users provide, the processes that go through for creating quizzes, and the outputs that are generated in the quickest and most efficient manner. Inputs were user registration, making quizzes, taking quizzes, submitting quizzes and giving feedback, while outcomes were user identification, quizzes administration, questions and answers protocols, evaluation of answers, and feedback assessment. These included user interfaces such as the Learning Management System dashboards, quiz completion reports, certificates, and other performance analytics reports. Specific requirements concerned with quality health, safety, environmental and security included flexibility, speed to service request, features to ensure continuity of service, and vulnerability to information security threats. It has to accommodate many lecturers or users effectively, efficiently and effectively, be fast in speed, secure, and accessible at any one time. have strong security. It also had to be non-technical with low maintainability since not all users are IT savvy and could adapt to the modern systems ability to dynamically meet changing user requirements.