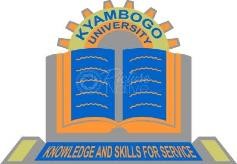
**KYAMBOGO UNIVERSITY**



**SCHOOL OF COMPUTING AND INFORMATION SCIENCE**

**DEPARTMENT OF COMPUTER SCIENCE**

# COURSE: INFORMATION TECHNOLOGY AND COMPUTING

**COURSE UNIT: SCS2203 INTRODUCTION TO DATABASE MANAGEMENT SYSTEMS**

**TASK: GROUP ASSIGNMENT**

**YEAR: TWO SEMESTER: TWO**

**LECTURER’S NAME: MRS. NANTONGO BARTHA ALEXANDRIA**

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**Daycare Center Database System Design**

**1. Introduction**

Daycare centers are crucial support systems for working families. With parents spending significant hours away from home, ensuring the safety and proper care of their children is a priority. However, traditional daycare systems often rely on manual processes that are inefficient and prone to data loss. A digital database system is necessary to improve service delivery, ensure real-time updates, and foster transparency between daycare centers and parents.

**2. Problem Statement**

Many parents find it difficult to monitor their children's well-being during daycare hours due to poor communication and lack of reliable data systems. Current practices involve scattered records of meals, health status, caregivers, and attendance, leading to trust issues, poor data tracking, and possible miscommunication during emergencies. These gaps call for a robust and normalized database solution.

**3. Proposed Solution**

The proposed solution is the development of a well-structured and normalized database system for a daycare center. This system will store and manage information on children, parents, caregivers, and daycare centers while ensuring data integrity, ease of access, and transparency. It will allow real-time updates and support integration with web-based interfaces for parent interaction.

**4. Unique Aspects and Innovation**

Real-time updates: Enables parents to access live reports on their child's activities and health.

Normalized database structure: Minimizes redundancy and enhances consistency.

Scalable design: Can be expanded to accommodate more children, caregivers, or centers.

Security features: Designed to integrate with authentication systems for secure access.

Diet and health tracking: Separates and manages child dietary plans and health statuses.

**5. Project Outline and Methodology**

**Step 1: Data Collection**

Gathered sample records from a typical daycare environment, including child, parent, and caregiver data.

**Step 2: UNF Analysis**

Compiled data into a single flat table, identifying repeating and grouped data.

**Step 3: Normalization**

1NF: Removed repeating groups, ensured atomicity.

2NF: Eliminated partial dependencies by separating contacts and diets into new tables.

3NF: Removed transitive dependencies and ensured all attributes depend only on the primary key.

**Step 4: Table Design**

Created final tables using appropriate primary and foreign keys.

**Step 5:**

We integrated the back end with the front end

**6. Evaluation Plan**

Validation of Data Integrity: Ensure no redundancy or anomalies through test entries.

Usability Testing: Simulate use by daycare staff and parents to verify ease of data access.

Performance Testing: Assess the efficiency of the system under different data loads.

Security Evaluation: Test for unauthorized access and ensure role-based access control.

**7. Literature Review and Background**

Previous research on early childhood systems and digital daycare platforms (e.g., Brightwheel, HiMama) emphasizes the importance of structured data for health tracking, security, and parent communication. Studies on database normalization (Date, 2004) demonstrate how redundancy increases the risk of inconsistencies and highlight the benefits of 3NF in transactional systems. The use of relational models in managing daycare activities ensures that each child’s data is both secure and accessible.

**8. Significance of the Study**

This project provides a framework for modernizing daycare center operations. It empowers staff with organized tools for managing children's welfare while keeping parents engaged and informed. The solution supports real-time decision-making and enhances the overall quality of care.

**9. Project Management**

Timeline:

Week 1–2: Requirement gathering and initial data design

Week 3–4:

UNF to 3NF normalization

System testing and validationWeek

Final documentation and presentation

Tools Used:

MySQL for database implementation

Microsoft Excel for initial data structuring

ERD tools for visual modeling using design

PHP for intergration

HTML for doing the front end

CSS(tails wind) for styling the HTNL page

Version control for colaborating

Vanilla JavaScript for making it more interactive.

Team Roles:

Designer: Database structure and ER diagrams

Developer: SQL implementation

Analyst: Testing and documentation

**10. Recommendations**

Develop a user-friendly interface for daycare staff and parents.

Implement regular data backups and security audits.

Train daycare staff in basic data entry and system use.

Integrate with SMS/email systems for instant parent notifications.

Continuously evaluate and refine the database based on feedback.

1. **Conclusion**

The proposed daycare center database addresses the need for structured, accessible, and secure information management. Through normalization, it ensures data integrity and efficiency. When integrated with real-time tools, it significantly improves communication between parents and caregivers, ensuring trust and child safety.