Department of Information and Communication Technology

Faculty of Technology

University of Ruhuna

System Requirements Specification

Database Management System Practicum

ICT 1222

Group 03

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Content

- Performance
- Security
- Usability
- Reliability
- Scalability
- Maintainability

1. Introduction

1.1. Purpose

The purpose of the Student Management System (SMS) is to provide an integrated solution for managing student information, attendance, marks, and results for the Faculty of Technology at the University of Ruhuna. The system aims to streamline administrative tasks, ensure accurate record-keeping, and facilitate efficient academic management.

1.2. Scope of Student Management System

The SMS will manage student details, course information, attendance records, marks, and grades. It will include role-based access for different users, including Admin, Dean, Lecturers, Technical Officers, and Students, ensuring secure and appropriate access to data. Each user has specific authorities and they are,

- Manage student data
- Course management
- Medical handling
- Attendance tracking, marks and grades management
- Eligibility determination

1.3. Abbreviations

- DBMS – Database Management System
- SRS – Software Requirements Specifications
- SMS – Student Management System
- CA – Continuous Assessments
- SGPA – Semester Grade Point Average
- CGPA – Cumulative Grade Point Average
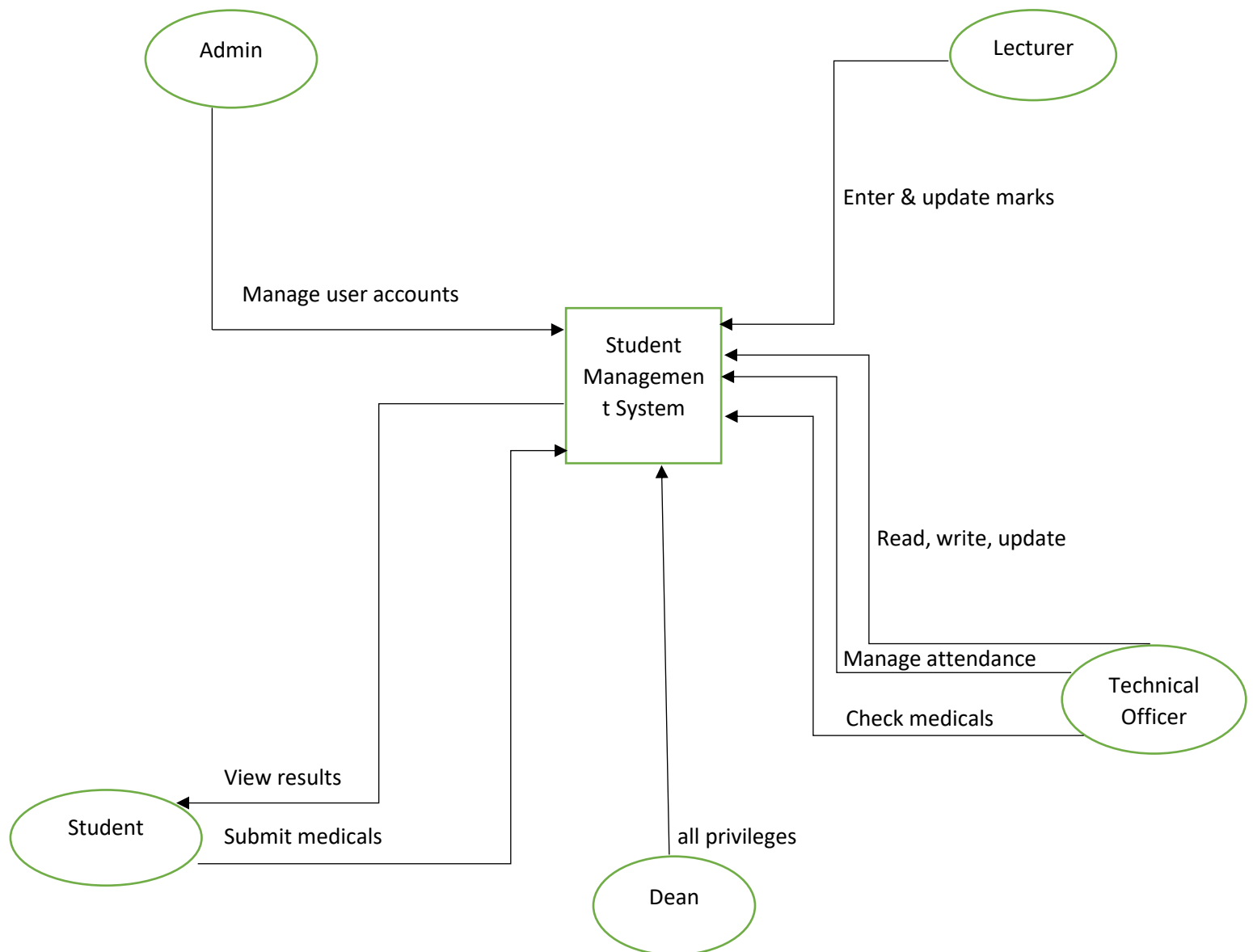
2. System Overview

The **Student Management System (SMS)** is a comprehensive platform designed to handle academic administration within an educational institution. It allows for efficient management of student records, course details, attendance, and marks. The system features role-based access control to ensure that users can perform tasks relevant to their roles, such as recording attendance or generating reports.

2.1. Overview of the Student Management System

The SMS will support the following:

- **User Management:** Manage user accounts and permissions.
- **Course Management:** Maintain course details and schedules.
- **Attendance Management:** Record and track student attendance, handle medical leaves.
- **Marks Management:** Record and calculate academic marks and grades.
- **Eligibility and Reporting:** Check exam eligibility and generate various reports.

2.2. Context Diagram

Admin

Lecturer

Enter & update marks

Manage user accounts

Student Management System

Read, write, update

Manage attendance

Technical Officer

Check medicals

View results

Student

Submit medicals

all privileges

Dean

2.3. Features

- **User Management:** Role-based access control for Admin, Dean, Lecturers, Technical Officers, and Students.
- **Course Management:** Manage course details, schedules, and associated records.
- **Attendance Management:** Record and track attendance, including medical leaves and eligibility.
- **Marks Management:** Record marks for assessments, calculate grades, and ensure eligibility.
- **Reporting:** Generate detailed reports for attendance, marks, grades, and academic performance.

3. Functional Requirements

3.1.   Functional requirements of Admin

- Create, update, and delete user accounts for Dean, Lectures, Technical Officers, and Students, and assign permissions.
- Manage and grant necessary access rights to all system users.
- Manage all tables related to students, attendance, marks, and course units.
- Monitor user activities, ensure data integrity, and manage security protocols like backups.

3.2.   Functional requirements of Dean

- Access and view student details, including marks and attendance.
- Check attendance records for all students and courses.
- Access student marks for quizzes, assessments, mid-semester, and final exams.
- Review student's eligibility based on attendance and marks.

3.3.   Functional requirements of lecturer

- Enter and update student marks for quizzes, assessments, mid-semester, and final exams.
- Access student details and academic performance.

- Check student's eligibility for exams based on attendance and continuous assessment (CA) marks.

3.3.   Functional requirements of Technical Officer

- Identify and resolve inconsistencies in attendance records, ensuring accuracy across tables.
- Generate attendance summaries for courses or individual students.
- Assist lecturers in updating or correcting attendance-related data.
- Track student eligibility based on attendance records and medical submissions.

3.4.   Functional requirements of Students

- Check personal attendance records and percentages.
- Access marks for quizzes, assessments, mid-semester, and final exams.
- View eligibility status for exams based on attendance and marks.
- Review grades for each subject and overall performance.

4. Non-Functional Requirements

- **Performance:** The system should handle simultaneous user access and operations efficiently.
- **Security:** Implement role-based access control to protect sensitive data.
- **Usability:** The system should have an intuitive interface for ease of use by all user roles.
- **Reliability:** Ensure high availability and fault tolerance to minimize downtime.
- **Scalability:** The system should be able to accommodate an increasing number of users and data.
- **Maintainability:** The system should be easy to update and maintain with minimal disruption.