Software Requirements Specification (SRS)

College Management System

1. Introduction

1.1 Purpose

This SRS provides a comprehensive description of the requirements for the College Management System (CMS). The purpose is to outline the system's intended capabilities, features, and constraints for stakeholders, developers, and testers.

1.2 Scope

The CMS is designed to automate and manage key operations in a college, including student registration, course management, examination processing, fee collection, attendance tracking, faculty management, and communication between stakeholders.

1.3 Definitions, Acronyms, and Abbreviations

- CMS: College Management System
- UI: User Interface
- DBMS: Database Management System
- API: Application Programming Interface

1.4 References

- IEEE SRS Standard 830-1998
- College administrative workflows

1.5 Overview

The rest of this document details the system's overall description, features, interfaces, and requirements.

2. Overall Description

2.1 Product Perspective

The CMS is a web-based (and/or mobile) application built to integrate with the existing college IT infrastructure, providing a unified platform for all administrative and academic processes.
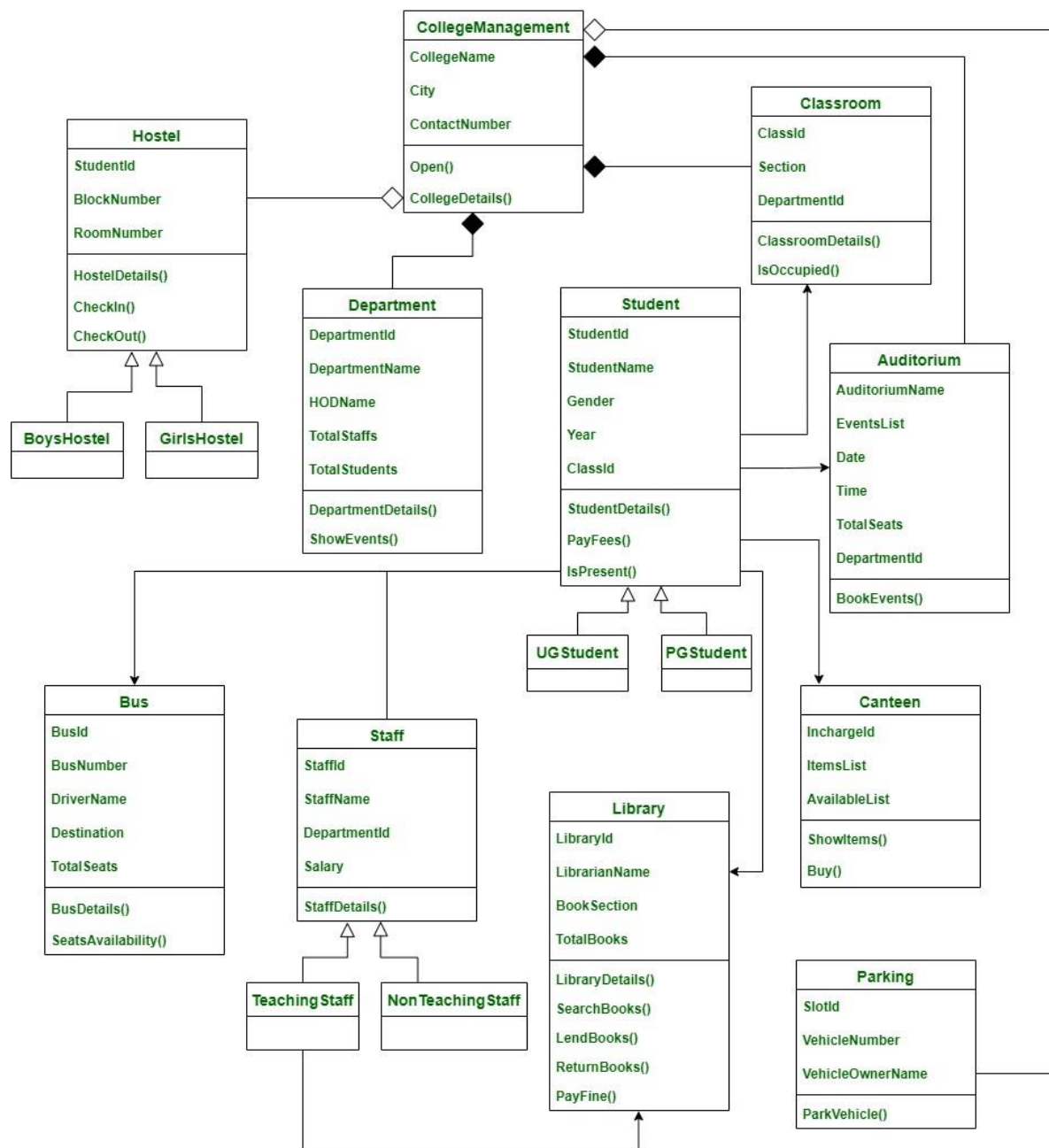
[Image from GeeksForGeeks]

2.2 Product Functions

- Student Information Management

- Faculty Information Management

- Course and Enrollment Management

- Attendance and Examination Module

- Academic Performance Tracking

- Fee Management

- Notifications and Communication

2.3 User Classes and Characteristics

- **Admin:** Full access to all modules.

- **Faculty/Staff:** Access to modules related to teaching, attendance, and exams.

- **Students:** Access to personal records, course enrollment, and grades.

- **Parents:** Limited view of student academic and fee status.

- **Use case diagram:**
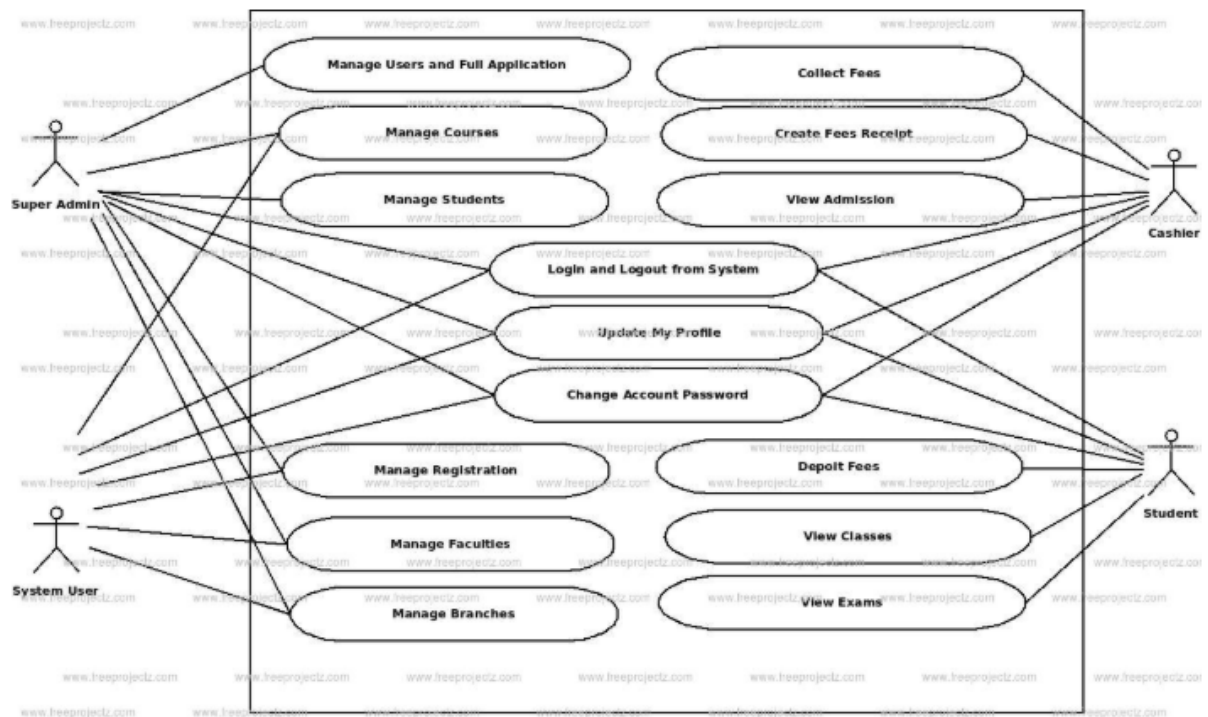
2.4 Operating Environment

- Web server (e.g., Apache, Nginx)

- Database server (e.g., MySQL/PostgreSQL)

- Supported browsers: Chrome, Firefox, Edge, Safari

- Mobile support (optional)

2.5 Design and Implementation Constraints

- Compliance with applicable educational data security regulations.

- Modular, scalable codebase.

2.6 Assumptions and Dependencies

- Reliable internet connectivity assumed.

- Integration with third-party payment gateways for fee management.

3. System Features

Feature	Description	Actors
Student Registration	New students can register online, upload documents, and receive credentials.	Admin, Student
Course Management	Admin can add/edit courses; students enroll in courses.	Admin, Student
Attendance Tracking	Faculty can mark attendance; students/parents can review.	Faculty, Student, Parent
Examination and Results	Faculty can create exams, enter marks; students view results.	Faculty, Student
Fee Payment and Tracking	Online fee payment, receipt generation, payment history view.	Student, Admin
Feature	Description	Actors
Communication Portal	Notifications, circulars, and chat functionality.	All Users
Reporting	Generate and export academic/administrative reports.	Admin

4. External Interface Requirements

4.1 User Interfaces

- Responsive web interface for all user types.

- Mobile app (optional) for students and faculty.

- Dashboard views for each major user role.

4.2 Hardware Interfaces

- Compatible with standard desktop/laptop setups and mobile devices.

4.3 Software Interfaces

- Database: MySQL/PostgreSQL

- Payment Gateway APIs (for fees)

- Email/SMS integration (for notifications)

4.4 Communication Interfaces

- HTTPS for secure communications.
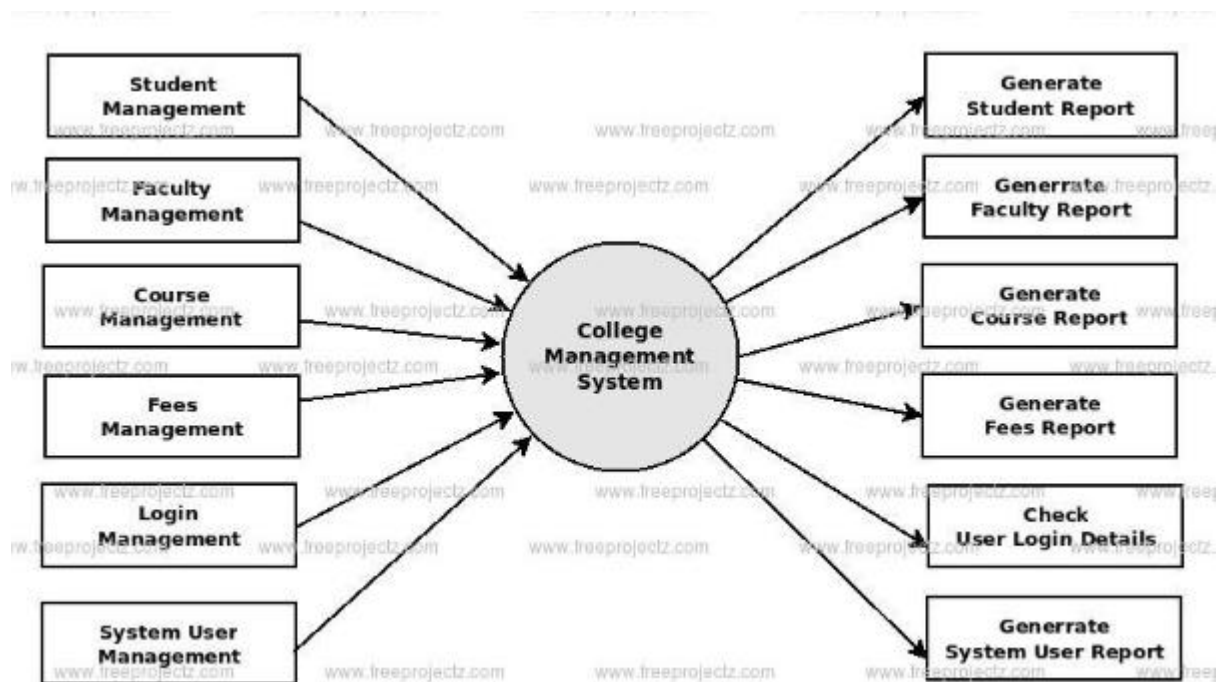
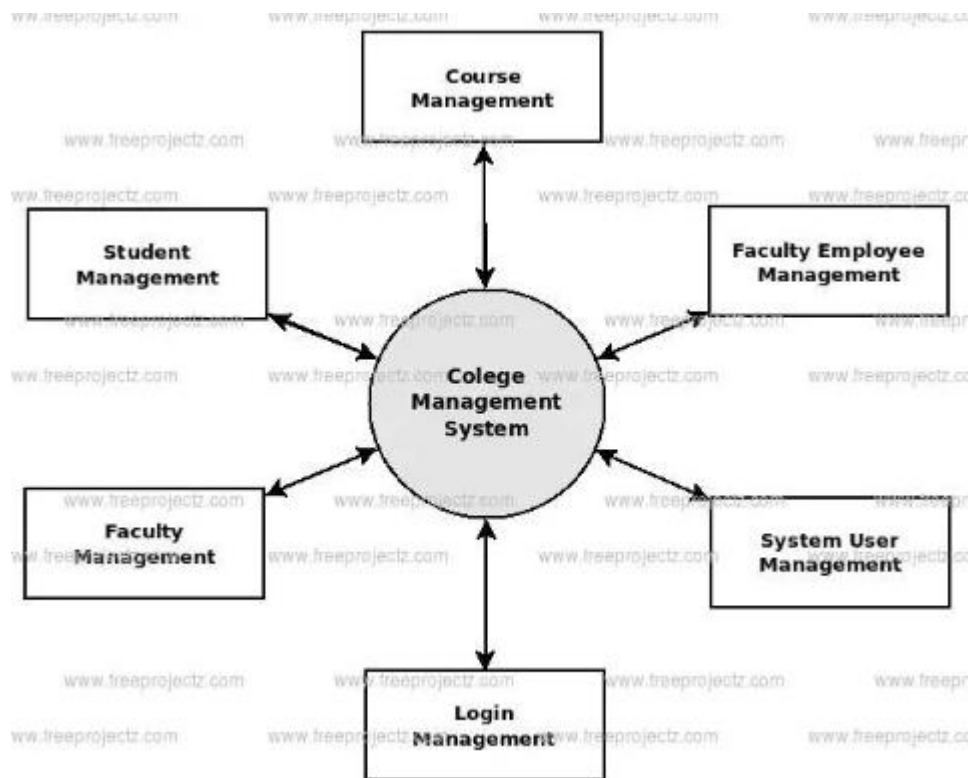- RESTful API endpoints for mobile/third-party integrations.
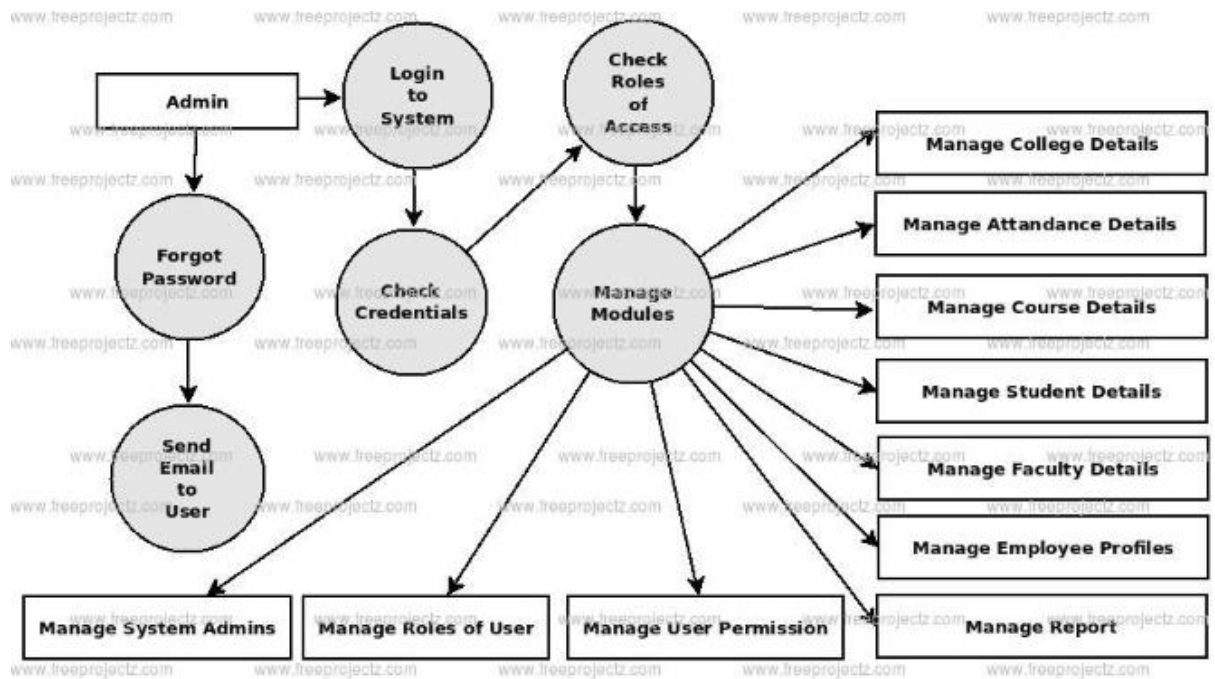
5. Non-Functional Requirements

Requirement	Description
Performance	Should handle at least 1,000 concurrent users.
Security	User authentication, role-based access control, data encryption in transit and at rest.
Reliability	99.9% system uptime target.
Availability	24/7 system access with regular backups.
Usability	Intuitive, accessible UI per WCAG 2.1 standards.
Requirement	Description
Scalability	Modular and cloud-friendly to support future expansion.
Maintainability	Well-documented, modular codebase for easy updates.
Portability	Compatible across Windows, Mac, Linux, and mobile OS browsers.

6. Appendices

- Sample diagrams and workflow charts

- Mockups of key interfaces (to be included as needed)

- Data dictionary (optional)

DATA Flow Digrams level 0, level 1 and level 2 are respectively shown below:

ER diagram is shown below: