Student Academic Record Management System

Technology Used: Python and MySQL

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Objective

The objective of this project is to design and implement a Student Academic Record Management System using Python and MySQL that automates the process of managing student academic information. The system aims to efficiently handle student records such as personal details, course enrollment, attendance, marks, and grades while ensuring data accuracy, security, and quick retrieval.

Overall Description

The Student Academic Record Management System is a database-driven application developed using Python as the front-end programming language and MySQL as the back-end database. It simplifies the traditional manual process of maintaining student academic data by providing a digital solution that ensures accuracy, speed, and security. The system allows administrators to manage student profiles, teachers to record attendance and marks, and students to view their performance reports. The integration of Python (for application logic and GUI or web interface) with MySQL (for data storage and retrieval) ensures a reliable and scalable platform for managing academic records.

Key Features

Python-based GUI or web interface for easy access
MySQL database for secure and structured data storage
Student registration and profile management
Attendance and marks entry by faculty
Automatic grade calculation and report generation
Role-based login system (Admin, Faculty, Student)
Search, update, and delete functionalities
Data backup and recovery options
Simple and user-friendly interface

Required Libraries

Library	Purpose	Installation Command
mysql-connector-python	Connect Python with MySQL database for CRUD operations	pip install mysql-connector-python
tkinter (built-in)	Create GUI windows, labels, buttons, and input fields	Pre-installed
hashlib (built-in)	Encrypt passwords using SHA-256	Pre-installed

Pillow (optional)	Add images (logos/banners) to the GUI	pip install pillow
datetime (built-in)	Manage date and time for attendance	Pre-installed

Database Schema Overview

The database is designed to store and manage all student academic records efficiently using MySQL. The major tables include: - students - courses - subjects - faculty - attendance - marks - users Each table has relationships defined through primary and foreign keys, ensuring data consistency and integrity.

Conclusion

This project provides a simple and efficient solution for educational institutions to manage academic records digitally. By using Python and MySQL, it ensures data accuracy, accessibility, and security while reducing administrative workload. The system is ideal for B.Tech students to learn about database integration, GUI development, and CRUD operations in Python.