

Student Management System

Table of Contents

1. Introduction
2. Features
3. Installation
4. Classes and Methods
5. Database Schema
6. Conclusion

Introduction

The Student Management System is a desktop application built using Python and PyQt5 to manage student records effectively. The application allows users to add, search, and delete student information within an MySQL database, making it an ideal solution for educational institutions seeking to maintain accurate and organized student data.

Features

- **Add Student Records:** Input details such as student ID, name, department, year of study, and enrolled courses via a form-based interface.
- **Search Student Records:** Retrieve and display student information by entering the student ID.
- **Delete Student Records:** Remove outdated or incorrect student records from the database.

Installation

Prerequisites

Ensure you have the following installed:

- Python 3.x
- PyQt5

Classes and Methods

DBHelper

- `__init__(self)`: Initializes the database connection and creates tables if they don't exist.
- `add_student(self, sid, sname, dept, year, course_a, course_b, course_c)`: Adds a student to the database.
- `search_student(self, sid)`: Searches for a student by ID.
- `delete_record(self, sid)`: Deletes a student record by ID.
- `__del__(self)`: Closes the database connection.

AddStudent

- `__init__(self)`: Initializes the Add Student dialog.
- `reset(self)`: Resets the input fields.
- `add_student(self)`: Adds a student record to the database.

SearchStudent

- __init__(self): Initializes the Search Student dialog.
- search(self): Searches for a student record and displays the details.

DeleteStudent

- __init__(self): Initializes the Delete Student dialog.
- delete(self): Deletes a student record from the database.

MainWindow

- __init__(self): Initializes the main application window and sets up menu actions.
- close_application(self): Closes the application.
- add_student(self): Opens the Add Student dialog.
- search_student(self): Opens the Search Student dialog.
- delete_student(self): Opens the Delete Student dialog.

Database Schema

Student Table

- sid: INTEGER PRIMARY KEY
- Sname: VARCHAR
- dept: INTEGER
- year: INTEGER
- course_a: INTEGER
- course_b: INTEGER
- course_c: INTEGER

Faculty Table

- fid: INTEGER PRIMARY KEY
- f_name: VARCHAR

- course: INTEGER
- dept: INTEGER
- class_room: INTEGER

Courses Table

- cid: INTEGER PRIMARY KEY
- c_name: VARCHAR
- faculty: VARCHAR
- credit: INTEGER
- type: INTEGER
- slot: INTEGER
- No_enrolled: INTEGER

Conclusion

The Student Management System is a robust and user-friendly application for managing student records. By leveraging Python and PyQt5, it offers an efficient solution for educational institutions to maintain accurate and organized data. We hope this documentation helps you get started and effectively utilize the system.