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DEVELOPMENT OF STUDENT MANAGEMENT SYSTEM USING PYTHON TKINTER

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ABSTRACT

School Management System manages the information of the students in an institution. In our project, we developed a Graphical User Interface (GUI) for student management system using python tkinter with MySQL database for authentication and management of student record in our study, we evaluated the system effectiveness and our developed system is user-friendly and efficient in managing student records.

Keywords- Mysql; GUI-Graphical User Interface; Python Tkinter.

1. INTRODUCTION

Student management systems provides a platform for managing student records of academic performance and other activities like Register number, Name, Phone number…. etc. In recent times, Many Institutions have turned to automate their student management processes. In this regard, the use of programming languages such as Python and GUI frameworks like Tkinter has become essential in the development of student management systems. The key features of a student management system are to have an authentication system. This is an important security measure that ensures only authorized user can access the system. In this way, the system protects sensitive student data from unauthorized access and manipulation. The concatenation of a database management system such as MySQL enables the storage and retrieval of student data In our project, we researched the growth of a student management system utilizing Python Tkinter and MySQL with a login and signup system. The aim of our project is to create a system that is user-friendly, efficient, and secure.

2. KEY FEATURES OF OUR PROJECT

- **Basic GUI:** The project contains Graphical user interface to display the application
- **Student Data Maintenance:** The project used to store personal information, Grade, Attendance, Fees…etc
- **User-friendly Interface:** The project was user-friendly interface web application so that data can be easily modified.

3. LITERATURE REVIEW

A. Importance of MySQL database

- Performance: Handle complex queries and large datasets efficiently.
- Data security: Ensure the only authorized users can access the data.
- Integration: Allow to share data and functionality with other systems
- Data storage: stores large amount of data

B. Advantages of using Python Tkinter

Advantages:

- Easy to use
- more flexible
- provides variety of methods for geometry management
- easy to understand and master.

Implementation details

- **Importing required modules:**
- **Tkinter** – To create the GUI.

1. **pymysql** – To connect the program to the database and store information in it.
2. **Tkinter.messagebox** – To show a display box.

Initializing the GUI Window

By creating the object of TK () as the main. Give the title of the window and size of the window using geometry method

- **Placing components in the left frame**

  In left frame, we added a button like Add, view, update, delete, clear,

  Exit

- **Add**-To add a new student information
- **View**-By entering the primary key, we can see the detail of a student
- **Update**-By entering the primary key, we can make changes in database of student
- **Delete**-by entering primary key, we can delete the record of a student
- **Clear**-Used to clear the GUI-screen
- **Exit**- To close the GUI window

- **Placing components in the Right frame**

  In right frame, we added a label like register number, Name, Degree, course…etc and also Entry function is used for entering the text

4. CONCLUSION

The aim of our project is to build a student management system using Python Tkinter with authentication system. The development process followed an agile methodology which is way to manage a project by breaking it into several phases. System was designed to track the record of a student like Adding new record, View the record, Update the record by using a primary key, delete the particular record...etc by a particular institution. The system was evaluated through user testing and analysis. The system was highly secured as it has a authentication mechanism. The steps involved in our project is creating a user interface, integrating the MySQL database and implementing authentication mechanism. In summary, this project provides a reliable, efficient and user- friendly system to manage the record of a students

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