Faculty of Engineering

University of Ruhuna

Project Proposal

Student Registration System

Group Members

Hariharasakthy N.	EG/2020/3956
Praveenan J.	EG/2020/4119

Overview

The Student Registration system is a computerized system that automates the student registration process in Universities, Schools etc. The registration system will not do only the registration process but also some other advance features as well like displaying grades for every subjects & GPA. At the same time for the improvement of user accessibility of the proposed system ,this system should include the crud operations like create, read, update & delete. By considering these extra features this application will be developed using the WPF application in C# programming language.

Methodology

Here, the WPF application is going to be used for GUI with MVVM pattern to implement this program.Windows Presentation Foundation (WPF) is a graphical subsystem developed by Microsoft for rendering user interfaces in Windows-based applications. MVVM stands for Model-View-ViewModel, which is a design pattern for developing GUI applications that separates the user interface (View) from the application logic (ViewModel) and the data model (Model). This pattern enables developers to create highly maintainable and testable applications that are easier to update and extend over time.

When building a WPF application using the MVVM pattern, the View is responsible for displaying the UI elements, such as buttons, textboxes, and other controls. The ViewModel is responsible for managing the data and business logic that drives the UI, as well as communicating with the Model to retrieve and store data. The Model is responsible for representing the data and providing access to it, typically through a database.

Using the MVVM pattern with WPF provides several benefits, including:

1. Separation of Concerns: The MVVM pattern separates the UI logic from the business logic, which makes the application easier to maintain and test.
2. Testability: The MVVM pattern makes it easier to unit test the application's business logic, as the UI and the business logic are decoupled.(By using xUnit)
3. Data Binding: WPF's data binding capabilities allow for easy synchronization between the UI and the ViewModel, reducing the amount of code needed to update the UI.
4. Commanding: WPF's commanding system allows for easy implementation of UI actions, such as button clicks or menu selections, without tightly coupling the UI and the business logic.

Scope of the System

The proposed system will have the following functionalities.

- The system will have the Login screens to the normal user & Admin. According to the user category ,they can select on of these options to enter in to the system .
- The user has to input the user name and password to login. The password should be verified against the stored password in the database.
- There are two types of users with different privileges. The admin user can create normal users who use the system which will be saved in database. The Normal users can enter a username and password to enter to the system.
- The normal user can perform the registration of students. At the same time ,normal user can perform the CRUD operations such as creating a new student ,updating a student's details to the database, deleting a selected student from database & Read the stored student details by using different button elements.
- The system will include at least two entities which are "User" entity to handle login to the system and a "Student" entity to store student information. Here, First Name, Last Name, Registration number & GPA are going to be stored in Student entity.
- Eventually some logic functions will also be added in the student registration system. When normal user input the first name, last name , student registration number & his/her marks to the system ,it will calculate the Grades(A+,A,A-,B+,B,B- etc) , points & finally display the Grade Point Value (GPA) in the display by clicking button element.
- To improve the user accessibility, a button is also going to be used to clear all data which is input by user.

User Interfaces

This Student Registration System will have user-friendly interfaces that are easy to navigate.The user interfaces will include the following windows.

- Main Window:
  This window will display the options to login to the system as Admin & User.
- Admin Login window:
  This window will enable the admin users to login to the system using their username & pass word.
- User Details window:
  In this window admin can create a new user account by entering the password & username to the system for store them in database.
- User Login window:
  After selecting the user option in main window ,here normal user can enter to the system by using their username & passwords which are stored in database.
- Student Registration Window:
  This screen will allow the user to register the student's first name, last name, registration number & marks to the system.

Objectives

There are several objectives to implement this Student Registration application.

- Optimize the registration process of students & improve the system's security by using username & password.
- Manage the normal user accounts by the admin user .
- Manage system by some particular users only whose user names & passwords are stored in database by using code first approach.
- Generate the GPA to every individual students by using some logic functions.
- Calculate the grades for every individual subjects of every students.
- Eventually ,by improving the features & user accessibility to increase the attractiveness & user friendly
- Improve the knowledge on WPF application to create modern applications.