

Object-Oriented Development (ICT2123)

Assessment 02 - Class Diagram

Group - 09

Group Members

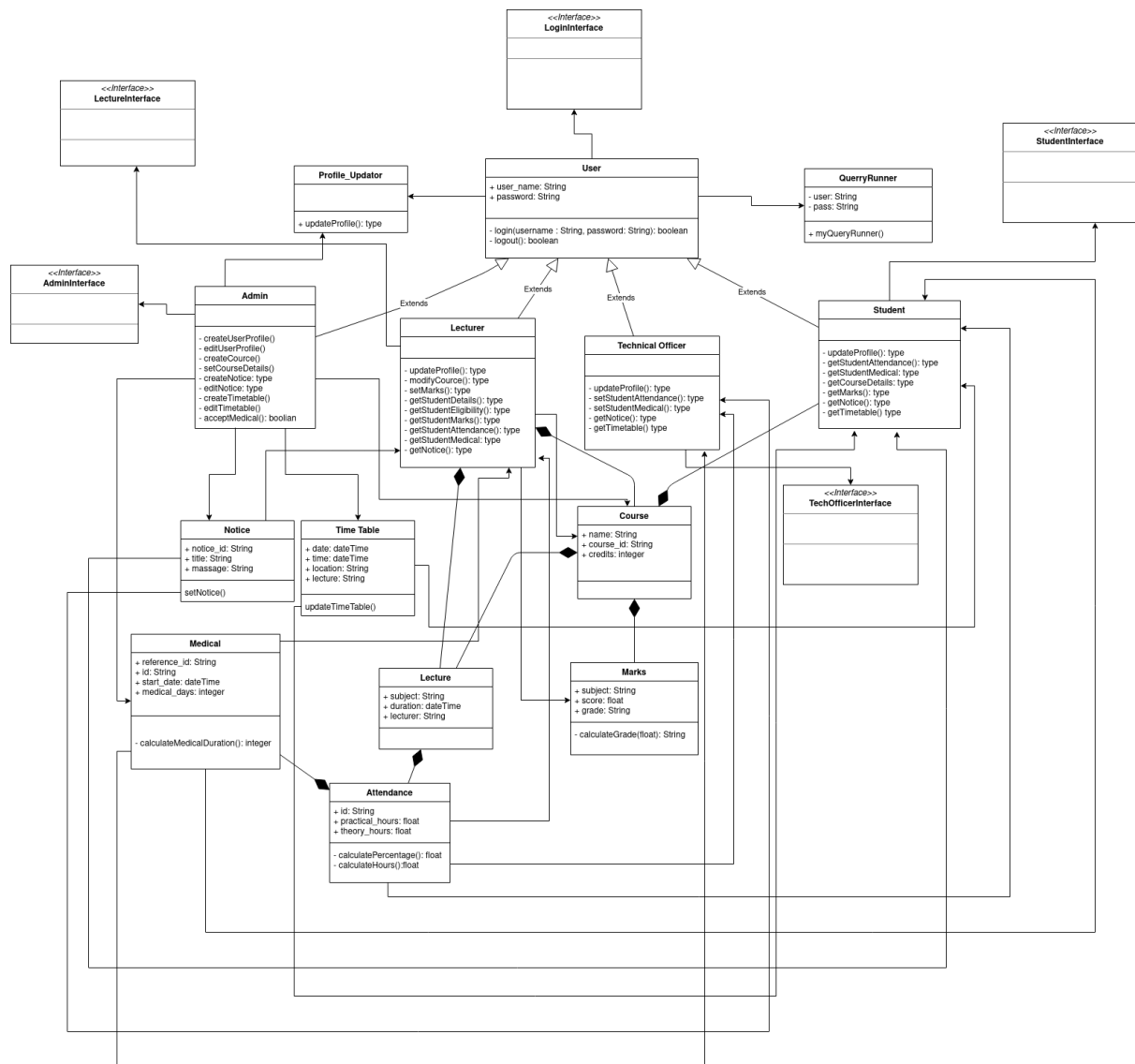
W.M.P.N. Jayaweera (TG/2018/392)

U.W.A.S Sandakelum (TG/2018/397)

W.M.D. Lakshitha (TG/2018/412)

W.M.W.D. Weerakoon (TG/2018/421)

Class Diagram for TECLMS Ruhuna



Object-Oriented Development (ICT2123)

Assessment 02 - ER Diagram

Group - 9

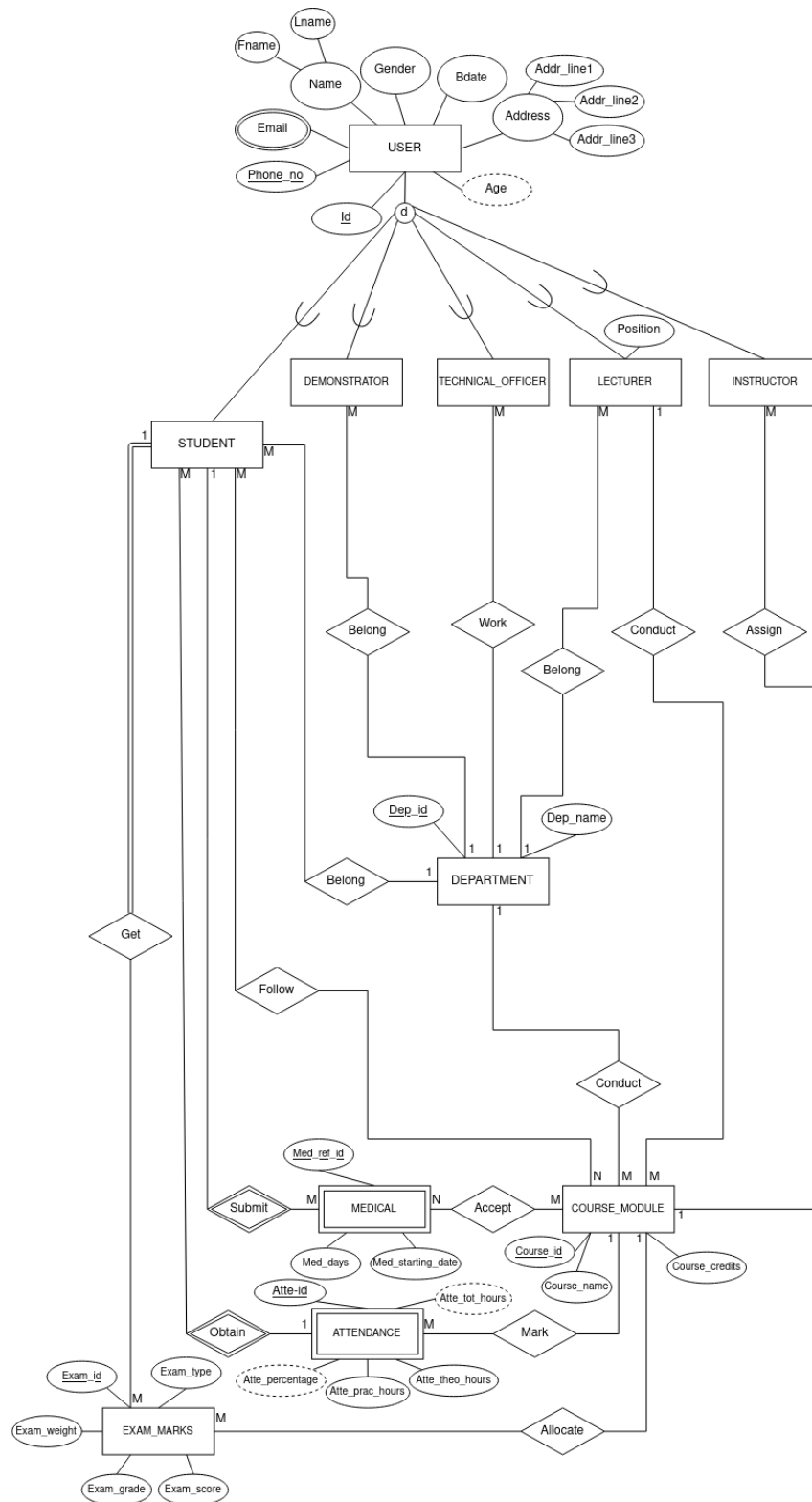
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U.W.A.S Sandakelum (TG/2018/397)

W.M.D. Lakshitha (TG/2018/412)

W.M.W.D. Weerakoon (TG/2018/421)



Entity Relation Diagram for Faculty of Technology Student Management System

Object-Oriented Development (ICT2123)

Assessment 02 - Interface Design Group - 09

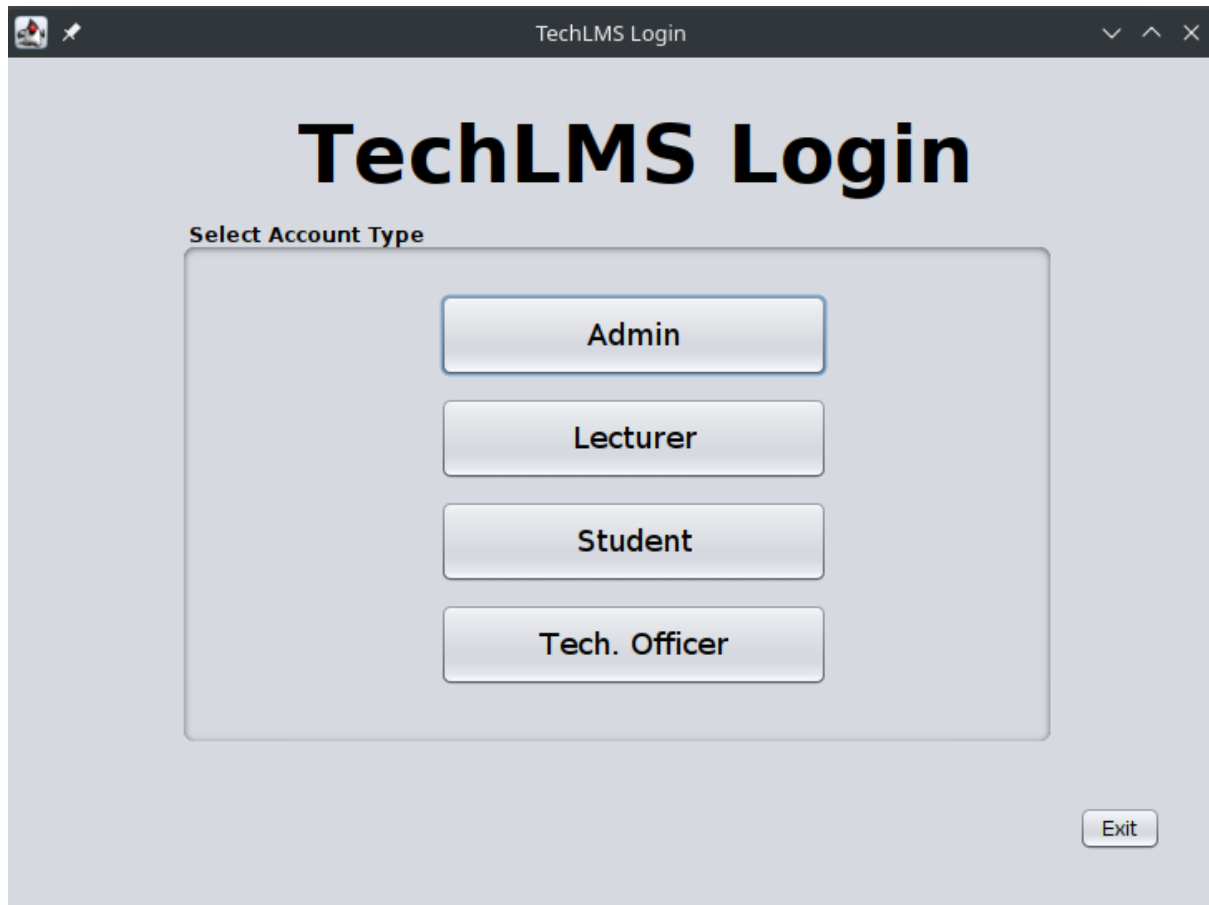
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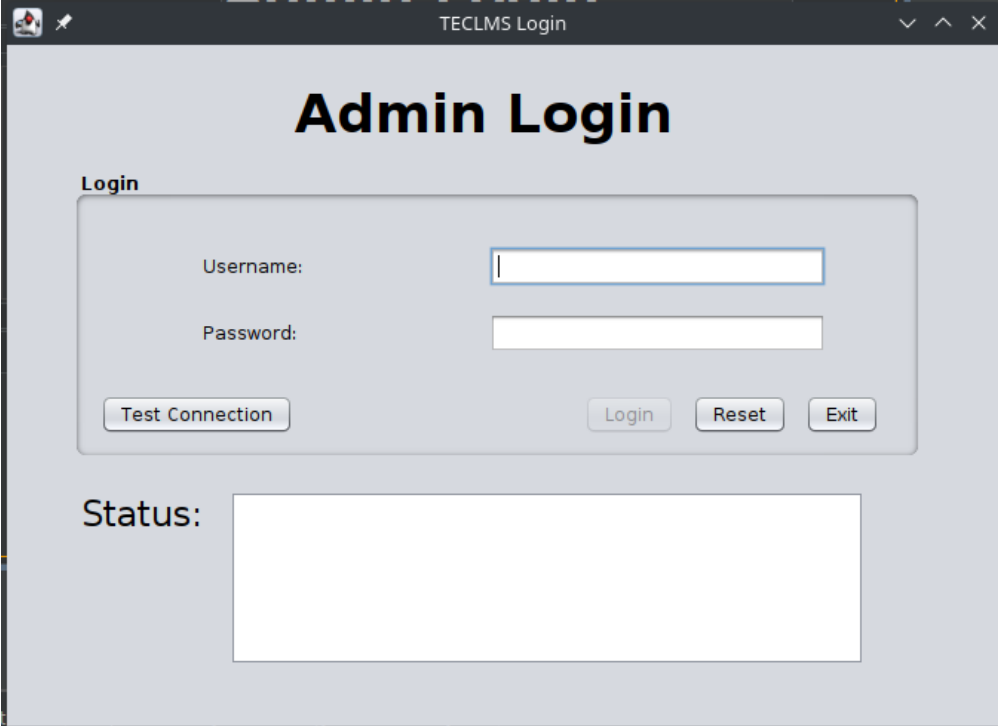
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Common Interface



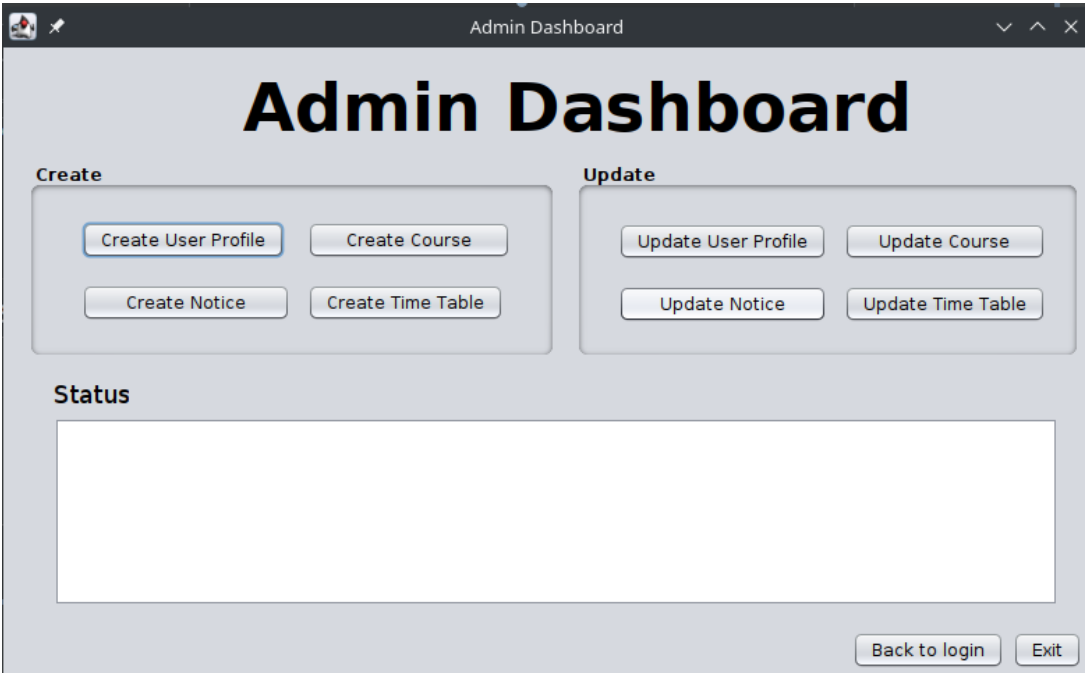
Interfaces for Admin

Login



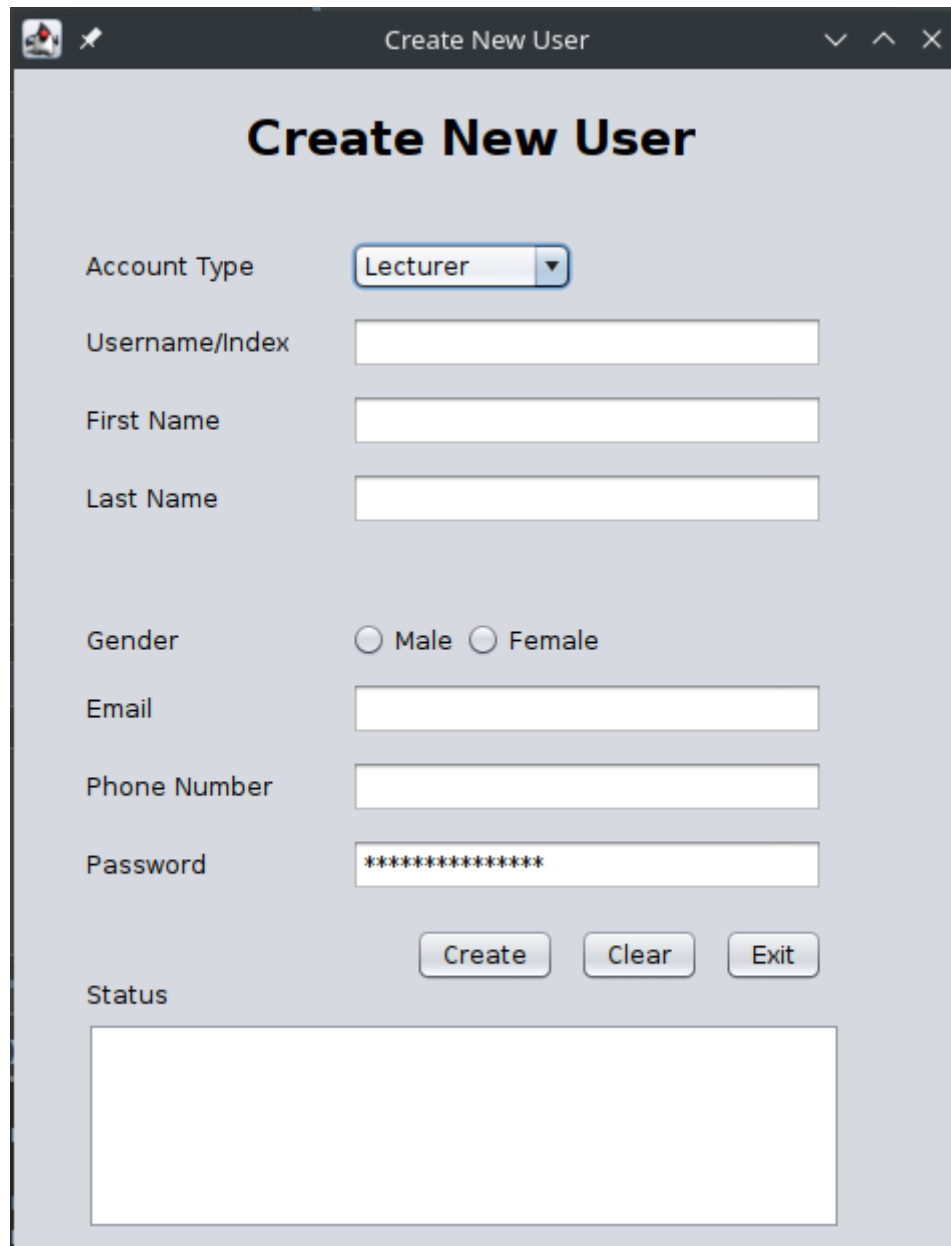
The image shows a web application window titled "TECLMS Login". The main heading is "Admin Login". Below this, there is a "Login" section containing two input fields: "Username:" and "Password:". Below the input fields are four buttons: "Test Connection", "Login", "Reset", and "Exit". At the bottom of the login section, there is a "Status:" label followed by a large empty rectangular box for displaying status information.

Dashboard



The image shows a web application window titled "Admin Dashboard". The main heading is "Admin Dashboard". Below this, there are two main sections: "Create" and "Update". The "Create" section contains four buttons: "Create User Profile", "Create Course", "Create Notice", and "Create Time Table". The "Update" section contains four buttons: "Update User Profile", "Update Course", "Update Notice", and "Update Time Table". At the bottom of the dashboard, there is a "Status" label followed by a large empty rectangular box for displaying status information. In the bottom right corner, there are two buttons: "Back to login" and "Exit".

Create User Profile



A screenshot of a 'Create New User' window. The window has a title bar with a small icon, a maximize button, and a close button. The main content area has a light gray background and a title 'Create New User' in bold black text. Below the title, there are several input fields and a dropdown menu. The 'Account Type' dropdown is set to 'Lecturer'. The 'Username/Index', 'First Name', 'Last Name', 'Email', 'Phone Number', and 'Password' fields are empty. The 'Gender' section has two radio buttons, 'Male' and 'Female', both of which are unselected. The 'Password' field contains ten asterisks. At the bottom, there are three buttons: 'Create', 'Clear', and 'Exit'. Below these buttons is a 'Status' label and a large empty text area.

Create New User

Create New User

Account Type: Lecturer

Username/Index:

First Name:

Last Name:

Gender: ☐ Male ☐ Female

Email:






Phone Number:

Password: *****

Create Clear Exit

Status:

Update User Profile

  Create New User   

Update Existing User

Use checkboxes to mark fields to be updated

Account Type

Lecturer

Username/Index

☐ First Name

☐ Last Name

☐ Gender

☐ Male ☐ Female

☐ Email

☐ Phone Number

☐ Password

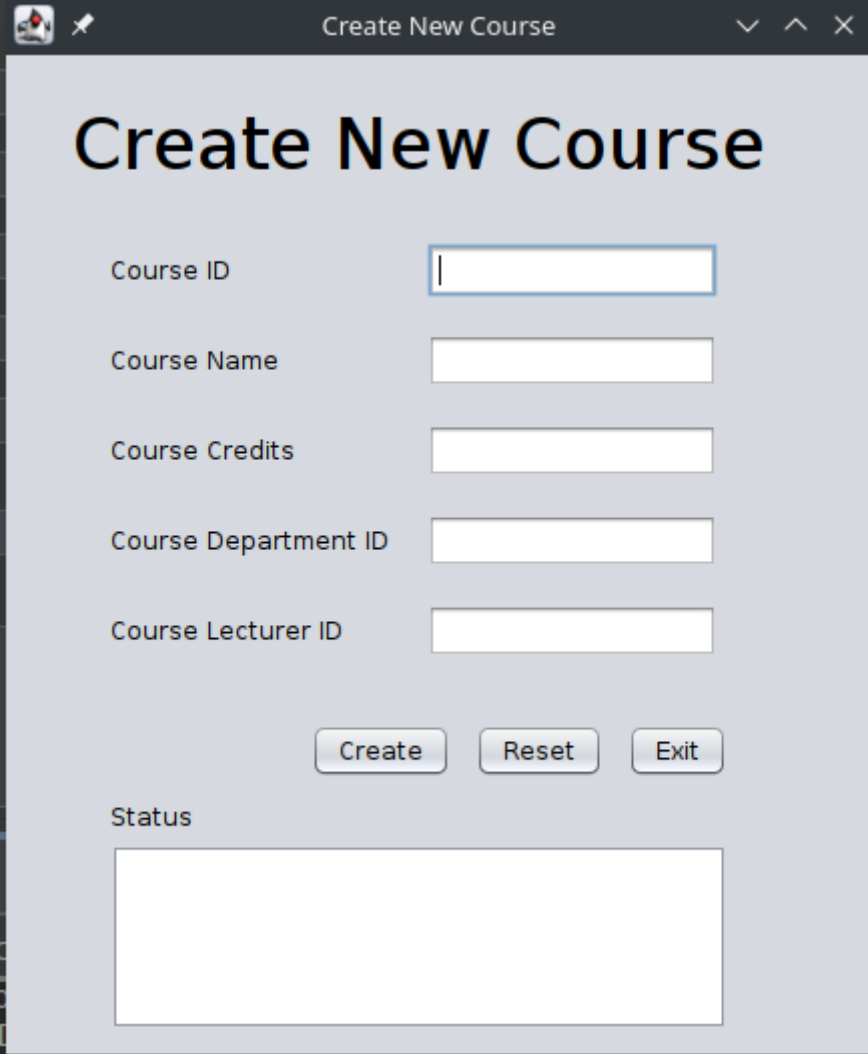
Update

Clear

Exit

Status

Create Course



A screenshot of a software window titled "Create New Course". The window has a dark gray title bar with a small icon on the left and standard window controls (minimize, maximize, close) on the right. The main content area has a light gray background. At the top, the title "Create New Course" is displayed in a large, bold, black font. Below the title, there are five input fields, each with a label to its left: "Course ID", "Course Name", "Course Credits", "Course Department ID", and "Course Lecturer ID". The "Course ID" field is currently active, with a blue border and a vertical cursor. Below these fields are three buttons: "Create", "Reset", and "Exit", arranged horizontally. At the bottom, there is a label "Status" followed by a large, empty rectangular text area.

Create New Course

Create New Course

Course ID

Course Name

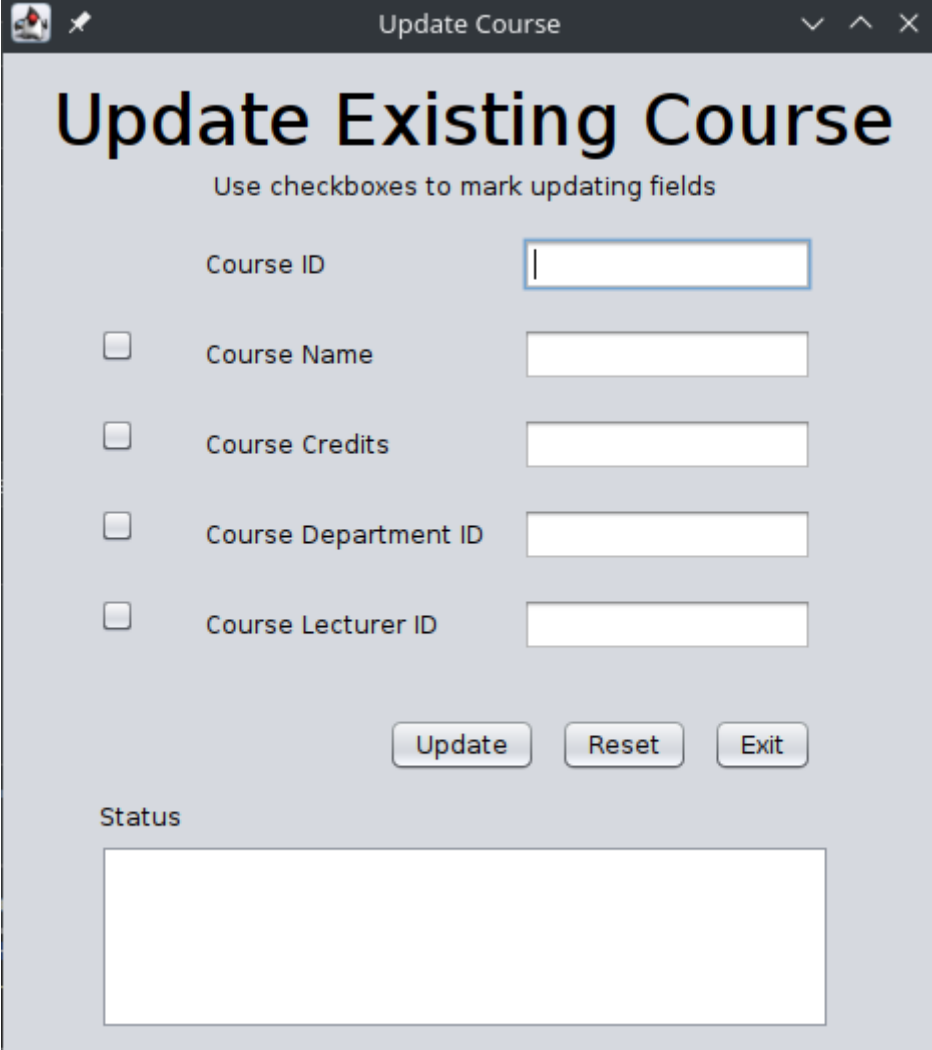
Course Credits

Course Department ID

Course Lecturer ID

Status

Update Course



A screenshot of a software window titled "Update Course". The window has a standard OS title bar with a minimize/maximize/close icon set on the right. The main content area has a light gray background. At the top, the title "Update Existing Course" is displayed in a large, bold, black font. Below the title, a subtitle "Use checkboxes to mark updating fields" is shown in a smaller font. The form contains five rows of input fields. The first row is for "Course ID" and has a text box with a cursor. The following four rows are for "Course Name", "Course Credits", "Course Department ID", and "Course Lecturer ID", each preceded by an unchecked checkbox. At the bottom right of the form area are three buttons: "Update", "Reset", and "Exit". Below these buttons, the word "Status" is followed by a large, empty rectangular text box.

Update Course

Update Existing Course

Use checkboxes to mark updating fields

Course ID

☐ Course Name

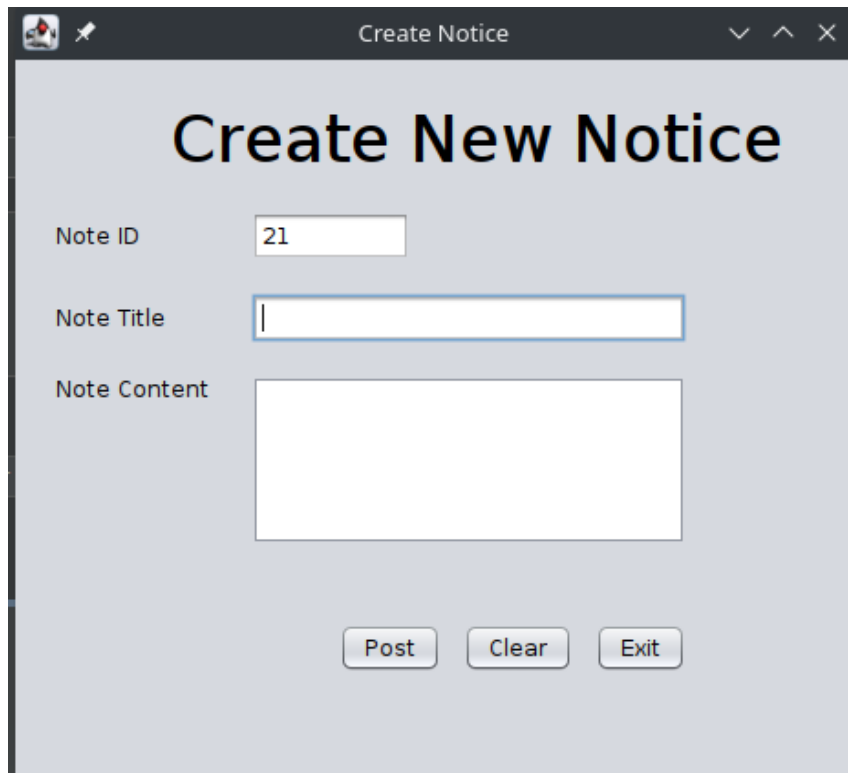
☐ Course Credits

☐ Course Department ID

☐ Course Lecturer ID

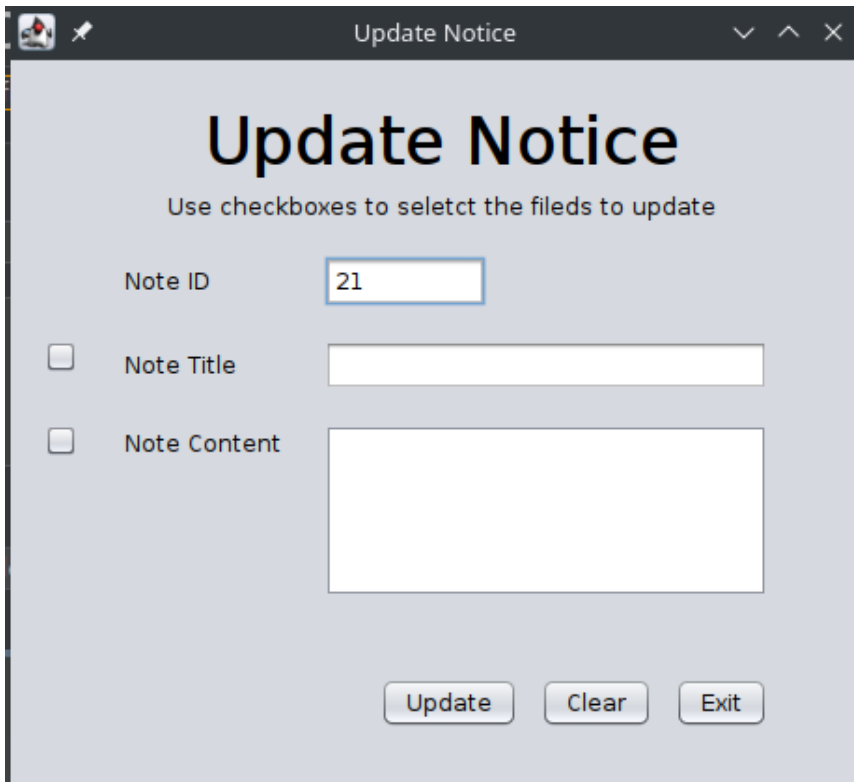
Status

Create Notice



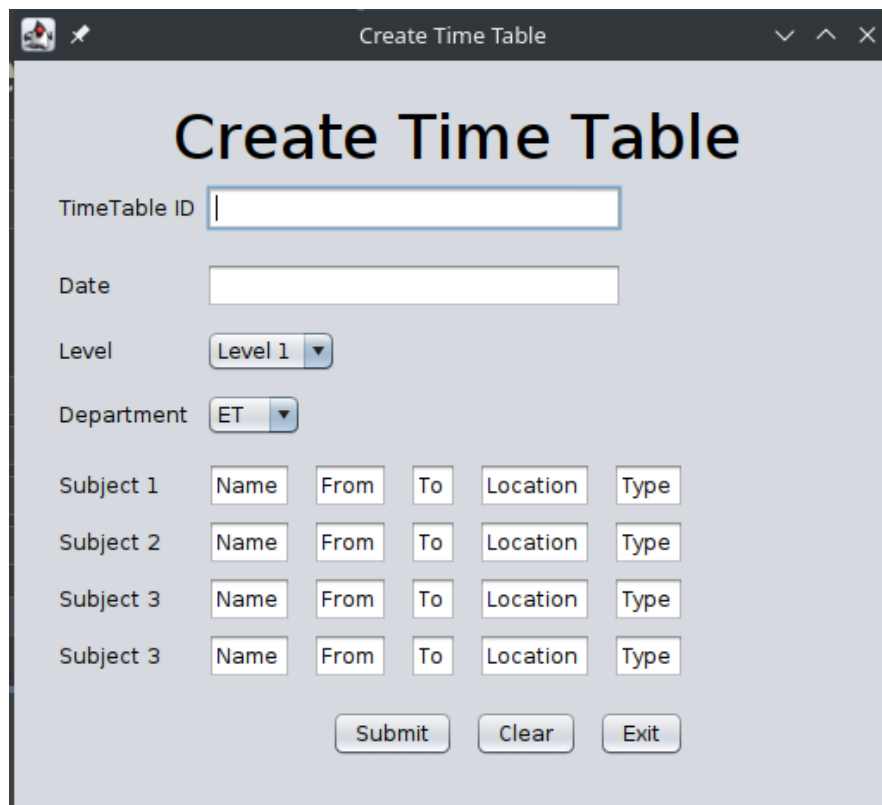
The screenshot shows a window titled "Create Notice" with a standard Windows-style title bar. The main heading is "Create New Notice". Below it, there are three input fields: "Note ID" containing the value "21", "Note Title" which is empty, and "Note Content" which is a large empty text area. At the bottom, there are three buttons: "Post", "Clear", and "Exit".

Update Notice



The screenshot shows a window titled "Update Notice" with a standard Windows-style title bar. The main heading is "Update Notice", followed by the instruction "Use checkboxes to select the fields to update". Below this, there are three input fields: "Note ID" containing the value "21", "Note Title" which is empty, and "Note Content" which is a large empty text area. To the left of the "Note Title" and "Note Content" fields are checkboxes, both of which are currently unchecked. At the bottom, there are three buttons: "Update", "Clear", and "Exit".

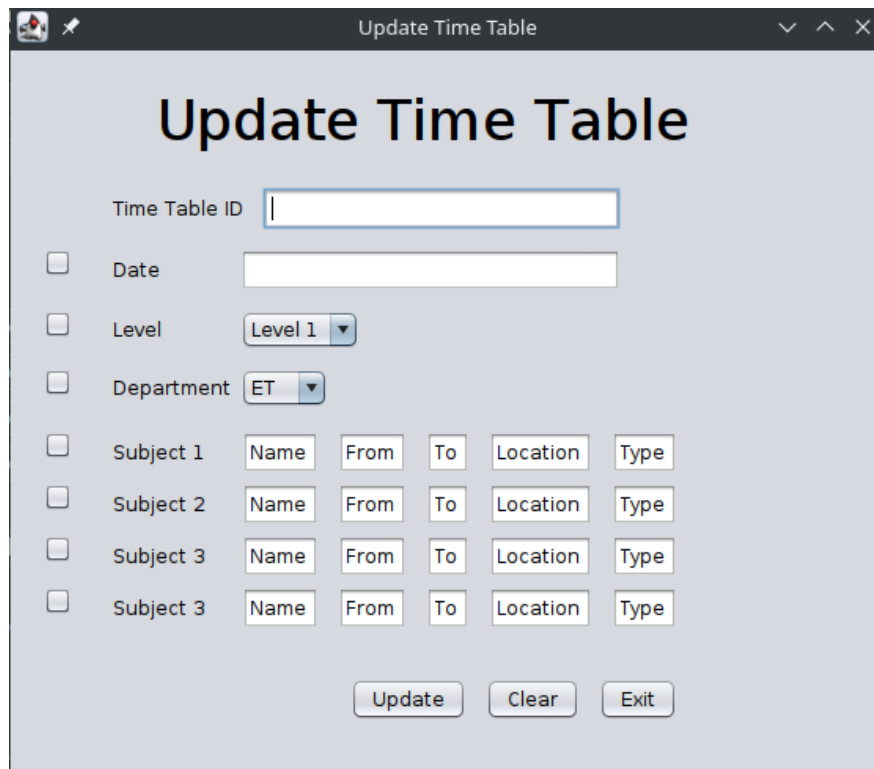
Create Time Table



The 'Create Time Table' window features a title bar with a standard icon, a maximize button, and window control buttons. The main content area has a large title 'Create Time Table'. Below it are several input fields: 'TimeTable ID' (a text box), 'Date' (a date picker), 'Level' (a dropdown menu set to 'Level 1'), and 'Department' (a dropdown menu set to 'ET'). There are four rows of subject information, each with a label ('Subject 1', 'Subject 2', 'Subject 3', 'Subject 3') and a set of five text boxes labeled 'Name', 'From', 'To', 'Location', and 'Type'. At the bottom are three buttons: 'Submit', 'Clear', and 'Exit'.

Subject	Name	From	To	Location	Type
Subject 1					
Subject 2					
Subject 3					
Subject 3					

Update Time Table



The 'Update Time Table' window has a similar layout to the 'Create' window. It includes a title bar and a main title 'Update Time Table'. The 'Time Table ID' field is present. The 'Date', 'Level', and 'Department' fields are each preceded by an unchecked checkbox. The subject rows also have checkboxes to the left of their labels. The bottom buttons are 'Update', 'Clear', and 'Exit'.

Subject	Name	From	To	Location	Type
Subject 1					
Subject 2					
Subject 3					
Subject 3					

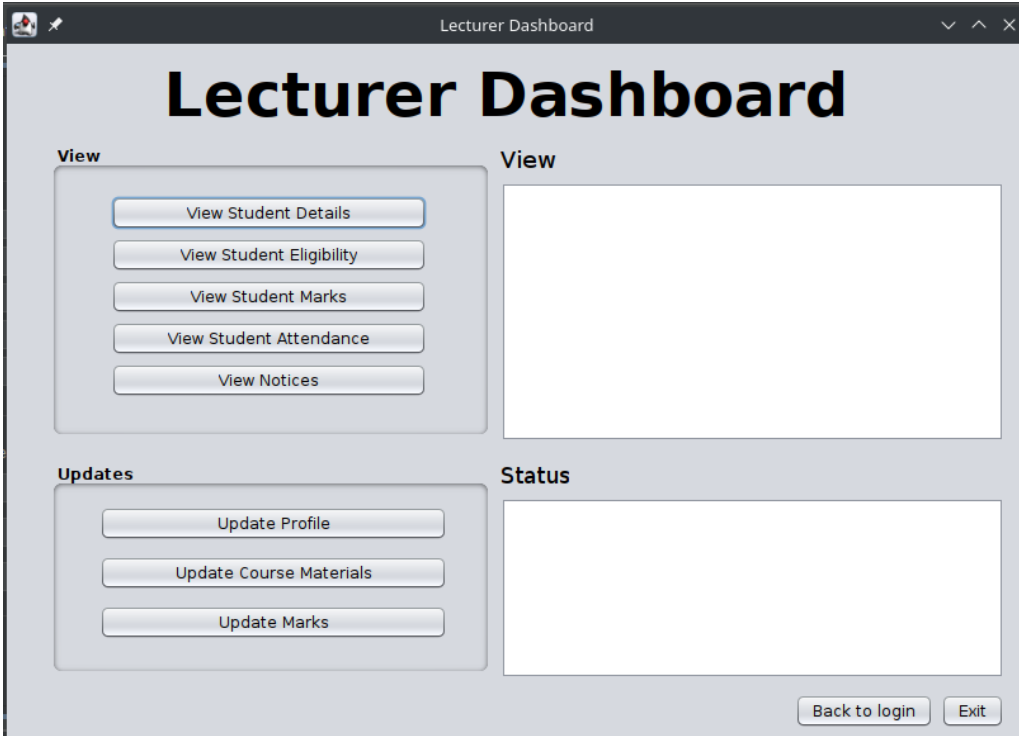
Interfaces for Lecturer

Login



The image shows a window titled "Lecturer Login". It has a light gray background. At the top, the title "Lecturer Login" is displayed in a large, bold, black font. Below the title, there is a section labeled "Login" in a smaller font. This section contains two input fields: "Username:" and "Password:". Below these fields are four buttons: "Test Connection", "Login", "Reset", and "Exit". At the bottom of the window, there is a label "Status:" followed by a large, empty rectangular box for displaying status information.

Dashboard



The image shows a window titled "Lecturer Dashboard". It has a light gray background. At the top, the title "Lecturer Dashboard" is displayed in a large, bold, black font. Below the title, the dashboard is divided into several sections. On the left, there is a "View" section with five buttons: "View Student Details", "View Student Eligibility", "View Student Marks", "View Student Attendance", and "View Notices". Below this is an "Updates" section with three buttons: "Update Profile", "Update Course Materials", and "Update Marks". On the right, there is a "View" section with a large, empty rectangular box. Below this is a "Status" section with another large, empty rectangular box. At the bottom right of the window, there are two buttons: "Back to login" and "Exit".

Update Profile



The image shows a web application window titled "Update Profile". The window has a dark gray title bar with standard minimize, maximize, and close buttons. The main content area has a light gray background. At the top, the title "Update Profile" is displayed in a large, bold, black font. Below the title, there is a section labeled "Inputs" in a smaller, bold, black font. This section contains a light gray rounded rectangle with a thin border. Inside this rectangle, there are five input fields: "First Name" (a text input with a blue border), "Last Name" (a text input), "Email" (a text input), "Phone Number" (a text input), and "Profile Picture" (a text input followed by an "Upload" button). Below the "Inputs" section, there is a "Status" label followed by a large text area with a vertical scrollbar. At the bottom of the window, there are three buttons: "Dashboard", "Reset", and "Update Profile".

Update Profile

Update Profile

Inputs

First Name

Last Name

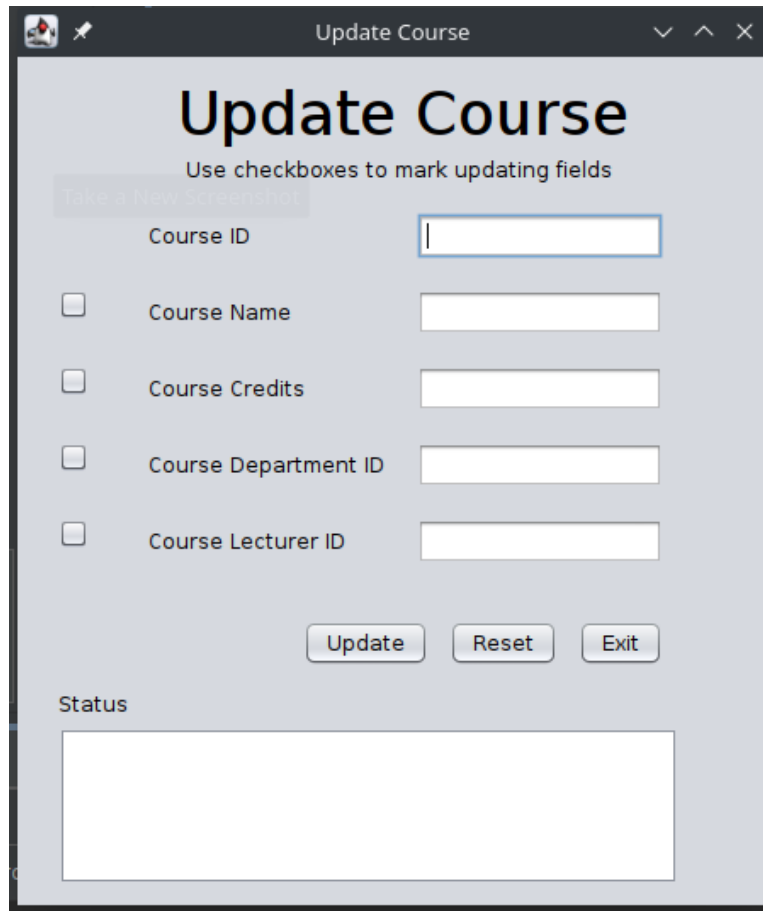
Email

Phone Number

Profile Picture

Status

Update Course



The 'Update Course' application window has a title bar with a standard icon, a maximize button, and window control buttons. The main content area features a title 'Update Course' and a subtitle 'Use checkboxes to mark updating fields'. A 'Take a New Screenshot' button is located in the top left. The form includes a 'Course ID' text field, followed by four rows of checkboxes and text fields for 'Course Name', 'Course Credits', 'Course Department ID', and 'Course Lecturer ID'. At the bottom, there are 'Update', 'Reset', and 'Exit' buttons, and a 'Status' label above a large empty text area.

Update Course

Use checkboxes to mark updating fields

Take a New Screenshot

Course ID

☐ Course Name

☐ Course Credits

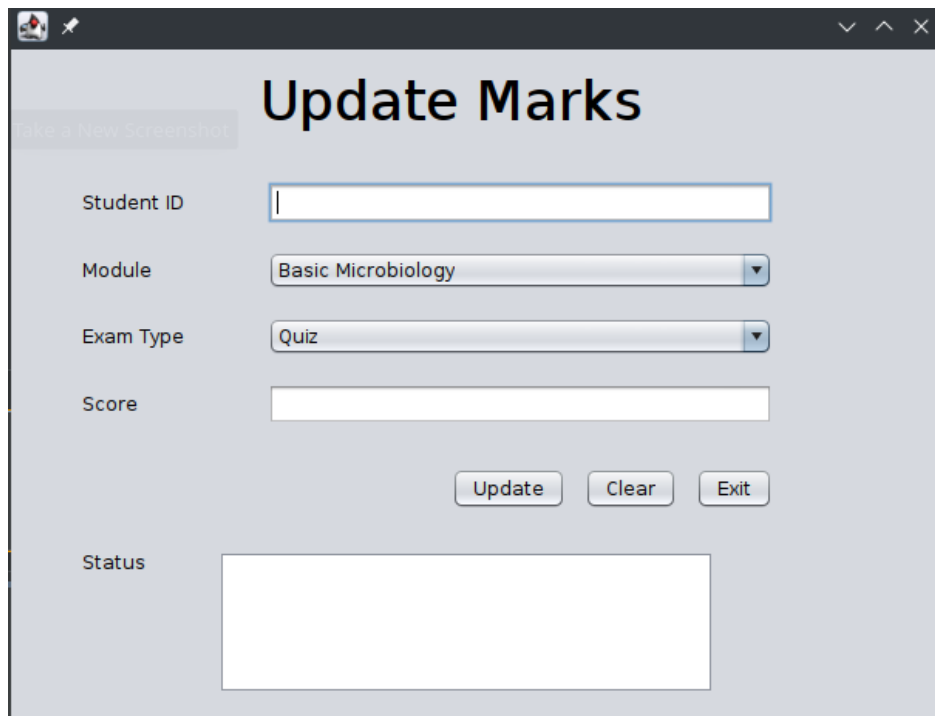
☐ Course Department ID

☐ Course Lecturer ID

Update Reset Exit

Status

Update Marks



The 'Update Marks' application window has a title bar with a standard icon, a maximize button, and window control buttons. The main content area features a title 'Update Marks' and a subtitle 'Take a New Screenshot'. The form includes a 'Student ID' text field, followed by 'Module' and 'Exam Type' dropdown menus, and a 'Score' text field. At the bottom, there are 'Update', 'Clear', and 'Exit' buttons, and a 'Status' label above a large empty text area.

Update Marks

Take a New Screenshot

Student ID

Module Basic Microbiology

Exam Type Quiz

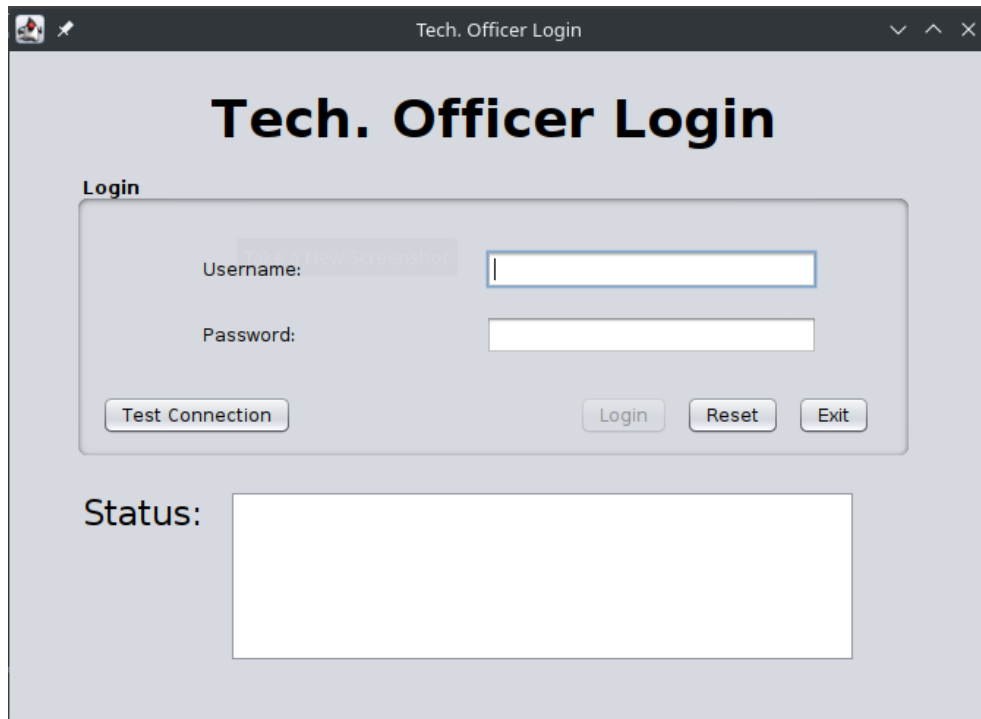
Score

Update Clear Exit

Status

Interfaces for Technical Officer

Login



The image shows a window titled "Tech. Officer Login". It has a title bar with a standard icon, a maximize button, and a close button. The main content area has a large heading "Tech. Officer Login". Below this, there is a section labeled "Login" containing two input fields: "Username:" and "Password:". Below the input fields are three buttons: "Test Connection", "Login", "Reset", and "Exit". At the bottom, there is a label "Status:" followed by a large empty rectangular box.

Tech. Officer Login

Tech. Officer Login

Login

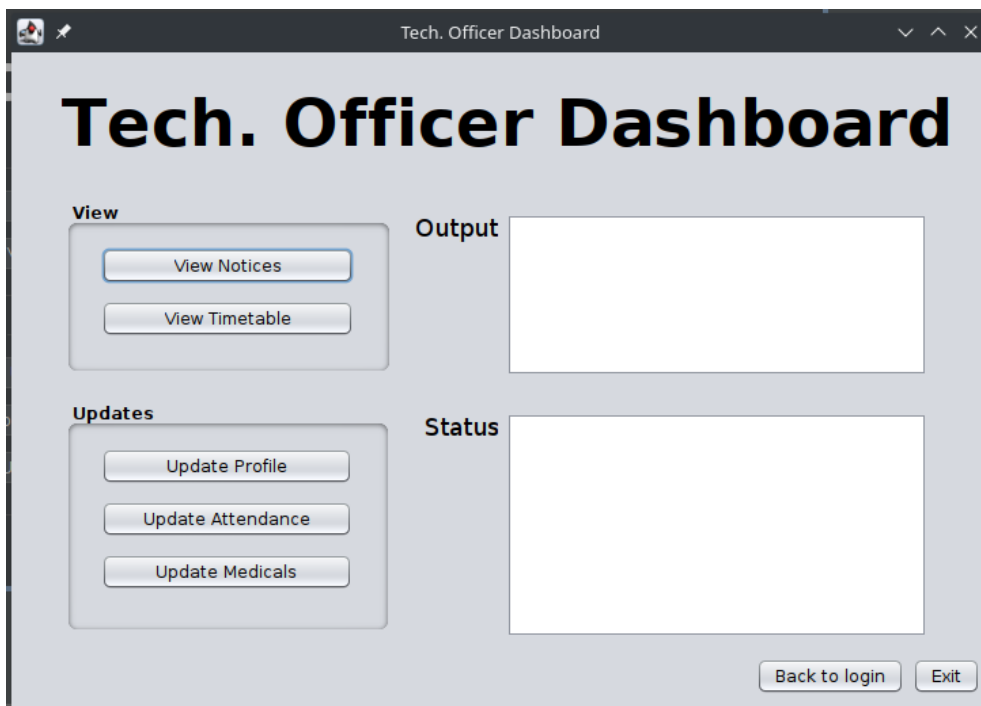
Username:

Password:

Test Connection Login Reset Exit

Status:

Dashboard



The image shows a window titled "Tech. Officer Dashboard". It has a title bar with a standard icon, a maximize button, and a close button. The main content area has a large heading "Tech. Officer Dashboard". Below this, there are two main sections: "View" and "Updates". The "View" section contains two buttons: "View Notices" and "View Timetable". The "Updates" section contains three buttons: "Update Profile", "Update Attendance", and "Update Medicals". To the right of these sections, there are two large empty rectangular boxes labeled "Output" and "Status". At the bottom right, there are two buttons: "Back to login" and "Exit".

Tech. Officer Dashboard

Tech. Officer Dashboard

View

View Notices

View Timetable

Updates

Update Profile

Update Attendance

Update Medicals

Output

Status

Back to login Exit

Update profile



The 'Update Profile' form is displayed within a browser window. It features a title bar with a window icon, a maximize icon, and standard window controls. The main heading is 'Update Profile'. Below it, the 'Inputs' section contains five fields: 'First Name' (a text input with a cursor), 'Last Name' (a text input), 'Email' (a text input), 'Phone Number' (a text input), and 'Profile Picture' (a text input with an 'Upload' button next to it). Below the inputs is a 'Status' section with a large text area. At the bottom, there are three buttons: 'Dashboard', 'Reset', and 'Update Profile'.

Update Profile

Update Profile

Inputs

First Name

Last Name

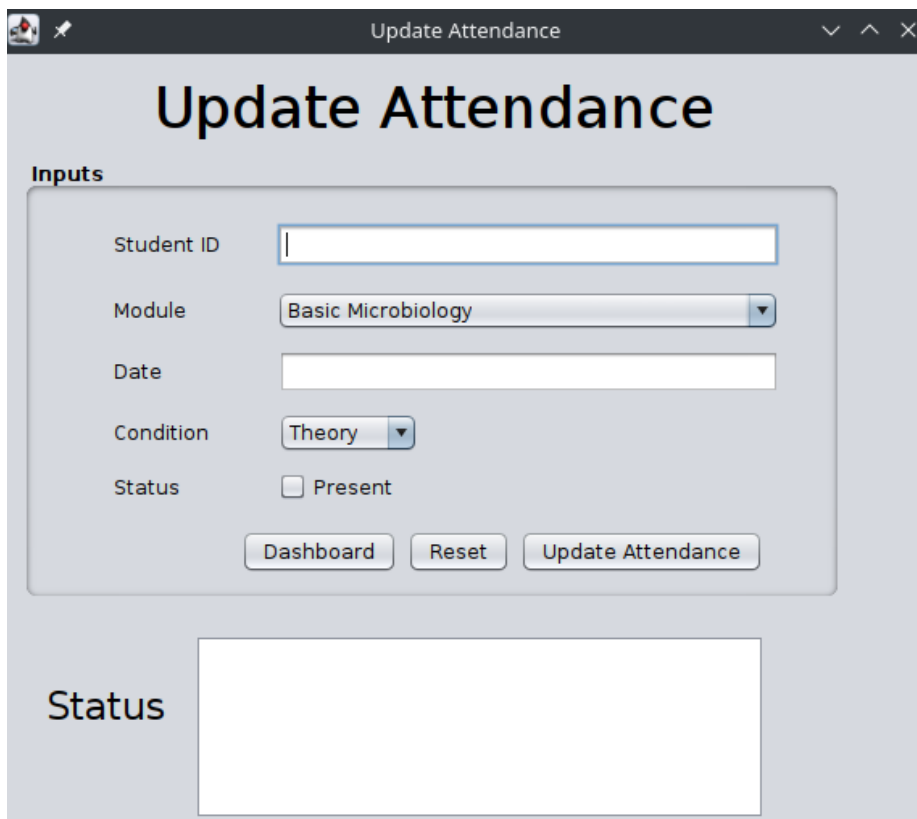
Email

Phone Number

Profile Picture

Status

Update Attendance



The 'Update Attendance' form is displayed within a browser window. It features a title bar with a window icon, a maximize icon, and standard window controls. The main heading is 'Update Attendance'. Below it, the 'Inputs' section contains five fields: 'Student ID' (a text input with a cursor), 'Module' (a dropdown menu showing 'Basic Microbiology'), 'Date' (a text input), 'Condition' (a dropdown menu showing 'Theory'), and 'Status' (a checkbox labeled 'Present'). Below the inputs are three buttons: 'Dashboard', 'Reset', and 'Update Attendance'. At the bottom, there is a 'Status' section with a large text area.

Update Attendance

Update Attendance

Inputs

Student ID

Module

Date

Condition

Status ☐ Present

Status

Update Medicals

Update Medicals

Update Medicals

Inputs

Student ID

Medical Ref. ID

Starting Date

Ending Date

Condition

Approved

Dashboard

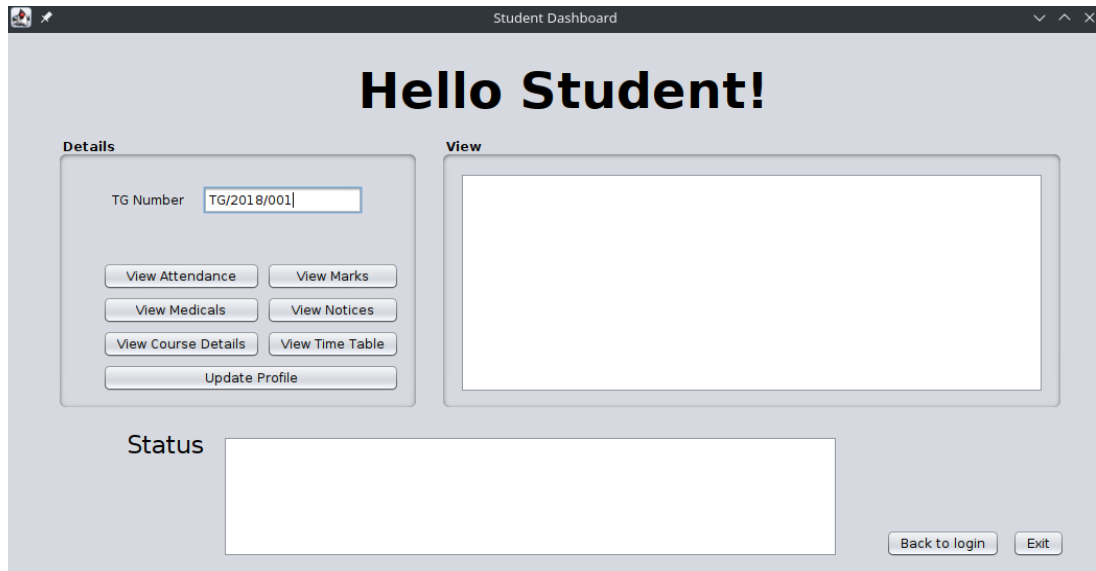
Reset

Update Medicals

Status

Interfaces for Student

Dashboard



The Student Dashboard interface features a title bar with a window icon, a maximize icon, and a close icon. The main content area has a light gray background. At the top, it says "Hello Student!" in large, bold, black text. Below this, there are two main sections: "Details" and "View". The "Details" section contains a "TG Number" input field with the value "TG/2018/001". Below this are six buttons: "View Attendance", "View Marks", "View Medicals", "View Notices", "View Course Details", and "View Time Table". At the bottom of the "Details" section is an "Update Profile" button. The "View" section is a large, empty rectangular box. Below these sections is a "Status" label followed by a large, empty rectangular box. At the bottom right, there are two buttons: "Back to login" and "Exit".

Update Profile



The Update Profile interface features a title bar with a window icon, a maximize icon, and a close icon. The main content area has a light gray background. At the top, it says "Update Profile" in large, bold, black text. Below this, there is an "Inputs" section containing three input fields: "Email", "Phone Number", and "Profile Picture". The "Email" field has a cursor in it. The "Profile Picture" field has an "Upload" button next to it. Below the "Inputs" section is a "Status" label followed by a large, empty rectangular box with a vertical scrollbar. At the bottom, there are three buttons: "Dashboard", "Reset", and "Update Profile".

-END-

Object-Oriented Development (ICT2123)

Assessment 02 - Report

Group - 09

Group Members

W.M.P.N. Jayaweera (TG/2018/392)

U.W.A.S Sandakelum (TG/2018/397)

W.M.D. Lakshitha (TG/2018/412)

W.M.W.D. Weerakoon (TG/2018/421)

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Introduction

This system is the interface for easy manipulation of databases which is designed for the Faculty of Technology, University of Ruhuna.

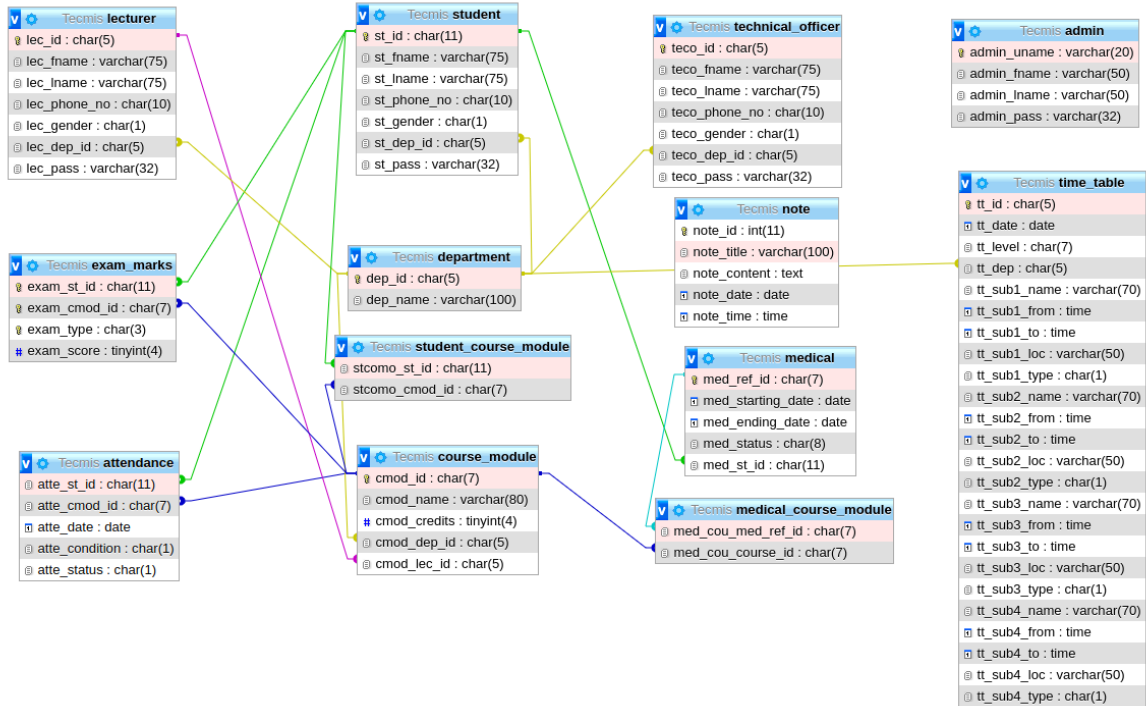
It provides different interfaces and permissions for different users. The users are categorized into 4 groups and they are Admins, Lecturers, Technical Officers and Students.

There is one common login page and it will redirect to a specific user when the user selects the user group. Different user groups have different permissions and privileges and their passwords and other details are stored separately in the database.

- Admin can create and update User profiles, Courses, Notices and Time Tables.
- Lecturers can View Student details, Student Marks, Student attendance, Timetable and Notices and they can Update their own profile, Course details, Student marks.
- Technical Officers can View notices, and time tables. They can update their own profile and student attendance and student's medical details.
- Students can View their attendance, marks, medicals, notices, course details, time tables and they also can update their profile.

This system can be installed in a user's PC and can be connected to a remote database. This will make the database maintain processes easier.

Database structure



Main Functionality

Details about the interfaces

- Main interface is the **CommonLogin** interface. It redirects users to specific interfaces they belong to.
- Admin has 11 different interfaces. Their names all start with **Admin** words.
- **AdminDash** is the home interface for the admin. All other 10 interfaces can be accessed by that main interface.
- Lecturer has 6 different interfaces and **LecturerDash** is the home interface for the lecturer.
- All other 5 interfaces can be accessed from **LecturerDash** home interface and their names starting with **Lec** word.
- Technical officers have 5 different interfaces and their home interface is **TecOfficerDash** and other 4 interfaces are starting with **Tech** word.
- Students have 3 interfaces, their home interface is **StudentDash** and other two interfaces which can be accessed through that interface are started with **Student** word.

Details about other Java classes

- **ConnectDB** class is for connecting to the Database with JDBC driver and sharing it's connection to other classes which require.
- **AdminQueryRunner**, **LecQueryRunner** and **TechOffQueryRunner** classes are used to run INSERT and UPDATE queries with different privileges. They are used by specific user interfaces when needed.

Technologies Used

We have used Java as the programming language and Mysql as the database technology.

Netbeans

We have used Apache Netbeans 12.1 free software as an Integrated Development Environment (IDE) for Java programming language.

We have used both Windows and Linux platforms for the development, because our group members prefer different platforms. It was easy because Java is a platform independent language.

JDBC Driver

We have used JDBC drivers to make the connection between the database and the java interface.

The JDBC-ODBC bridge driver converts JDBC method calls into the ODBC function calls.

Git

The Git version control system is used to share our work between team members and we have created a git repository in GitLab git projects hosting website. Using git was easy because Netbeans natively support Git. It's a new experience for us to use git and it gives us a great opportunity.

Contribution

All team members have worked together for completing this project and we have shared different interfaces among us and developed it's functionality and integrated them while the development using git.

W.M.P.N. Jayaweera (TG/2018/392)

- Leading and creating project structure.
- Creating common interfaces and their functionality
- Creating Administrator and Lecturer interfaces and their functionality.

U.W.A.S Sandakelum (TG/2018/397)

- Database modifications to match the new system.

W.M.D. Lakshitha (TG/2018/412)

- Creating database connection.

W.M.W.D. Weerakoon (TG/2018/421)

- Creating interfaces for Student and Technical Officers.
- Coding functionalities for Student and Technical Officers.

```
SELECT student.st_dep_id FROM `student` WHERE student.st_id = 'TG/2018/001'
```

Drawbacks

UI/UX engineering is not good as we planned before. We were unable to make attractive interfaces, but functions are working as expected.

We have to make some database structural changes to make the interface more fluid and smooth function. It can be consider as a drawback.

Conclusion

We have learned a lot of things while doing this project. Specially learning git will be more useful in future. We worked in remote locations to do a single project and it was a new experience.

We have learned many practical tricks and how to work with an IDE and a Database and make the connection between those two.

We have touched Object Oriented concepts and understood it's value.

-END-