CSC104-Database Systems
Mid Project Report(Spring 2025)

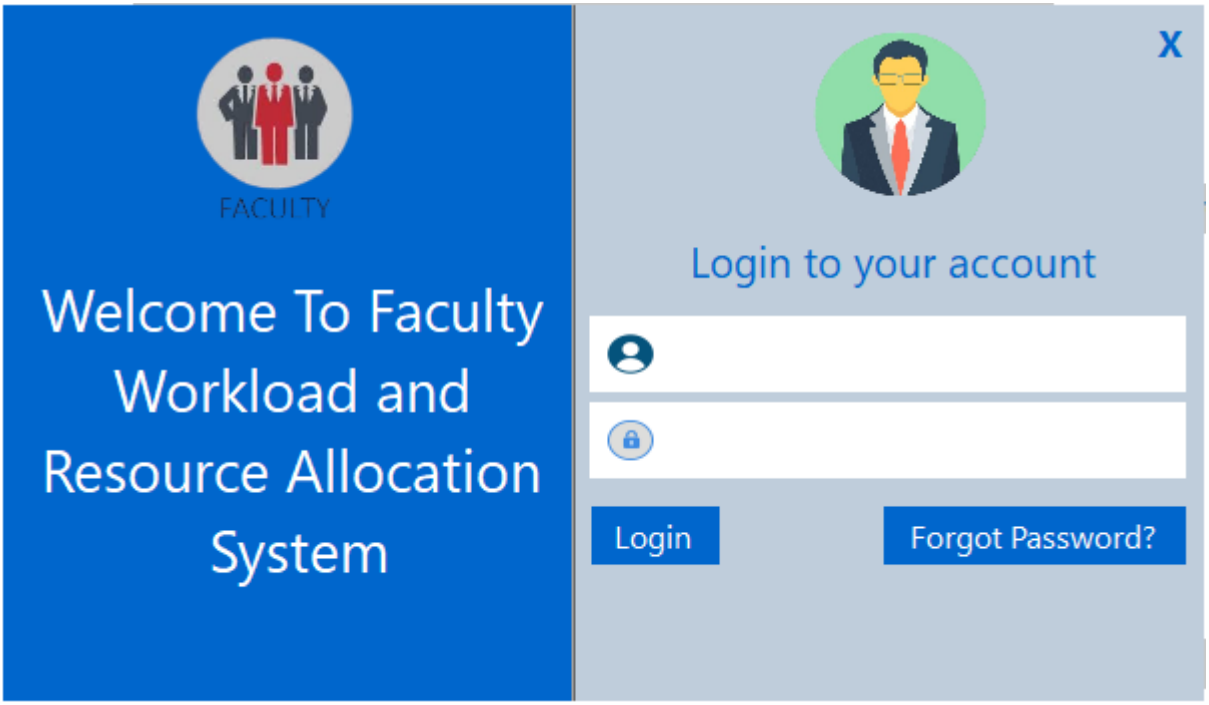
Student Details

Repository Name	DBS25P189
Registration Number	2024-CS-189

Project	
Project Title	Faculty Workload and Resource Allocation System
Executive Summary	This project aims to address the inefficiencies and inconsistencies currently plaguing the Department of Computer Science at UET Lahore. The department's current reliance on manual processes, primarily spreadsheets and emails, for managing faculty workload and resource allocation has led to a range of problems, including data inconsistency, workload imbalances, tracking difficulties, and security vulnerabilities. This project proposes the development of a centralized, database-driven Windows Forms application in C# to streamline these critical processes. Essentially, the project is about building a system that allows the department to move from a chaotic, manual system to an organized, digital one. It's about creating a software solution that will make everyone's lives easier, from the department head to the individual faculty members. The core of the problem lies in the difficulty of managing the diverse responsibilities of faculty members. They're not just teachers; they're also researchers, administrators, and often need to request various resources. The current manual system struggles to keep track of all these roles and requests, leading to errors and delays. The proposed system will tackle these issues by providing a centralized database to store and manage all relevant data. This will ensure data consistency and eliminate the need for multiple, potentially conflicting, spreadsheets. The application will also implement role-based access control (RBAC), meaning different users (department head, faculty members, administrative staff) will have different levels of access and functionality based on their roles. This will enhance security and prevent unauthorized access to sensitive data. The system will include features for:

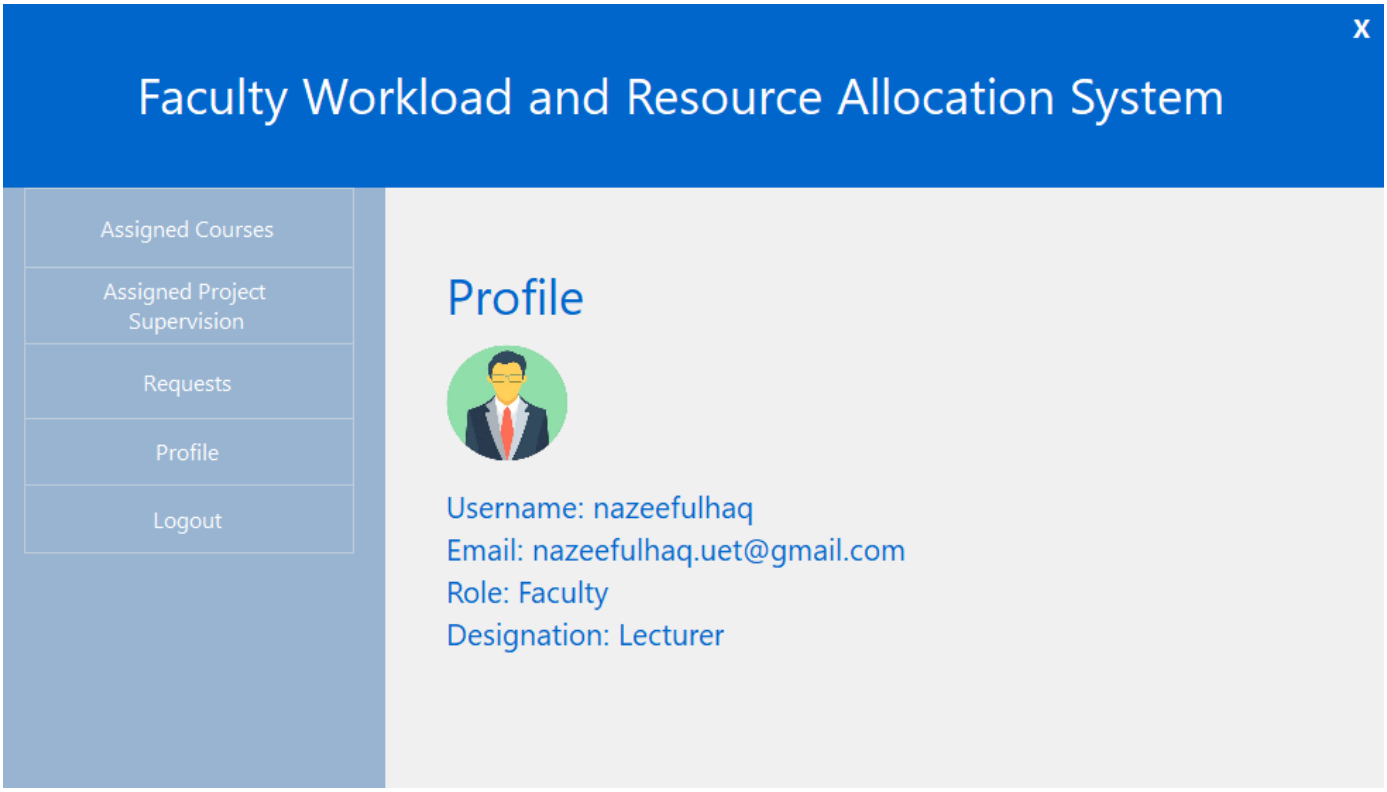
	• **User Authentication and Role Management:** A secure login system with password hashing and account recovery, ensuring only authorized personnel can access the system. • **Faculty Management:** Functionality to add, update, and delete faculty profiles, storing crucial information like name, designation, research interests, and teaching hours. • **Workload Assignment:** Tools to assign courses, research supervision, and administrative duties to faculty members, ensuring a balanced workload distribution. • **Resource Allocation:** A system to manage the allocation of classrooms, labs, and consumables, allowing faculty to track the status of their requests. • **Faculty Requests Management:** A structured system for faculty to request resources, with the ability to approve, reject, or mark requests as fulfilled. By implementing this system, the department aims to: • Improve data accuracy and consistency. • Optimize faculty workload distribution. • Streamline resource allocation. • Simplify faculty request management. • Generate accurate reports for departmental planning and accreditation purposes. • Enhance security through authentication and RBAC.

Interface Name	LOGIN



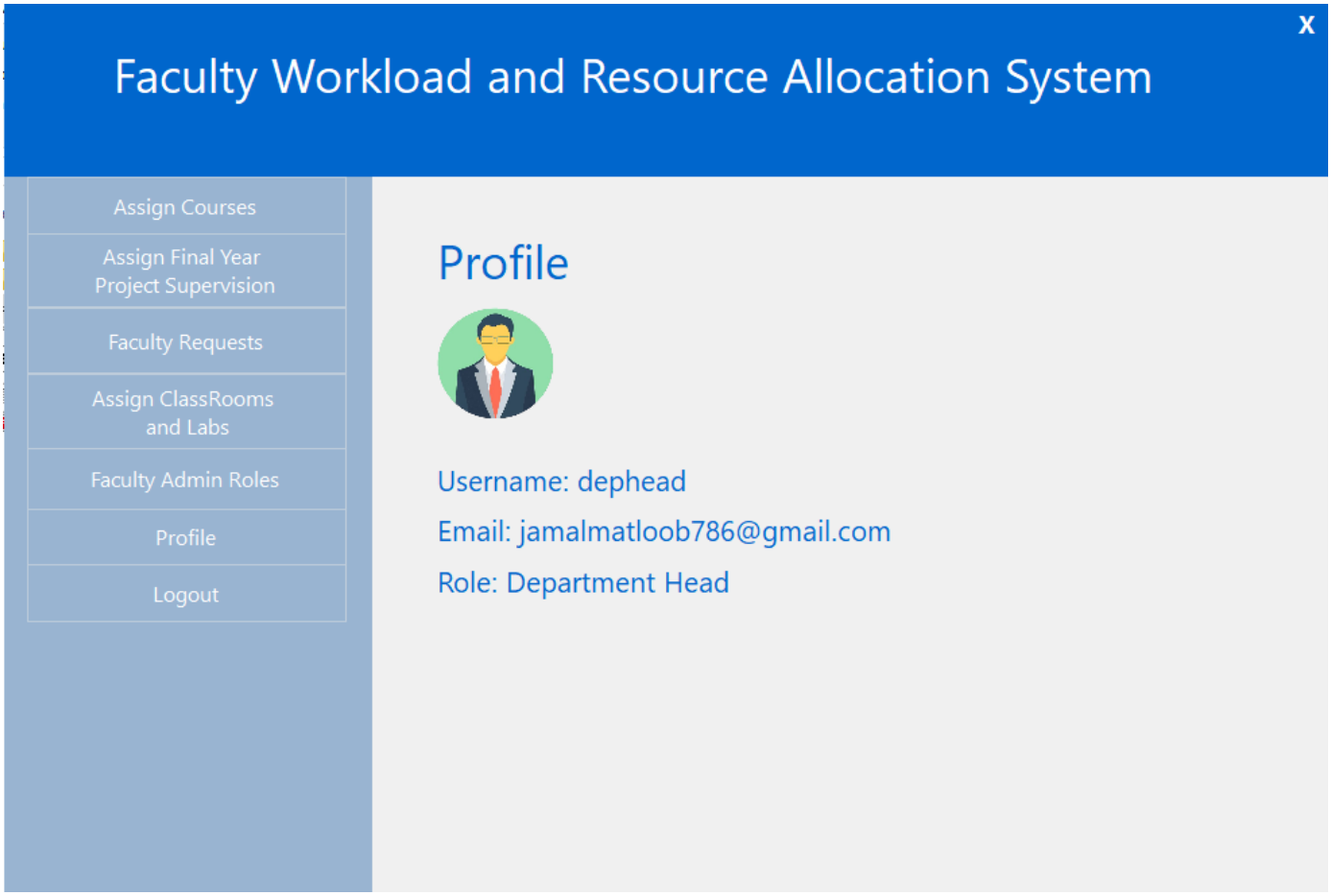
UI Component Name	Type of UI component	Class Attribute name, Classname, attribute name	Linked to which database column/table
textbox1	Textbox	LoginBL, username	username, users
textbox2	Textbox	LoginBL, password	password_hash, users

Interface Name	FACULTY PROFILE



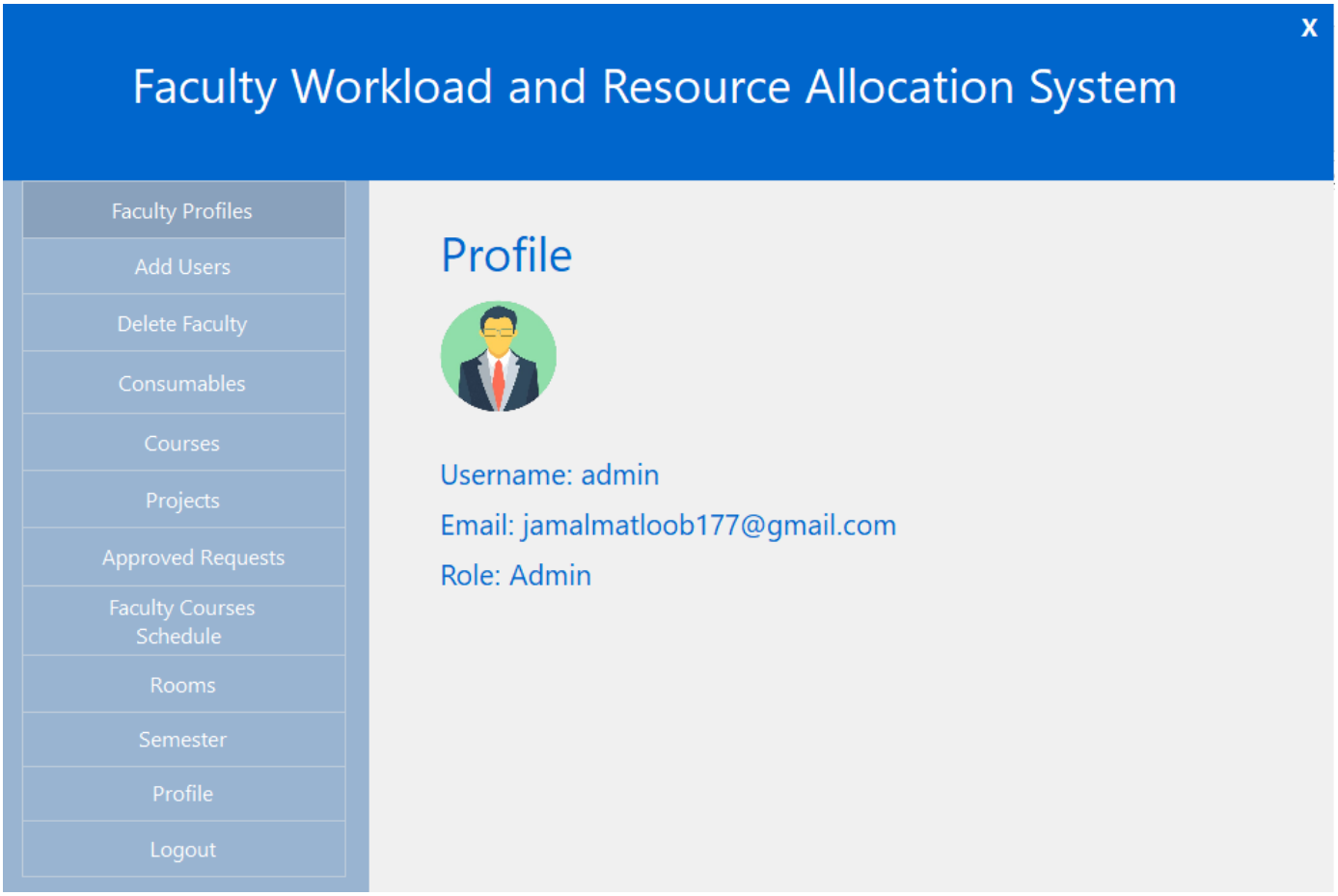
UI Component Name	Type of UI component	Class Attribute name, Classname, attribute name	Linked to which database column/table
label1	textbox	FacultyProfileBL, username	username, users
label2	textbox	FacultyProfileBL, email	email, users
label3	textbox	FacultyProfileBL, role	value, lookup
label4	textbox	FacultyProfileBL, designnation	value, lookup

Interface Name	DEPARTMENT HEAD PROFILE



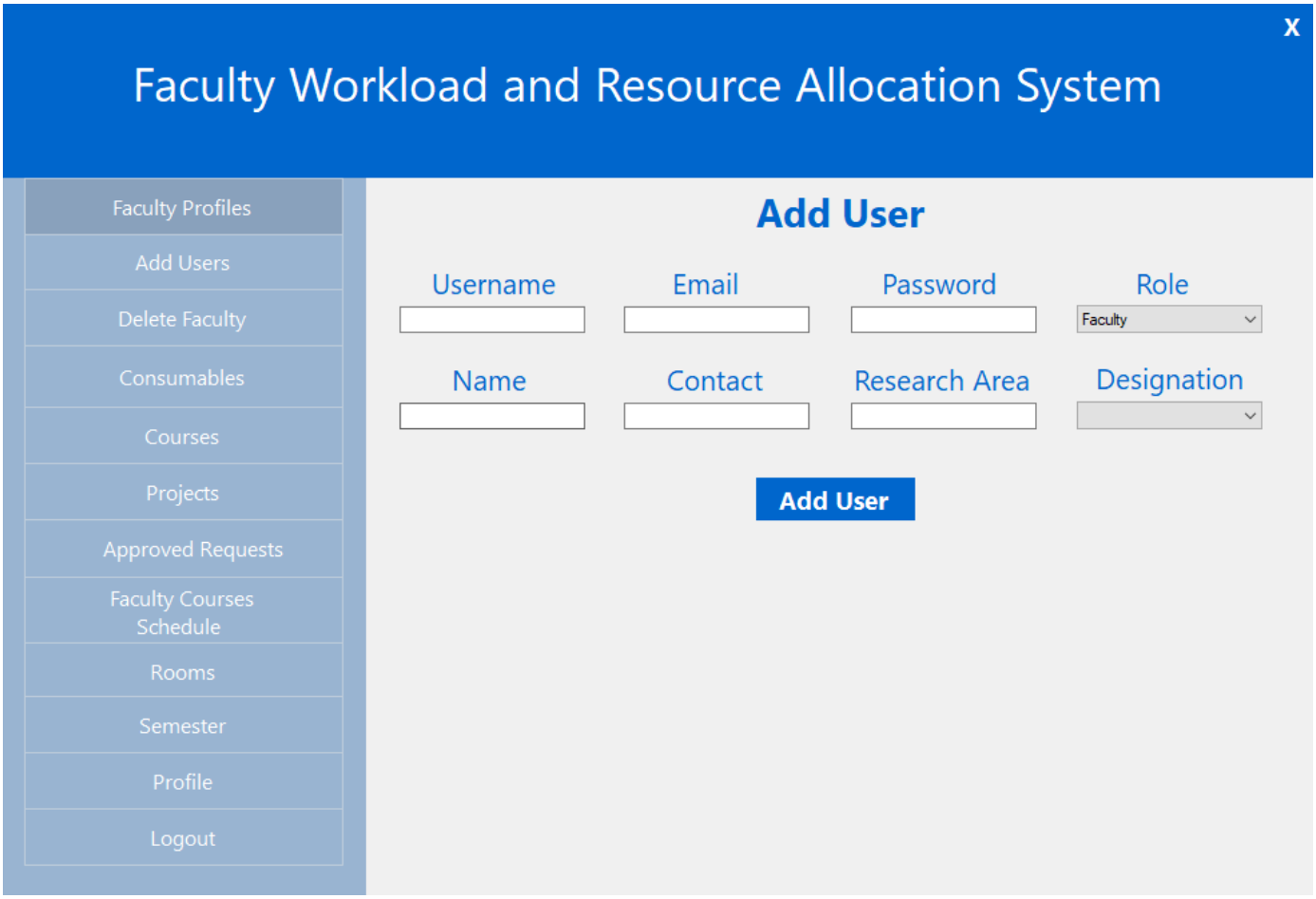
UI Component Name	Type of UI component	Class Attribute name, Classname, attribute name	Linked to which database column/table
label1	textbox	DepHeadBL, username	username, users
label2	textbox	DepHeadBL, email	email, users
label3	textbox	DepHeadBL, role	value , lookup

Interface Name	ADMIN PROFILE



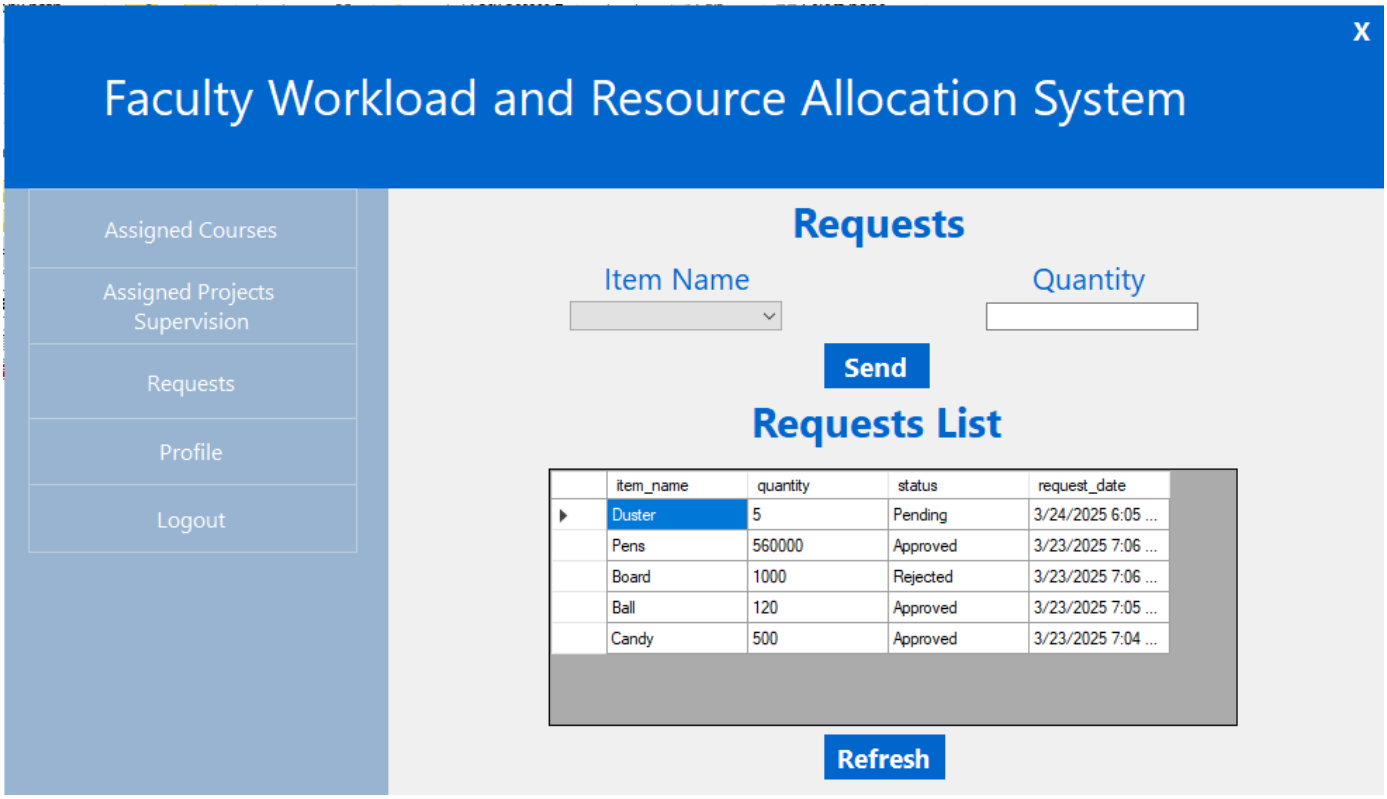
UI Component Name	Type of UI component	Class Attribute name, Classname, attribute name	Linked to which database column/table
label1	textbox	AdminProfileBL, username	username, users
label2	textbox	AdminProfileBL, email	email, users
label3	textbox	AdminProfileBL, role	value , lookup

Interface Name	ADD USERS (ADMIN CRUD)



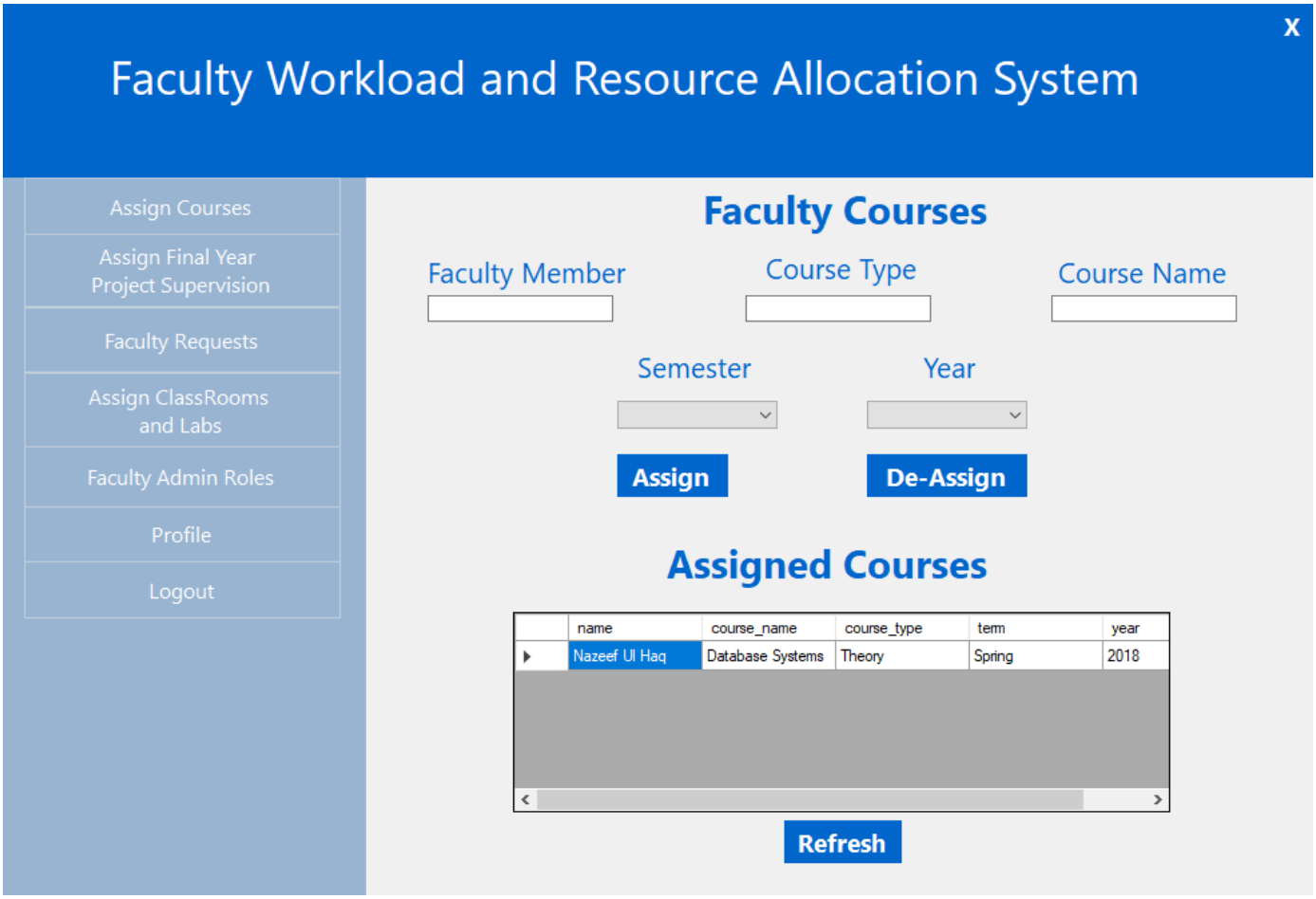
UI Component Name	Type of UI component	Class Attribute name, Classname, attribute name	Linked to which database column/table
textbox1	textbox	Admin1BL, username	username, users
textbox2	textbox	Admin1BL, email	email, users
textbox3	textbox	Admin1BL, password	password_hash, users
combobox1	combobox	Admin1BL, role	value, lookup
textbox4	textbox	Admin1BL, name	name, faculty
textbox5	textbox	Admin1BL, contact	contact, faculty
textbox6	textbox	Admin1BL, research_area	research_area, faculty
combobox2	combobox	Admin1BL, designation	value, lookup

Interface Name	FACULTY REQUESTS



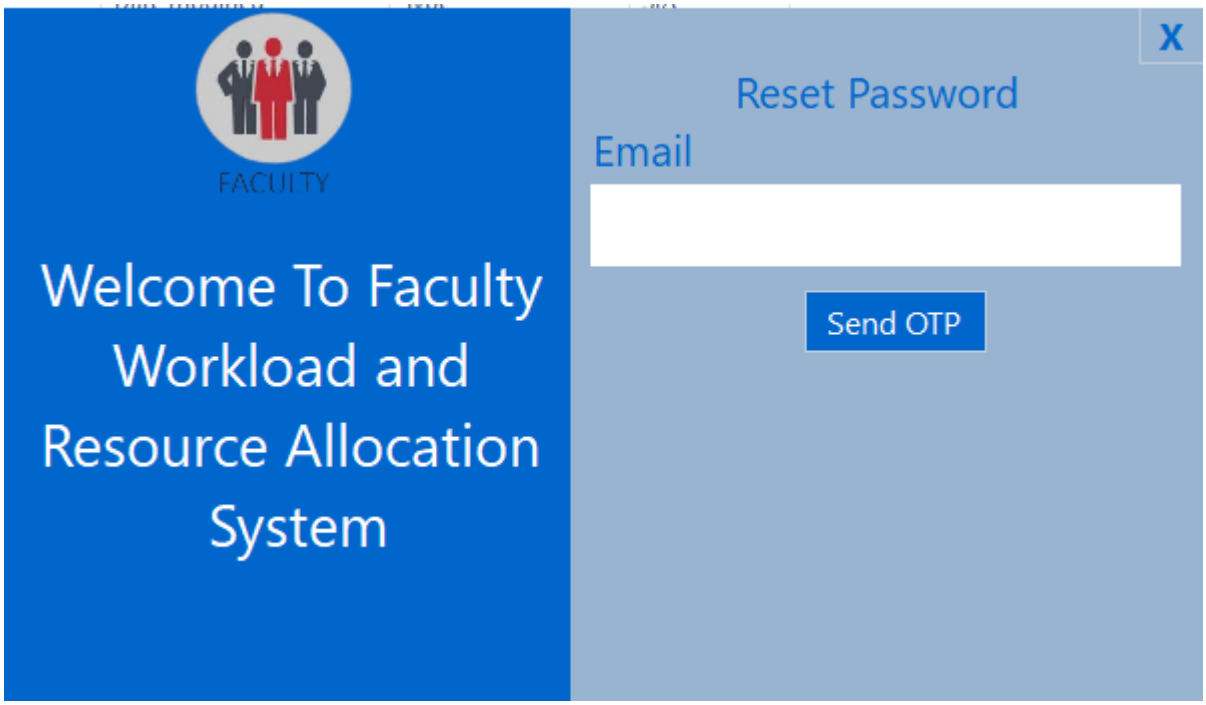
UI Component Name	Type of UI component	Class Attribute name, Classname, attribute name	Linked to which database column/table
combobox1	combobox	Faculty3BL, item_name	item_name, faculty_requests
textbox1	textbox	Faculty3BL, quantity	quantity, faculty_requests
datagridview1	datagridview	Faculty3DL, faculty_requests	faculty_requests, lookup

Interface Name	ASSIGN COURSES



UI Component Name	Type of UI component	Class Attribute name, Classname, attribute name	Linked to which database column/table
textbox1	textbox	DepHead1BL, name	name, faculty
textbox2	textbox	DepHead1BL, course_type	course_type, courses
textbox3	textbox	DepHead1BL, course_name	course_name, courses
combobox1	combobox	DepHead1BL, term	term, semester
combobox2	combobox	DepHead1BL, year	year, semester
datagridview1	datagridview	DepHead1DL, faculty_courses	faculty_courses, courses, faculty, semester

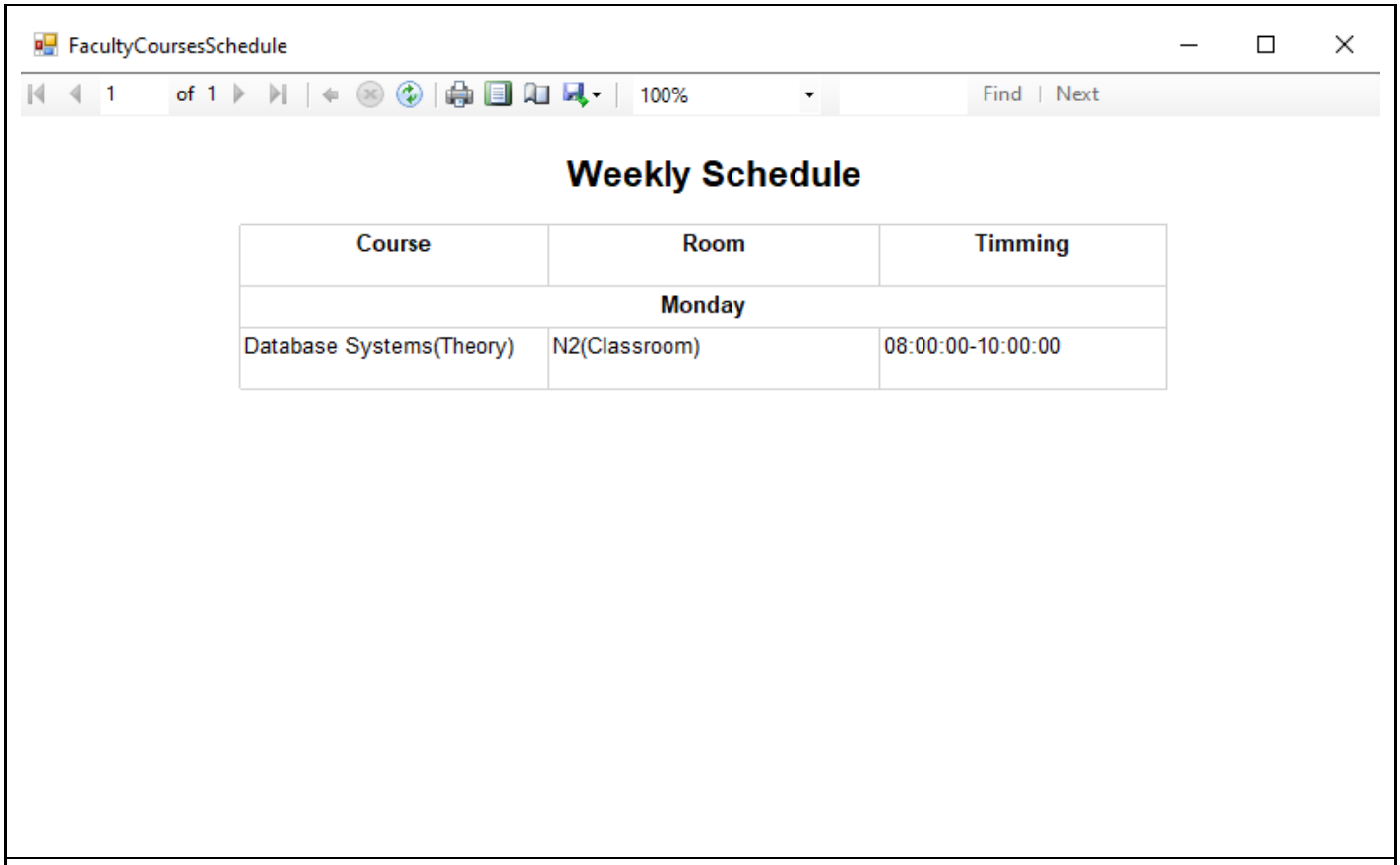
Interface Name	RESET PASSWORD



UI Component Name	Type of UI component	Class Attribute name, Classname, attribute name	Linked to which database column/table
textbox1	textbox	PasswordResetBL, email	email, users

In case of column, write column name and in case of multiple columns, write query in last column

Business Report-1	
Business Report Name: Faculty Courses Schedule	
Sample of report:	



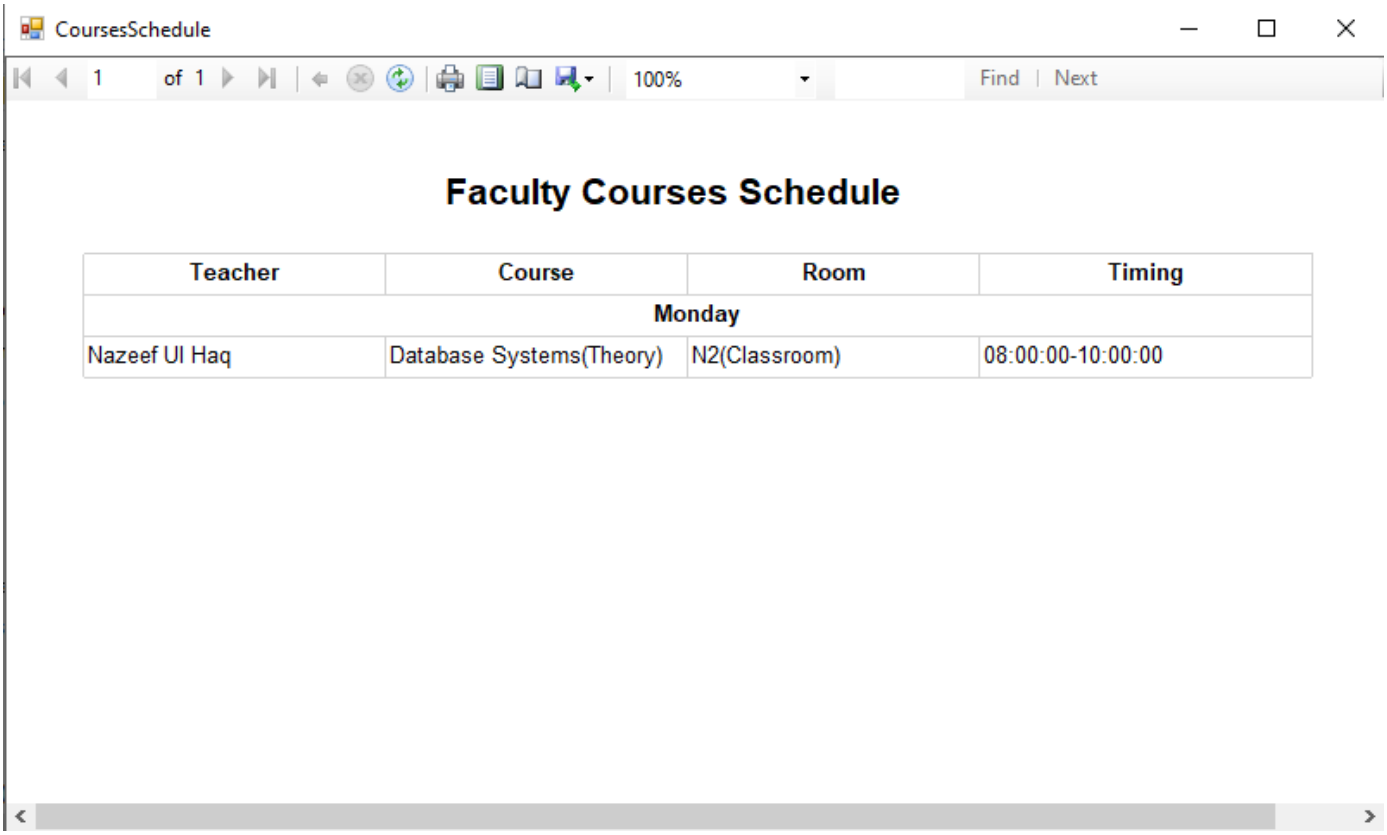
Query to build Report:

```
$"Select name, room_name, room_type, day_of_week, start_time, end_time, course_name,
course_type From faculty_course_schedule Natural join faculty_courses Natural Join rooms
Natural Join faculty Natural join courses Natural join users Where username = '{name}'"
```

Business Report-2	

Business Report Name: Courses Schedule

Sample of report:



Query to build Report:

```
$"Select name, room_name, room_type, day_of_week, start_time, end_time, course_name,
course_type From faculty_course_schedule Natural join faculty_courses Natural Join rooms
Natural Join faculty Natural join courses Natural join users"
```