**Student Details**

| Repository Name | DBS25P189 |
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| Registration Number | 2024-CS-189 |

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| ***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. |

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| ***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 | | |

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| ***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 | | |

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| ***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 | | |

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| ***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 | | |

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| ***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 | | |

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| ***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 | | |

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| ***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 | | |

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| ***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 | |

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| ***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}'" | |

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| ***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" | |