DataBase Management System

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NATIONAL UNIVERSITY OF COMPUTER AND EMERGING SCIENCE

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1. Functional Requirements

Efficiently managing Teaching Assistants (TAs) and Lab Demonstrators (LDs) is essential for academic success. However, the traditional methods of hiring and managing these roles can be burdensome and lack transparency. To address these challenges, an automated system for TA and LD hiring has been developed. This system simplifies the request process for educators, streamlines candidate selection, and ensures fairness in the hiring process. By providing clear visibility and standardised criteria, this system aims to enhance efficiency and collaboration in TA and LD management within academic institutions.

TeacherAsistance/lab Demonstrator Assistance

Apply for TA: Students have the opportunity to apply for TA positions for specific courses or teachers within the institution. However, certain conditions must be met, including a GPA of at least 2.5 and prior completion of the relevant course with a satisfactory grade. This ensures that applicants have the necessary academic background and competence to fulfil the responsibilities of a TA.

Confirm/Reject for TA Ship:Once a student has submitted an application for a TA position, they await confirmation from the respective teacher. Upon receiving an offer, the student has the autonomy to accept or reject the position based on their preferences and availability. This step allows for mutual agreement between the student and teacher, ensuring a suitable match for the TA role.

TA-Assessment Report: After being appointed as a TA, students gain access to their assessment reports, which include evaluations of their performance in tasks such as quizzes and assignments. These assessments are inserted by the respective teacher.
TA can also see their payments

Apply for LDA: Similarly, students can apply for LDA positions for specific courses or teachers within the laboratory setting. The eligibility criteria remain consistent, requiring a GPA of at least 2.5 and prior completion of the relevant course with a commendable grade. Preference may be given to applicants with higher grades to ensure competence in the role of an LDA.

Confirm/Reject for LDA Ship: Upon submission of an application for an LDA position, students await confirmation from the lab demonstrator. Like the TA ship confirmation process, students have the opportunity to accept or reject the LDA position based on their circumstances and preferences.

LDA-Assessment Report: Once appointed as an LDA, students can view their assessment reports, which primarily consist of attendance records. These assessments are inserted by the lab demonstrator, providing insight into the student's punctuality and engagement within the laboratory setting.
Lda can also see their payments

Teacher /lab Demonstrator

Request for TA: Teachers can easily submit requests for TA assistance for the courses they are teaching. This feature ensures that teachers can efficiently communicate their need for support in specific classes, streamlining the process of acquiring TA assistance.

Hire TA: Teachers have the authority to hire TAs based on their qualifications. Moreover, the system offers a "Hire Best" feature, automatically selecting the most suitable TA based on predefined criteria. This functionality ensures that the hiring process is optimised, resulting in the selection of highly qualified TAs.

Manage TA-Assessment Report: Teachers can conveniently manage TA-assessment reports within the system. This includes adding assessment numbers for TAs throughout the semester, allowing for ongoing evaluation of the TA's performance. By maintaining detailed assessment records, teachers can provide constructive feedback and support to TAs, enhancing their effectiveness in assisting with course activities.

Request for LDA: Lab demonstrators can easily request LDAs for the courses they are responsible for. This feature streamlines communication between lab demonstrators and administrators, ensuring that the necessary support staff are allocated to laboratory sessions as required.

Hire LDA: Lab demonstrators are empowered to hire LDAs based on their qualifications. Additionally, the system automatically selects the best candidate for the LDA position, based on predefined criteria. This ensures that lab demonstrators are supported by competent assistants, contributing to the smooth operation of laboratory sessions.

Manage LD-Assessment Report: Lab demonstrators have the capability to manage LD-assessment reports within the system. This includes adding attendance records for LDAs, allowing for accurate tracking of their presence during laboratory sessions. By maintaining comprehensive assessment records, lab demonstrators can monitor the performance and attendance of LDAs, ensuring accountability and effective management of resources.

Admin

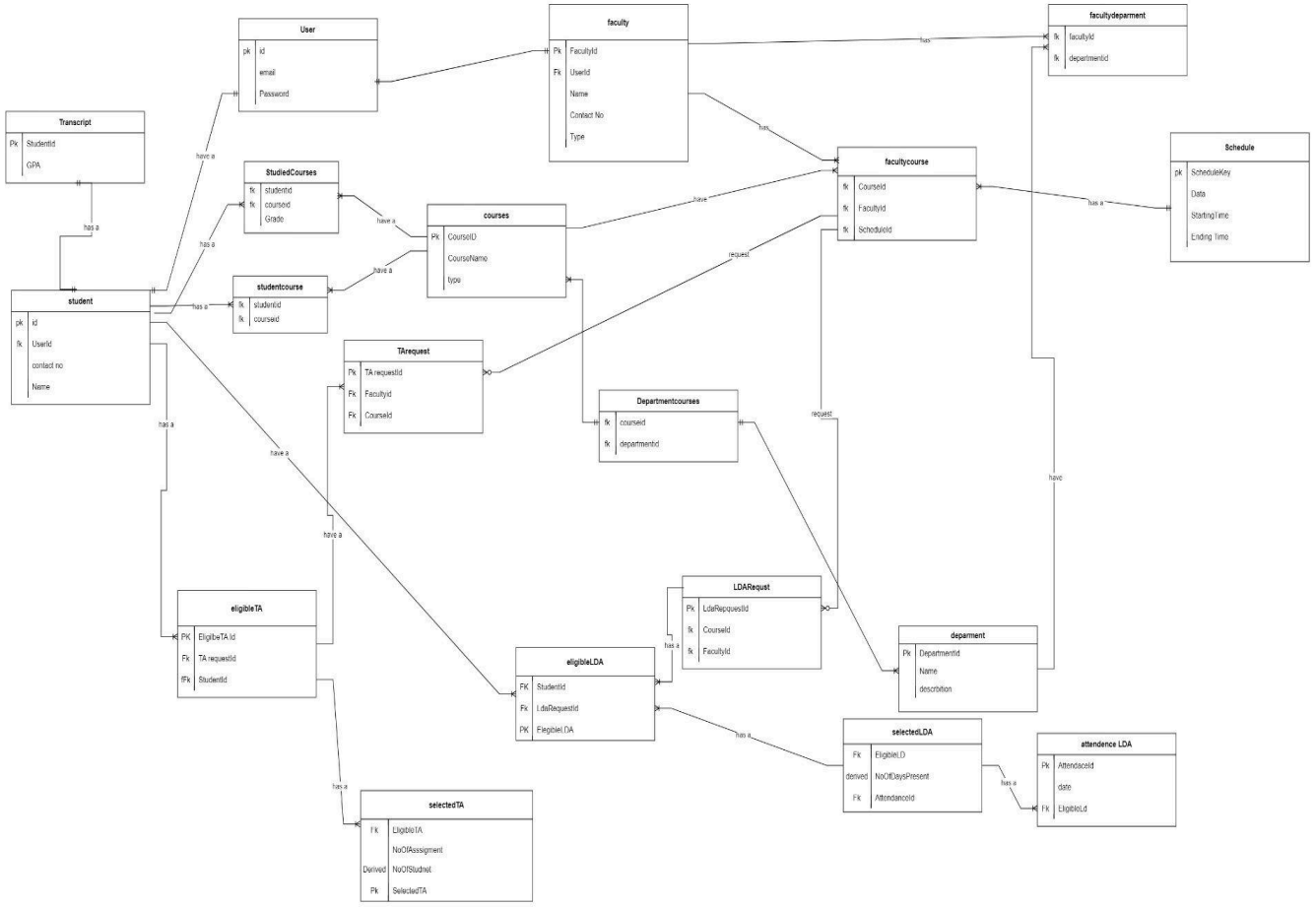
Add/Delete/Update TA: Administrators have the authority to manage TA positions efficiently. They can view existing TA assignments, identifying which TAs are allocated to specific teachers and courses. Additionally, administrators can add new TA records to the system, facilitating the recruitment of additional assistance as needed. Should the need arise, administrators also possess the capability to update or delete TA records, ensuring that the information within the system remains accurate and up-to-date.

Add/Delete/Update LDA:Similarly, administrators oversee the management of LDA positions within the system. They have visibility into which LDAs are assigned to particular lab demonstrators and courses, allowing for effective resource allocation. Administrators can add new LDA records to the system, accommodating changing requirements or staffing needs. Moreover, they have the authority to update or delete LDA records as necessary, ensuring that the assistantship program is aligned with the institution's evolving needs and priorities.

In conclusion, the Teacher/Lab Demonstrator Assistance System provides a comprehensive framework for the efficient management of Teaching Assistants (TAs) and Lab Demonstrator Assistants (LDAs) within educational institutions. Teachers can easily request assistance for their courses, and the system facilitates the hiring of qualified TAs through manual selection or automated processes. Similarly, lab demonstrators can request LDAs, and the system ensures the selection of competent candidates. Both teachers and lab demonstrators can manage assessment reports, enabling ongoing evaluation and support for assistants. Additionally, administrators play a crucial role in overseeing TA and LDA positions, ensuring effective resource allocation and alignment with institutional needs. Overall, the system enhances efficiency, communication, and accountability in the management of assistantship programs, contributing to the delivery of high-quality education and support services.

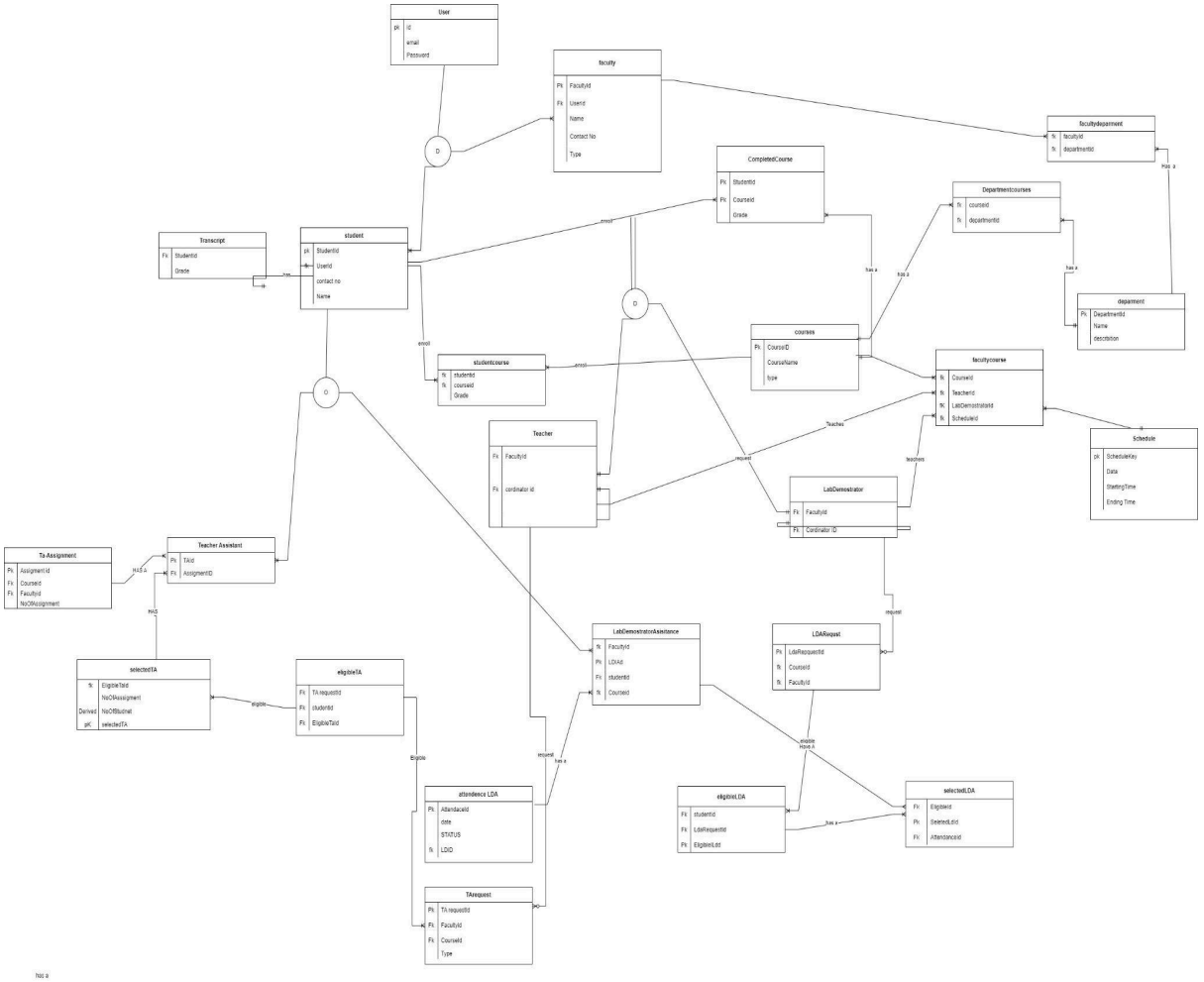
2. ERD

This Entity Relation Diagram has classes like Student, studied courses, courses transcript, requestTa/LDA and other entities relevant to TA and LB management system



3. EERD

In This Enhanced Entity diagram thing that we have enhanced is Student has 2 types TA/Ld Users can be Faculty/Student and user itself can exist as a admin and faculty is divided into 2 which are teachers and Lab demonstrator



4. Data Mapping:

-User Table:
- ID (Primary Key)
- Password
- UserId

- Student Table
- StudentId (Primary Key)
- UserID (Foreign Key)
- ContactNo
- Name

- Faculty Table:
- FacultyId (Primary Key)
- UserID (Foreign Key)
- ContactNo
- Type
- Name

- Department Table:
- DepartmentID (Primary Key)
- DepartmentName
- Description

- Courses Table:
- CourseID (Primary Key)
- CourseName
- Description

- Teacher Table:
- FacultyId (Foreign Key)
- CoordinatorID (Foreign Key)
- TeacherId (Primary Key)

- LabDemonstrator Table:
- FactaryID (Foreign Key)
- CoordinatorID (Foreign Key)
- LabDemonstratorID (Primary Key)

- Schedule Table:
- ScheduleID (Primary Key)

  - CourseID (Foreign Key)
  - Data
  - StartingTime
  - EndingTime

- CourseFaculty Table:
  - CourseID (Foreign Key)
  - FacultyID (Foreign Key)

- DepartmentCourse Table:
  - CourseID (Foreign Key)
  - DepartmentID (Foreign Key)

- DepartmentFaculty Table:
  - FacultyID (Foreign Key)
  - DepartmentID (Foreign Key)

- Transcript Table:
  - StudentID (Primary Key)
  - Student ID (Foreign Key)
  - CGPA

- StudiedCourse Table:
  - StudentID (Foreign Key)
  - CourseID (Foreign Key)
  - Grade

- StudentCourse Table:
  - StudentID (Foreign Key)
  - CourseID (Foreign Key)

- LdaRequest Table
  - LdaRequestID (Primary Key)
  - CourseID (Foreign Key)
  - labDemonstrator (Foreign Key)

- Eligible_LDA Table:
  - EligibleLdID (Primary Key)
  - studentId (Foreign Key)
  - LdaRequestid (Foreign Key)

- LdAttendance Table:
  - AttendanceID (Primary Key)
  - ADate
  - AStatus
  - Ldid (Foreign Key)

- LabDemostratorAsisitant Table:
  - Ldid (Primary Key)
  - StudentId (Foreign Key)
  - courseid (Foreign Key)
  - LabDemostratorId (Foreign Key)

- Ta_Assesment Table:
  - Ta_Assesmentid (Primary Key)
  - courseid (Foreign Key)
  - faculty id (Foreign Key)
  - totalAssigments

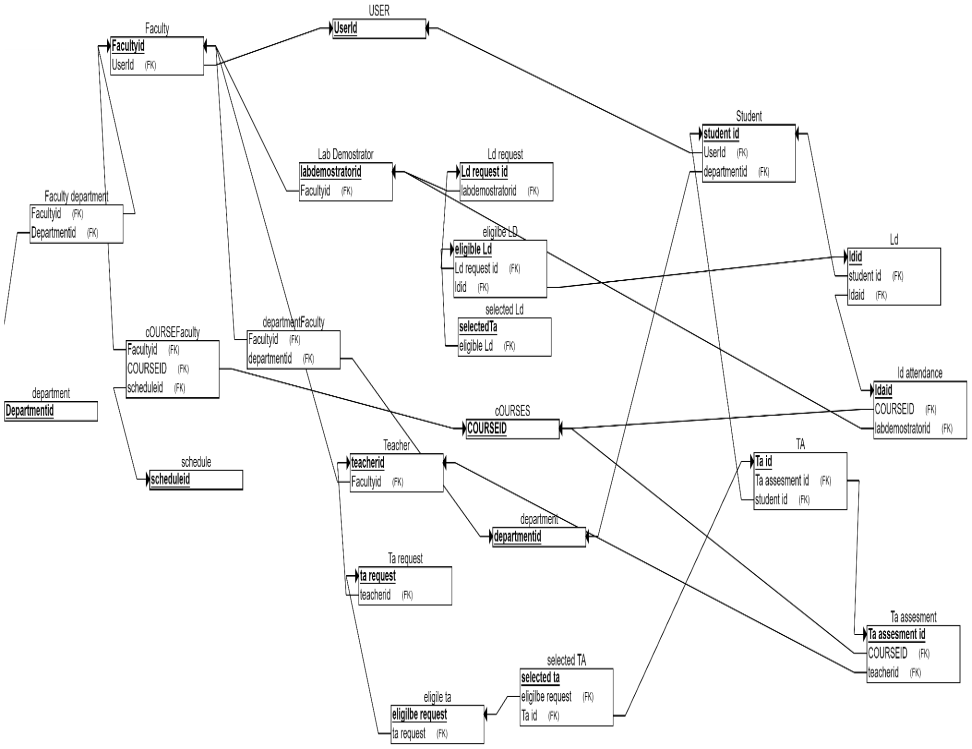
- TeacherAsisitant Table:
  - Taid (Primary Key)
  - Ta_Assesmentid (Foreign Key)
  - StudentId (Foreign Key)

- TaRequest Table:
  - TaRequestID (Primary Key)
  - CourseID (Foreign Key)
  - Teacher (Foreign Key)
  - Type

- Eligible_Ta Table:
  - EligibleID (Primary Key)
  - studentId (Foreign Key)
  - TaRequestid (Foreign Key)

- SelectedTa Table:
  - SeletedTaId (Primary Key)
  - eligibleid (Foreign Key)

5. SchemaLogical Schema with Normalisation:



Normalization

1NF

There are no multiple filed in a similar Table to store data in any of our tables

2NF

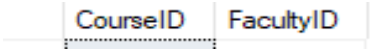
There is no Partial dependency in our tables

3NF

There is no Transitive dependency in our tables

Tables

Course Faculty



CourseID	FacultyID

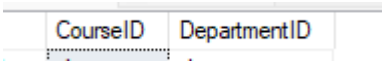
Course

CourseID	CourseName	Description	HasLab
1	Operating Systems	Principles of operating systems and system programming	NULL

Department

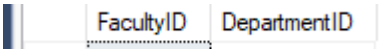
DepartmentID	DeparmentName	Description
1	Computer Science	Department of Computer Science

Department courses



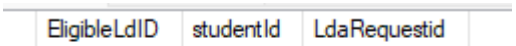
CourseID	DepartmentID

Department faculty



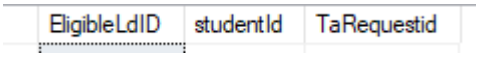
FacultyID	DepartmentID

Eligible LDA



EligibleLdID	studentId	LdaRequestid

Eligible Ta



EligibleLdID	studentId	TaRequestid

Faculty

FacultyId	UserID	ContactNo	Type	Name

Lab demonstrator

FactaryID	CordinatorID	LabDemostratorID

Lab demonstrator Assistant

Ldid	StudentId	courseid	LabDemostratorId

Lda request

LdaRequestID	CourseID	labDemonstrator

Lda Attendance

AttendanceID	ADate	AStatus	Ldid

Schedule

ScheduleID	CourseID	Data	StartingTime	EndingTime

Selected ta

SeletedTaId	eligibleid

Selected lda

SeletedLda	eligible

Student

StudentId	UserID	ContactNo	Name

Student Course

StudentID	CourseID

Studied course

StudentID	CourseID	Grade
1	1	A

Ta assessment

Ta_Assesmentid	courseid	facultyid	totalAssigments	Type

Ta request

TaRequestID	CourseID	Teacher	Type

Teacher

FacultyId	CordinatorID	TeacherId

Teacher Assistant

Taid	Ta_Assesmentid	StudentId

Transcript

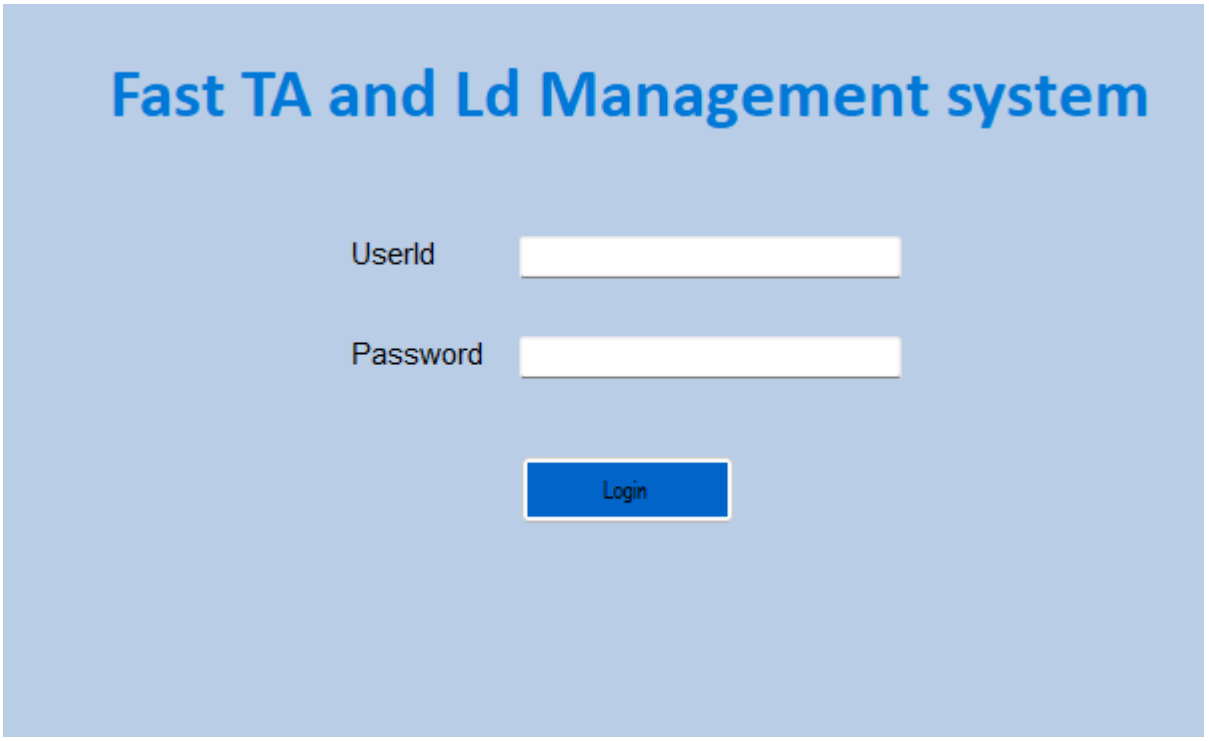
	StudentID	StundetID	CGPA

User

	ID	Password	UserId

6. User Documentation and Help

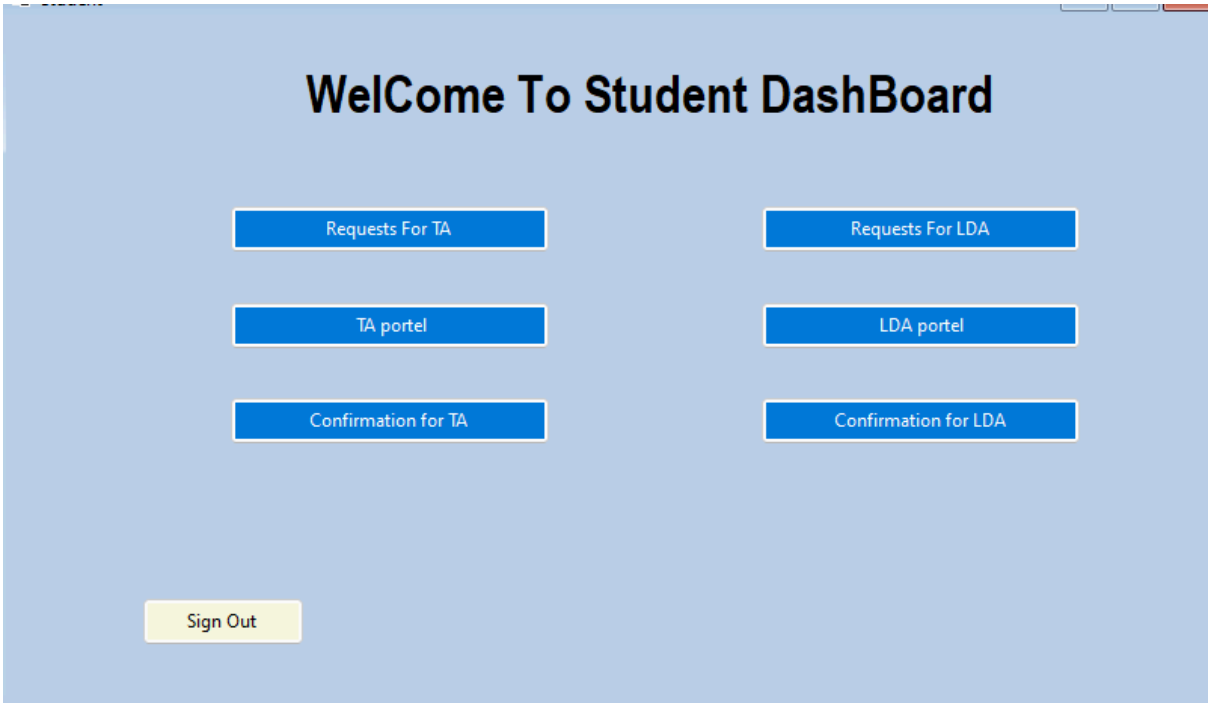
Login Page



User is send direct to their dashboard based on user id/name and password

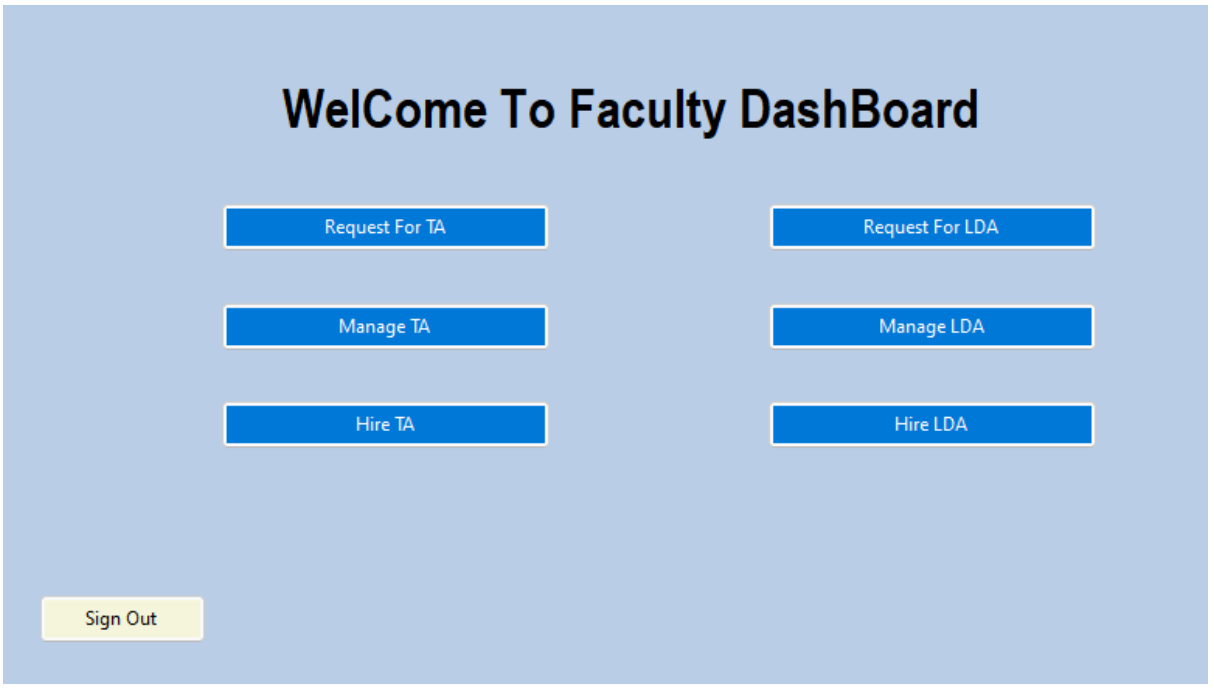
- Student
- User id = 22i-xxxx
- Faculty
- Used id = Name
- Admin
- User id = 1

Student Dashboard



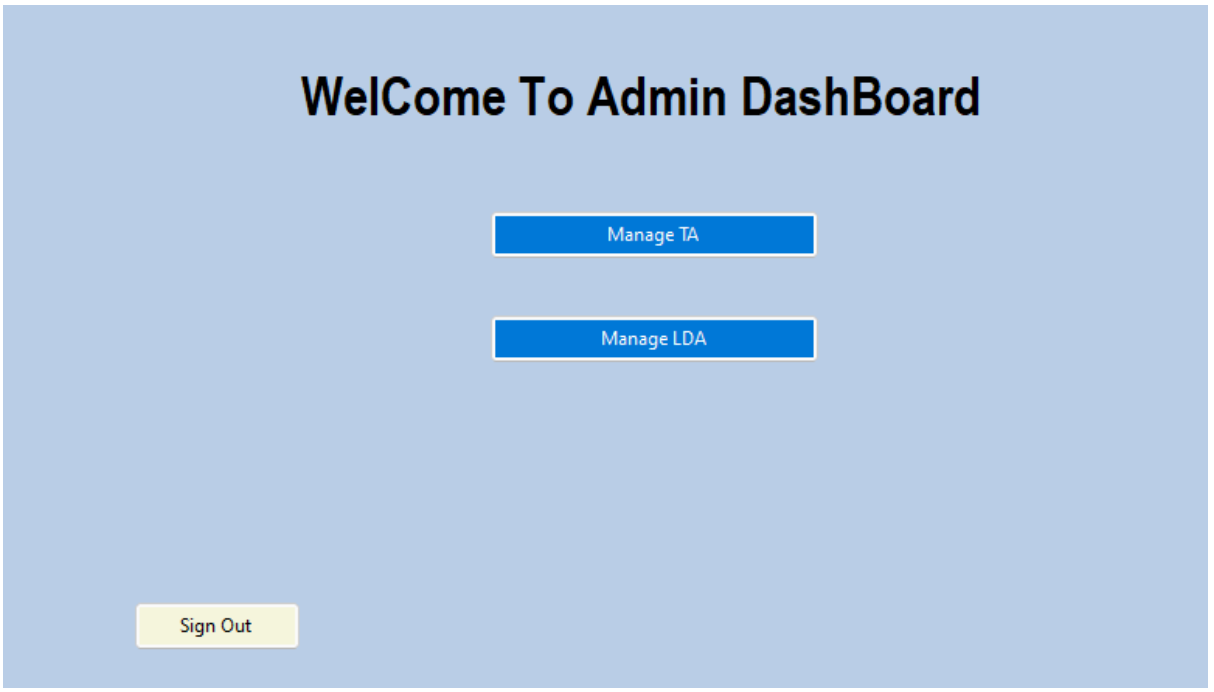
- Apply for TA/LDA: Students can apply for TA or LDA positions based on eligibility criteria, including GPA and prior course completion.
- Confirm/Reject Position: Upon receiving an offer, students can accept or reject TA/LDA positions based on their preferences and availability.
- View Assessment Reports: Appointed TAs/LDAs can access their assessment reports, providing insights into their performance and attendance.
- View Payments: TAs/LDAs can also view their payment details within the system

Faculty Dashboard



- Request for TA/LDA: Teachers and lab demonstrators can submit requests for TA/LDA assistance for their respective courses.
- Hire Assistant: They have the authority to hire TAs/LDAs based on qualifications, with an option for the system to automatically select the best candidate.
- Manage Assessment Reports: Teachers and lab demonstrators can add assessment records for TAs/LDAs, facilitating ongoing evaluation and feedback.

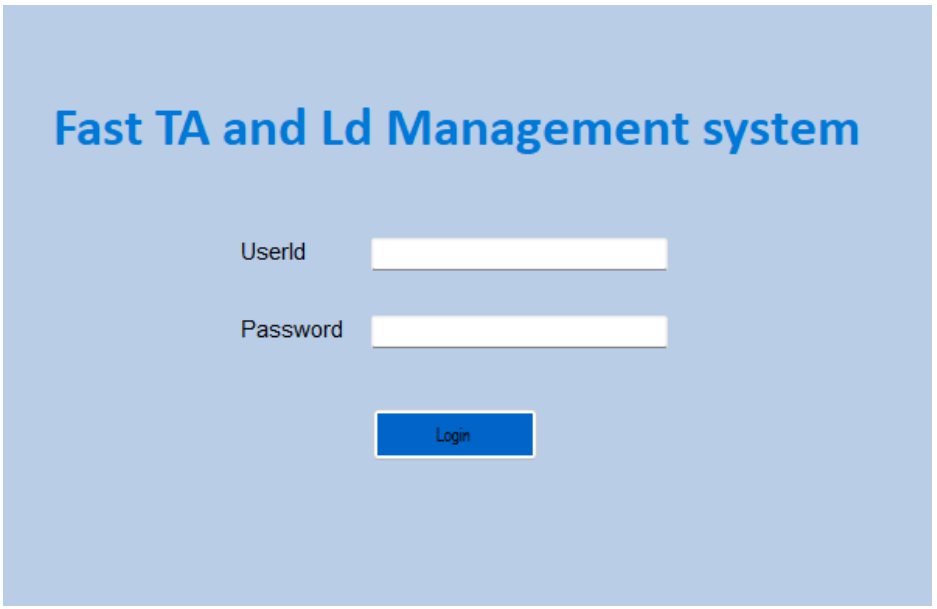
Admin Dashboard



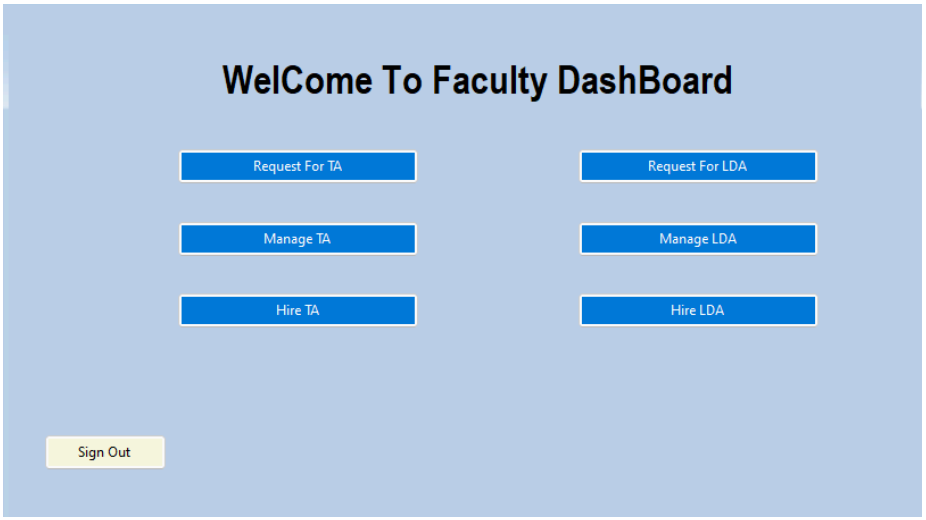
- Manage TA/LDA Positions: Administrators oversee the management of TA/LDA positions, including adding, deleting, and updating records as needed.

7. Implemented Project

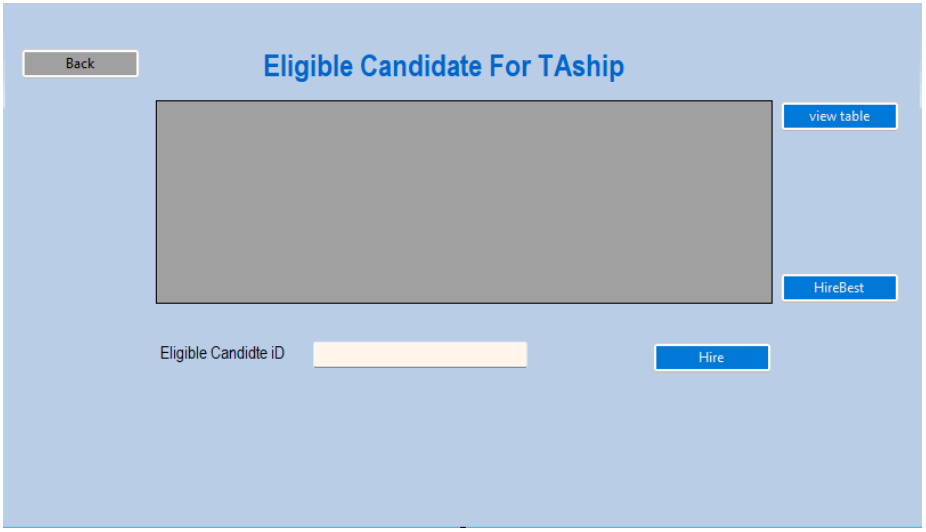
Login page



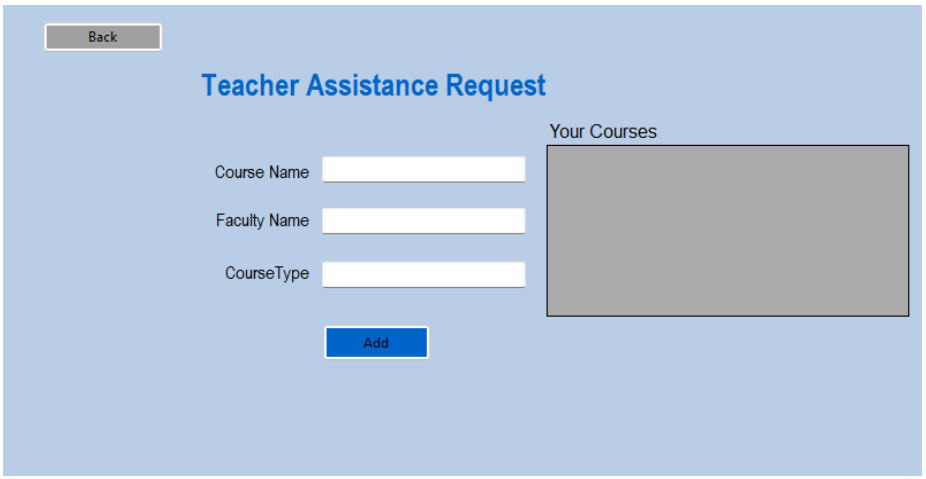
Faculty dashboard



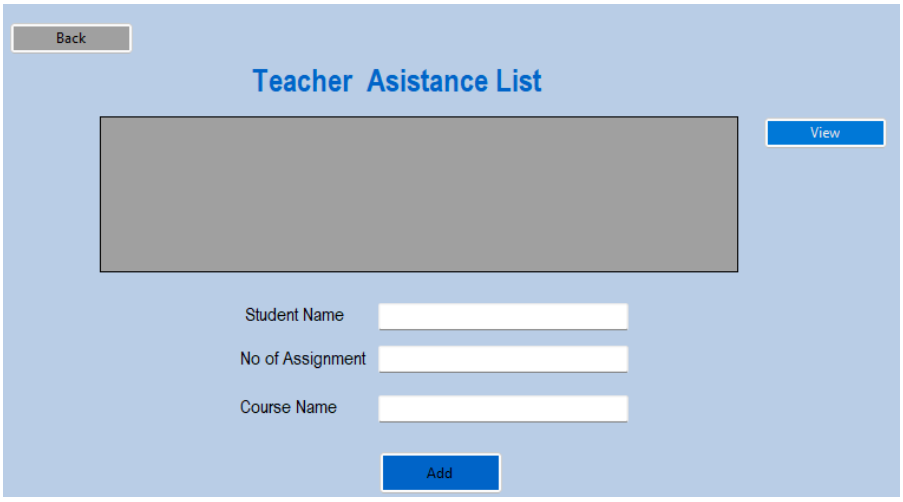
Hire Ta



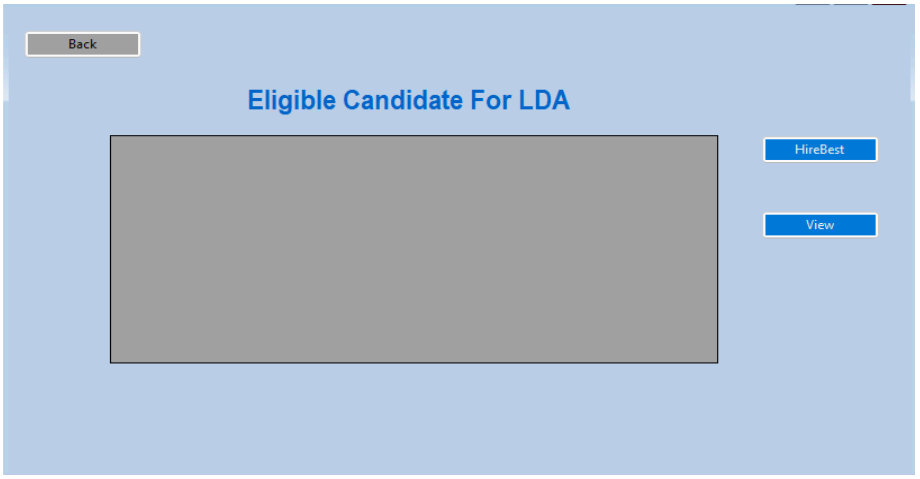
Request for Ta



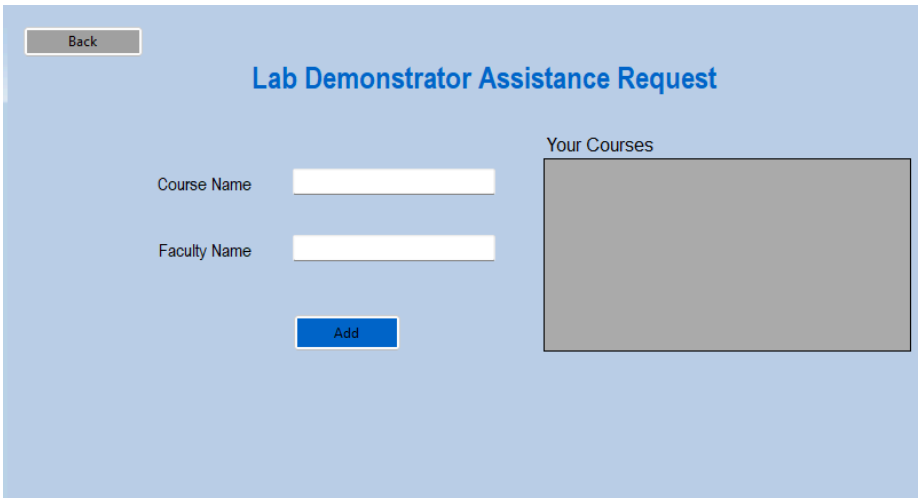
Manage Ta



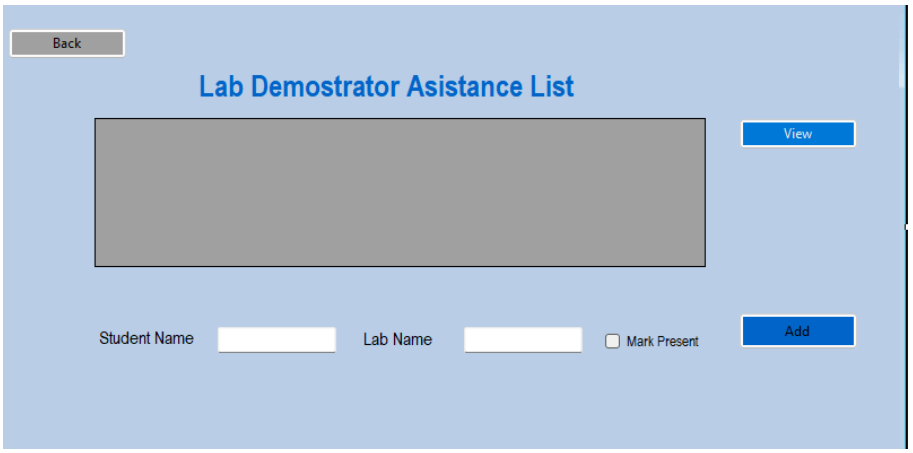
Hire Lda



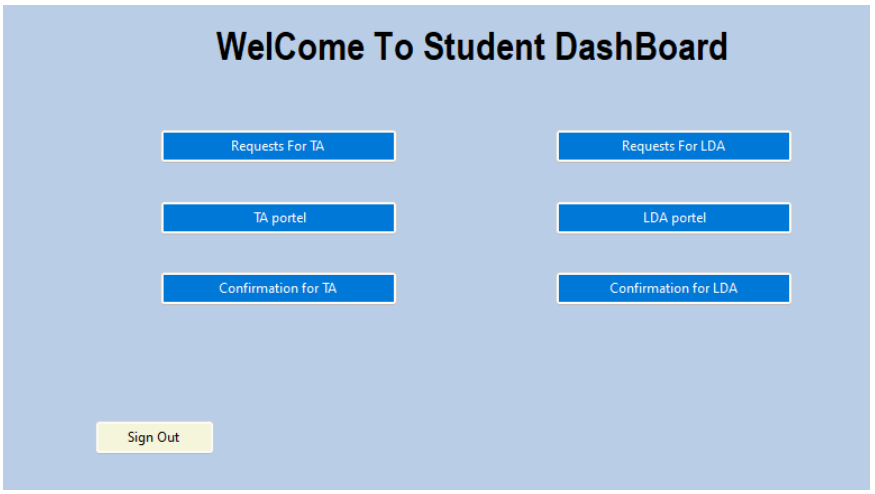
Request for Lda



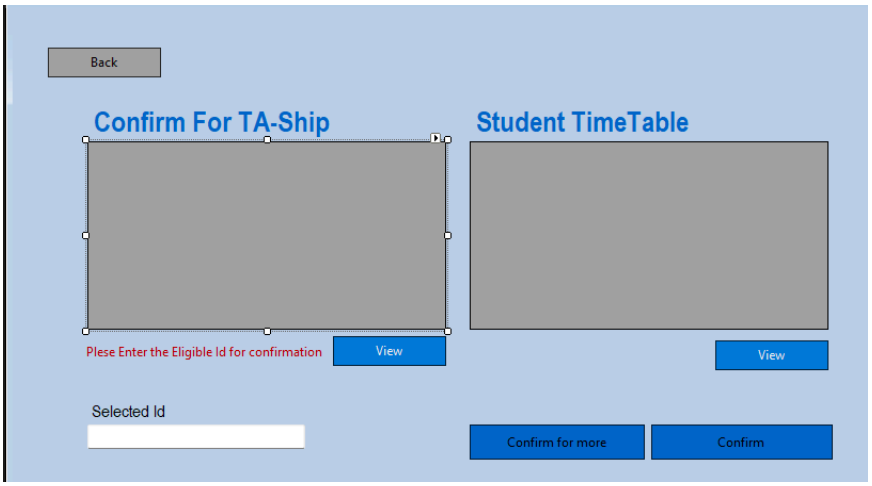
Manage Lda



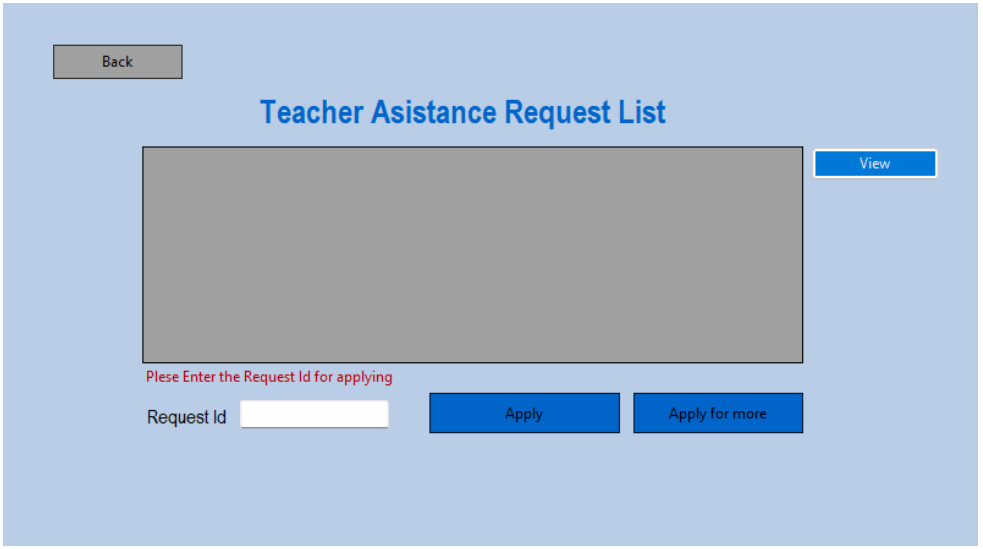
Student dashboard



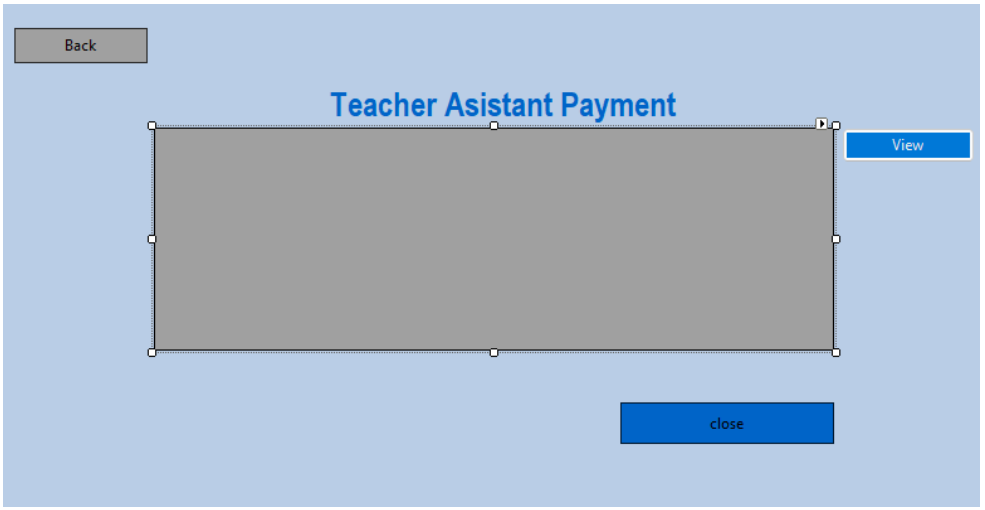
Confirm Ta



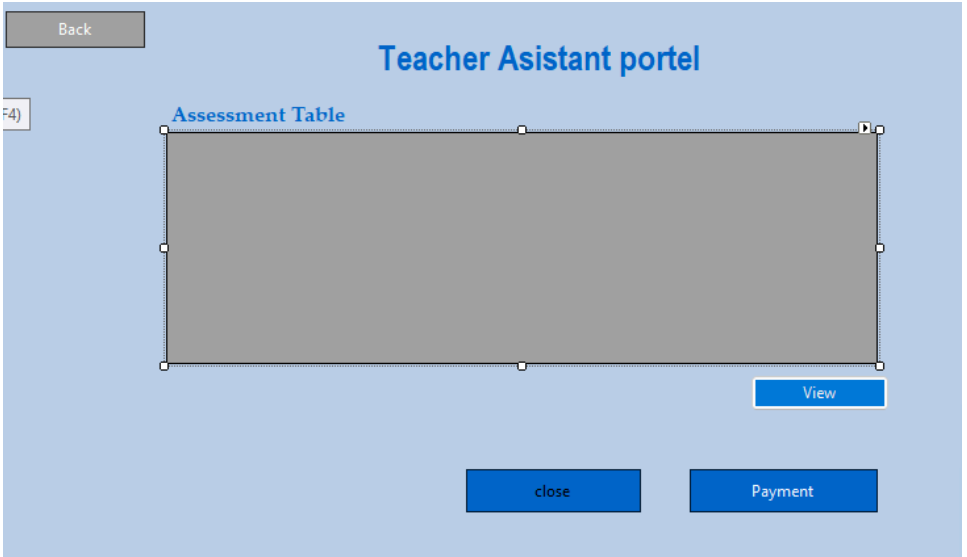
Apply for Ta



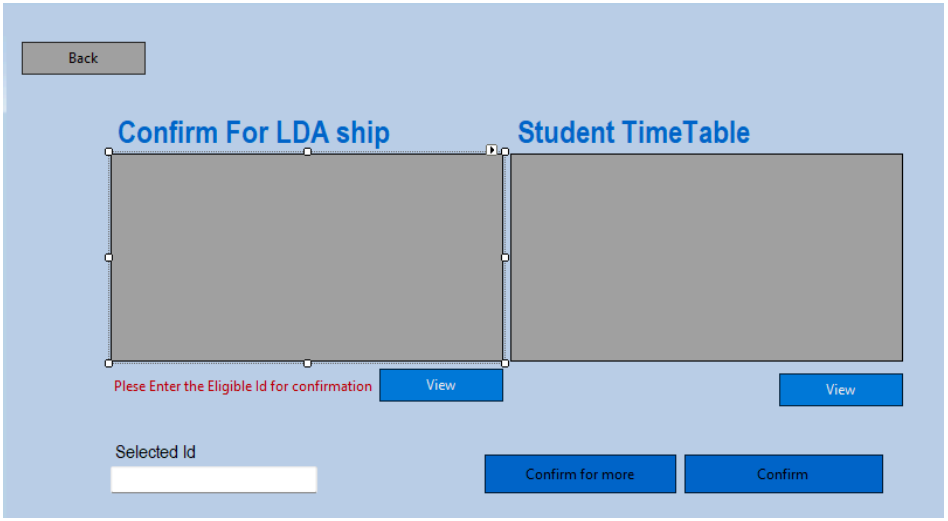
Ta Payment



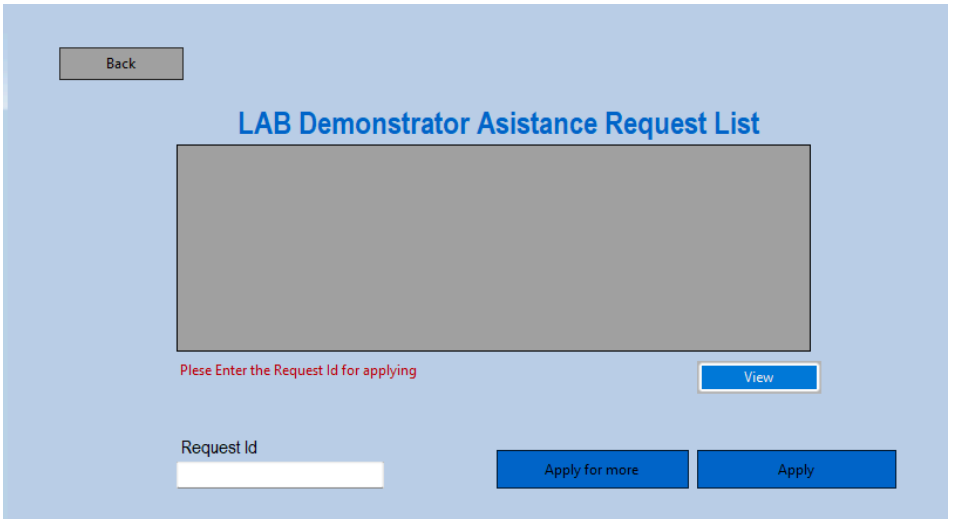
See assessment Ta



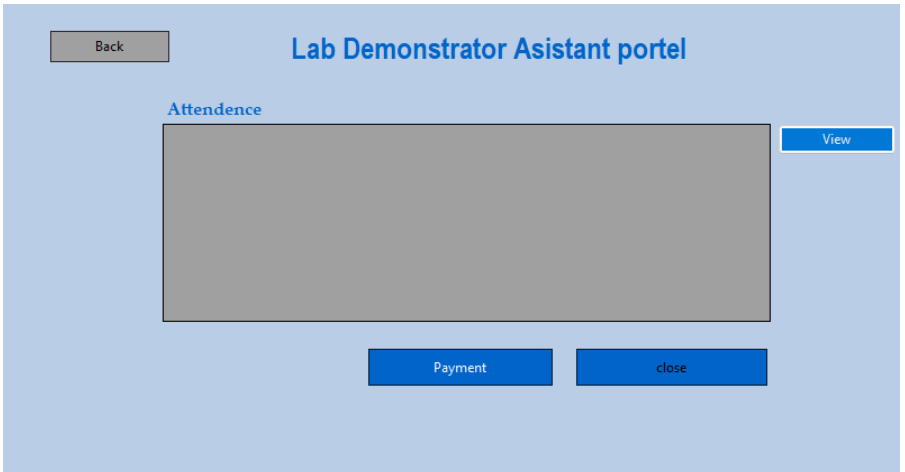
Confirm LDa



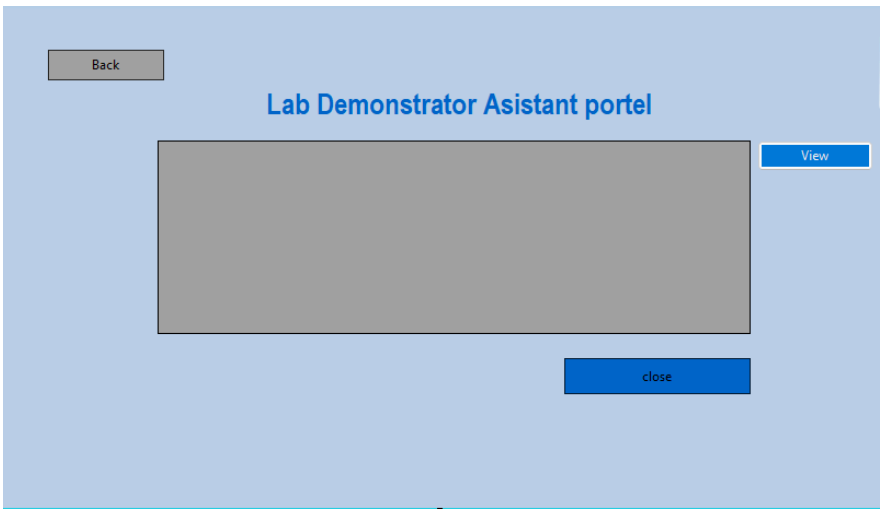
Apply for LDa



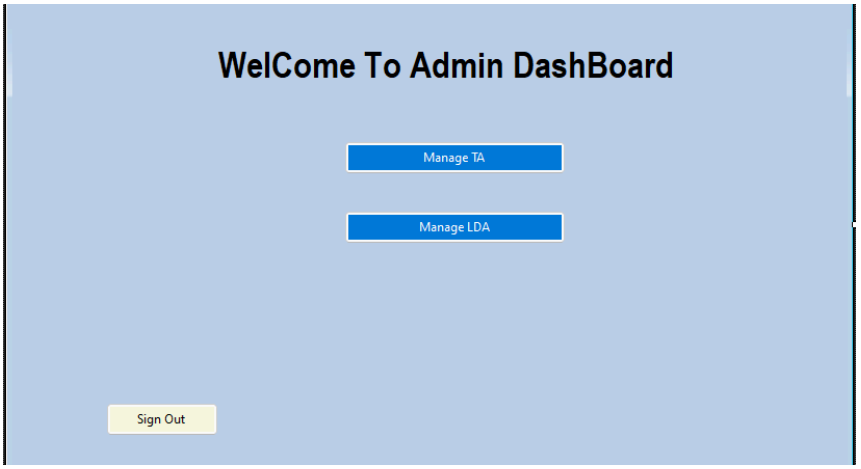
See assessment LDa



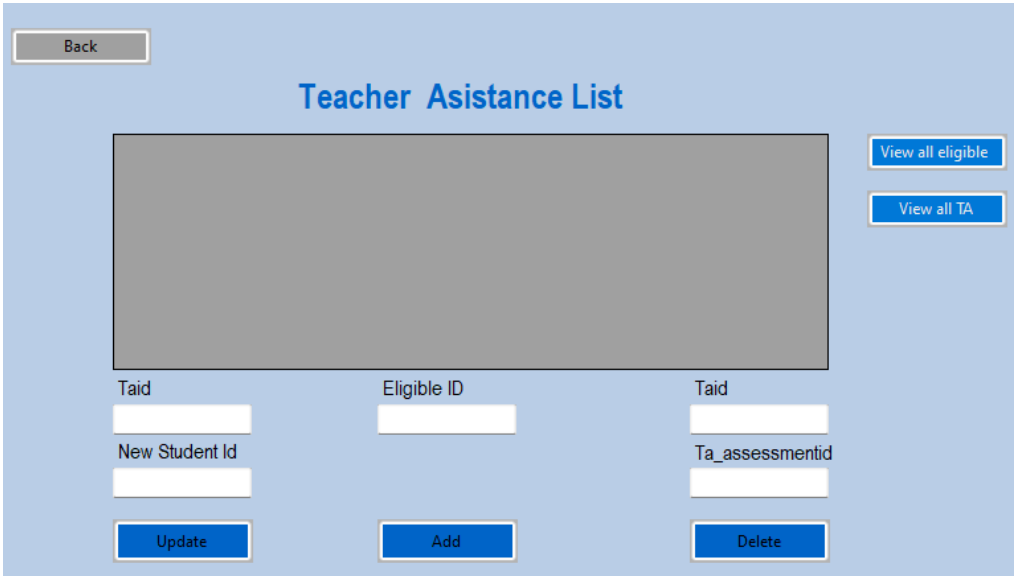
Lda Payment



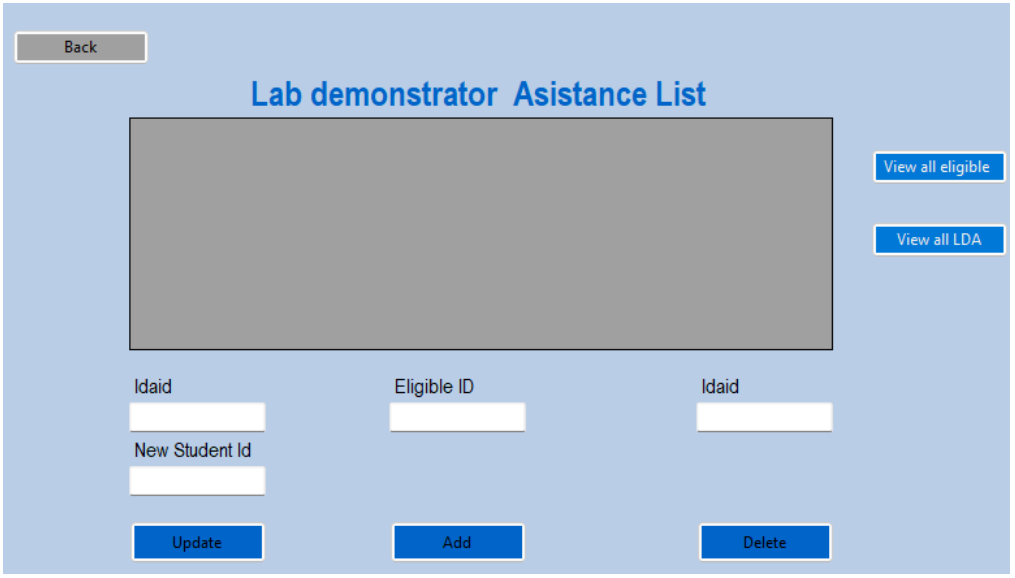
Admin Dashboard



Manage TA


Back
Teacher Asistance List
View all eligible
View all TA
Taid
Eligible ID
Taid
New Student Id
Ta_assessmentid
Update
Add
Delete

Manage LDa


Back
Lab demonstrator Asistance List
View all eligible
View all LDA
Idaid
Eligible ID
Idaid
New Student Id
Update
Add
Delete