

TEACHER'S ASSISTANT (TA)



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ABSTRACT

The main aim of the project is to develop a desktop application for the calculation of CLOs and PLOs. It will be a Client-Server architecture with server having the database. Client side will have an interface for students and one for teachers. Teachers will enter marks of their students in system. TA will generate the report of the status of CLOs and PLOs clearance for every student. This will be visible to teachers for seeing the status in subsequent semesters. Result will also be available for every student on LMS to plan their future courses for clearance of CLOs and PLOs.

DECLARATION

No portion of the work presented in this dissertation has been submitted in
Support of another award or qualification either at this institution or elsewhere.

DEDICATION

In the name of Allah, the Most Merciful, the Most Beneficent
To our parents, without whose unflinching support and cooperation,
a work of this magnitude would not have been possible.

ACKNOWLEDGEMENTS

There is no success without the will of ALLAH Almighty. We are grateful to ALLAH, who has given us guidance, strength and enabled us to accomplish this task. Whatever we have achieved, we owe it to Him, in totality. We are also grateful to our parents and family and well-wishers for their admirable support and their critical reviews. We would like to thank our supervisor, Dr. Seemab Latif, for her continuous guidance and motivation throughout the course of our project. Without their help we would have not been able to accomplish anything.

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CHAPTER:1
INTRODUCTION

1. INTRODUCTION

1.1.Overview

Since the advent of new curriculum regime i-e introduction of outcome based education(OBE),there is a dire need of streamlining the aspects which this education system covers. Emphasis is being laid upon course learning outcomes(CLOs)and program learning outcomes(PLOs).

As this is a new concept altogether ,therefore no system (software) fully functioning has been devised as yet which addresses the calculations of this outcome based educational process basing on pre allocated marks for CLOs in quizzes, assignments, one hour tests and final exams ,thus certifying at the termination of the course whether a student has cleared CLOs or not.

CLOs will be mapped to PLOs and in many cases two or more may point to one PLO.A PLO will be considered cleared if it fulfills the pre-requisites i-e respective CLOs are cleared or if two pointing to one PLO ,then clearance of any one will mark success of that PLO.Students will access the system through their registration numbers and passwords allotted to them by administrator and check their complete record to date ,teachers also if they so wish may check on any students performance by merely entering his/her name .

1.2.Problem Statement

Making an automated system of calculation of CLOs and PLOs for the ease of teachers.

1.3.Approach

At the moment we do not have any of such application in Pakistan. This app will not only assist Teachers of MCS for the purpose mentioned above, but will also help the teachers of other universities in Pakistan and abroad. It will be widely used by teachers as well as students.

1.4.Scope

The project aims at building a web based application primarily for teachers(lecturers/professors) in various universities. As we know that, according to PEC, the new education system curriculum refers to OutcomeBasedEducation (OBE). OBE is a process that involves assessment and evaluation practices in education to reflect the

attainment of expected learning and showing mastery in the program area. Further details on OBE can be found on PEC website Salient of OBE is based on are CLOs (Course Learning Outcomes) and PLOs (Program Learning Outcomes). This application will provide an intuitive and interactive menu structure that allows the teachers to enter CLOs, their mapping with PLOs, weight-ages (if required) and to just to enter students marks in quizzes, assignments, projects and exams. System will perform calculations as per pre-defined weightage of respective CLOs out of total marks. System shall display the result whether a particular CLO is cleared or not. Similarly mapping of CLOs to PLOs will determine the state of any particular PLO. Students and teachers alike may access the system. Teachers can through system administrator and check record of any student and student can view his/her own status. Print option will also be available to both teachers and the students. In case of instructor and only own in case of students with the facility of prints in PDF form .

The objectives of project include:

1. To learn Web Application Software's Development Process/Cycle.
2. To learn Web Application Programming (Php, Sql, Bootstrap)
3. To learn Web Application architecture (Hardware and Software)
4. To learn about databases and how to integrate them with web applications

1.5. Organization

The first part of thesis is the abstract which describes the main details of web application for Teacher's Assistant (TA), followed by the introduction section which specifies the problem statement, approach, scope and objectives. The literature review section state the various resources read online before the commencement of the project. They include learning about existing systems and the theory/concept of Washington accord and Outcome based Learning. The design and development part illustrate the diagrams which describe the detailed design of the android application for Teacher's Assistant(TA), its components, interfaces and data necessary for the implementation phase. The analysis and evaluation part give details of the black box testing, unit testing and system integration testing; actual results against expected results. The future work gives states the enhancements that can be applied to the application.

1.6.Deliverables

Table 1: Deliverables

Deliverable Name	Deliverable Summary Description
Software Requirements Specification(SRS) Document	Complete Description of what the system will do, who will use it. Detailed description of functional and non-functional requirements and the system features.
Design Document	Complete description of how the system will be implemented i.e. the detailed design.
Code	Complete code with the API.
Testing Document	The whole system is tested according to the specification described in the SRS document. Black box, unit and System integration testing is done.
Complete System	Complete working system.

CHAPTER:2
LITERATURE REVIEW

2. LITERATURE REVIEW

The first step was to study in detail about Washington Accord. The Washington Accord covers undergraduate engineering degrees under Outcome-based education approach. Engineering technology and postgraduate programs are not covered by the accord, although some engineering technology programs are covered under the Sydney Accord and the Dublin Accord. Only qualifications awarded after the signatory country or region became part of the Washington Accord are recognized. The accord is not directly responsible for the licensing of Professional Engineers and the registration Chartered Engineers, but it does cover the academic requirements that are part of the licensing processes in signatory countries.

2.1. Washington Accord

The Washington Accord is an international accreditation agreement for professional engineering academic degrees, between the bodies responsible for accreditation in its signatory countries. Established in 1989, the signatories as of 2014 are Australia, Canada, Taiwan, Hong Kong, India, Ireland, Japan, Korea, Malaysia, New Zealand, Russia, Singapore, South Africa, Sri Lanka, Turkey, the United Kingdom and the United States.

The agreement recognizes that there is substantial equivalence of programs accredited by those signatories. Graduates of accredited programs in any of the signatory countries are recognized by the other signatory countries as having met the academic requirements for entry to the practice of engineering. Recognition of accredited programs is not retroactive but takes effect only from the date of admission of the country to signatory status.

2.2. Jurisdiction

The Washington Accord only recognizes engineering programs accredited within the signatories' own jurisdictions. Signatories to the Washington Accord may accredit programs outside of their jurisdiction, but only those programs accredited within their jurisdictions are recognized by the Accord. For example, although we accredit programs in countries outside of the U.S., the Washington Accord recognizes only ABET-accredited programs within the U.S.

2.3. Recognition Dates

The year in which the signatory joined the Washington Accord determines recognition. For example, ABET was a founding member of the Washington Accord in 1989. Graduates of U.S.-based ABET-accredited programs beginning in 1989 are covered by the Washington Accord.

Other signatories are under no formal obligation to recognize ABET-accredited engineering programs or their graduates prior to 1989; however, individual signatories may recognize graduates prior to 1989 at their own discretion.

Please see the list of Washington Accord signatories to check the year in which each signatory joined the Accord.

International accrediting, regulatory, and educational organizations develop statements of graduate attributes and professional competency profiles. The International Engineering Alliance, which administers the Washington Accord for engineering, the Sydney Accord for engineering technology (4-year), and the Dublin Accord for engineering technology (2-year), has prepared a document that details the background of these statements, their purpose, methodology, and limitations; and describes the graduate attributes and professional competency profiles for engineers and engineering technologists.

2.4. An introduction to outcome-based education

RM Harden, JR Crosby & MH Davis

Outcome-based education is an approach to education in which decisions about the curriculum are driven by the outcomes the students should display by the end of the course. It is a performance-based approach at the cutting edge of curriculum development, offering a powerful and appealing way of reforming and managing medical education. The emphasis is on the product – what sort of doctor will be produced – rather than on the educational process. In outcome-based education the educational outcomes are clearly and unambiguously specified. These determine the curriculum content and its organization, the teaching methods and strategies, the courses offered, the assessment process, the educational environment and the curriculum timetable. They also provide a framework for curriculum evaluation.

2.5. Planning, implementing and evaluating

competency-based curriculum Stephen R Smith & Richard Dollase The leadership at Brown's Medical School assert that by clearly specifying the educational outcomes in behaviorally measurable ways it is possible to change the way faculty teach and students learn. Instead of

solely determining whether students graduate based on the accumulation of course credits, graduation should be contingent upon demonstrating mastery of a defined set of competencies.

At Brown University it is believed that competency-based education represents the model for medical education in the next century. Brown's approach to the education of medical students begins with the tasks that will be expected of the physician practicing in the twenty-first century, then builds a curriculum designed to equip its graduates with those attributes needed to perform those tasks competently.

2.6. Assessment in outcome-based education

Miriam Friedman Ben-David

Outcome-based education and performance assessment are closely related paradigms. They are bound by simple educational principles:

1 assessment methods should match the learning modality;

2 students are entitled to learning experiences which will adequately represent the assessment methods.

Outcome-based education programs are faced with the need to develop non-traditional teaching and assessment techniques, which capture both the learning and performance of broad abilities. Recent developments in assessment methodology have focused on performance assessment and somewhat neglected the related paradigm of outcome-based education. In outcome based programs, a comprehensive assessment should be integrated with all stages of the curriculum from its initial conception and assessment activities integrated with learning to enhance student learning from their own assessment experience. Medical schools have unique opportunities to observe students through their learning and assessment over a prolonged period of time. Students are eager to demonstrate their professional growth, and to monitor their own learning. Thus, clear outcome objectives, assessment-feedback and student self-assessment are central to outcome-based education.

2.7. OBE: lower-case outcomes-based education

Not all outcomes-based education is seen as a matter of great controversy. The word outcomes is common in many statements associated with the curricula established by Australian education systems and university programs. The use of ‘outcomes’ in these curriculum statements reflects the fact that the curriculum designers have considered which outcomes of the curriculum are valued and Graduate Attributes & Professional Competencies have used these in structuring the curriculum framework or to design the syllabus statement.

2.8. OBE: Upper case outcomes - based education -A Total System

Spady focuses on the totality of the education system. OBE is designed to cover the ground between the aims of the system and what happens in classrooms. His perspective is strongly future oriented in that he asks us to imagine both what the future will be like and how we want our students to turn out at the end of their education.

Once these outcomes have been identified it is possible to move to specification of how such outcomes will be achieved.

A flavor of the future orientation and of how outcomes fit into Spady's overall vision for an education system is shown by the steps set out for "total" educational leaders in designing their systems.

2.9. What are Program Learning Outcomes?

Program learning outcomes are statements that describe what learners will know and be able to do when they graduate from a program. They are closely linked to the credential framework and program standards set by the provincial Ministry of Training Colleges and Universities. Program standards apply to all similar programs offered by colleges across the province. Each program standard includes the following three elements:

- 1 Vocational standard (the vocationally specific learning outcomes which apply to the program in question),
- 2 Essential employability skills (the essential employability skills learning outcomes which apply to all programs of instruction), and General education requirement (the requirement for general education in postsecondary programs of instruction).

The vocational and essential employability skills components of program standards are expressed as learning outcomes.

An ABC learning team composed of Robin Hicks from St. Lawrence College, Wilma McCormack from Algonquin College and Sandy Odrowski from Durham College, developed a short Common Craft video explaining the three components of program standards.

2.10. How do program learning outcomes influence curriculum development and program review?

If you are developing curriculum at a program level, you will need to ensure that you have identified program learning outcomes that are clear statements of performance describing what graduates of your program will be able to do. These need to be congruent with the credential framework, existing program standards and the needs of the workplace. Courses and learning experiences in the program need to be aligned with the program learning outcomes.

If you are developing, revising or teaching curriculum at the course level, you will want to have a clear understanding of how your course is expected to contribute to the achievement of one or more of the program learning outcomes. The course learning outcomes (or course learning requirements) and learning experiences in the course need to reflect this alignment.

If you are engaged in program review, you will want to ensure that the program learning outcomes for your program are still current and relevant for the workplace. You will also want to ensure that the program's curriculum and how it is delivered guides learners to achieve the program learning outcomes and provides opportunities for them to demonstrate that they have achieved the learning described in the program learning outcomes.

CHAPTER:3
OVERALL DESCRIPTION

3.OVERALL DESCRIPTION

3.1.Product Perspective:

Since the advent of new curriculum regime i-e introduction of outcome based education(OBE),there is a dire need of streamlining the aspects which this education system covers. Emphasis is being laid upon course learning outcomes(CLOs)and program learning outcomes(PLOs).

As this is a new concept altogether ,therefore no system (software) fully functioning has been devised as yet which addresses the calculations of this outcome based educational process basing on pre allocated marks for CLOs in quizzes, assignments, one hour tests and final exams ,thus certifying at the termination of the course whether a student has cleared CLOs or not.

CLOs will be mapped to PLOs and in many cases two or more may point to one PLO.A PLO will be considered cleared if it fulfills the pre-requisites i-e respective CLOs are cleared or if two pointing to one PLO,then clearance of any one will mark success of that PLO.Students will access the system through their registration numbers and passwords allotted to them by administrator and check their complete record to date,teachers also if they so wish may check on any students performance by merely entering his/hername.

3.1.1. Product Functions:

Major functions included in the system are:

1. Login
2. Select option
3. Add new course
4. Update data
5. Search student
6. Display progress
7. Update and save overall progress
8. Record Teacher's remarks
9. Print Student CLO/PLO record
10. Logout

3.2. Legal issues

Until now no application with similar functionality is developed. So, there are no legal conflicts and issues associated with this application.

3.3. Data Storage

All the progress will be stored in database in excel sheets or similar software in form of statistics.

3.4. Schedule and Resources

Project to be completed by May 2016 as BESE-22's 1st semester shall be taken as a Test Case scenario.

3.5. Output Format

Complete report of any student can be saved as PDF file and can also be printed

3.6. User Documentation:

For the user documentation, a user manual will be provided with the system. It will include the details of the system's working. Help documents will also be a part of the system.

The project report will also be available for the users which will highlight the system features, working and procedures.

3.7. Dependencies/Assumptions:

Orientation: Comprehensive briefing along with practical handling shall be demonstrated to all the users for their better understanding of the system.

3.8. Networking:

Since it is a web based application so internet availability is the foremost thing.

3.9. Administration:

A Client -server architecture with administrator as server authorizing access to clients with authenticated username and passwords allocated to them.

3.10. Operating System:

Any operating system allowing web access.

3.11. Overview of Data Requirements:

3.11.1. Inputs:

Users shall access the system by their usernames and passwords provided to them by the administrator. Usernames can be registration IDs for students and employee IDs for teachers, names or anything which suits best.

3.11.2. Outputs:

Once the system authorizes the user, user shall have access to various components of the system and either edit records(By teachers only) ,or viewed by all and prints taken if desired.

3.12. EXTERNAL INTERFACE REQUIREMENTS

This section contains the requirements specification for interfaces among different modules of the software and their external capabilities. It presents a high level of abstraction of the basic elements of the Graphical User Interface (GUI) and the display screens of the application.

3.12.1. User Interfaces:

The display screens for different functions are given below (Subject to change)

3.12.2. Login Screen:

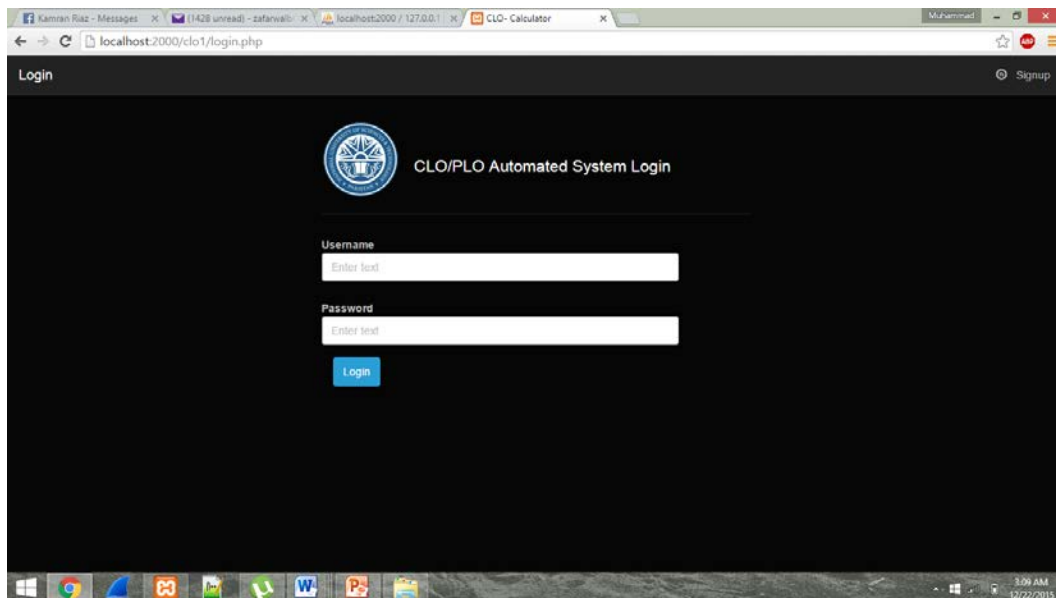


Figure 1: Login Screen

This screen will allow user to:

- Enter username
- Enter password
- Login into application

3.12.3. Option Selector Screen:

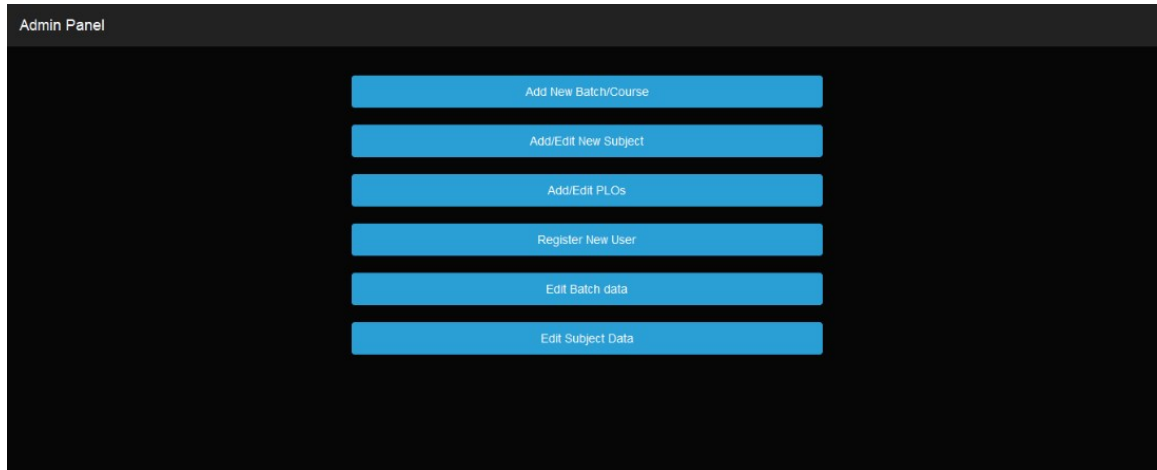


Figure 2: Option Selector Screen

This screen will allow user to:

- Select an option.
- Selected option will be the next screen with all its features.

3.12.4. Course Addition Screen:

The screenshot shows the 'Course Addition Screen' in the 'CLO Calculator' application. The interface includes a sidebar with course categories: 'Information Security Management', 'Computer Graphics (C', and 'Number Theory'. The main form contains the following fields:

- Subject:** A dropdown menu with 'Information Security Managemen' selected.
- Credit Hours:** A text input field with the placeholder 'Enter Credit Hours'.
- Course Code:** A text input field with the placeholder 'Enter Course Code'.
- Select Course:** A dropdown menu with 'BESE21-A' selected.
- Enter CLO text:** A text input field with the placeholder 'Enter CLO Text'.
- Select corresponding PLO:** A dropdown menu with 'PLO1-Mathematics for Dev' selected.

There are also two small blue square icons to the right of the PLO dropdown and a blue 'Create' button at the bottom.

Figure 3: Course Addition Screen

This screen will allow user to:

- Enter the course name along with percentage of all tests counting towards final grading.
- Log out of the application.

3.12.5. Edit Data Screen:

The screenshot shows the 'Edit Data Screen' in the 'CLO Calculator' application. The interface includes a sidebar with course categories: 'Information Security Management', 'Computer Graphics (C', and 'Number Theory'. The main form is titled 'Quiz Breakdown' and contains a table with the following data:

Question #	Select CLO	Enter marks
Question#1	CLO 2	5
Question#2	CLO 2	5
Question#3	CLO 1	5
Question#4	CLO 1	5
Question#5	CLO 1	5

Each row has a blue '+' and '-' icon to the right of the 'Enter marks' field. There is a blue 'Save' button in the top right corner.

Figure 4: Edit Data Screen

This screen will allow user to:

- Edit records of students as and when desired.

- This interface's access rights are for teachers alone.
- Logout of the application.

3.12.6. CLO/PLO Summary Screen:

PLO SUMMARY for BESE21

SR	Name	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PLO11	PLO12
1	Musharaf Aslam Jad	✓	✓										
2	Musharaf Aslam Jadoon		✓			✓							
3	Zeeshan Qamar			✓	✓								
4	Musharaf Aslam Jadoon		✓										
5	Zeeshan Qamar		✓	✓		✓							
6	Arslan Naseer	✓		✓	✓								
7	Nasir Fiaz Satti		✓										
8	Musharaf Aslam Jadoon	✓											
9	Zeeshan Qamar		✓	✓									
10	Arslan Naseer	✓											
11	Nasir Fiaz Satti		✓										

Figure 5: CLO PLO Summary Screen

This screen may be used by teachers and students alike to:

- View own CLO/PLO record and remain current about it (students)
- Keep track of the student's progress and come up with summary of their curricular activities as and when needed.

Note:

- All the screens will be controlled by mouse and keyboard
- Screens are subjected to change later in project.
- Only some basic screens of the application are mentioned above.

3.13. Software Interfaces:

- The system will be developed using the Bootstrap software interface primarily as it is very dynamic and web independent.
- The system will interact with Database for overall calculations of CLO/PLO results against data entries of the students. The system will interact with the printer if the user wishes to get the progress reports printed.

3.14.NON-FUNCTIONAL REQUIREMENTS

This section describes the features of the system individually in detail. It shows what each feature will do, how it will work and what the functional requirements that each feature should meet are listed below.

3.14.1. Login:

3.14.1.1. Description and Priority:

This function allows the user to log into the application by providing the required information for login. It is assumed that the login and password of the user will be already registered with the administrator.

This function is of high priority as all the other functions are performed after the successful completion of this feature.

3.14.1.2. Stimulus/Response Sequences:

1. Enter the user name in the given field.
2. Enter the password in the given field.
3. Press login to enter the application.
4. Next screen of the application will appear after successful login.
5. If incorrect username or password is entered, login will not be successful.

3.14.1.3. Functional Requirements:

REQ-1: Application should be able to identify invalid username and password if it is not found in database.

REQ-2: If the invalid username or invalid password is entered, application should not load next screen and generate an error message.

REQ-3: If both username and password are valid, application should load next screen.

3.14.2. Select option:

Description and Priority:

This function allows the user to select amongst the available options. This functionality is restricted to the teacher's use only , in fact this will not be provided to the students and they will have no right to it.

Stimulus/Response Sequences:

1- Select the first option i-e to add new courses and assign students to the course.

Functional Requirements:

REQ-4: The application should display all the valid options for user to choose.

REQ-5: The application should display result of entered information in the search bar.

3.14.2. Add new course:

Description and Priority:

This function allows the user (Teachers) to add the new courses and assigning of students to them. User shall be able to enter marks for Quizzes, assignments, hourly tests, final exams and projects for further calculations of CLO/PLO results by the system by interacting with database.

This function is of highest priority because it will be used most often by Teachers in order to facilitate themselves .

Stimulus/Response Sequences:

1. Add new course by clicking the logo devoted for addition purposes
2. Provide the required information to complete the form and confirm the entries by clicking Ok button.
3. If there is any required field left blank, the addition will not be successful and application will indicate the required field left blank.
4. If the entire required field is filled, the addition will be marked successful.

Functional Requirements

REQ-7: The application should be able to identify blank required fields for addition and should highlight them.

REQ-8: The application should map student's marks to the designated course.

3.14.3.Update/Edit Student data:

Description and Priority:

This function allows the user to select the student in the application. The user can select student name and corresponding entries against his/her name. Teachers can modify student data as and when felt necessary which will lead to the updating of their CLO/PLO result.

Stimulus/Response Sequences:

- 1- After searching the student, select the student by clicking on the student name on the student selector screen.
- 2- Application will open a panel which corresponds to the selected student and will show the information and options related to the selected student.

Functional Requirements:

REQ-9: The application should be able to open a separate panel for every individual selected student.

.

3.14.4. Display progress:

Description and Priority

This feature allows the user to display the progress of any student on a separate screen, revealing all his/her record in terms of CLO/PLO statistics.

This function is again of high priority because it will be used often both by students and teachers alike.

Stimulus/Response Sequences:

1- User will click on the name shown on the panel and information form will be appeared.

2- User can change any field and click Ok button on the information form for successful editing of the information.

Functional Requirements:

REQ-10: The system shall display the complete record of students on a separate screen/window.

3.14.5. Update & save overall progress:**Description and Priority:**

This function allows the user to click on the update and save progress panel after making any amendments in student's marks. System shall notice changes ,update them and save overall progress by performing new calculations.

Stimulus/Response Sequences:

1- Click on the update& save progress panel on the update data screen.

2- After successful updates, the application will display a success message dialog box.

Functional Requirements

REQ-11: The system shall be able to update any editing by interacting with the database.

3.14.6. Print CLO/PLO Record:**Description and Priority:**

This function will allow the users(students) to get their CLO/PLO record in PDF form.

In case of teachers,they may also get the print outs of students record if needed at any time.

Stimulus/Response Sequences:

1. Check the summary of the progress by seeing the progress panel available on the search student screen.
2. Students can simply view and gets print of their overall record after logging on .

Functional Requirements:

REQ-12: The system shall be able to calculate a summary of progress of the student and show it on a small panel on the present screen.

REQ-13: The system shall be able to draw prints as and when required.

REQ-14: If the printer is not found or there is another problem in printing then the application should generate an error telling the user to check the printer settings and try again later.

3.14.7. Logout:

Description and Priority:

This function will enable the user to logout of the application. The option of logout will be available on every screen except login screen as yet so as to facilitate logging out at any instant during application use.

This function is of medium priority because user to shut down the application at any stage of using the application.

Stimulus/Response Sequences

1. Select the logout option available at different screens.
2. The applications will successfully logout.

Functional Requirements

REQ-15: The application should give the option of logout on different screens so that users can logout of the application at any time.

3.15.OTHER NON-FUNCTIONAL REQUIREMENTS

3.15.1. Performance Requirements:

3.15.1.1. Response Time

The response time of the system would be less than 10 seconds as soon as it identifies and authenticates access to the user.

3.15.1.2.Capacity

The system shall be able to accommodate and entertain requests from multiple users at a time.

3.15.1.3. Accuracy

The system should be very accurate in order to avoid any data anomalies/discrepancies.

3.15.1.4. Availability

The system and helping document will be provided in English.

3.15.2. Safety Requirements:

The system shall not accidentally lose/delete the files associated with it, such as information related to students.

3.15.3. Security Requirements:

Only authorized Teachers and students shall be permitted to access student's information.

3.15.4. Software Quality Attributes:

3.15.4.1. Availability

The system can be used 24/7 as long as the computer system or any other hardware allowing web access works properly.

3.15.4.2. Correctness

If the user gives right/defined commands for a particular action the options should be selected correctly.

3.15.4.3. Extensibility and Maintainability

- The system will be extended for university level studies.
- The system will allow evolution as OBE system is being streamlined further

3.15.4.4. Portability

The system can be used on any compatible hardware meeting the requirements of web access.

3.15.4.5. Robustness

- System shall allow access to multiple users simultaneously 24/7.
- The system shall not terminate or slow down due to traffic.

3.15.4.6. Reliability

The system will be available to users 100% of the weekly time.

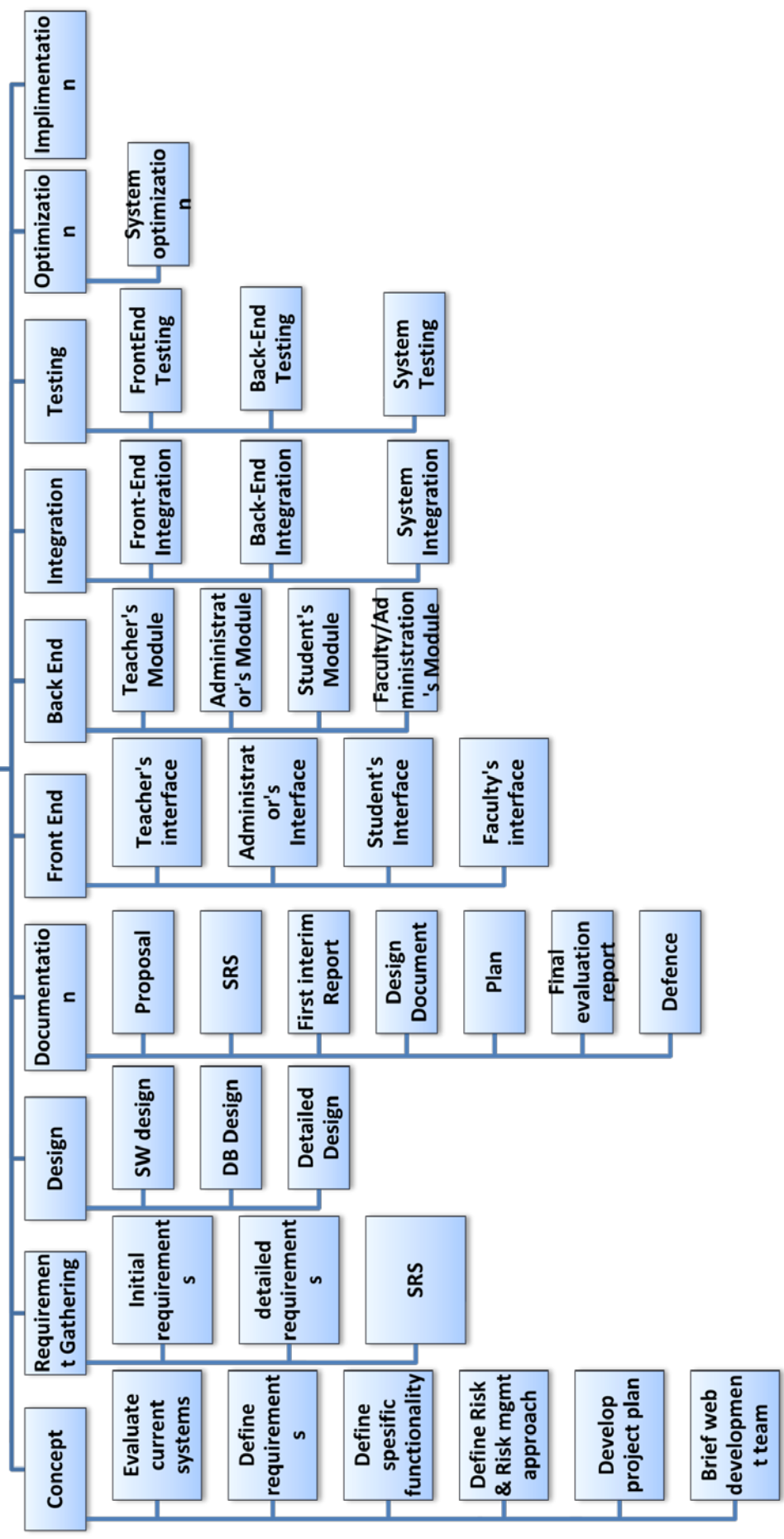
3.15.4.7. Usability

The system will be very easy to use by the users after little acquaintance.

CHAPTER:4
DESIGN AND IMPLEMENTATION

WBS

Teacher's Assistant



4. DESIGN AND IMPLEMENTATION

4.1. Modules Identification

Main modules of the Project are:

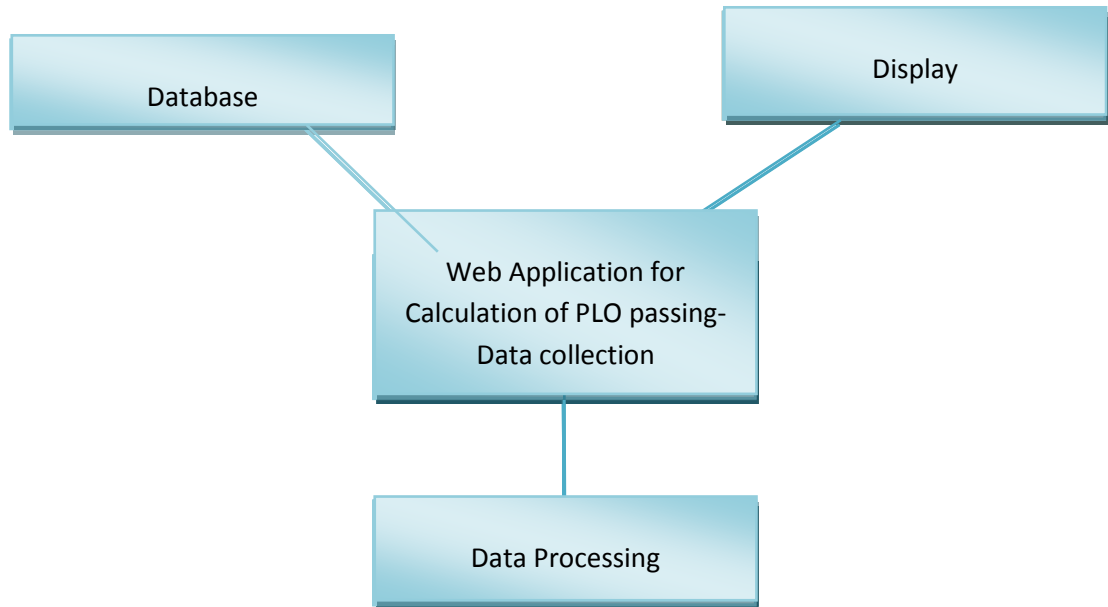


Figure 8: Modules Identification

4.2. Architectural Style

If a project has unstructured design such as not following a design pattern may result in the increase of software size, difficulty to maintain, and poor design. This might happen specifically when developing for interactive application which requires multiple types of user interface. Developing android application requires thorough consideration on the design factors as it might result in complexity problem. Poorly-designed application may consume more resources and slow down or block the device usage. Poor designs make testing and maintenance activities difficult.

Architecture of android application for autism can be modeled using **Model-View-Controller**. Interface of the system is distinct from the application logic. MVC is a pattern used to isolate the business logic from the user interface. Model represents the information (the data) of the application and the business rules used to manipulate the data. View corresponds to elements of the user interface such as text, checkbox items, and so on while Controller manages details involving the communication between the model and view. The controller handles user actions such as key press, tap, etc. and pipes them into the model or view as required.

4.2.1. View

is the user interface of the application, with which the user will be interacting. All the Image Views, buttons, form elements (textbox, radio button etc.) used in the application will come under view.

4.2.2. Controller

is the handler for whatever action is done on the view, which will communicate with view and pass on the information gathered from view to model (application / business logic). It will also communicate with model and get the information to be displayed on view from model and pass it on to the view. Controller is the mediator between model and view.

4.3. UML Diagrams

4.3.1. Use Case Diagram

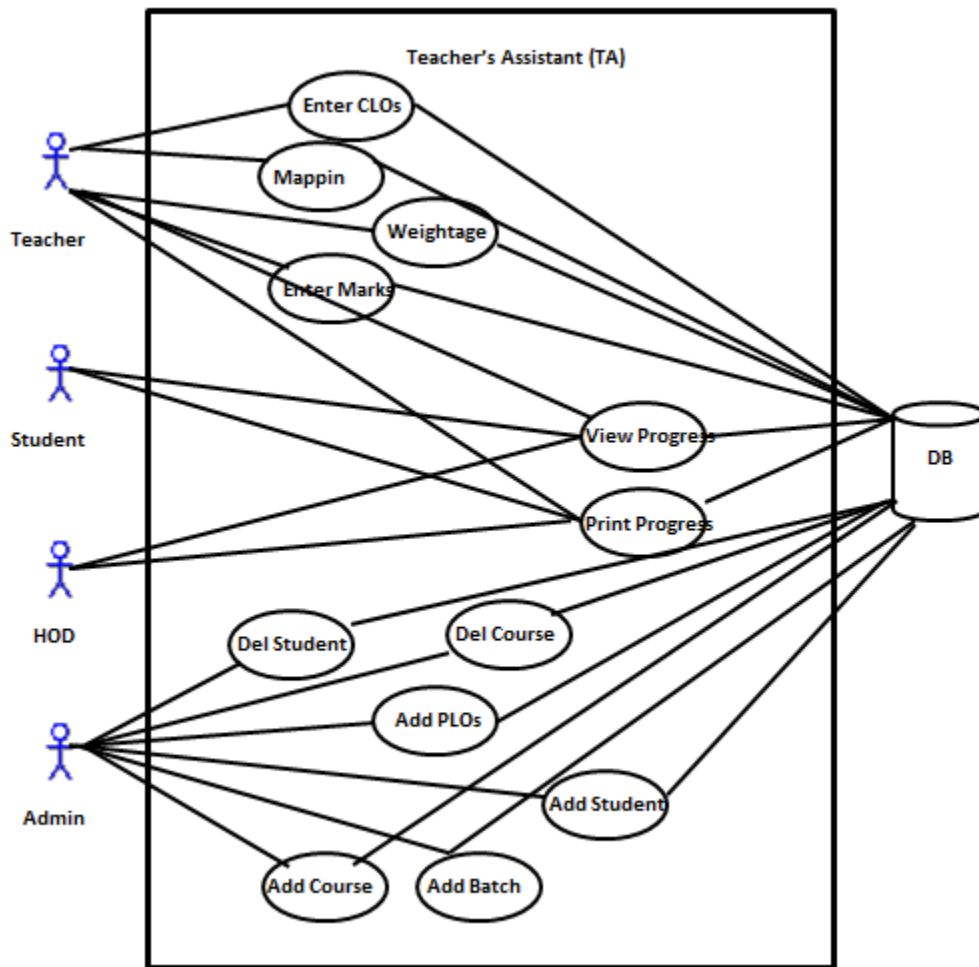


Figure 9: Use Case Diagram

4.3.2. Use Case Specification

Actors:

1. Admin
2. Teacher
3. Student
4. HOD

4.3.3. Use Cases:

1. **Login**
2. **WriteCLO**
3. **CLO to PLO Mapping**
4. **Weightage**
5. **Enter Marks**
6. **Assign Course**
7. **Add Subject**
8. **Add Course/Degree**
9. **View Progress**
10. **Print Progress**
11. **Record Remarks**
12. **Add/Delete Student**
13. **Logout**

Sequence Diagrams for Key Use Cases

1. Login

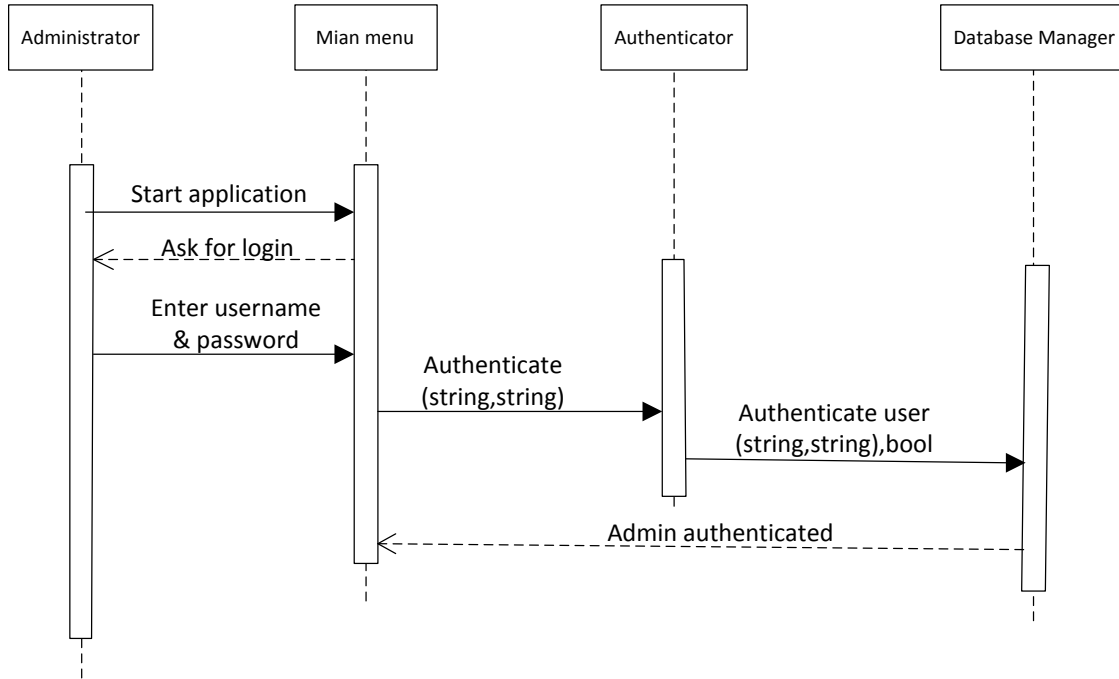


Figure 10: Sequence Diagram for Login

Write CLO

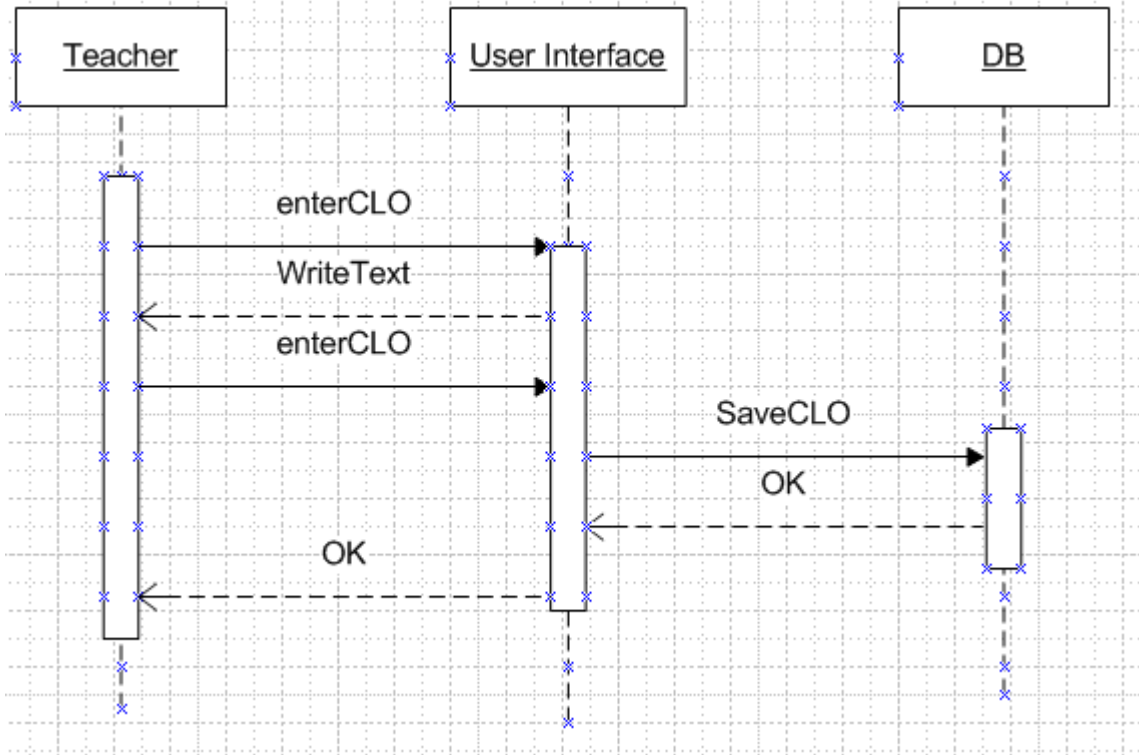


Figure 11: Sequence Diagram for CLO

Teacher Enters marks

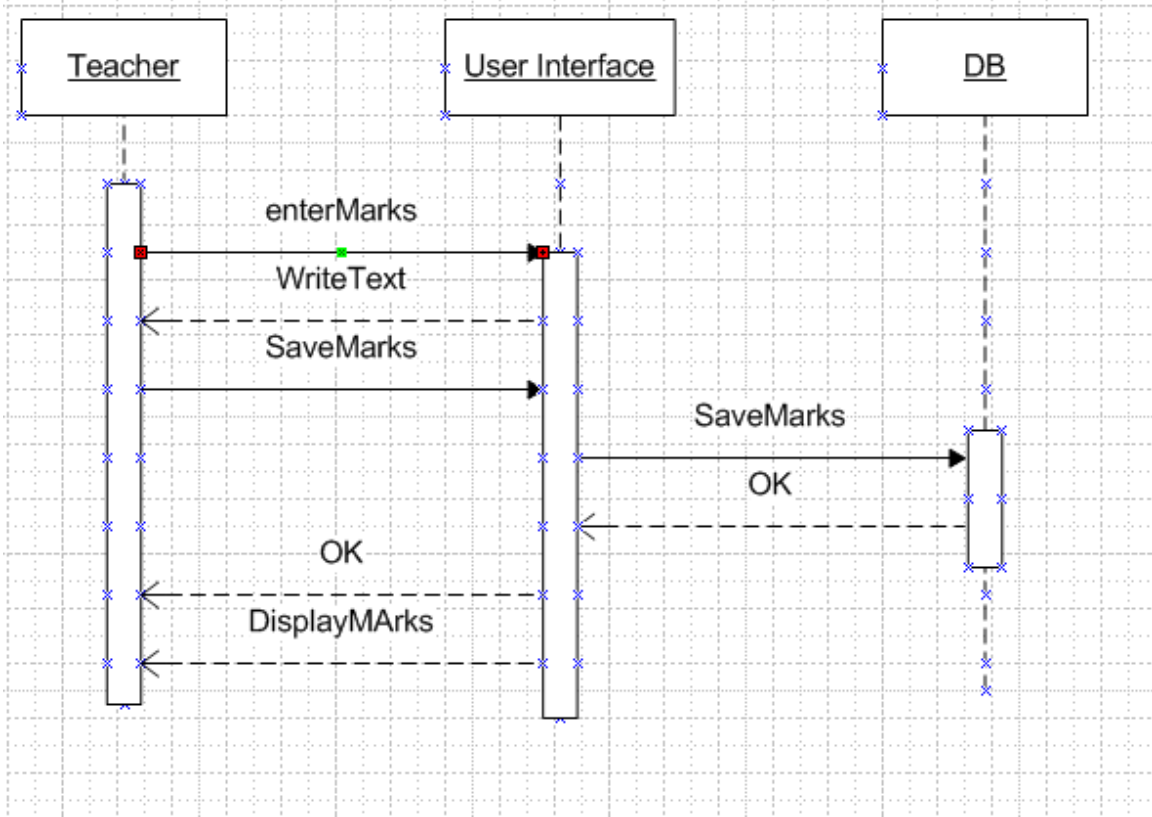


Figure 12: Sequence Diagram for Teacher entering marks

Admin Assigning course to teacher

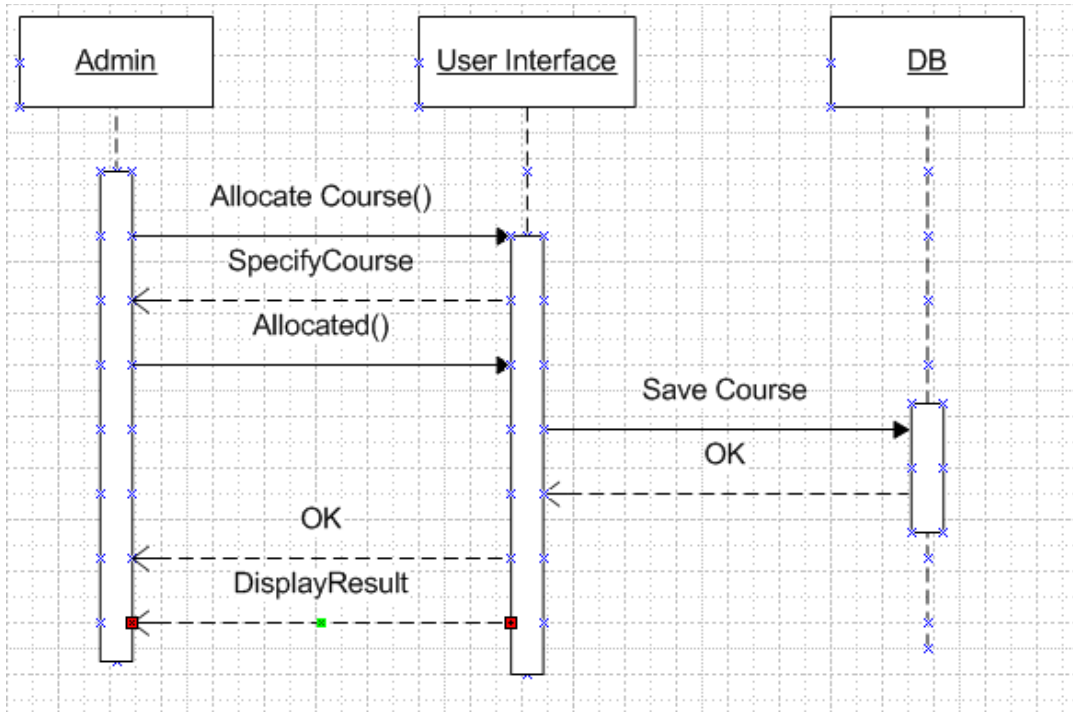


Figure 13:Sequence Diagram for Admin Assigning course to teacher

View Progress

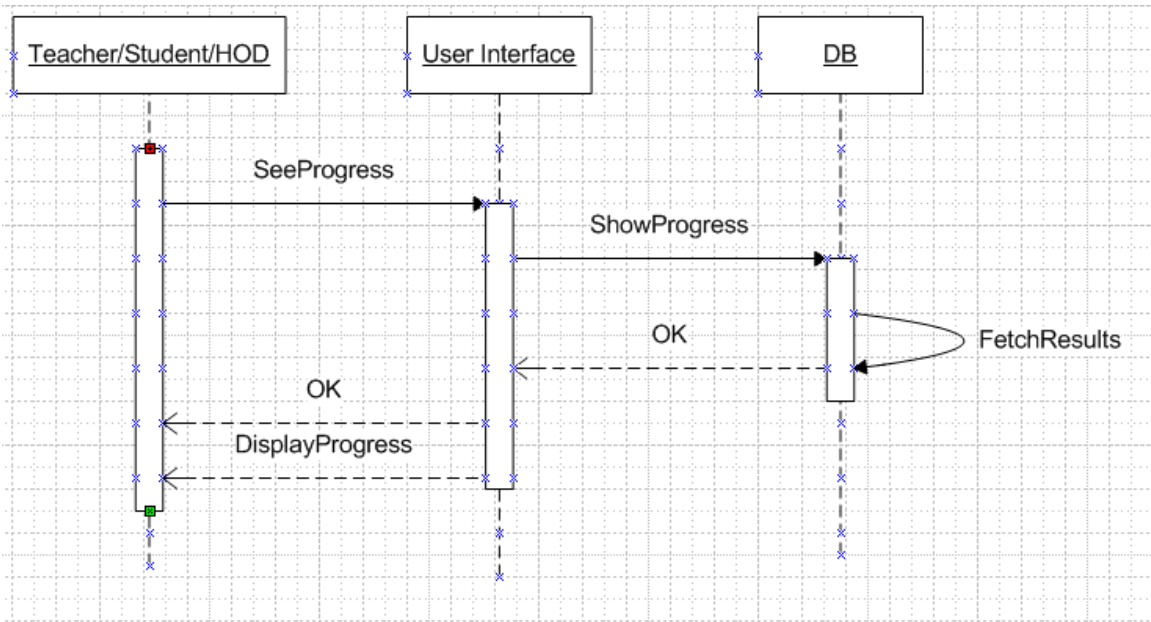


Figure 14:Sequence Diagram for View Progress

Add Student

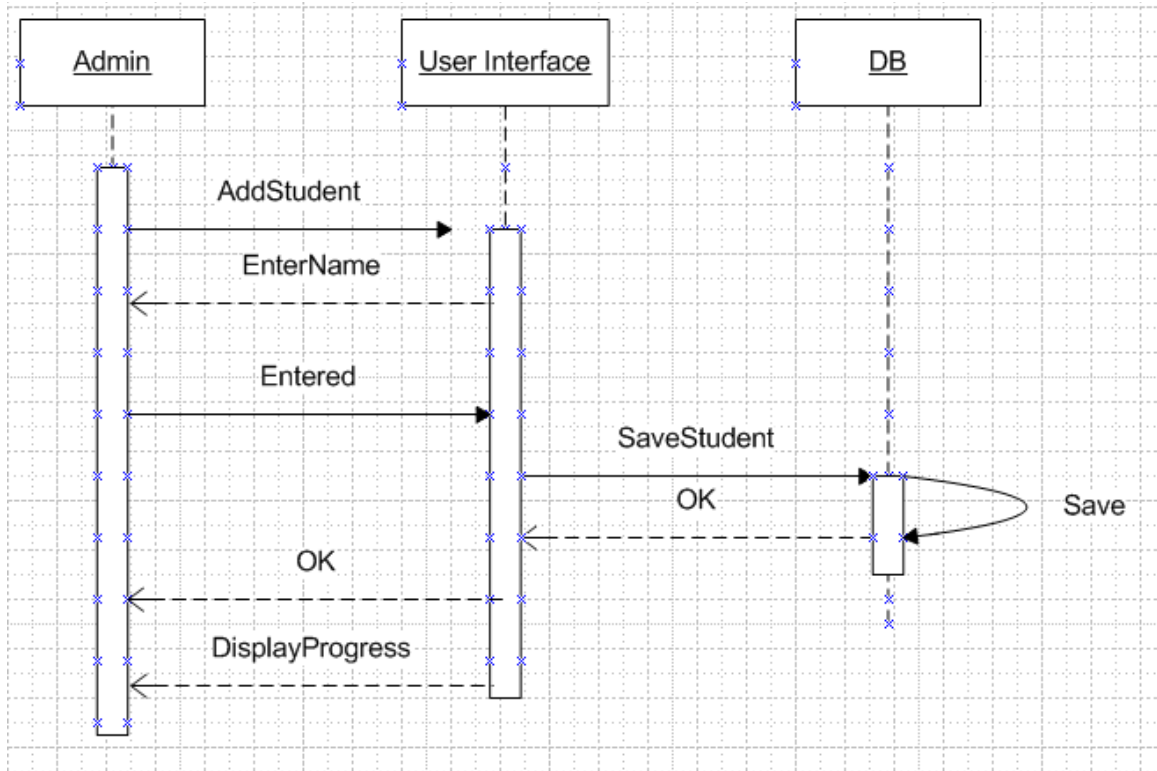
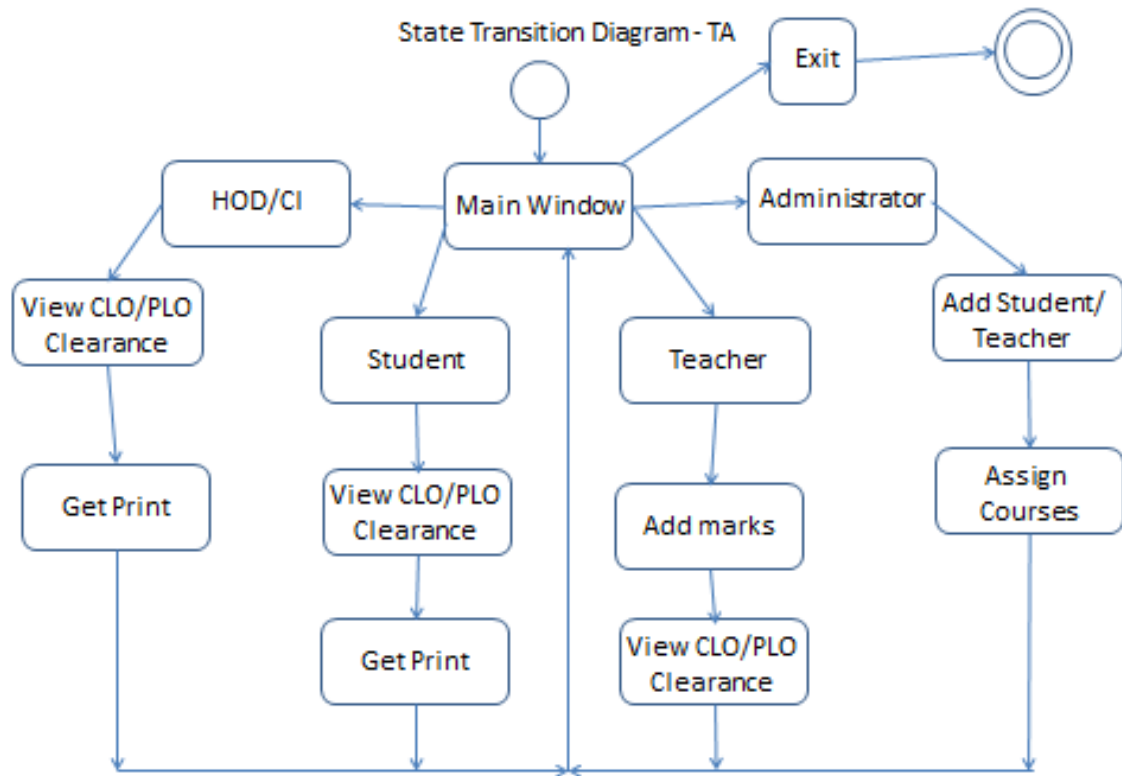


Figure 15: Sequence Diagram for Add student

Dynamic View

State Transition Diagram



Implementation View

Class Diagram

The application comprises of the following classes:

1. Add Batch Data
2. Edit Batch Data
3. Add PLO
4. New Subject

5. OHT1 Breakdown
6. OHT2 Breakdown
7. Final Breakdown
8. Quiz Breakdown
9. Assignment Breakdown
10. Marks

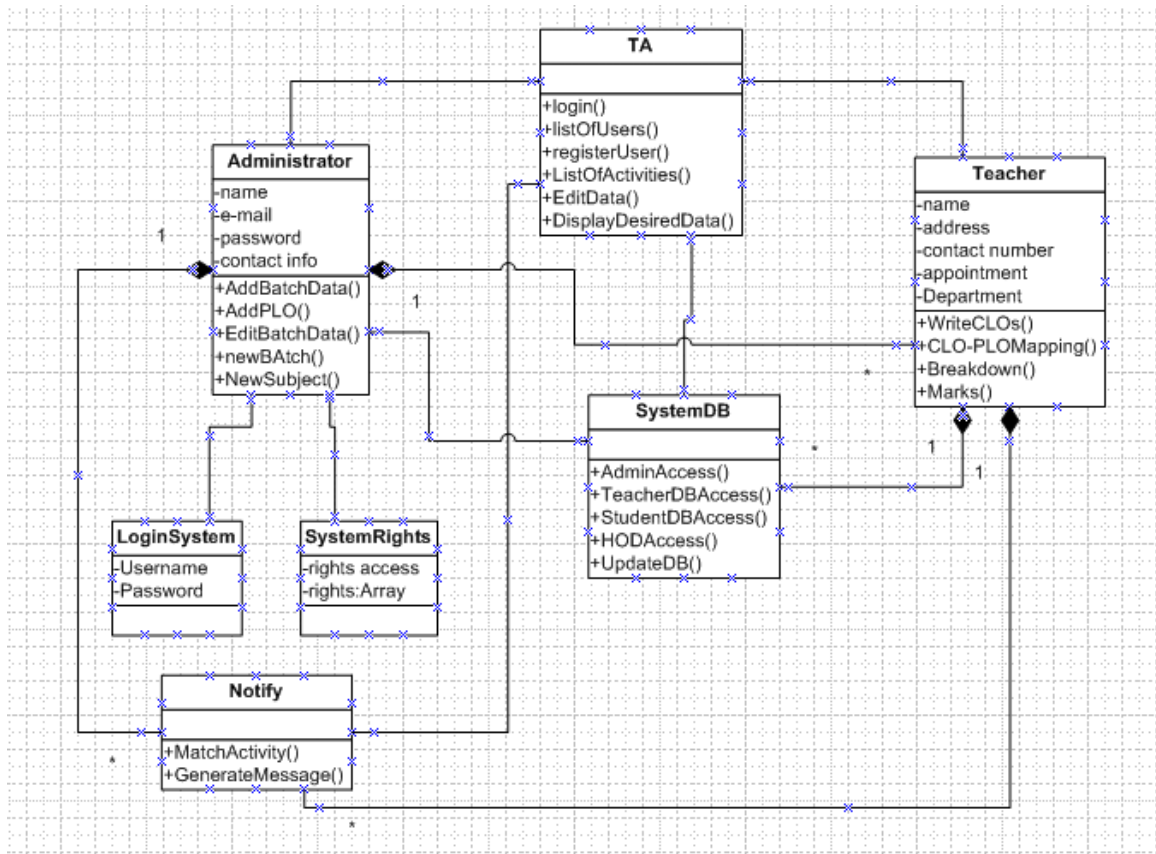


Figure 16: Class Diagram

System Classes Description

Table 2: System Classes Description

Classes	Description
Add Batch Data	This class contains functionality of Adding a new Batch. Then the subsequent functionality is handled by other subsequent classes.
Edit Batch Data	Data related to batch which needs to be edited is handled by this class
Add PLO	Though this is a one time measure but there was a need to have a separate class for entering of PLO because it is the most important file with respect to our project.
New Subject	Subjects which are added into the system are handled by this class
OHT1 Breakdown	The breakdown of the marks which teacher gives for OHT1 is handled by this class
OHT2 Breakdown	The breakdown of the marks which teacher gives for OHT2 is handled by this class
Final Breakdown	The breakdown of the marks which teacher gives for Finals are handled by this class
Quiz Breakdown	The breakdown of the marks which teacher gives for Quizzes are handled by this class
Asg Breakdown	The breakdown of the marks which teacher gives for Assignments is handled by this class

Marks	This class fetches the marks from all the classes of OHT1, OHT2, Assignments, Quizzes and final and calculates the grand total
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4.4. System Implementation

Flow diagram

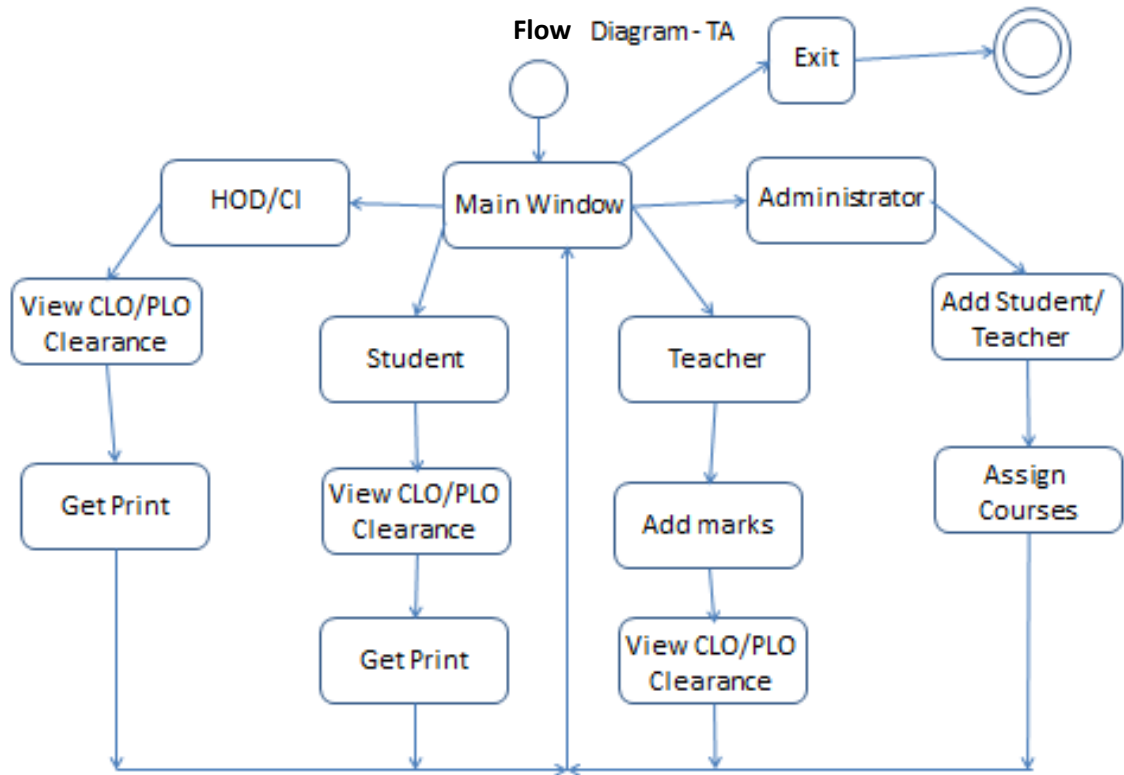


Figure 17:ActivityDiagram

CHAPTER:5
ANALYSIS AND EVALUATION
(TESTING)

5. ANALYSIS AND EVALUATION

5.1. INTEGRATION TESTING

The aim is to check that the modules such as start, category, specific category, result and settings perform the required operations after integrating with each other. The application's performance would be tested under valid and invalid inputs.

Functional Testing will focus on each and every use case that is included in the version currently being worked on. Testing will mainly consist of execution of test cases written to address the gap identified. It will focus on inputs, outputs and system changes due to the actions.

The system features include:

1. Start Application
2. Admin panel
3. Teacher's interface
4. HOD/CI interface
5. Student's Interface
6. Exit Application

5.1.1. Approach

For this purpose we are using the incremental approach to integrate the modules together. First Start and Category modules are integrated and tested, then specific category module is integrated with the above two modules and tested for any defects, then result module is integrated with this resulting sub-system and finally the settings module is integrated and tested.

The advantage is that the integration testing process can start earlier, as soon as related modules have been successfully unit tested. An incremental approach makes it easier to find errors since the application environment introduces only one (or a few) modules at a time. Finally, this approach results in more overall testing, since the earlier modules get tested repeatedly as you add new modules.

5.1.2. Structure of Integration levels:

Integration Test Phases

First Phase of Testing

In this phase tests are designed to uncover functional errors in each module after it is integrated with the system. Errors associated with local or global data structures will be uncovered with such tests.

After integrating modules of category and specific category, we will test either the respective modules still perform their tasks effectively. After integrating Settings module we will check whether the mute/unmute sound, change level, change picture size, change font size and change background function as desired.

Second Phase of Testing

Pair wise validity will be performed in which we will combine two modules together and check the functionality which is dependent on both modules.

First pair of start and category module would be tested. Then specific category modules would be integrated with this and would include testing whether the pictures of the specific category are loaded when a category is selected and also whether the add, delete and edit picture options are working correctly.

Then result module is integrated which takes information from previously integrated modules and constructs a English sentence along with a picture sentence and finally we will integrate settings module.

In end to end testing test cases will be performed which include testing of entire five modules.

Third phase of testing

In third phase endurance testing will be performed that how much stress our system can with stand i.e. how many users at a time can use the system.

5.1.3. Modules to be integrated in each phase:

First phase

In first phase we need to check functional validity of all the modules. So, we will use all of our modules in this phase.

Second phase

In end to end tests we will utilize all of our modules to perform the task starting from one of the module(e.g. start) to the module that accepting information from other modules produces some final results.

Third phase

For checking the stress the system can withstand we will again require our whole integrated system in place. This phase validates that critical functions will meet production performance requirements during peak transaction volumes.

5.1.4. Building process and Schedule for each phase:

First phase

The first phase started on Monday, 21 April 2015. The phase checks the functional and interface validity of each module and took about 2 hours therefore it ended on 21 April 2015.

Second phase

The second phase checks end to end validity. It started on Tuesday, 22 April 2015 after the 1st phase and took 2 hours.

Third phase

The endurance testing will be performed as last phase in integration testing. It started on Wednesday, 23 April 2015. System endurance was checked by testing it for 3 continuous hours under different conditions and for valid and invalid inputs.

5.1.5. Criteria for each Integration test phase n:

First phase:

Entry criteria:

An entry criterion for functional testing is that each module has been unit tested individually and all errors have been corrected. Interface integrity ensures that the two modules communicate with each other in the desired way. The entry criteria is the modules that have been unit tested are now integrated together, for example start and category modules have been integrated., and then tested for interface integrity and functional validity. These are then integrated with the specific category module and again tested the resulting

sub-system is then integrated with the result module and tested again and then finally with the settings module.

Exit criteria:

An exit criterion for the first phase is fully functionally tested modules integrated together. For example in our system first start and category are integrated and functionally tested, in next increment the above mentioned modules are combined with specific category module and successfully tested. This is repeated when these three modules are combined with the result module and then sub-system is integrated with the settings module and tested. In the end we get a successfully **functionally** tested integrated system. In this phase also interface integrity is checked to ensure that one module such as result can access the services of other module such as category and specific category. The integrated system has passed all the integration tests and no defect is outstanding.

5.1.6. Integration Technique to be used:

Incremental technique will be used.

5.2. Interface Integrity

5.2.1. System Test Cases

Test cases:

< **Start button clicked**, Login screen is displayed >

< **Entering Login of Admin**, Admin panel should appear >

< **Entering Login of Student**, Student panel should appear >

< **Entering Login of Teacher**, Teacher's panel should appear >

< **Entering Login of HOD/CI**, Respective panel should appear >

< **Name entered containing wrong credentials**, Error message displayed >

< **Name not provided in correct format**, Error message displayed >

Table 3: System Test Cases

Test Case Id	Input	Initial conditions	Test procedure	Expected Result	Actual Result	Status
TC 1	Start button clicked	User is on the login screen	Start the application. On the main screen click on the start button	Login screen is displayed	Login screen is displayed	Pass
TC 2	Entering Login of Admin	User is on the login screen	Enter credentials of Admin	Admin panel is displayed	Admin panel is displayed	Pass
TC 3	Entering Login of Student	User is on the Login screen	Enter credentials of Student	Student panel is displayed	Student panel is displayed	Pass
TC 4	Entering Login of Teacher	User is on the Login screen	Enter credentials of Teacher	Teacher panel is displayed	Teacher panel is displayed	Pass
TC 5	Entering Login of HOD	User is on the Login screen	Enter credentials of HOD	HOD panel is displayed	HOD panel is displayed	Pass
TC 6	Name entered containing wrong credentials	User is on the Login screen	Enter wrong credentials	Wrong username or password message displayed	Wrong username or password message displayed	Pass
TC 7	Name not provided in correct format	User is on the Login screen	Enter wrong format credentials	Wrong username or password message displayed	Wrong username or password message displayed	Pass

5.2.2. Checking Teacher's Panel

Test Cases

<Select Subject, SubjectEdit Screen should appear >

<Enter/Edit CLOs, CLO edit window should appear>

<Add/Edit PLOs, Add/Edit PLOs window will appear>

<CLO to PLO mapping, Ok message should display>

<Add marks, edited marks should get saved>

<View results button clicked, Results of class should display>

Table 4: Test Cases for Teacher's Panel

Test Case Id	Input	Initial conditions	Test procedure	Expected Result	Actual Result	Status
TC 1	Select Subject	User is on the teacher's Panel	Click on the subjects displayed in left bar	SubjectEdit Screen should appear	SubjectEdit Screen should appear	Pass
TC 2	Enter/Edit CLOs	User is on the teacher's Panel	Click on the Enter CLOs button	CLO edit window should appear	CLO edit window should appear	Pass
TC 3	Add/Edit PLOs	User is on the teacher's Panel	Click on the Enter PLOs button	Add/Edit PLOs window will appear	Add/Edit PLOs window will appear	Pass
TC 4	CLO to PLO mapping	User is editing the new subject credentials	Map CLOs with PLOs	Ok message should display	Ok message gets displayed	Pass
TC 5	Add marks	User is editing the marks	Click on marks and change	edited marks should get saved	edited marks get saved	Pass

TC 6	“View results” button clicked	User is on teacher’s panel	Click on “View results” button	Results of class should display	Results of class get displayed	Pass
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5.2.3. Checking Admin’s Panel

Test Cases

<Add Batch, New batch should add>

<Press “Add students” button, edit screen for entering student name should appear>

<Enter student’s name, names should get saved against batches>

<Press Enter PLOs button, PLOs edit screen should appear>

<Enter PLOs, PLOs should get saved>

<Enter Courses, Courses should get entered>

<Assign courses to teachers, Courses should be saved against teachers>

<View results button clicked, Results of class should display>

Table 5: Test Cases Admin's Panel

Test Case Id	Input	Initial conditions	Test procedure	Expected Result	Actual Result	Status
TC 1	Add Batch	User is on the Admin’s Panel	Click on the “Add Batch” button	New batch should add	New batch gets added	Pass
TC 2	Press “Add students” button	User is on the Admin’s Panel	Click on the “Add Student” button	edit screen for entering student name should appear	edit screen for entering student name appears	Pass
TC 3	Enter student’s name	User is on the Admin’s Panel	Enter name in the space available	names should get saved against batches	names got saved against batches	Pass

TC 4	Press “Enter PLOs” button	User is on the Admin’s Panel	Click on the “Enter PLOs” button	PLOs edit screen should appear	PLOs edit screen appears	Pass
TC 5	Enter PLOs	User is on the Admin’s Panel	Enter text in space available	PLOs should get saved	PLOs got saved	Pass
TC 6	Enter Courses	User is on the Admin’s Panel	Click on enter courses button and add course	Courses should get entered	Courses got entered	Pass
TC 7	Assign courses to teachers	User is on the Admin’s Panel	Mark teacher for every course	Courses should be saved against teachers	Courses got saved against teachers	Pass
TC8	View results button clicked	User is on the Admin’s Panel	Click on “view results” button	Results of class should display	Results of class got displayed	Pass

5.2.4. Checking Student’s Panel

Test Cases

<View results button clicked, Results of respective student should display>

Table 6: Student's Panel

Test Case Id	Input	Initial conditions	Test procedure	Expected Result	Actual Result	Status
TC 1	Login account	User gets login	View screen	Result of respective student should appear	Result of respective student appears	Pass

5.2.5. Checking HOD's Panel

Test Cases

< **Login**, system gets login>

<“**View results**” button clicked, Results of class should display>

< “**View profile**” button clicked, profile displays>

Table 7: HOD's Panel

Test Case Id	Input	Initial conditions	Test procedure	Expected Result	Actual Result	Status
TC 1	Login	User is on the login screen	Enter login credentials	System gets login	System got login	Pass
TC 2	“ View results ” button clicked	User is on the HOD's Panel	Click on the “ View results ” button	CLO edit window should appear	CLO edit window should appear	Pass
TC3	“ View profile ” button clicked	User is on the HOD's Panel	Click on the “ View profile ” button	profile displays	profile displayed	Pass

CHAPTER:6
FUTURE WORK

6. FUTURE WORK

The main functionality of the software has been addressed in this version. The future work will mainly center on enhancement of the application with respect to its interaction with the user, its ease of use, its responsiveness and above all making its user interface more eye catching and user friendly making the system more appealing to use.

The security features of this system can be reviewed in the future versions making it fortified from attacks.

Marginal cases can be sent e-mails and SMS for reminders. Even messages to parents can be sent for chronic failure cases.

The same application can be developed on the iOS platform which will increase the market of the application.

CHAPTER:7
CONCLUSION

7. CONCLUSION

7.1. Overview

The motivation of the project is to provide a web application mainly for teachers so that they can easily calculate clearance of Course Learning Outcomes (CLOs) and Program Learning Outcomes (PLOs) according to the mapping and weightage assigned to them by the teacher. The application consists of all the data related to a degree that are stored in the database. Application contains names of batches, their respective students, courses which each student has picked and finally the marks obtained by each student of each batch in each exam of each subject which he has picked. The settings of the application is such that admin creates objects which can be edited and changed by the teacher, however they can only be viewed by the student and the seniors in the chain. The application also maintains the history of all the previously cleared Outcomes. Black box testing has been applied on the application together with unit and integration testing using the incremental technique.

7.2. Objectives Achieved

The web application for CLO/PLO calculation helped to achieve the objectives of learning and php software development process/cycle, php web programming, architecture of client server applications, using of local host as server and client both by the help of Xampp and integration of databases with web application.

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BIBLIOGRAPHY

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19. <https://www.engineersaustralia.org.au/membership/international-accords>

20. [timesofindia.indiatimes.com/home/.../news/...**Washington-Accord**/.../36519279.cms](http://timesofindia.indiatimes.com/home/.../news/...Washington-Accord/.../36519279.cms)
21. www.nbaind.org/En/1033-washington-accord.aspx
22. [https://2ph315.wordpress.com/course-home/**mapping**-of-co-with-po](https://2ph315.wordpress.com/course-home/mapping-of-co-with-po)
23. www.ptss.edu.my/v6/index.php?option=com_docman&task=doc...gid.
24. [.https://www.adelaide.edu.au/professions/pedagogical.../**mapping**/learning-activities](https://www.adelaide.edu.au/professions/pedagogical.../mapping/learning-activities)
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APPENDIX A
USER MANUAL

USER'S MANUAL (TEACHER'S ASSISTANT)

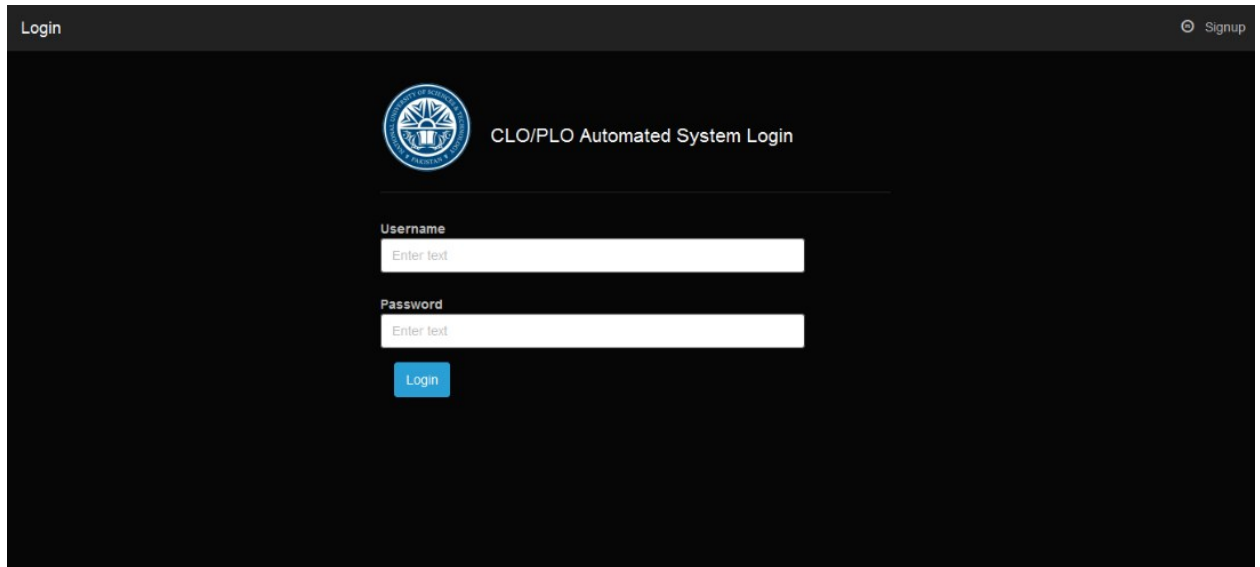


TEACHER'S ASSISTANT (TA)

1.0

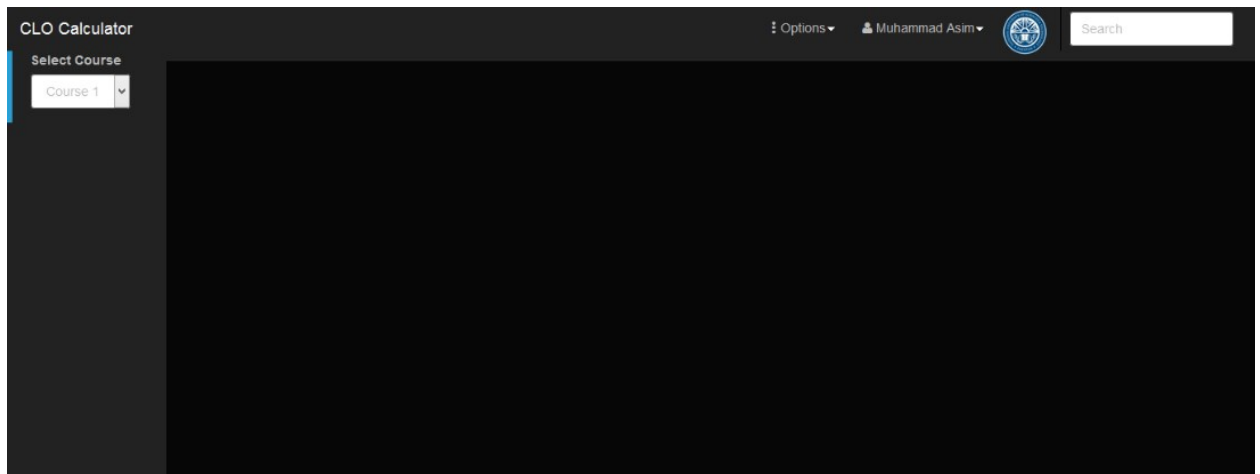
General Information-Logging On

To access the system, user will be presented with the login screen where he/she has to enter the issued login details.



The screenshot shows a login interface with a dark background. At the top left, the word "Login" is displayed. At the top right, there is a "Signup" link. In the center, there is a circular logo of the University of Peshawar. To the right of the logo, the text "CLO/PLO Automated System Login" is displayed. Below the logo and text, there are two input fields: "Username" and "Password", both with "Enter text" placeholder text. A blue "Login" button is positioned below the password field.

Upon the successful login, the screen would look like this

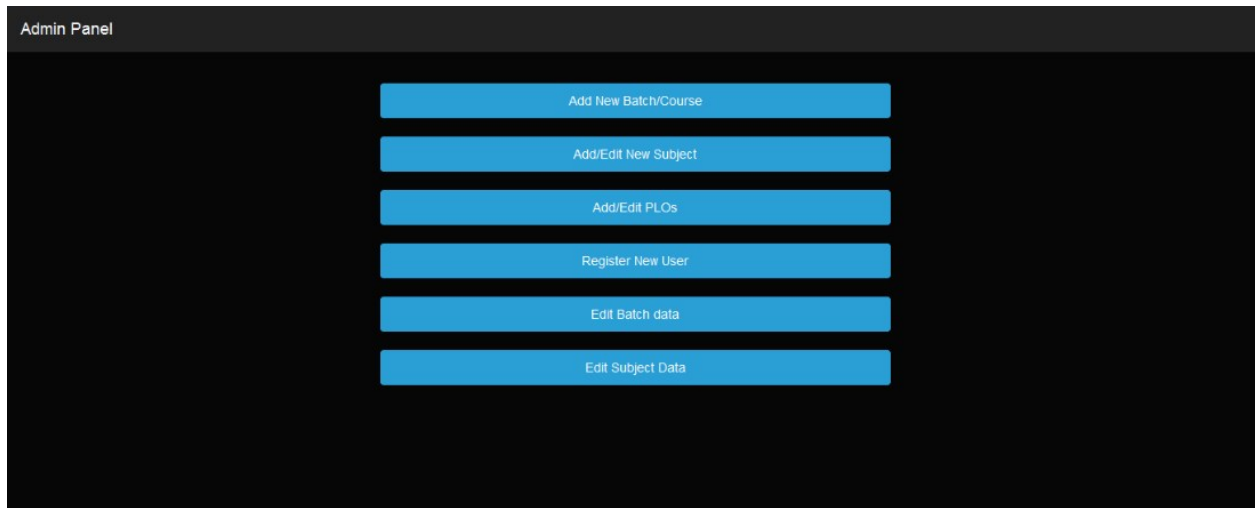


The screenshot shows the "CLO Calculator" interface. At the top left, the title "CLO Calculator" is displayed. At the top right, there are "Options" and "Muhammad Asim" (with a dropdown arrow), a circular logo, and a "Search" input field. On the left side, there is a "Select Course" section with a dropdown menu showing "Course 1". The main content area is currently empty.

2.0

ADMIN'S PANEL

The admin has the following options to choose for necessary settings



Register the Batch by choosing Add new Batch/ Course from above options and enter the Batch Details and click on add batch

The image shows a screenshot of the 'Admin Panel' interface for adding a new batch. The header 'Admin Panel' is visible in the top left. The form consists of four input fields, each with a label above it: 'Enter Batch Name:' followed by a text input field containing 'Enter Batch Name'; 'Entry Year' followed by a dropdown menu showing '2016'; 'Number of sections' followed by a dropdown menu showing '1'; and 'Select Department' followed by a dropdown menu showing 'SE'. Below these fields is a prominent blue button labeled 'Add Batch'.

After registering the batch , user has to register his/her own subjects against that course by choosing the option “ Add/Edit New Subject “ from main options. After choosing subject(s) click on save changes .

Admin Panel

Save Chagnes Add Subject

Add/Edit Subjects

SR	Subject Name	Options
1	Information Security Managemen	-
2	Human Resource Development (HR	-
3	Web Technologies (WT)	-
4	Computer Graphics (CG)	-
5	Analog & Digital Communica	-
6	Number Theory	-
7	sql	-

After Registering the subjects the user has to add PLOs against that subject . He can do so by choosing Add/edit Plo from main options. Choose + to add plo and – to remove any Plo and Choose save changes at the end.

Admin Panel

Save Chagnes Add PLO

Add/Edit PLOs

PLO Number	PLO Text	Options
1	Mathematics for Development of Computing Systems	-
2	Theory and concepts	-
3	Problem Specification and Analysis	-
4	Program Design	-
5	Solution Implementation	-
6	System Evaluation	-
7	Technical Skills	-
8	Teamwork and Project Management	-

For a new user , registration can be done by clicking on signup Button in top right corner .

CLO Calculator Back

New Registration

Username:

First Name:

Last Name:

Email address:
Example: yourname@domain.com

Password:
Min: 6 characters (Alphanumeric only)

Repeat Password:

Department:

Type:

[Register](#)

Add the Batches Currently being Run

Admin Panel

[Add New](#)

Add/Edit Batches

Name	Year	Sections	Options
BESE21	2015	A	
BESE20	2017	A-B	
bese22	2016	A-B	
bese23	2017	A-B	

Add all the students Data with their relevant details for each batch and at the end save batch to save records.

Admin Panel

Save Batch Add Student

Add Students

Sr	Reg No.	Name	Email	Password	Username	Department	Section	options
1	REG123	Qasim	name@gmail.com	25d55ad283aa400af464c76d713c07ad	Qasim.BESE20.mcs	CSE	A	-
2	RED124	khurram	khurram@yahoo.com	25d55ad283aa400af464c76d713c07ad	khurram.BESE20.mcs	CSE	A	-

Admin Panel

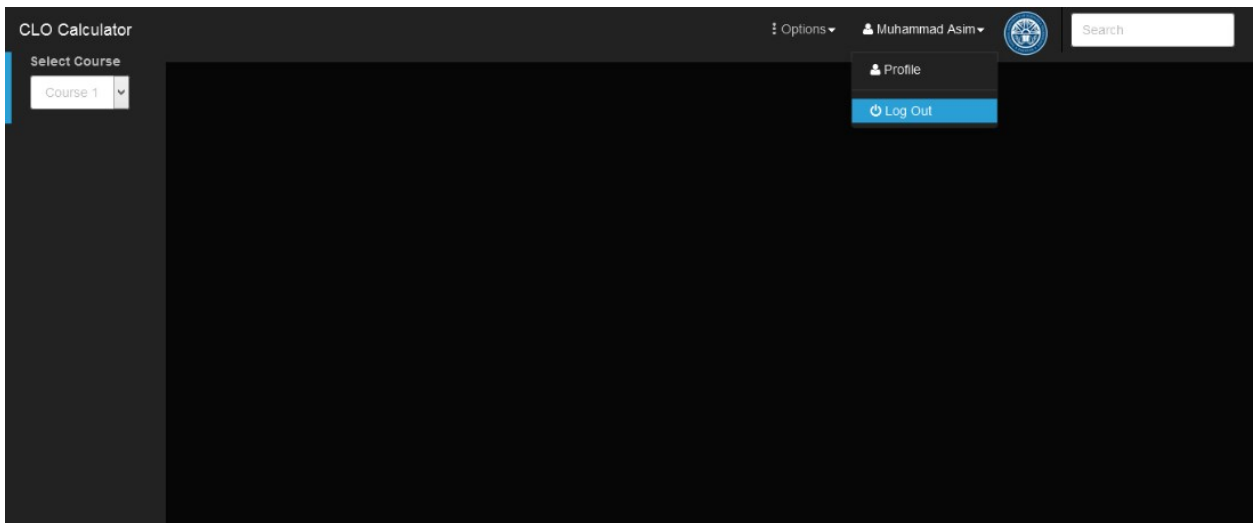
Save Chagnes

Add/Edit PLOs

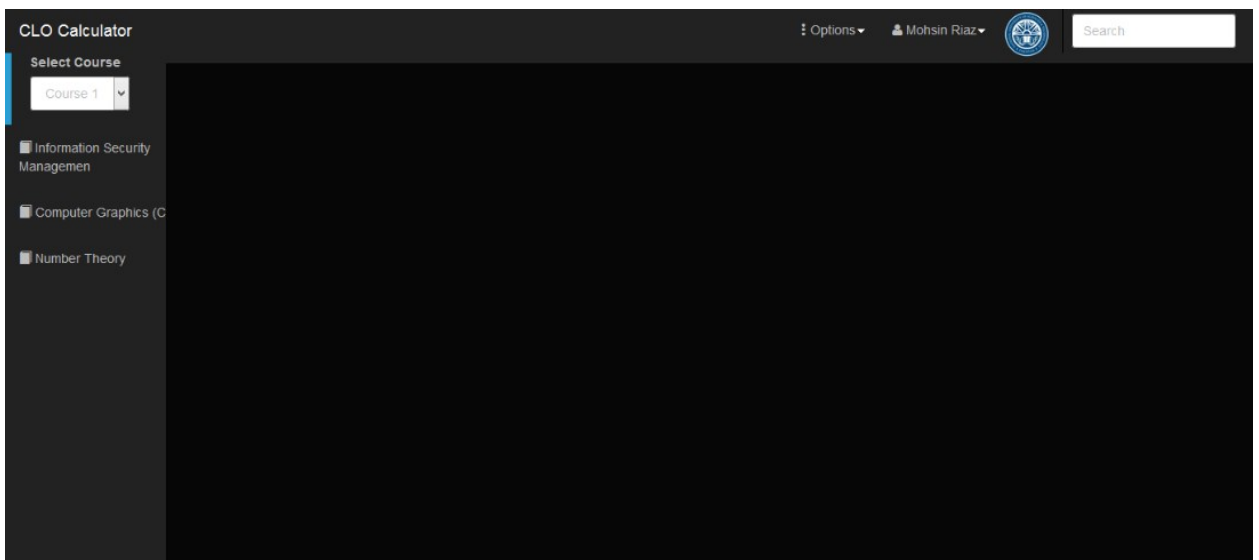
Name	Credithours	Code	Batch	instructor	Options
Information Security Managemen	3+0	IS222	BESE20-A	Mohsin Riaz	-
Computer Graphics (CG)	3+1	SE221	BESE20-A	Mohsin Riaz	-
Number Theory	3+0	222	bese23-A	Mohsin Riaz	-

After doing necessary configuration logout from the system

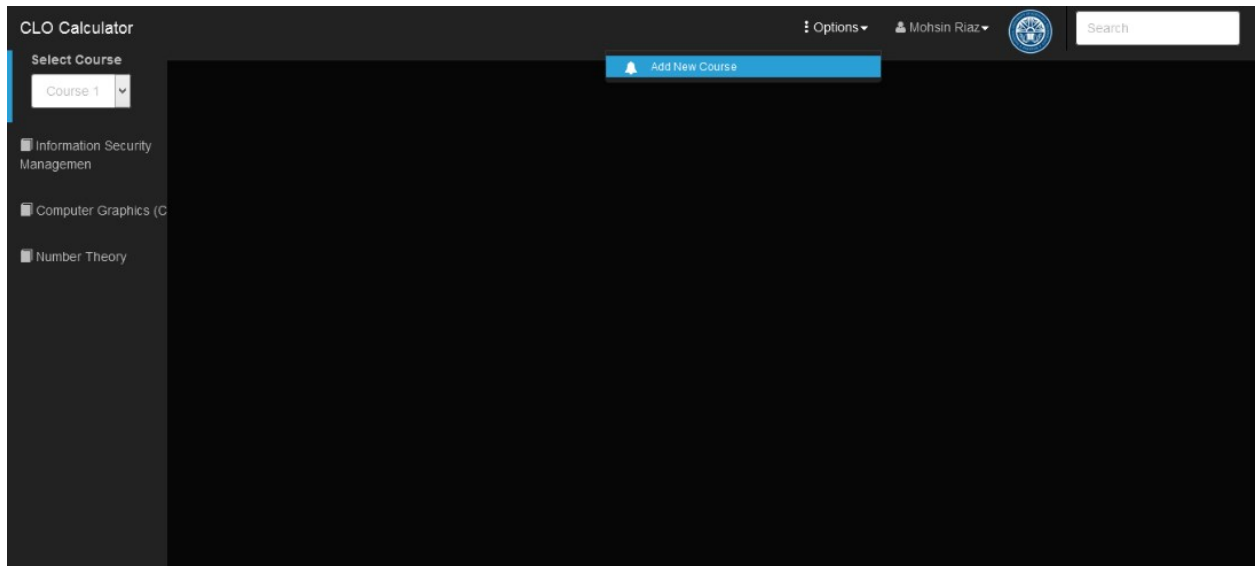
3.0
TEACHER'S PANEL



After doing the basic configurations for course TEACHER has to now configure each subject .First user has to add the subjects. He can do so by clicking on options and choose add new course from drop down menu.

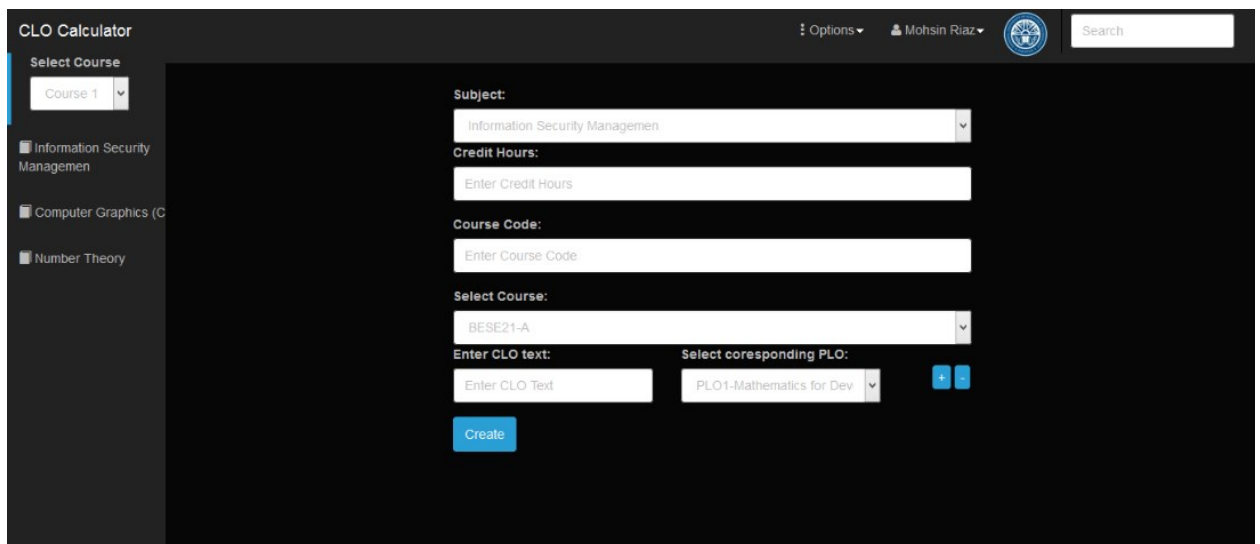


Teacher's Panel



The screenshot shows the 'CLO Calculator' interface. At the top, there is a navigation bar with 'Options', 'Mohsin Riaz', a search bar, and a logo. Below the navigation bar, there is a 'Select Course' dropdown menu with 'Course 1' selected. To the right of this menu is a blue button labeled 'Add New Course'. On the left side, there is a sidebar with three course categories: 'Information Security Managemen', 'Computer Graphics (C', and 'Number Theory'. The main area is currently empty.

Add the subject details



The screenshot shows the 'CLO Calculator' interface with the 'Add New Course' form filled out. The form includes the following fields: 'Subject' (Information Security Managemen), 'Credit Hours' (Enter Credit Hours), 'Course Code' (Enter Course Code), 'Select Course' (BESE21-A), 'Enter CLO text' (Enter CLO Text), and 'Select corresponding PLO' (PLO1-Mathematics for Dev). There is a blue 'Create' button at the bottom of the form. The sidebar and navigation bar are the same as in the previous screenshot.

Entering CLOs and Mapping of CLO-PLO

User has to define how many CLOs are being chosen for this subject and to which PLO they are mapping.

To add a new CLO click on + and to remove any CLO choose from a drop down menu choose the Referring PLO

The screenshot shows the 'CLO Calculator' interface. On the left, there is a sidebar with 'Select Course' and a dropdown menu showing 'Course 1'. Below this, there are three course categories: 'Information Security Managemen', 'Computer Graphics (C', and 'Number Theory'. The main area contains several input fields: 'Subject:' with a dropdown menu open showing a list of subjects including 'Information Security Managemen', 'Human Resource Development (HR', 'Web Technologies (WT)', 'Computer Graphics (CG)', 'Analog & Digital Communica', 'Number Theory' (highlighted), and 'Enter Course Code'. Below this is 'Select Course:' with a dropdown menu showing 'BESE21-A'. There are two input fields: 'Enter CLO text:' and 'Enter CLO Text', and 'Select coresponding PLO:' with a dropdown menu showing 'PLO1-Mathematics for Dev'. A blue 'Create' button is at the bottom.

The screenshot shows the 'CLO Calculator' interface. On the left, there is a sidebar with 'Select Course' and a dropdown menu showing 'Course 1'. Below this, there are three course categories: 'Information Security Managemen', 'Computer Graphics (C', and 'Number Theory'. The main area contains several input fields: 'Subject:' with a dropdown menu showing 'Number Theory'. Below this is 'Credit Hours:' with an input field 'Enter Credit Hours'. There is 'Course Code:' with an input field 'Enter Course Code'. Below this is 'Select Course:' with a dropdown menu showing 'BESE21-A'. There are two input fields: 'Enter CLO text:' with 'CLO points to the' and 'Enter CLO Text', and 'Select coresponding PLO:' with a dropdown menu showing 'PLO1-Mathematics for Dev'. A blue 'Create' button is at the bottom. The dropdown menu for 'Select coresponding PLO:' is open, showing a list of PLOs: 'PLO1-Mathematics for Development of Computing systems', 'PLO2-Theory and concepts', 'PLO3-Problem Specification and Analysis', 'PLO4-Program Design' (highlighted), 'PLO5-Solution Implementation', 'PLO6-System Evaluation', 'PLO7-Technical Skills', 'PLO8-Teamwork and Project Management', 'PLO9-Ethical Issues', 'PLO10-Oral Communications', 'PLO11-Written Communications', and 'PLO12-Social Impact'.

CLO Calculator Options Mohsin Riaz Search

Select Course
Course 1

- Information Security Managemen
- Computer Graphics (C
- Number Theory

Subject:
Number Theory

Credit Hours:
Enter Credit Hours

Course Code:
Enter Course Code

Select Course:
BESE21-A

Enter CLO text: Clo points to the	Select corresponding PLO: PLO9-Ethical Issues	+ -
Enter CLO text: Clo points to the	Select corresponding PLO: PLO1-Mathematics for Dev	+ -
Enter CLO text: Clo points to the	Select corresponding PLO: PLO1-Mathematics for Dev	+ -

Create

After registering the subject user has to enter the breakdown for marks of each subject i.e total 100 Marks Breakdown

CLO Calculator Options Mohsin Riaz Search

Select Course
Course 1

- Information Security Managemen
- Computer Graphics (C
- Number Theory

Percentage Breakdown

Quiz
Enter Quiz Percentage %

Assignment
Enter Assignment Percentage %

Project
Enter Project Percentage %

OHT 1
Enter OH1 Percentage %

OHT 2
Enter OHT 2 Percentage %

Finals
Enter Finals Percentage %

Create

Summary

After the details of subject are entered user clicks on create button .With this the user will be presented with the summary of that subject

Since each subject is broken down into few sections like Quiz,Ohts, final. The user has to enter the details of each part.

The screenshot displays the 'CLO Calculator' application interface. The top navigation bar includes 'Options', 'Mohsin Riaz', a search bar, and a university logo. A sidebar on the left lists course categories: 'Information Security Management', 'Computer Graphics (C', and 'Number Theory'. The main content area is titled 'Course Data' and features a 'Create' and 'Cancel' button. Below this, a form displays the following course details:

- Course: BESE21-A
- Subject: Number Theory
- Course Code: 222
- Credit Hours: 3+0
- Number of CLOs: 3

Below the course data is a 'Percentage Breakdown' table:

Quiz	Assign	Project	OHT 1	OHT 2	Finals
10%	10%	0%	15%	15%	50%

At the bottom, there is a 'PLO Mapping' section with a table structure:

#	PLOs	CLO-1	CLO-2	CLO-3
---	------	-------	-------	-------

CLO Calculator Options Mohsin Riaz Search

Select Course
Course 1

Information Security Management
Computer Graphics (C
Number Theory

PLO Mapping

#	PLOs	CLO-1	CLO-2	CLO-3
1	Mathematics for Development of Computing Systems		✓	
2	Theory and concepts			
3	Problem Specification and Analysis			
4	Program Design			
5	Solution Implementation			
6	System Evaluation			✓
7	Technical Skills			
8	Teamwork and Project Management			
9	Ethical Issues	✓		
10	Oral Communications			
11	Written Communications			
12	Social Impact			

On the summary Page click on any part e.g. Quiz to enter its relevant details.

CLO Calculator Options Mohsin Riaz Search

Select Course
Course 1

Information Security Management
Computer Graphics (C
Number Theory

Students Marks

Edit Cancel Save

Sr	Reg No.	Questions: CLO: Marks:	Quiz 1					A1		Project	Oht 1			Oht 2		Finals		CLOs			CLO Remarks
			Q1	Q2	Q3	Q4	Q5	Q1	Q2	Q1	Q2	Q3	Q1	Q1	CLO1	CLO2	CLO3	CLO	CLO	CLO	
1	Qasim	NAMe	5	5	5	5	5	5	5	8	20	3	4	10	10	100	77.03	47.27	CLO 3 failed.		

Add the number of quizzes with their marks breakdown and mapping to CLO

CLO Calculator Options Mohsin Riaz Search

Select Course
Course 1

Information Security Management
Computer Graphics (C
Number Theory

Quiz Breakdown Save

Quiz #1	Enter marks	
Question#1 Select CLO CLO 2	5	+ -
Question#2 Select CLO CLO 2	5	+ -
Question#3 Select CLO CLO 1	5	+ -
Question#4 Select CLO CLO 1	5	+ -
Question#5 Select CLO CLO 1	5	+ -

Do the Same action for other parts.

CLO Calculator Options Mohsin Riaz Search

Select Course
Course 1

Information Security Management
Computer Graphics (C
Number Theory

OHT1 Breakdown Save

Question#1 Select CLO	Enter marks	
CLO 1	20	+ -
Question#2 Select CLO CLO 2	20	+ -
Question#3 Select CLO CLO 3	50	+ -

CLO Calculator

Options | Mohsin Riaz | Search

Select Course

Course 1

- Information Security Management
- Computer Graphics (C)
- Number Theory

Profile

Log Out

Create Cancel

Course Data

Course: BESE21

Subject: Number Theory

Course Code: 222

Credit Hours: 3+0

Number of CLOs: 3

Percentage Breakdown

Quiz	Assign	Project	OHT 1	OHT 2	Finals
10%	10%	0%	15%	15%	50%

PLO Mapping

#	PLOs	CLO-1	CLO-2	CLO-3

localhost:2000/clo/logout.php

4.0

STUDENT'S PANEL

CLO Calculator

khurram razzaq

Search

Select Course

Course 1

Username

khurram.mcs

Full Name

khurram razzaq

Email

khurram@yahoo.com

New Password

Enter New Password

Repeat Password

Repeat New Password

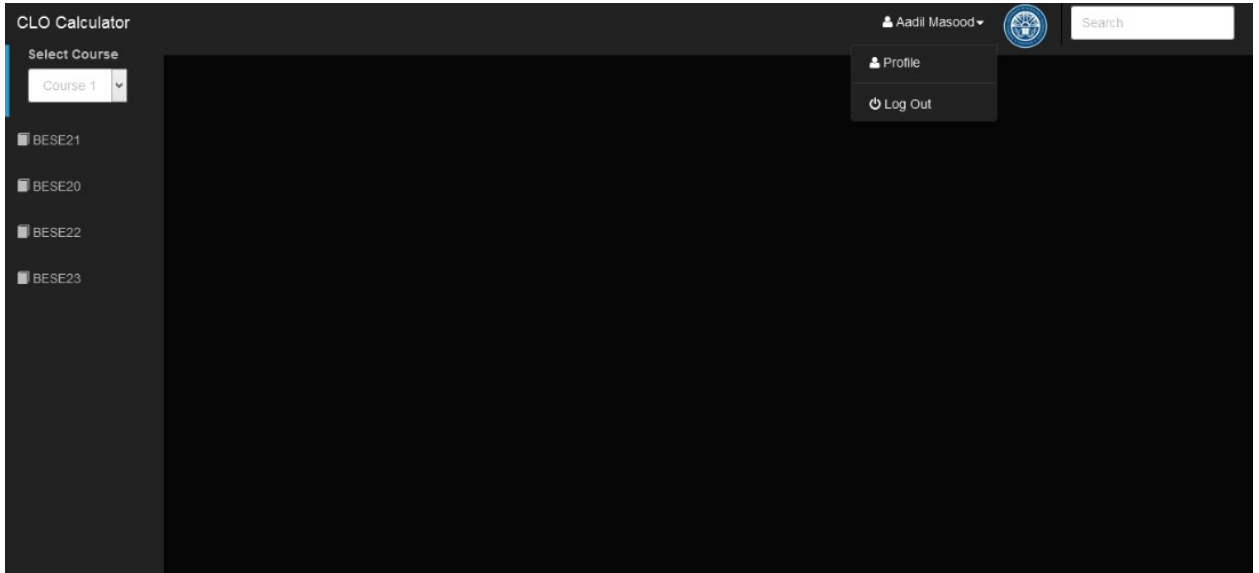
Change Password

Student can only see his summary of clearance of CLOs and PLOs as well as his profile

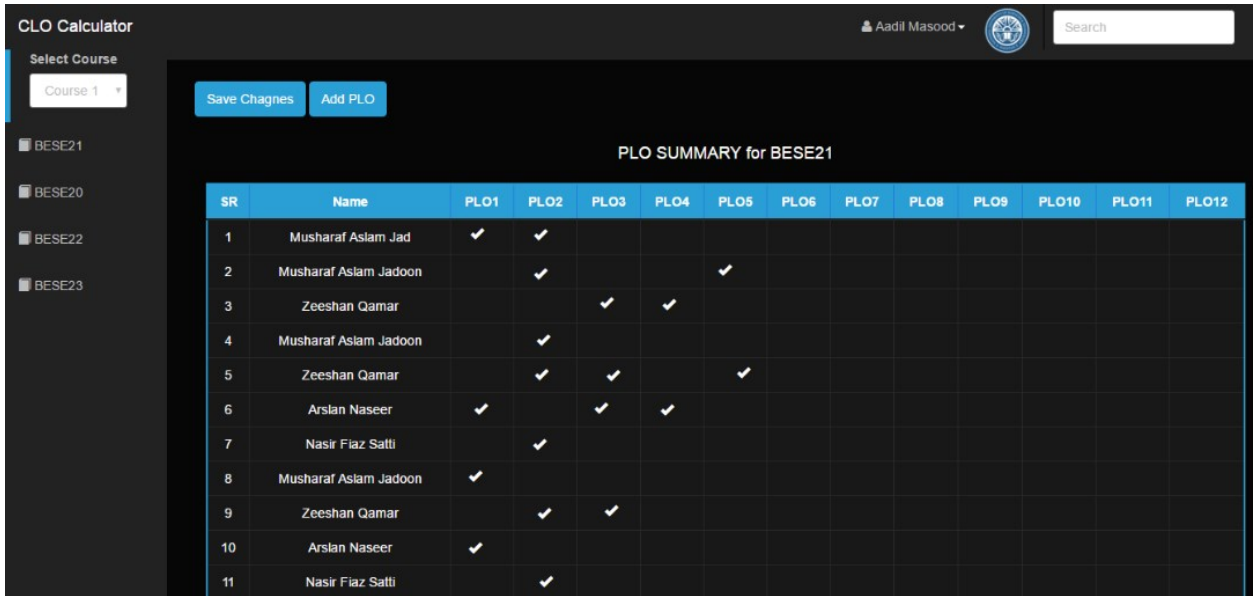
5.0

HOD'S PANEL

HOD can logged in to the system by using his login credentials.



Upon successful login HOD can choose any batch from left hand side to see its particular details.



CLO Calculator

Aadil Masood

Select Course

Course 1

Save Changes Add PLO

Profile

Log Out

PLO SUMMARY for bese23

SR	Name	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PLO11	PLO12
1	mohsin												
2	mohsin												