

**Database Management Project**

Project Report

GROUP-13

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**CHAPTER-1 INTRODUCTION**

1. BACKGROUND OF THE ORGANIZATION – IUB:

In 1993, the private IUB university was founded in Bangladesh. There are now over 10,000 undergraduate and graduate students enrolled there. More than 450 incredibly talented and highly qualified faculty members, at least half of them possess PhDs, who excel in their fields of instruction. The number of IUB alumni is close to 14,000. IUB currently has 5 academic institutions.

● Business & Entrepreneurship

● Engineering, Technology & Sciences

● Environment and Life Sciences

● Liberal Arts & Social Sciences

● Pharmacy and Public Health

The institution actively aided in the growth of Bangladesh's education sector and produced capable, knowledgeable scholars who have made contributions on both a national and international scale. Regular curriculum updates, the implementation of a system to track student performance based on a quantified approach between course curriculum and standards set by UGC and the Bangladesh government, the Ministry of Education, and other necessary institutions for each of the schools, as well as ongoing student performance monitoring, have all assisted IUB in achieving this.

*Figure - Independent University, Bangladesh*

A picture containing outdoor

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Figure IUB at a Glance

The goals of IUB are to produce local graduates who meet international standards and have the knowledge and skills to lead in business, government, and welfare. They also include encouraging and supporting useful research, creating knowledge, and providing opportunities for adults to continue their education.

1. BACKGROUND OF THE PROJECT

A framework for outcome-based education (OBE) is the Student Performance Monitoring System. It assesses student, faculty, school, department, and program performance and aids the higher authorities of the educational institution in developing strategies for enhancements, including the deployment of a skill and spider chart. The purpose of our project is to design, develop, and disseminate software that, in our opinion, will help colleges all over the world encourage a more effective and beneficial technique of student evaluation. The idea of course outcomes (COs) and program learning outcomes (PLOs), where each CO is mapped to a PLO, and each PLO represents a specific valuable skill that students are expected to acquire or improve at the conclusion of that course, such as problem analysis, design, implementation of a skill, and spider chart, has been introduced as the central concept of our project. The project will also help to input the information manually using a google form.

The CO will be determined using the program which is eventually connected with the PLOs. Later, the grades will be analyzed according to the CO rate. The program will help the authority and faculties to evaluate the student’s achievement out of the outcomes the course has provided them with. Students can keep track of their development in each area and pinpoint their areas for development. Our application also intends to assist institutional organizations, such as academic, administrative, and departmental bodies, in better distributing and allocating resources while keeping track of student development and departmental performance.

1. OBJECTIVE OF THE PROJECT

The main intention of the program is to analyze if a student has achieved a certain CO (course outline) or not. In this project details of the students can be input manually also through a google form which will be connected. Here, a database is created and using the marks of the students it is ensured whether they have learned the PLOs of a certain program. Depending on the PLOs, the percentage of CO is also determined using the data. The uniformed set of data will help the university authorities, faculties and other related staffs to judge and evaluate the progress of the student in a certain program.

1. SCOPE OF THE PROJECT

We thoroughly analyzed the current system and found a few problems that could slow down corporate operations, make them less effective, and lead to communication breakdowns.

A more advanced system that uses a Relational Database Management System (RDBMS) to store, update, and retrieve necessary documents like course outlines, exam question papers, and answer scripts as well as other necessary data required to monitor student performance and produce other OBE (outcome-Based Education) reports is the proposed solution to resolve those issues.

We've identified every user of the system, how they'll obtain the information they need, how they'll communicate with one another, etc.

We want to create user interfaces so that every user can access the data they need and utilize the system to create, read, and download the reports and documents they want.

CHAPTER-2 REQUIREMENT ANALYSIS

The process of figuring out what the database is utilized for is called requirement analysis. Interviews with stakeholders are conducted to ascertain the operations that must be carried out, the data that must be processed, and the functionality and system requirements they expect and require from the database. By doing this, we can fully comprehend the stakeholders and their interactions with one another.

1. RICH PICTURE- EXISTING SYSTEM

A technique to illustrate system processes that is simpler for everyone to understand is using a rich graphic. It is made up of words, symbols, and icons that are all utilized to graphically depict the scenario. In order to see relationships, we need a rich image and linkages that we might overlook otherwise. It aids in determining one or more themes that participants might choose to investigate and address further. Vivid images are thus always employed during the pre-analysis stage.

Diagram

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**In this rich picture, the stake holders are:**

1. UGC
2. IEB
3. Higher Authority
4. Department head
5. Department office
6. Admin
7. Registrar’s office
8. Faculty
9. Student

**The main storage is:**

1. IRAS
2. SIX ELEMENT ANALYSIS – EXISTING SYSTEM

The main processes are seen from the detailed picture as follows:

1) Creating storing and giving Course Outline

2) Add Questions to the question bank and grading the answer script

3) Course based student performance trend according to GPA

4) Faculty based student performance according to GPA

5) Course wise PLO achievement of a student

6) Student performance trend under VC/Dean/Head of Department

7) Course, Program, department, school CLO-PLO statistics

8) Course, student, department school wise expected vs achieved PLO

9) Department average of total PLO achieved and attempted students

10) Student Enrollment Statistics VC-wise, Dean-wise, Department

Head-wise.

The following six elements can be used in six element analysis to determine how they will affect a process:

1. Human

2. Non computing Hardware

3. Computing Hardware

4. Software.

5. Database.

6. Network and Communication

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Process** | **Human** | **Non- computing Hardware** | **Computing Hardware** | **Software** | **Database** | **Network** |
| **Creating, storing, and giving Course outline** | **Faculty:**   1. At first the faculty will login into the system using ID and password. 2. Select the option to create course outline. 3. Add course outline and upload it. 4. Store the outline in the system.   **Students:**  a. Students will login into their account using their ID and password.  b. Then select the course outline option.  c. They can view/ download the option. |  | **Computer/ Laptop**  a. It is used to login into the system.  **Printer:**  a. This is used to get the hard copy of the outline when needed. | **IRAS**  a. Employed to store data in the database. | **IRAS database**  a. All valid data are stored here which can be modified by the admin when needed. | **Internet**  a. Used to sign in into the system and browse |
| **Add Questions to the question bank and grading the answer script** | **Faculty**  a. Enters their ID and password to log in.  b. Choose the course and the sections where you must provide an answer.  c. Enter the query in the query bank.  d. Choose the Assign option.  e. Evaluate the responses that the students submitted.  **Students:**  a. Enters their ID and password to log in.   b. Respond to the faculty-assigned question in the answer database.  c. Choose the "Submit" option.  d. Verify your grade in IRAS when the instructor has finished. |  | **Computer/ Laptop:**  a. Used as a Sign-In for SPMS 2.0  **Printer:**  a. Applied to printing the section's overall grades. | **IRAS:**  a. Used to generate a result graph utilizing data from the database or to save data in the database. | **IRAS Database**  a. All legitimate data are kept here and can be updated by the administrators. | **Internet**  Used to sign to IRAS. |
| **Course**  **based**  **student**  **performa**  **nce**  **trend**  **accordin**  **g to GPA** | **Department Head:**  a. Enters their ID and password to log in.  b. Enter the viewing time frame and course ID.  c. Examine student progress using a graph created after analysis and the GPAs attained by the highest/lowest/average students.  **Faculty:**  A user a. enters their ID and password to access the system.  b. Use the course ID and time period to find the course they are teaching, and then look at the students' progress in that course.  **Students:**  a. The user enters their ID and password to access the system.  b. Use the course ID to search for the course, and then view the student's grade point average (GPA) and progress in that course.  **Dean/VC:**  a. Entering their ID and password to log in to the system.  b. Use the course ID and time period to search for the course, then view the students' progress in that course. |  | **Computer/**  **Laptop**  a. Used to  Sign into  IRAS.  **Printer**  b. Used to  print hard  copy of the  progress of  current  semester’s  students  and  compare  with the  progress of  the previous  semester’s  students  who did that  course | **IRAS:**   a. Used to create graphs of statistical analysis using data from the database or to save student data in the database. | **IRAS database:**  a. All current information is kept here and can be updated by administrators from the database. | **Internet**  Used to sign to IRAS. |
| **Faculty based student performance according to GPA** | **Faculty:**  a.  Enters their ID and password to log in to the system.  b. Track the Development of the Learners under their Instruction.  **Head of Department:**  a. Entering their ID and password to log in to the system.  b. Use the faculty's name to find the professor that has to be evaluated.  c. Evaluate the progress of the students being taught by the faculty based on the GPA they have attained.  **Dean/VC:**  a. Enters their ID and password to log in to the system.  b. Use the faculty member's name and Department ID to find the faculty member who will be evaluated.  c. Based on the GPAs that the students have received, view the progress of the pupils who are being taught by that faculty. |  | **Computer/ Laptop:**  a. Used as a Sign-In for IRAS  **Printer:**  a. Applied to printing the hardcopy. | **IRAS:**   a. Used to create graphs of statistical analysis using data from the database or to save student data in the database | **IRAS database:**  a. All current information is kept here and can be updated by administrators from the database. | **Internet**  Used to sign to IRAS. |
| **Course wise PLO achievement of a student** | **VC/Dean:**  a. Enters their ID and password to log in to the system.  b. Click the PLO accomplishment tab and enter the course ID.  c. Review the student's PLO accomplishments.  **Department Head:**  a. Enters their ID and password to log in to the system.  b. Click the PLO accomplishment tab and enter the course ID.  c. Examine the PLOs that the students met.  **Faculty:**  a. Enters their ID and password to log in to the system.  b. Click the PLO accomplishment tab and enter the course ID.  c. Check out the PLOs that the students in a course have met.  **Student:**  a. Enters their ID and password to log in to the system.  b. Review the PLOs they have already met and the number they still need to reach to pass the course. |  | **Computer/**  **Laptop**  a.Used to  Sign into  IRAS  **Printer**  a. Used to  print hard copy of a  report of  students  who completed  most the  PLO  achievements if needed. | **IRAS**  a. It is used to store data and automatically generate PLOs based on the CO given. | **IRAS Database**  a. All current data are saved here and can be updated by administrators. | **Internet**  Used to sign to IRAS. |
| **Student performance trend under VC/Dean/Head of Department** | **Dean:**  a. Enters their ID and password to log in to the system.  b. Using their Name and Department ID, look up the Department Head to be checked.  c. Check out the students' development beneath them or them.  **VC:**  a. User logs in to system with ID and password.  b. Use their name and either their school ID or department ID to search for a dean or department head to be checked.  c. Track student development underneath them.  **Department Head:**  a. Enters their ID and password to log in to the system.  c. Track students' development beneath them. |  | **Computer/ Laptop:**  a. Used as a Sign-In for IRAS  **Printer:**  a. Applied to printing the hardcopy. | **IRAS:**   a. Used to create graphs of statistical analysis using data from the database or to save student data in the database | **IRAS database:**  a. All current information is kept here and can be updated by administrators from the database. | **Internet**  Used to sign to IRAS. |
| **Course, Program, department, school CLO-PLO statistics** | **Dean/VC:**  a. Enters their ID and password to log in to the system.  b. Check out the CLO-PLO mapping student achievement figures.  **Department Head:**  a. Enters their ID and password to log in to the system.  b. Check out the CLO-PLO mapping student achievement figures.  **Faculty:**  a. Enters their ID and password to log in to the system.  b. Check out the CLO-PLO mapping student achievement figures.  **Student:**  a. Enters their ID and password to log in to the system.  b. Examine the CLO-PLO mapping statistics that they and other students achieved. |  | **Computer/ Laptop:**  a. Used as a Sign-In for IRAS  **Printer:**  a. Applied to printing the hardcopy. | **IRAS:**   a. Used to create graphs of statistical analysis using data from the database or to save student data in the database | **IRAS database:**  a. All current information is kept here and can be updated by administrators from the database. | **Internet**  Used to sign to IRAS. |
| **Course, student, department school wise expected vs achieved PLO** | **Dean/VC:**  a. Log in to the system with your ID and password.  b. Compare the expected and realized PLOs for the students for the time that has been entered.  **Department Head:**  a. Log in to the system with your ID and password.  b. Compare the expected and realized PLOs for the students for the time that has been entered.  **Faculty:**  a. Log in to the system using your ID and password.  b. Compare the expected and realized PLOs for the students for the time that has been entered.  **Student:**  a. Log in to the system using your ID and password.  b. Compare the expected and realized PLOs for the students for the time that has been entered. |  | **Computer/Laptops:**  a. Used to sign into IRAS Printer  b. Used to print the attained PLO for the previous and current semesters on paper for comparison. | **IRAS:**   a. Used to create graphs of statistical analysis using data from the database or to save student data in the database | **IRAS database:**  a. All current information is kept here and can be updated by administrators from the database. | **Internet**  Used to sign to IRAS. |
| **Department average of total PLO achieved and attempted students** | **Dean/VC:**  a. Enter your ID to access the system and use your password.  b. Choose the semester's desired viewing time range.  c. See the overall PLO average for the department as well as the number of students that attempted.  **Department Head:**  a. Log in to the system using your ID and password.  b. Choose the semester's desired viewing time range.  c. See the overall PLO average for the department as well as the number of students that attempted.  **Faculty:**  a. Enter your ID and password to log in.  b. Check out the students' PLO average across the entire department.  **Student:**  a. Log in to the system with your ID and password.  b. See the students' overall departmental average of PLO results. |  | **Computer/Laptops:**  a. Used to sign into IRAS Printer  b. Used to print the attained PLO for the previous and current semesters on paper for comparison. | **IRAS:**   a. Used to create graphs of statistical analysis using data from the database or to save student data in the database | **IRAS database:**  a. All current information is kept here and can be updated by administrators from the database. | **Internet**  Used to sign to IRAS. |
| **Student Enrollment Statistics VC-wise, Dean-wise, Department**  **Head-wise.** | **VC:**  1) Sign into the  system using ID  and Password.  2) Select Student  Enrollment  Statistics tab and  select Year and  Semester under  that tab  3) View Student  Enrollment  Statistics Of That  Year and  Semester.  **Dean:**  1) Sign into the  system using ID  and Password.  2) Select Student  Enrollment  Statistics tab and  select Year and  Semester under  that tab  3) View Student  Enrollment  Statistics Of That Year and  Semester.  **Department**  **Head:**  1) Sign into the  system using ID  and Password.  2) Select Student  Enrollment  Statistics tab and  select Year and  Semester under  that tab  3) View Student  Enrollment  Statistics Of That  Year and  Semester |  | **Computer/Laptops:**  a. Used to sign into IRAS Printer  b. Used to print the attained PLO for the previous and current semesters on paper for comparison. | **IRAS:**   a. Used to create graphs of statistical analysis using data from the database or to save student data in the database | **IRAS database:**  a. All current information is kept here and can be updated by administrators from the database. | **Internet**  Used to sign to IRAS. |

1. PROBLEM ANALYSIS – EXISTING SYSTEM

The problems in the existing system were analyzed and the probable solutions are mentioned.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Process Name** | **Stake Holder** | **Concerns (Problems)** | **Analysis (Reason of the problem)** | **Proposed Solution** |
| **Student Evaluation** | Faculty:  Student: | 1.The Course Learning Outcome (CO) is missing in the evaluation.  2.The achievements of students in courses cannot be measured accurately. | The Program Learning Outcome (PLO) and Course Learning Outcome (CO) are related which is why often they are confused with each other. But the CO are a part of the PLO which needs to be identified separately to properly evaluate the students. | The CO should also be sent to the faculties from higher authorities to the faculties. Then the CO of the course should be mapped. Then the PLO should be analyzed using the COs. Then the final grade should be analyzed. |
| **Grade Submission** | Faculty: | 1.Here, the faculty can only input the grades and details of the student manually. | The reason of the problem can be that this method has been preferred traditionally by the students. | The new project can be developed which will use a google from to take the details of the student and grades which will directly be exported by the project in database. |

1. RICH PICTURE – PROPOSED SYSTEM

Diagram

Description automatically generated

In this rich picture, the stake holders are:

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2. IEB
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4. Department head
5. Department office
6. Admin
7. Registrar’s office
8. Faculty
9. Student

The main storage is:

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**The main processes are seen from the detailed picture as follows:**

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8) Course, Program, department, school CO-PLO statistics

9) Course, student, department school wise expected vs achieved PLO and CO.

10) Department average of total PLO and CO achieved and attempted students

11) Student Enrollment Statistics VC-wise, Dean-wise, Department

Head-wise.

**The following six elements can be used in six element analysis to determine how they will affect a process:**

1. Human

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6. Network and Communication

|  |  |  |  |  |  |  |
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| **Process** | **Human** | **Non- computing Hardware** | **Computing Hardware** | **Software** | **Database** | **Network** |
| **Creating, storing, and giving Course outline** | **Faculty:**   1. At first the faculty will login into the system using ID and password. 2. Select the option to create course outline. 3. Add course outline and upload it. 4. Store the outline in the system.   **Students:**  a. Students will login into their account using their ID and password.  b. Then select the course outline option.  c. They can view/ download the option. |  | **Computer/ Laptop**  a. It is used to login into the system.  **Printer:**  a. This is used to get the hard copy of the outline when needed. | **IRAS**  a. Employed to store data in the database. | **IRAS database**  a. All valid data are stored here which can be modified by the admin when needed. | **Internet**  a. Used to sign in into the system and browse |
| **Add Questions to the question bank and grading the answer script** | **Faculty**  a. Enters their ID and password to log in.  b. Choose the course and the sections where you must provide an answer.  c. Enter the query in the query bank.  d. Choose the Assign option.  e. Evaluate the responses that the students submitted.  **Students:**  a. Enters their ID and password to log in.   b. Respond to the faculty-assigned question in the answer database.  c. Choose the "Submit" option.  d. Verify your grade in IRAS when the instructor has finished. |  | **Computer/ Laptop:**  a. Used as a Sign-In for SPMS 2.0  **Printer:**  a. Applied to printing the section's overall grades. | **IRAS:**  a. Used to generate a result graph utilizing data from the database or to save data in the database. | **IRAS Database**  a. All legitimate data are kept here and can be updated by the administrators. | **Internet**  Used to sign to IRAS. |
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| **Faculty based student performance according to GPA** | **Faculty:**  a.  Enters their ID and password to log in to the system.  b. Track the Development of the Learners under their Instruction.  **Head of Department:**  a. Entering their ID and password to log in to the system.  b. Use the faculty's name to find the professor that has to be evaluated.  c. Evaluate the progress of the students being taught by the faculty based on the GPA they have attained.  **Dean/VC:**  a. Enters their ID and password to log in to the system.  b. Use the faculty member's name and Department ID to find the faculty member who will be evaluated.  c. Based on the GPAs that the students have received, view the progress of the pupils who are being taught by that faculty. |  | **Computer/ Laptop:**  a. Used as a Sign-In for IRAS  **Printer:**  a. Applied to printing the hardcopy. | **IRAS:**   a. Used to create graphs of statistical analysis using data from the database or to save student data in the database | **IRAS database:**  a. All current information is kept here and can be updated by administrators from the database. | **Internet**  Used to sign to IRAS. |
| **Course wise PLO achievement of a student** | **VC/Dean:**  a. Enters their ID and password to log in to the system.  b. Click the PLO accomplishment tab and enter the course ID.  c. Review the student's PLO accomplishments.  **Department Head:**  a. Enters their ID and password to log in to the system.  b. Click the PLO accomplishment tab and enter the course ID.  c. Examine the PLOs that the students met.  **Faculty:**  a. Enters their ID and password to log in to the system.  b. Click the PLO accomplishment tab and enter the course ID.  c. Check out the PLOs that the students in a course have met.  **Student:**  a. Enters their ID and password to log in to the system.  b. Review the PLOs they have already met and the number they still need to reach to pass the course. |  | **Computer/**  **Laptop**  a.Used to  Sign into  IRAS  **Printer**  a. Used to  print hard copy of a  report of  students  who completed  most the  PLO  achievements if needed. | **IRAS**  a. It is used to store data and automatically generate PLOs based on the CO given. | **IRAS Database**  a. All current data are saved here and can be updated by administrators. | **Internet**  Used to sign to IRAS. |
| **Course wise CO achievement of a student** | **VC/Dean:**  a. Enters their ID and password to log in to the system.  b. Click the CO accomplishment tab and enter the course ID.  c. Review the student's CO accomplishments.  **Department Head:**  a. Enters their ID and password to log in to the system.  b. Click the CO accomplishment tab and enter the course ID.  c. Examine the COs that the students met.  **Faculty:**  a. Enters their ID and password to log in to the system.  b. Click the CO accomplishment tab and enter the course ID.  c. Check out the COs that the students in a course have met.  **Student:**  a. Enters their ID and password to log in to the system.  b. Review the COs they have already met and the number they still need to reach to pass the course. |  | **Computer/**  **Laptop**  a.Used to  Sign into  IRAS  **Printer**  a. Used to  print hard copy of a  report of  students  who completed  most the  CO  achievements if needed. | **IRAS**  a. It is used to store data and automatically generate COs based on the course outline given. | **IRAS Database**  a. All current data are saved here and can be updated by administrators. | **Internet**  Used to sign to IRAS. |
| **Student performance trend under VC/Dean/Head of Department** | **Dean:**  a. Enters their ID and password to log in to the system.  b. Using their Name and Department ID, look up the Department Head to be checked.  c. Check out the students' development beneath them or them.  **VC:**  a. User logs in to system with ID and password.  b. Use their name and either their school ID or department ID to search for a dean or department head to be checked.  c. Track student development underneath them.  **Department Head:**  a. Enters their ID and password to log in to the system.  c. Track students' development beneath them. |  | **Computer/ Laptop:**  a. Used as a Sign-In for IRAS  **Printer:**  a. Applied to printing the hardcopy. | **IRAS:**   a. Used to create graphs of statistical analysis using data from the database or to save student data in the database | **IRAS database:**  a. All current information is kept here and can be updated by administrators from the database. | **Internet**  Used to sign to IRAS. |
| **Course, Program, department, school CLO-PLO statistics** | **Dean/VC:**  a. Enters their ID and password to log in to the system.  b. Check out the CO-PLO mapping student achievement figures.  **Department Head:**  a. Enters their ID and password to log in to the system.  b. Check out the CO-PLO mapping student achievement figures.  **Faculty:**  a. Enters their ID and password to log in to the system.  b. Check out the CO-PLO mapping student achievement figures.  **Student:**  a. Enters their ID and password to log in to the system.  b. Examine the CO-PLO mapping statistics that they and other students achieved. |  | **Computer/ Laptop:**  a. Used as a Sign-In for IRAS  **Printer:**  a. Applied to printing the hardcopy. | **IRAS:**   a. Used to create graphs of statistical analysis using data from the database or to save student data in the database | **IRAS database:**  a. All current information is kept here and can be updated by administrators from the database. | **Internet**  Used to sign to IRAS. |
| **Course, student, department school wise expected vs achieved PLO and CO** | **Dean/VC:**  a. Log in to the system with your ID and password.  b. Compare the expected and realized PLOs and COs for the students for the time that has been entered.  **Department Head:**  a. Log in to the system with your ID and password.  b. Compare the expected and realized PLOs and COs for the students for the time that has been entered.  **Faculty:**  a. Log in to the system using your ID and password.  b. Compare the expected and realized PLOs and COs for the students for the time that has been entered.  **Student:**  a. Log in to the system using your ID and password.  b. Compare the expected and realized PLOs and COs for the students for the time that has been entered. |  | **Computer/Laptops:**  a. Used to sign into IRAS Printer  b. Used to print the attained PLO for the previous and current semesters on paper for comparison. | **IRAS:**   a. Used to create graphs of statistical analysis using data from the database or to save student data in the database | **IRAS database:**  a. All current information is kept here and can be updated by administrators from the database. | **Internet**  Used to sign to IRAS. |
| **Department average of total PLO and CO achieved and attempted students** | **Dean/VC:**  a. Enter your ID to access the system and use your password.  b. Choose the semester's desired viewing time range.  c. See the overall PLO and CO average for the department as well as the number of students that attempted.  **Department Head:**  a. Log in to the system using your ID and password.  b. Choose the semester's desired viewing time range.  c. See the overall PLO and CO average for the department as well as the number of students that attempted.  **Faculty:**  a. Enter your ID and password to log in.  b. Check out the students' PLO and CO average across the entire department.  **Student:**  a. Log in to the system with your ID and password.  b. See the students' overall departmental average of PLO results. |  | **Computer/Laptops:**  a. Used to sign into IRAS Printer  b. Used to print the attained PLO and CO for the previous and current semesters on paper for comparison. | **IRAS:**   a. Used to create graphs of statistical analysis using data from the database or to save student data in the database | **IRAS database:**  a. All current information is kept here and can be updated by administrators from the database. | **Internet**  Used to sign to IRAS. |
| **Student Enrollment Statistics VC-wise, Dean-wise, Department**  **Head-wise.** | **VC:**  1) Sign into the  system using ID  and Password.  2) Select Student  Enrollment  Statistics tab and  select Year and  Semester under  that tab  3) View Student  Enrollment  Statistics Of That  Year and  Semester.  **Dean:**  1) Sign into the  system using ID  and Password.  2) Select Student  Enrollment  Statistics tab and  select Year and  Semester under  that tab  3) View Student  Enrollment  Statistics Of That Year and  Semester.  **Department**  **Head:**  1) Sign into the  system using ID  and Password.  2) Select Student  Enrollment  Statistics tab and  select Year and  Semester under  that tab  3) View Student  Enrollment  Statistics Of That  Year and  Semester |  | **Computer/Laptops:**  a. Used to sign into IRAS Printer  b. Used to print the attained statistics for the previous and current semesters on paper for comparison. | **IRAS:**   a. Used to create graphs of statistical analysis using data from the database or to save student data in the database | **IRAS database:**  a. All current information is kept here and can be updated by administrators from the database. | **Internet**  Used to sign to IRAS. |

**CHAPTER – 3 LOGICAL SYSTEM DIAGRAM**

1. BUSINESS RULES – PROPOSED SYSTEM
2. A student can only be in one department. A STUDENT has the following information: studentID, firstname, lastname, date of birth, gender, email, phone number, address, department ID, program ID, enrollmentYear, enrollmentSemester, and password. A department needs one or several Students.
3. A student may register for numerous events. SectionID, studentID, RegistrationID, enrolledCourse, educationalSemester, and educationalYear are all part of a registration. At least one student must complete a registration.
4. A part must require numerous registrations. There is at least one section in a registration. A section consists of the following: sectionID, sectionNum, courseID, facultyID, and year.
5. A registration could be a part of several EVALUATIONS. An evaluation must be associated with a single registration. EvaluationID, ExamID, RegistrationID, and TotalMarks are all included in an EVALUATION.
6. To map, a CO needs one PLO. A PLO must map with either one or several COs. PLO consists of programID, ploNum, and ploID.
7. There can be only one program in a PLO. One or more PLOs may be present in a program. Programs have departmentIDs, programIDs, and programNames. There must be one or more courses in a program. One course must make up a course.
8. Programs must be department-specific. One or more programs must be affiliated with a department. DepartmentID, DepartmentName, and SchoolID are contained in a DEPARTMENT.
9. Just one school may be found in a department. A SCHOOL must have a department or departments. A school's schoolID and schoolName are included.
10. There are four subtypes of employees (Dean, Department Head, Faculty, VC). Employee ID, password, first and last names are all part of an EMPLOYEE.
11. A school can only be managed by one person. A dean must oversee just one institution. A DEAN has a startDate, endDate, and schoolID.
12. There can only be one Department head per Department. A department head is only permitted to oversee one department. DepartmentID, startDate, and endDate are included in a DEPARTMENTHEAD.
13. There can only be one Department per Faculty. There must be one or more faculties in a department. DepartmentID, rank, and joinDate are all included in a FACULTY. A professor might oversee several divisions. A faculty member must teach one section only.
14. There is only one section in which a course outline fits. There can only be one course outline per part. The COURSE\_OUTLINE contains the course, sectionID, outlineID, and contact time, course Description, purpose, substance, and reference Materials, Course Type, Course Title, Prerequisite Code, and Credit Value
15. There must be precisely one CLO Matrix per course outline. A CLO matrix is specific to one course outline only. Here, clo\_MatID, cloNum, coDescription, ploAssessed, correlation, courseOutlineID, c,p,a, and s are all components of a CLO\_MATRIX.
16. There can only be one evaluation strategy per lesson plan strategy. There can only be one lesson plan strategy in an evaluation strategy. A LESSON\_PLAN\_STRATEGY contains the following: lPSID, week, topic, and learning. Strategy and evaluation courseOutlineID, correspondingClo, and strategy.
17. There is only one evaluation for a test. An exam evaluation is completed only once. A test only fits within one section. ExamID, ExamName, and SectionID are all parts of an EXAM. There must be one or more tests for a section.
18. There must be one or more questions on a test. Each question must be exclusive to one exam only. The following information included in a QUESTION are questionID, questionDetails, marksPerQuestion, questionNum, difficultyLevel, examID, and coNum. Answers to questions are given only once. There is only one question in a response.
19. A PO only has one program affiliation. There must be one or more PO in a program. PO consists of programID, poNum, and poID. A PO must be a member of one or more COs. A CO can only have one PO at a time.
20. For registration, a single student course performance evaluation is completed. Student course performance evaluations are completed exactly once for each registration. There is only one evaluation per registration. There is only one registration for an Evaluation.

II. ENTITY RELATION DIAGRAM:

Diagram, schematic

Description automatically generated

Table

Description automatically generatedIII. ENTITY RELATIONSHIP DIAGRAM TO RELATIONAL SCHEMA:

IV. NORMALIZATION

|  |  |  |
| --- | --- | --- |
| **Entity** | **Attribute** | **Literal** |
| EMPLOYEE (e) | employeeID | e1 |
| firstName | e2 |
| lastName | e3 |
| password | e4 |
| STUDENT (s) | studentID | s1 |
| firstName | s2 |
| lastName | s3 |
| dateOfBirth | s4 |
| gender | s5 |
| email | s6 |
| phone | s7 |
| address | s8 |
| departmentID | d1 |
| programID | r1 |
| enrollmentSemester | s9 |
| enrollmentYear | s10 |
| password | s11 |
| SCHOOL (h) | schoolID | h1 |
| schoolName | h2 |
| DEPARTMENT (d) | departmentID | d1 |
| departmentName | d2 |
| schoolID | h1 |
| PROGRAM (r) | programID | r1 |
| programName | r2 |
| departmentID | d1 |
| FACULTY (f) | f\_employeeID | f1 |
| departmentID | d1 |
| rank | f2 |
| joinDate | f3 |
| DEPARTMENTHEAD (k) | h\_employeeID | k1 |
| departmentID | d1 |
| startDate | k2 |
| endDate | k3 |
| COURSE (u) | courseID | u1 |
| courseName | u2 |
| numOfCredits | u3 |
| courseType | u4 |
| programID | r1 |
| SECTION (y) | sectionID | y1 |
| sectionNum | y2 |
| semester | y3 |
| courseID | u1 |
| facultyID | f1 |
| year | y4 |
| COURSE\_OUTLINE (c) | courseOutlineID | c1 |
| sectionID | y1 |
| contactHours | c2 |
| courseDescription | c3 |
| objective | c4 |
| content | c5 |
| refMaterials | c6 |
| courseType | c7 |
| courseTitle | c8 |
| prerequsiteCode | c9 |
| creditValue | c10 |
| LESSON\_PLAN\_STRATEGY (l) | ipsID | l1 |
| week | l2 |
| topic | l3 |
| learningStrategy | l4 |
| assessmentStrategy | l5 |
| correspondingClo | l6 |
| courseOutlineID | c1 |
| REGISTRATION (g) | registrationID | g1 |
| sectionID | y1 |
| studentID | s1 |
| enrolledCourse | g2 |
| educationalSemester | g3 |
| educationalYear | g4 |
| EXAM (i) | examID | i1 |
| examName | i2 |
| sectionID | y1 |
| QUESTION (q) | questionID | q1 |
| questionDetails | q2 |
| markPerQuestion | q3 |
| questionNum | q4 |
| difficultyLevel | q5 |
| examID | i1 |
| courseID | u1 |
| coNum | q6 |
| ANSWER (a) | answerID | a1 |
| answerDetails | a2 |
| answerNum | a3 |
| markObtained | a4 |
| registrationID | g1 |
| examID | i1 |
| EVALUATION\_STRATEGY (t) | eSID | t1 |
| assessmentTool | t2 |
| markDistribution | t3 |
| bloomsCategory | t4 |
| courseOutlineID | c1 |
| EVALUTION (n) | evaluationID | n1 |
| examID | i1 |
| registrationID | g1 |
| totalMarks | n2 |
| STUDENT\_COURSE\_PERFORMANCE (z) | scpID | z1 |
| registrationID | g1 |
| totalMarksObtained | z2 |
| gradePoint | z3 |
| obtainedGrade | z4 |
| CLO\_MATRIX (m) | clo\_MatID | m1 |
| cloNum | m2 |
| coDescription | m3 |
| ploAssessed | m4 |
| correlation | m5 |
| courseOutlineID | c1 |
| c | m6 |
| p | m7 |
| a | m8 |
| s | m9 |
| PLO (p) | ploID | p1 |
| ploNum | p2 |
| programID | r1 |
| CO (o) | coID | o1 |
| coNum | o2 |
| courseID | u1 |
| ploID | p1 |
| poID | x1 |
| PO (x) | poID | x1 |
| poNum | x2 |
| programID | r1 |
| VC (v) | v\_employeeID | v1 |
| startDate | v2 |
| endDate | v3 |
| DEAN (w) | d\_employeeID | w1 |
| schoolID | h1 |
| startDate | w2 |
| endDate | w3 |

Functional Dependency Mapping Using Attribute:

|  |  |
| --- | --- |
| employeeID 🡪 | firstName, lastName, password |
| studentID 🡪 | firstName, lastName, dateOfBirth, gender, email, phone, address, departmentID,  programID, enrollmentSemester,  enrollmentYear, password |
| schoolID 🡪 | schoolName |
| departmentID 🡪 | departmentName, schoolID |
| programID 🡪 | programName, departmentID |
| f\_employeeID 🡪 | departmentID, rank, joinDate |
| h\_employeeID 🡪 | departmentID. startDate, endDate |
| courseID 🡪 | courseName, numOfCredits, courseType, programID |
| sectionID 🡪 | sectionNum, semester, coursed, facultyID, year |
| courseOutlineID 🡪 | sectionID, contactHours, courseDescription, objective, content, refMaterials,  courseType, courseTitle, prerequsiteCode, creditValue |
| ipsID 🡪 | week, topic, learningStrategy, assessmentStrategy, correspondingClo, courseOutlineID |
| registrationID 🡪 | sectionID, studentID, enrolledCourse, educationalSemester, educationalYear |
| examID 🡪 | examName, sectionID |
| questionID 🡪 | questionDetails, markPerQuestion, questionNum, difficultyLevel, examID,  coursed, coNum |
| answerID 🡪 | answerDetails, answerNum, markObtained, registrationID, examID |
| eSID 🡪 | assessmentTool, markDistribution, bloomsCategory, courseOutlineID |
| evaluationID 🡪 | examID, registrationID, totalMarks |
| scpID 🡪 | registrationID, totalMarksObtained, gradePoint, obtainedGrade |
| clo\_MatID 🡪 | cloNum, coDescription, ploAssessed, correlation, courseOutlineID, c, p, a, s |
| ploID 🡪 | ploNum, programID |
| coID 🡪 | coNum, courseID, ploID, poID |
| poID 🡪 | poNum, programID |
| v\_employeeID 🡪 | startDate, endDate |
| d\_employeeID 🡪 | schoolID, startDate, endDate |

**Functional Dependency Mapping Using Literal:**

|  |  |
| --- | --- |
| e1 🡪 | e2, e3, e4 |
| s1 🡪 | s2, s3, s4, s5, s6, s7, s8, d1, r1, s9, s10, s11 |
| h1 🡪 | h2 |
| d1 🡪 | d2, h1 |
| r1 🡪 | r2, d1 |
| f1🡪 | d1, f2, f3 |
| k1 🡪 | d1, k2, k3 |
| u1🡪 | u2, u3, u4, r1 |
| y1 🡪 | y2, y3, u1, f1, y4 |
| c1 🡪 | y1, c2, c3, c4, c5, c6, c7, c8, c9, c10 |
| l1 🡪 | l2, l3, l4, l5, l6, c1 |
| g1 🡪 | y1, s1, g2, g3, g4 |
| i1 🡪 | i2, y1 |
| q1 🡪 | q2, q3, q4, q5, i1, u1, q6 |
| a1 🡪 | a2, a3, a4, g1, i1 |
| t1🡪 | t2, t3, t4, c1 |
| n1 🡪 | i1, g1, n2 |
| z1 🡪 | g1, z2, z3, z4 |
| m1 🡪 | m2, m3, m4, m5, c1, m6, m7, m8, m9 |
| p1 🡪 | p2, r1 |
| o1 🡪 | o2, u1, p1, x1 |
| x1 🡪 | x2, r1 |
| v1 🡪 | v2, v3 |
| w1 🡪 | h1, w2, w3 |

**1NF:** A relation that has a primary key and in which there are no repeating groups.

Table

Description automatically generated

**2NF:** A relation in first normal form in which every non-key attribute is fully functionally dependent on the primary key.

Timeline

Description automatically generated

**3NF**: A relation that is in second normal form and has no transitive dependencies.

Diagram, schematic

Description automatically generated

**BCNF:** All determinants are candidate keys. There is no determinant that is not a unique identifier. Here, all the relations already are in BCNF

1. DATA DICTIONARY

VC\_T

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name |  | Data Type | Size | Remark |
| v\_employeeID |  | INTEGER | 7 | This is the foreign key from the Employee table. E.g: “4250” |
| startDate |  | DATE |  | This is starting date for the VC. E.g: “01-03-  2020” |
| endDate |  | DATE |  | This is the date VC retire from his post. E.g:  “01-03-2024” |

STUDENT\_T

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Data Type | Size | Remark |
| studentID | INTEGER | 7 | This is the primary key for the Student table. E.g: “2030063”. |
| firstName | VARCHAR | 30 | This is the first name of the student. E.g: “Roshni”. |
| lastName | VARCHAR | 30 | This is the last name of the student. E.g: “Parvin”. |
| dateOfBirth | DATE |  | This is the birth date of the student. E.g: “30-11-1999”. |
| gender | VARCHAR | 6 | This is the gender of the student.  E.g: “Female”. |
| email | VARCHAR | 30 | This is the email of the student.  E.g:  “[2030063@iub.edu.bd](mailto:2030063@iub.edu.bd)” |
| phone | VARCHAR | 11 | This is the phone of the student.  E.g: “01XXXXXXXXX”. |
| address | VARCHAR | 50 | This is the address of the student. E.g: “House 1,Road 4,Block D, Bashundhara RA |
| departmentID | VARCHAR | 3 | This is the foreign key from the  Department table. E.g: “CSE” |
| programID | INTEGER | 7 | This is the foreign key from the Program table.  E.g: “1” |
| enrollmentSemester | VARCHAR | 10 | This is the enrollment  semester of the student. |
| enrollmentYear | VARCHAR | 4 | This is enrollment year of the student. |

STUDENT\_COURSE\_PERFORMANCE\_T

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Data Type | Size | Remark |
| scpID | INTEGER | 7 | This is the primary key for this table |
| registrationID | INTEGER | 7 | This is the foreign  key from registration table |
| totalMarksObtained | INTEGER | 7 | This is the total marks obtained by the student |
| gradePoint | FLOAT |  | This is the grade point achieved by  the student |

SECTION\_T

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Data Type | Size | Remark |
| sectionID | INTEGER | 7 | This is the Primary Key for Section.  E.g: “1” |
| sectionNum | INTEGER | 11 | This is the section number.  E.g: “1” |
| semester | VARCHAR | 6 | This is the semester of the section. E.g: “Summer” |
| courseID | VARCHAR | 6 | This is the foreign key from the Course table.  E.g: “CSE101” |
| facultyID | INTEGER | 11 | This is the foreign key from Faculty  table. E.g: “1801” |
| year | YEAR | 4 | This is the year this section of this course was taken by this specific  faculty |

SCHOOL\_T

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Data Type | Size | Remark |
| schoolID | VARCHAR | 7 | This is the primary key of School. E.g:  “SETS” |
| schoolName | VARCHAR | 50 | This is the name of the School.  E.g: “School of Engineering, Technology & Science”. |

REGISTRATION\_T

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Data Type | Size | Remark |
| registrationID | INTEGER | 7 | This is the Primary Key for Registration. E.g: “0101010101” |
| sectionID | INTEGER | 11 | This is the foreign key from section  table |
| studentID | INTEGER | 7 | This is the foreign  key from student table |

QUESTION\_T

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Data Type | Size | Remark |
| questionID | INTEGER | 11 | This is the primary key of this table |
| questionDetails | MEDIUMTEXT |  | This is the question |
| markPerQuestion | INTEGER | 11 | This is the mark  each question contains |
| questionNum | INTEGER | 11 | This is the number of the question |
| difficultyLevel | INTEGER | 11 | This is the difficulty level of the question |
| examID | VARCHAR | 20 | This is the foreign key from exam  table |
| courseID | VARCHAR | 6 | This is the foreign  key from course table |
| coNum | INTEGER | 11 | This is the CO number of the  question |

PROGRAM\_T

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Data Type | Size | Remark |
| programID | INTEGER | 11 | This is the primary  key for a program. E.g: “1” |
| programName | VARCHAR | 50 | This is the name of the program. E.g: “Bachelor of  Science” |
| departmentID | VARCHAR | 3 | This is the foreign key from the Department table. E.g: “CSE” |

PO\_T

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Data Type | Size | Remark |
| poID | VARCHAR | 5 | This is the primary key for Program Outcome. E.g: “PO1” |
| poNum | INTEGER | 11 | This is the PO number. E.g: “1” |
| programID | INTEGER | 11 | This is a foreign key from Program table. E.g: “1” |

PLO\_T

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Data Type | Size | Remark |
| ploID | INTEGER | 11 | This is the primary key for Program Learning Outcome. E.g: “PLO1” |
| ploNum | INTEGER | 11 | This is the PLO number. E.g: “1” |
| programID | INTEGER | 11 | This is a foreign key from Program table. E.g: “1” |

LESSON\_PLAN\_STRATEGY\_T

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Data Type | Size | Remark |
| lpsID | INTEGER | 11 | This is the primary key of the table |
| week | INTEGER | 11 | This is the week number |
| topic | MEDIUMTEXT |  | This is the topic name |
| learningStrategy | MEDIUMTEXT |  | This is the lesson plan strategy of that topic |
| assessmentStrategy | VARCHAR | 10 | This is the assessment strategy of that topic |
| courseOutlineID | INTEGER | 11 | This is the foreign key from course outline table |

FACULTY\_T

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Data Type | Size | Remark |
| f\_employeeID | INTEGER | 7 | This is the foreign key from the Employee table. E.g: “4250” |
| departmentID | VARCHAR | 3 | This is the DepartmentID of the department faculty belongs to. E.g: “CSE” |
| rank | VARCHAR | 30 | This is the rank of the faculty. E.g: “Assistant Professor” |
| joinDate | DATE |  | This is starting date. E.g: “01-03-2020” |

EXAM\_T

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Data Type | Size | Remark |
| examID | INTEGER | 11 | This is the primary key for this table |
| examName | VARCHAR | 30 | This is the name of the exam |
| sectionID | INTEGER | 11 | This is the foreign key from exam table |

EVALUATION\_T

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Data Type | Size | Remark |
| evaluationID | INTEGER | 11 | This is the primary key for this table |
| examID | VARCHAR | 20 | This is the foreign key from exam table |
| registrationID | INTEGER | 11 | This is the foreign key from registration table |
| totalMarks | INTEGER | 11 | This is the total marks achieved by the student in a specific exam |

EVALUATION\_STRATEGY\_T

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Data Type | Size | Remark |
| eSID | INTEGER | 11 | This is the primary key for this table |
| courseOutlineID | INTEGER | 11 | This is the foreign key from course outline table |

ASSESSMENT\_TOOL\_T

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Data Type | Size | Remark |
| asID | INTEGER | 11 | This is the primary key for this table |
| eSID | INTEGER | 11 | This is the foreign key from evaluation strategy table |

MARK\_DISTRIBUTION\_T

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Data Type | Size | Remark |
| mdID | INTEGER | 11 | This is the primary key for this table |
| eSID | INTEGER | 11 | This is the foreign key from evaluation strategy table |

BLOOMS\_CATEGORY\_T

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Data Type | Size | Remark |
| bcID | INTEGER | 11 | This is the primary key for this table |
| eSID | INTEGER | 11 | This is the foreign key from evaluation strategy table |

EMPLOYEE\_T

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Data Type | Size | Remark |
| employeeID | INTEGER | 7 | This is the primary key for Employee table.  E.g: “1801” |
| password | VARCHAR | 10 | This is the password of the employee |
| firstName | VARCHAR | 50 | This is the last name of the faculty.  E.g: “Ahmed” |
| lastName | VARCHAR | 50 | This is the last  name of the faculty. E.g: “Ahmed” |

DEPARTMENTHEAD\_T

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Data Type | Size | Remark |
| h\_employeeID | INTEGER | 7 | This is the foreign key from the Employee table. |

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  | E.g: “4250” |
| departmentID | VARCHAR | 3 | This is the DepartmentID of the department HEAD manages. E.g: “CSE” |
| startDate | DATE |  | This is starting date. E.g: “01-03-2020” |
| endDate | DATE |  | This is the date HEAD retire from his post. E.g: “01-03-2024” |

DEPARTMENT\_T

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Data Type | Size | Remark |
| departmentID | VARCHAR | 3 | This is the primary key for the Department table. E.g: “CSE” |
| departmentName | VARCHAR | 50 | This is the name of the department. E.g: “Computer Science and Engineering”. |
| schoolID | VARCHAR | 5 | This is a foreign key from the School table. E.g: “SETS”. |

DEAN\_T

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Data Type | Size | Remark |
| d\_employeeID | INTEGER | 7 | This is the foreign key from the Employee table. E.g: “4250” |
| schoolID | VARCHAR | 5 | This is the SchoolID of the school DEAN manages. E.g: “SETS” |
| startDate | DATE |  | This is starting date. E.g: “01-03-2020” |
| endDate | DATE |  | This is the date DEAN retire from his post. E.g: “01- 03-2024” |

COURSE\_T

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Data Type | Size | Remark |
| courseID | VARCHAR | 6 | This is the Primary Key for the Course. E.g: “CSE203” |
| courseName | VARCHAR | 40 | This is the name of the Course. E.g: “Discreet Mathematics” |
| numOfCredits | INTEGER | 11 | This is the number of credits for the Course. E.g: “3” |
| courseType | VARCHAR | 10 | This is the type of the Course. E.g: “Core” |
| programID | INTEGER | 11 | This is the foreign key from the program table. E.g: “1” |

COURSE\_OUTLINE\_T

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Data Type | Size | Remark |
| courseOutlineID | INTEGER | 11 | This is the primary key for this table |
| sectionID | INTEGER | 11 | This is the foreign key from the section table |
| courseDescription | MEDIUMTEXT |  | This is the description of the course |
| objective | MEDIUMTEXT |  | This is the objective of the course |
| content | MEDIUMTEXT |  | This is the content of the course |
| refMaterials | MEDIUMTEXT |  | This is the reference material |
| courseTitle | VARCHAR | 1000 | This is the title of the course |
| prerequsiteCode | VARCHAR | 6 | This is the prerequisite course code |
| creditValue | INTEGER | 11 | This is the credit value of the course |

CO\_T

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Data Type | Size | Remark |
| coID | INTEGER | 11 | This is the primary key for the CO table. E.g: “CO1”. |
| coNum | INTEGER | 11 | This is the CO number. E.g: 1,2 etc. |
| courseID | VARCHAR | 6 | This is the foreign key from the Course table. E.g:“CSE303” |
| ploID | VARCHAR | 5 | This is the foreign key from the PLO table. E.g: “PLO1” |
| poID | VARCHAR | 6 | This is the foreign key from the PLO table. E.g: “PO1” |

CLO\_MATRIX\_T

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Data Type | Size | Remark |
| clo\_MatID | INTEGER | 11 | This is the primary key for this table |
| cloNum | INTEGER | 11 | This is the clo number |
| coDescription | MEDIUMTEXT |  | This is the co description |
| ploAssessed | VARCHAR | 10 | This is the name of the plo assessed |
| correlation | INTEGER | 11 | This is the correlation value or number |
| courseOutlineID | INTEGER | 11 | This is the foreign key from the course outline table |
| c | INTEGER | 11 | This is the bloom’s category level |
| p | INTEGER | 11 | This is the bloom’s category level |
| a | INTEGER | 11 | This is the bloom’s category level |
| s | INTEGER | 11 | This is the bloom’s category level |

ANSWER\_T

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Data Type | Size | Remark |
| answerID | INTEGER | 11 | This is the primary key for this table |
| answerDetails | MEDIUMTEXT |  | This is the answer details |
| answerNum | INTEGER | 11 | This is the number of the answer |
| markObtained | INTEGER | 11 | This is the mark obtained by the student for each answer |
| registrationID | INTEGER | 11 | This is the foreign key from registration table |
| examID | INTEGER | 11 | This is the foreign key from the exam table |

**CHAPTER-4 PHYSICAL SYSTEM DIAGRAM**

1. INPUT FORMS
2. OUTPUT FORMS

**CHAPTER – 5 CONCLUSION**

1. PROBLEM AND SOLUTION

Analysis Phase:

As there was no data available for the organizational activities during the analysis phase, one of the main issues was the confusion surrounding the Rich Picture and Six Element Analysis. Nonetheless, academic staff and other in order to clear up these misunderstandings, stakeholders were questioned, and data from the interview was gathered to provide a better knowledge of the system that was being designed.

Designing Phase:

During the Design Phase, some complications were encountered when constructing the EERD and Relational Schema, however they were easily resolved thanks to the faculty's regular feedback.

Implementation Phase:

All the System Requirements were completed successfully.

Front end developing tools: HTML, CSS, JavaScript

Backend developing tools: PHP

Database Integration: MySQL

Additional features and Future Development:

The new features that will be added to the project are that the faculty now will be able to add the information of the student through google form directly. Besides, now both the PLO and CO will be mapped and which will also be analyzed and the statistics will also be shown with student evaluation.