



## **Database Management Project Section-04, Final Report Group-25**

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## CHAPTER 1 - INTRODUCTION:

The premier private institution in Bangladesh, Independent University, Bangladesh (IUB), was founded in 1993 and has a clear emphasis on research and international collaborations. The Independent University, Bangladesh (IUB) features a number of strong and adaptable schools, including the ones listed below:

- Business & Entrepreneurship
- Engineering, Technology & Sciences
- Environment and Life Sciences
- Liberal Arts & Social Sciences
- Pharmacy and Public Health.



## Independent University , Bangladesh

The institution has actively contributed to the development of the education industry in Bangladesh and has produced competent and knowledgeable scholars who have made contributions both domestically and internationally. The University Grants Commission (UGC), the Ministry of Education, and other necessary institutions for each of the schools, along with 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, and ongoing student performance monitoring have all helped IUB achieve this.

This report's main objective is to examine the student performance monitoring system that IUB currently employs, conduct the necessary process analysis, and recommend a new and better system that reduces error, makes data analysis and report generation simpler for all interested parties, and produces/shows valuable information required for IUB and its collaborators to make the necessary changes to academia to produce better scholars. The first section explains the organization in issue and the project we undertook for them in detail. The second section introduces the proposed system that will take the place of the current system and focuses on its flaws and weaknesses. The third and fourth sections will be highly technical and concentrate on how we intend to implement the suggested method.

During our investigation into the current system for tracking student performance, we identified a number of areas where beneficial changes could be made to speed up the monitoring of student performance processes, facilitate communication among key stakeholders, eliminate the possibility of errors and data duplication, and most importantly, make it simpler for all stakeholders to navigate through large datasets and find the relevant information they need.

We will go more into the workings of the current student performance monitoring system, the business procedures involved, and any data management concerns as we read this report.

### **A. BACKGROUND OF THE ORGANIZATION- IUB:**

Independent University, Bangladesh (IUB), was founded in 1993. It is currently home to more than 7,048 undergraduate and graduate students as well as more than 10,455 alumni. Most experts expect that this student population will increase by 10% a year.

IUB has produced graduates with marketable capabilities in the long run, and this is only possible because of its strict adherence to the ongoing curriculum and advancement system. Concentrating efforts on the departments at IUB, and in particular, transforming the department of computer and electrical science into a well-funded research hub that manages a number of research initiatives. IUB is also committed to developing future international-standard graduates who are primarily prepared to lead the nation's economy in new directions through skilled employment, entrepreneurship, and/or applied research. IUB was able to build cutting-edge lab facilities in their department thanks to the strong backing of the Bangladeshi government and

the UGC. It is due to IUB's "Application Oriented Learning" philosophy, which views education as a "application," and teaches students "not only the fundamental principles of learning, situation-handling, and have better overall perception by providing them with hands-on training sessions," why this is the case.

The SECS and the Department of Computer Science and Engineering at IUB have continuously worked with IEB, UGC, and the Ministry of Education to track their students' overall performance under specific periods by quantifying specific courses and its relating assessments into measurable trackers in order to gain useful insights for improving students over time.

To create the standard for incoming graduating engineers from top universities in Bangladesh, IEB and pertinent government potentials set these procedures and requirements for credentials courses.

These requirements are presented as Program Educational Objectives (PEO) and Program Learning Outcomes (PLO) [1] for certain departments in an accreditation manual. The appropriate course instructors and coordinators then map these PEOs and PLOs to the appropriate courses. This makes it possible for the Department of CSE at IUB, SECS, IEB, and all other pertinent stakeholders to calculate the current state of things and the performance of each student in each course for each semester. Users will be able to monitor the performance of the faculties, courses, departments, and schools, which will give them invaluable information for making the required modifications.

## **B. BACKGROUND OF THE PROJECT SPMS 4.0:**

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 information will all be included in the course outline so that students can easily access it and have access to all the information they need. To effectively evaluate each student using techniques like spider charts, the project will ascertain whether they have successfully finished the PLOs that are connected to the COs requirements. The system accepts IEB input when defining PLO standards. The faculty next enter the COs for each of their students so that the system can map the COs to PLO correctly. With the implementation of this project, it was observed that efficiency not only cut down on time but also improved quality. To ensure that each student gains the most skills from a course, the PLOs are carefully and purposefully chosen.

We also have a feature that allows professors to enter questions into a question bank that students may access in exam time. This tool will help students learn about the areas they want to learn about and will give them a huge practice area.

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.

### **C. OBJECTIVE OF THE PROJECT SPMS 4.0:**

With a database of assessments, the SPMS 3.0 system tracks and analyzes the performance of the stakeholders, including students, faculties, schools, and departments. The technology would be able to save individual assessment marks for evaluation purposes (midterm, quizzes, assignment, projects, presentations and so on). Additionally, the system's database stores the results of those assessments in relation to the Course Outcomes (CO) and Program Learning Outcomes (PLO) in order to track the success of the student's faculties, schools, and departments.

Since they are the main stakeholders, students would be able to statistically directly track how well particular course objectives were met overall. Therefore, based on their performances and faculty evaluations, the higher stakeholders (Department Head and Administration) can assess and manage the extent to which various course outcomes targets and their accomplishments are understood by the student body as a whole as well as by departments, schools, and the university as a whole. SPMS 3.0 additionally keeps track of how policies are performing in relation to the system's overarching administrative objectives.

The system's primary goal is to use the database to track all actions at the university and to generate analytics for the head of department, faculty, school, students, and their courses over a certain time period or semester wise.

### **D. SCOPE OF THE PROJECT:**

We thoroughly analyzed the current system and identified areas where serious delays in time and communication can occur; these areas will be covered in more detail in the following chapter.

Our approach entails building a Web application called SPMS 3.0 (Student Performance Monitoring System 3.0) that makes use of a Relational Database Management System (RDMS) to store, edit, add, and update the data required for tracking student performance as well as for producing and archiving related OBE data, reports, and documents.

We created hypothetical users for the web-based SPMS 3.0 system and made assumptions about their usage patterns and the information and data they would require. We will create unique user interfaces and login options for every stakeholders who will also be using this system because issues might develop at many different points in all business processes.

We employ a (RDBMS) for data storage, which makes it exceedingly simple to get relevant files, tabular data, page layouts, and reports. This enables us to interact with the required data in real-time. Additionally, we provide user interfaces that enable all users to quickly access these data and use them to produce and download reports.

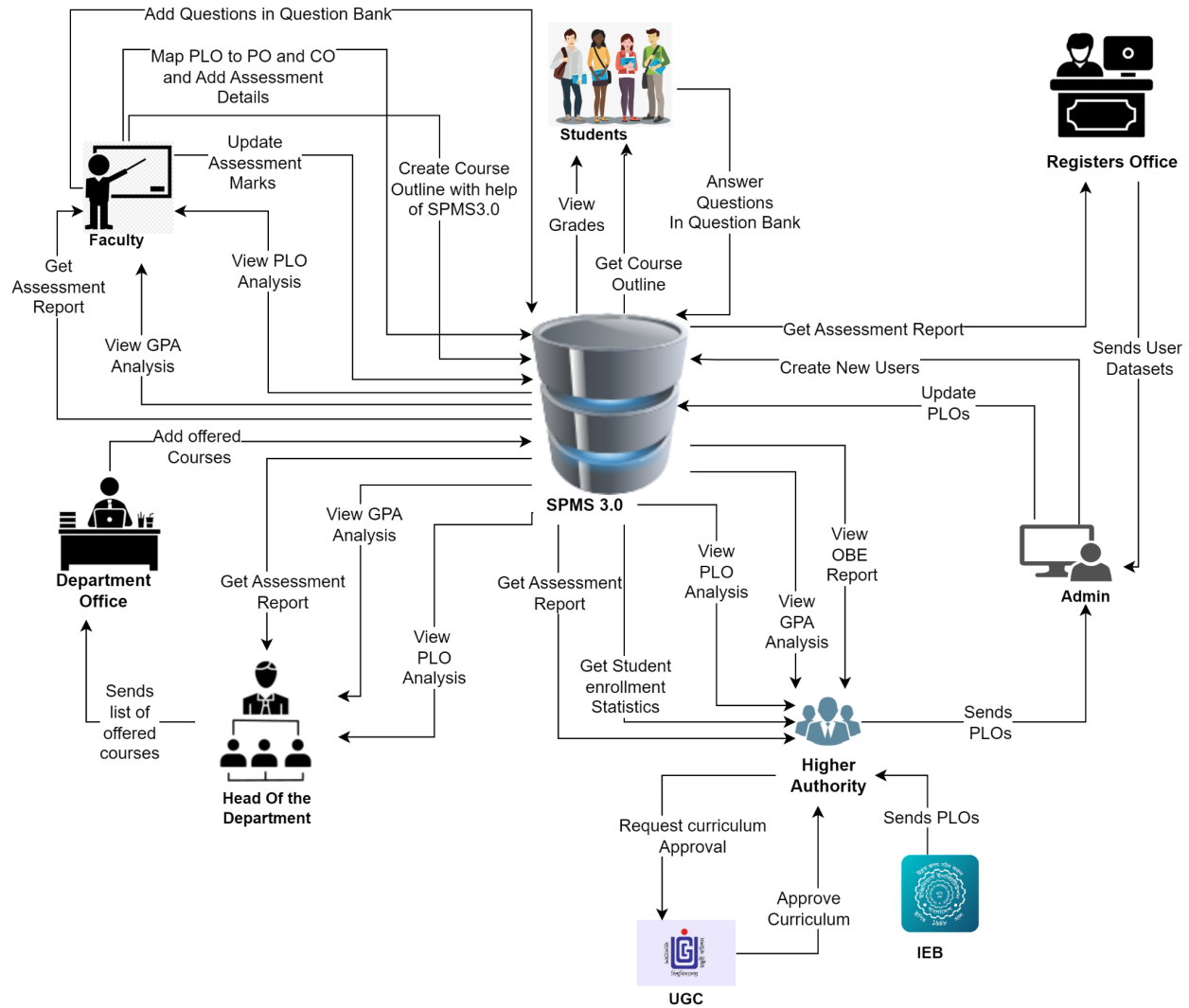
We create a platform through which faculties may work together to create course descriptions, course reports, marksheets, assessments, map assessments to COs and PLOs for PLO successes, and keep track of student evaluations for all of their courses throughout the semester.

The systems for reaching findings are also available to students, the IUB leadership team, and governmental organizations. Each stakeholder will only see the data that is specifically relevant to them, and data will also be protected.

## **CHAPTER-2 REQUIREMENT ANALYSIS:**

Before designing a database effectively we must know the expectations of the stakeholders and the intended uses of the database in detail, the process of getting this information is called “requirements analysis”. This process involves multiple interviews with stakeholders in order to identify the functionality and system requirements they are expecting from the database, what operations need to be performed and what data they need to process. From this process, we can get a proper idea of the stakeholders and their interaction with each other.

### **A. RICH PICTURE - Existing System:**



In this rich picture the stakeholders are:

- 1) UGC
- 2) IEB
- 3) Higher Authority (VC, Dean etc)
- 4) Department Head
- 5) Department Office
- 6) SPMS 4.0 Admin (SPMS Manager)
- 7) Registers Office
- 8) Faculty



9) Student

The Main Storage is  
SPMS V4.0

## B. SIX ELEMENT ANALYSIS – EXISTING SYSTEM (SPMS 4.0)

	System Roles					
Process	Human	Non-Comp Hardware	Computing Hardware	Software	Database	Network & Communicati on

Set Question Papers According to COs and conduct Examinations	<p>Faculty Member</p> <p>1) The faculty member assigned the test questions using the mapped COs.</p> <p>2) Arrange the location, start time, and date of the exams.</p> <p>3) Oversee exams and gather test materials.</p> <p>Student</p> <p>1: Take exams and turn in your test results to the teacher</p>	<p>Table and Chair</p> <p>1) For use at the table and chair during class and exams.</p> <p>Paper and a Pen</p> <p>1) In order to take the tests.</p> <p>2) The document may contain questions.</p> <p>Clock</p> <p>1) Setting time for the test.</p> <p>Area</p> <p>1 is the designated examination area.</p>	<p>Computer</p> <p>1) Used by faculties to access the COs from the Excel sheet.</p> <p>2) Faculties may also use it to take online examinations and interact with students.</p> <p>3) Students may use it to attend online examinations</p> <p>Mobil Phone</p> <p>1) Some examinations may allow mobile phones for scanning and uploading pdfs on virtual examination.</p> <p>Printer</p> <p>1) Used by faculties to print out question papers for students.</p>	<p>The software that the teachers will use to gather COs is Microsoft Office 1.</p> <p>1) Students and faculty use Google Classroom for lectures and tests.</p> <p>Operating System (OS)</p> <p>a) Any OS that people use like Mac, Windows, etc.</p> <p>Software for Printing a)</p> <p>Software for Printing used to reproduce the test.</p> <p>b) Use a PDF viewer to view questions in PDF format or submit answers in PDF format.</p>	<p>Google Sheets Database</p> <p>1) Data from pupils can be recorded by faculty.</p> <p>2) The student can access their identity and ID from this.</p>	<p>Internet</p> <p>1) Faculty can obtain the Excel file by mail using this method.</p> <p>2) Employed by instructors and pupils during exams</p>
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UGC approves curriculum based on PLO and CO	<p>Superior Management (HM)</p> <p>1) Send UGC the teaching guide.</p> <p>2) The HM releases the Curriculum booklet if the UGC approves it.</p> <p>3) If it is rejected, the HM establishes the syllabus in accordance with the requirements of the UGC.</p> <p>4) HM sends the Department the updated curriculum.</p> <p>UGC: 1) The HM gives the student the Curriculum paper.</p> <p>2) Examines the pamphlet to see if it</p>	The pamphlet is printed on this paper.	<p>networking equipment (computer 1, router, switch, bridge) HM uses this to submit the Curriculum to the UGC. Additionally used to update and modify the Curriculum booklet doc file.</p> <p>1) The HM's printer, which prints the instruction booklet.</p> <p>Networking equipment used by UGC to reach the internet (Router, Internet Cable by ISP Providers 1).</p>	<p>1) The Curriculum file can be edited or updated using Microsoft Office.</p> <p>1) Used to deliver mail to the UGC via Gmail.</p> <p>Operating System a) Any OS variety that users may use. Linux and Windows, for instance.</p> <p>1) Adobe Acrobat utilized to read the PDF document.</p> <p>1) The printing</p>	<p>1) HM can access the data in Microsoft Excel files to modify or update the curriculum.</p>	<p>1) The UGC utilizes this connection to transmit and receive mail.</p>
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	needs to be changed. Then, if any changes are required, it provides feedback to the HM before being approved by the UGC.			program is used to print the instructional document.		
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Generating Student Transcripts	<p>Student 1 asks Administration for information about one or more classes.</p> <p>2) Gives admin the required information, such as an ID or course ID, etc.</p> <p>1) The administrator gets inquiries about student record data.</p> <p>2) Requests the student's identification details and a list of their classes.</p> <p>3) Examines an Excel file to gather the required data.</p> <p>4) Creates a file with the required data and gives it to the students.</p>	<p>Paper 1: The student might be required to complete a form with the essential data (Student ID, CourseIDs, etc.).</p> <p>2) Their transcript information and course outcomes may be printed in a report.</p> <p>Pen and Paper: 1) The learner might need to complete a form with the required data. For instance, Student ID/CourseIDs, etc.).</p>	<p>Computer</p> <p>1) To gain access to Excel files and the internet, which contain data on student grades for a course.</p> <p>2) Students can email for details.</p> <p>Printer</p> <p>1) To print the forms that the learner will need to fill out with the necessary data.</p> <p>2) To print the material or transcript.</p> <p>Admin and students use networking devices (Router, Switch, Bridge, Hub) to reach the Internet.</p>	<p>Operating System 1: Any OS that consumers may use. for instance, Linux, Mac, and Windows.</p> <p>1) Printing Software The forms and recordings were printed using printing software.</p> <p>1) To read the transcript in PDF format, use a PDF viewer</p>	<p>File System for Microsoft Excel</p> <p>1) Separated grades for each subject. Excel files are used to store COs and PLOs.</p>	<p>Internet accessibility</p> <p>1) Used to view files in MS Excel.</p> <p>2) Used to ask the administrator for details.</p> <p>3) Employed to give students reports</p>
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Mapping of COs from PLOs	<p>Faculty Member 1 maps the COs from PLOs in accordance with the training syllabus.</p> <p>2) Email the administrator with the updated COs.</p> <p>1) The staff member gives the mapped COs to the administrator.</p> <p>2) Changes it in the spreadsheet document that houses the COs.</p>	<p>If a staff member or administrator wants to print the mapped COs, use paper a.</p>	<p>Computer 1: Used to update the Excel document for the COs.</p> <p>Printer 1: Used to print out the COs for backup hardcopy storage in case the digital form is damaged.</p>	<p>Used to record the mapped COs from PLOs in Microsoft Excel.</p> <p>Using a web browser to transmit and receive COs via email</p>	<p>The mapped COs are stored in file system 1 of Microsoft Excel.</p> <p>archival hardcopy</p> <p>1) Has a duplicate hard copy of the Excel file for the COs.</p>	<p>Internet 1 is the medium through which emails carrying COs are sent.</p>

Teachers evaluate students and submit COs to Admin to update in Excel Database	<p>professor</p> <p>1) Mark each student's exam papers and roster of COs.</p> <p>2) Send COs to the admin</p> <p>3) Return the student's exam document.</p> <p>Update COs to the Excel database, admin.</p> <p>Student a) Ask for the test paper to be given to the teacher.</p>	<p>Faculty members use pens and paper to annotate test papers and CO lists.</p>	<p>1) Faculty members use this computer to keep exam results.</p> <p>2) Employed to deliver COs to the administrator.</p> <p>3) Admin utilizes this to change COs in the Excel Database</p> <p>Printer</p> <p>1) Faculty can use this to make hard copies of COs.</p>	<p>1) Admin in Microsoft Office saves COs in MS Excel files.</p> <p>2) The faculty keeps student cos. Running system</p> <p>3) Any OS that consumers may be using, such as Mac, Windows, etc.</p> <p>4) To read and annotate questions in a PDF file using a PDF viewer</p> <p>5) Faculty members use Google Mail to communicate course-related information.</p>	<p>Admin uses the Microsoft Excel database to change COs.</p>	<p>Internet</p> <p>1) Employed by faculties to communicate COs to the administration.</p> <p>2) Admin utilizes it to change COs in the Excel database.</p>
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				) Employed y pupils to gather knowledge.		
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Higher Management ent collects PLOs	IEB 1 offers PLO. First, faculty should get the PLO from higher management.  ) Higher Management obtains the PLO from the IEB.	Book 1 contains information about the PLO.  ) Pen and paper for compiling and keeping all PLO.	Faculty and administrators use networking devices (a router and Internet cable from one ISP provider) to reach the Internet.Computer 1) The PLO that has been gathered and provided by the IEB will be accessible to Higher Management. 2) IEB uses a computer to produce PLO that is distributed to colleges. 3) Faculty members will access the PLO using computers. Printer 1: IEB may use printers to produce the PLO-required papers. 2) Faculty members can	Update COs to manager.  Printing programs 1) Faculty prints out COs and gives the administration a physical duplicate.Exc l for Mac and Google sheets ) Used in the PLO's creation. ) Employed to store the recovered PLO.  ) Email software is used for communication between IEB, professors, and higher management.	Marks Database: 1) For archiving the PLO; and 2) For archiving the marked CO.  Retrieving the PLO information from the IEB database.	Internet 1) Faculty members use this to access the IEB website. 2) Used to keep and update the PLO by Higher Management. 3) Employed by IEB to maintain and save PLO in their database.
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			<p>use it to ask higher management for a PLO.</p> <p>3) It can be used by Higher Management to publish the retrieved PLO.</p> <p>1) Used for communication between IEB, faculties, and higher management.</p>			
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### C. Existing business system's Problem Analysis and Solutions (SPMS 4.0):

The problems in SPMS 3.0 were analyzed, and the proposed solutions are given in the following.

Process Name	Stakeholders	Concerns (Problems)	Analysis (Reason of the Problems)	Proposed Solution

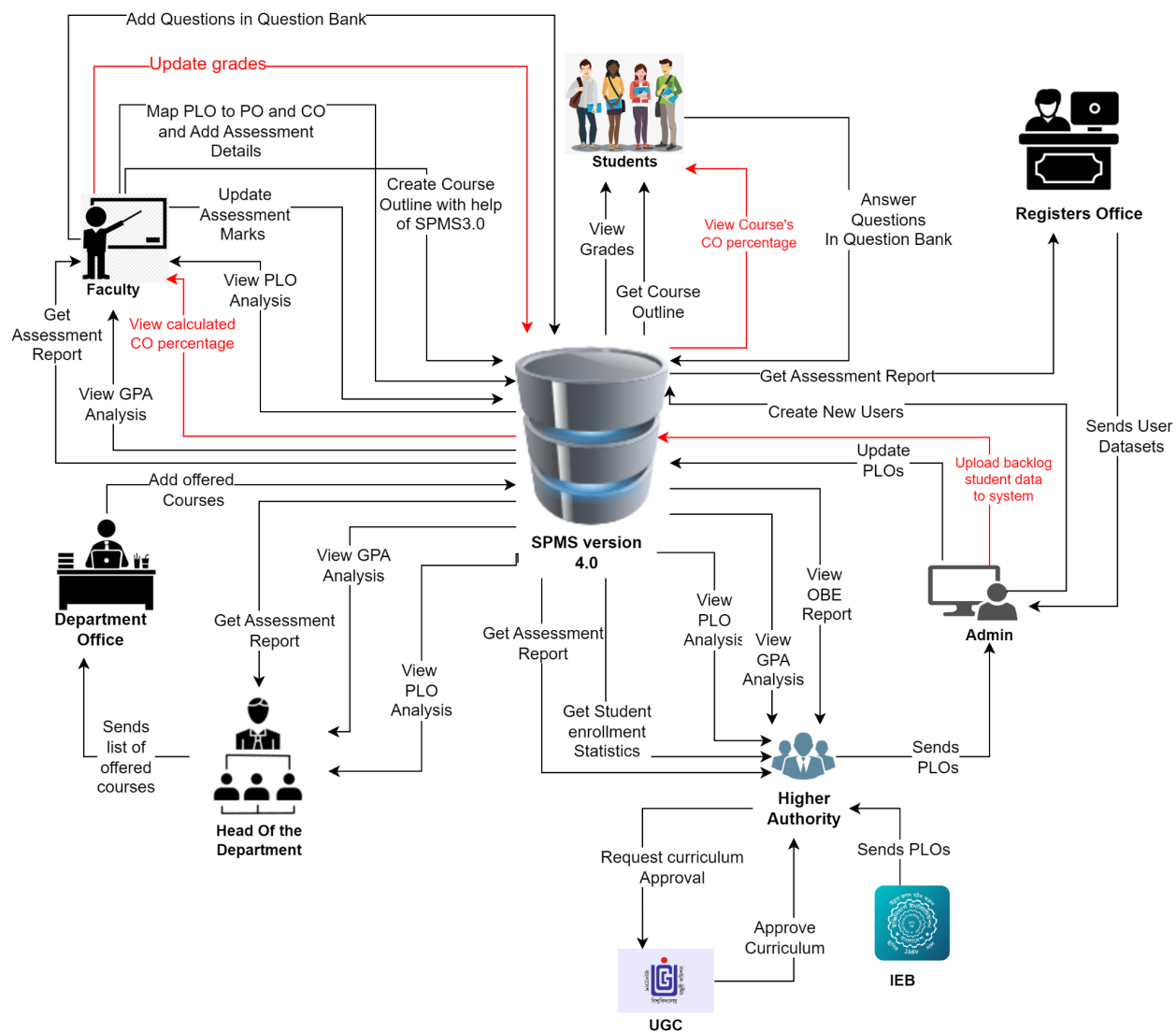
<b>Enrollment Of Students</b>	1.VC 2.Dean 3. Department Head 4 . Registrar's office 5. Faculty 6. Student	1.Every semester students are enrolled separately on department basis, school basis and program basis.	1.Enrollment of students list are recorded their department, school and program wise but semester are not mentioned.	1.Want to record all students list as per department Wise, their school wise, program wise and also their semester wise .
<b>Exam</b>	1.Faculty 2.Student	1.Hard copy of question paper can be lost. 2.Distributing question paper and receiving question paper . 3. There is a shortage of question paper also. 4. Printing problem unable to visibility. 5.Question paper leaked	1.Question paper need to save properly in safe place. 2. During exam time distributing and receiving question paper are waste of exam time. 3.Less question paper can cause chaos in the exam time	1. Need a function where the database contains the question papers, making neither the paper's physical condition nor the storage space are issues. A question's difficulty level and learning domain are automatically assigned based on the bloom's taxonomy after the question is

			4. Hard copy of question paper can be lost and it can be leaked.	added to the question bank. Time is saved by distributing question paper online rather than in person because there is no need to receiving a hard copy.
<b>Course Outline</b>	1.Department Office 2.Instructor 3.Student	1. Make a course outline. 2. Need a function 3. Student lost their hard copy of course outline. 4. Students wait for the course outline 5. Instructor take huge time for making course outline manually.	1. Instructor must send request to department office send back Before semester course material. 2.After providing some important course details, we need a function to create a course overview. Key details	1.Course outline will made by taking the information which are send by department office to the instructor and instructor can also add whatever they want. 2.Give a option to the instructor to accept this outline and then when it will be accepted student can be able to download it . So that the softcopy

			include course code, gradelist, CO matrix, Bloom learning levels, etc.	will be saved for them.
<b>Student list CGPA wise</b>	1. Student 2. Department Head 3. Registrar's office 4. Faculty 5. Dean 6. VC	1.School-wise, department-wise, and program-wise student performance trends based on CGPA with respect to a given period of time/semesters.	1.Students and the other stakeholders mentioned can only view their own personal CGPA status, which is updated individually every semester.	1.Need a system that should enable users to statistically examine the CGPA progress of the students over time, taking into account not only their progress individually but also their progress across departments, programs, and schools.

<b>PLO achievement list</b>	1.VC 2.Dean 3. Department Head 4 . Registrar's office 5. Faculty 6. Student	1.The PLO accomplishments of a student for every course taken up to this point. 2. Individually student can not reach to this	1.Since it is only accessible to faculty and the rest of the higher authorities, students are unable to track their PLO progress for individual courses.	1.Keep track of and total the PLOs the student has already earned for each course they have taken and finished.
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## D. RICH PICTURE—TO\_BE:



We get the stakeholders which are including in this rich picture are:

- 1) UGC
- 2) IEB



- 3) Higher Authority
- 4) Head of the Department
- 5) Department Office
- 6) SPMS 4.0 Admin (SPMS Manager)
- 7) Registers Office
- 8) Faculty
- 9) Student

## **E. SIX ELEMENT ANALYSIS –PROPOSED SYSTEM (SPMS4.0)**

We get from the rich picture. Including:

- 1) Course Outline giving and storing
- 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 by the student
- 6) Student performance trend under VC/Dean/Head of Department
- 7) Course, Program, department, school CLO- PLO statistics
- 8) Course, student, expected vs achieved PLO
- 9) Department average of total PLO achieved by students
- 10) Student Enrollment Statistics.
- 11) Calculating PLO and CLO from grades.

The six elements are:

1. Human
2. Non computing Hardware
3. Computing Hardware
4. Software.
5. Database.
6. Network and Communication.

<b>Process</b>	<b>Human</b>	<b>Non-computing Hardware</b>	<b>Computing Hardware</b>	<b>Software</b>	<b>Database</b>	<b>Network and communication</b>
Course Outline giving and storing	<p>Faculty:</p> <p>1) Firstly, Sign into the System using faculty ID and Password.</p> <p>2) After that, Select Create Course Outline Tab.</p> <p>3) Select From the options like course, section and semester and also they want to include it in their course outline.</p> <p>4) Then click the Create</p>		<p>Computer/ Laptop</p> <p>1) User will need a computer to access SPMS</p> <p>Printer</p> <p>1) Used to print hard copies of course outlines if it is required.</p>	<p>SPMS</p> <p>1) The software will generate a course outline.</p>	<p>SPMS</p> <p>1) The course outline will be stored and updated into the database.</p>	<p>Internet</p> <p>1) Sign and access into SPMS it is used.</p>

	<p>button.</p> <p>4) After that, the Store course outlines the system.</p> <p>Students:</p> <p>1) They are signed into the System with Student ID and Password.</p> <p>2) Select Course</p> <p>3)View from</p> <p>4)They can download the course outline from the system.</p>					
Add Questions to the question bank and grading the answer script	<p>Faculty:</p> <p>1) Sign into the System using faculty ID and Password.</p> <p>2) Then select the course,section,semester that must solve the question.</p> <p>3) Upload the question</p> <p>4)After the Press</p>		<p>Computer/ Laptop</p> <p>1) User will need a computer to access SPMS</p> <p>Printer</p> <p>1) Used to print out the grades which gotten by the full section</p>	<p>SPMS</p> <p>1) The software will produce a question bank and also generate a result graph using data using the database.</p>	<p>SPMS</p> <p>1) All valid data is stored and also can be updated in the database</p>	<p>Internet</p> <p>1)Sign and access into SPMS it is used.</p>

	<p>the Assign Button.</p> <p>4) Grade the answers submit to the students</p> <p>Student:</p> <p>1) Sign into System using Student ID and Password.</p> <p>2) Selects the question bank and views from</p> <p>3)After that answer the question which is assigned by the faculty in the answer bank</p> <p>3) Click the Submit button and they Check grades in SPMS when checking is finished by the faculty.</p>					
Course based student performance according to GPA	<p>Department Head:</p> <p>1)Sign into System using the department</p>		<p>Computer/ Laptop</p> <p>1) User will need a computer to access</p>	<p>SPMS</p> <p>1)The software will store student Data into</p>	<p>SPMS</p> <p>1) All valid data is stored and also can be updated in</p>	<p>Internet</p> <p>1) Sign and access into SPMS it is used.</p>

	<p>head ID and Password.</p> <p>2) Input the time period and course ID to be viewed.</p> <p>3) View student progress using a graph created after analysis, along with the GPAs attained by the highest/lowest/average number of students.</p> <p>Faculty:</p> <p>1) Sign into the system using faculty ID and Password.</p> <p>2)View the progress of the students in the course that they are teaching by searching for it using the course ID and time period.</p> <p>Student:</p> <p>1) Sign into the System</p>		<p>SPMS</p> <p>Printer</p> <p>1) Used to print hard copies of current semester's students and Compare them to the students who took this course during the previous semester.</p>	<p>the database and also generate a performance analysis graph using data from the database.</p>	<p>the database.</p>	
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	<p>using student ID and Password.</p> <p>2)Using the course ID, look up the course. View their (GPA) and progress in that course.</p> <p>Dean/VC :</p> <p>1) Signs into system using their ID and Password.</p> <p>2)Use the faculty member's name and Department ID to find the faculty member who will be assessed.</p> <p>3) View the Progress of the students who are being taught under that faculty basing on the GPA earned by the students.</p>					
Faculty based student performance according to GPA	<p>Faculty:</p> <p>1) Sign into the system using faculty ID and Password.</p>		Computer/ Laptop 1) User will need a computer	SPMS 1)The software will store student Data into	SPMS 1) All valid data is stored and also can be updated in	Internet 1) Sign and access into SPMS it is used.

	<p>2) View the Progress of the students who are being taught by them.</p> <p>Department Head:</p> <p>1) Sign into the system using their ID and Password.</p> <p>2) Search for a faculty to be assessed using the faculty's name.</p> <p>3) View the Progress of the students who are being taught under that faculty based on the GPA earned by the students.</p> <p>Dean/VC:</p> <p>1) Sign into the system using their(Dean/VC) ID and Password.</p> <p>2)Use the</p>		<p>to access SPMS</p> <p>Printer</p> <p>1) used to print hard copies of a faculty member's progress reports on students.</p>	<p>the database and also generate a performance analysis graph using data from the database.</p>	<p>the database</p>	
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	<p>faculty member's name and Department ID to find the faculty member who will be assessed.</p> <p>View the Progress of the students who are being taught under that faculty basing on the GPA earned by the students.</p>					
<p>Course wise PLO achievement by the student</p>	<p>VC/ Dean:</p> <p>1) Sign into the system using their (VC/Dean) ID and Password.</p> <p>2) Select the option "PLO achievement t " and also have to search using Course ID</p> <p>3) Then they can view PLOs achieved by the student.</p>		<p>Computer/ Laptop</p> <p>1) User will need a computer to access SPMS</p> <p>Printer</p> <p>1) used to print a hard copy of a report of the students who achieved the most PLO goals, if needed.</p>	<p>SPMS</p> <p>1)The software will store student Data into the database and also generate PLO automatically based on the CO provided.</p>	<p>SPMS</p> <p>1) All valid data is stored and also can be updated in the database</p>	<p>Internet</p> <p>1) Sign and access into SPMS it is used.</p>



	<p>Depart ment Head:</p> <p>1) Sign into the system using ID and Password.</p> <p>2) Select the option “PLO achievemen t “ and also have to search using Course ID</p> <p>3) Then they can view PLOs achieved of the student</p> <p>Faculty:</p> <p>1) Sign into the system using faculty ID and Password.</p> <p>2) Select the option “PLO achievemen t “ and also have to search using Course ID</p> <p>3) Then they can</p>					
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	<p>view PLOs achieved of the student</p> <p>Student:</p> <ol style="list-style-type: none"> <li>1) Sign into the system using Student ID and Password.</li> <li>2) View PLOs which they have achieved so far and also can see how many courses they need to achieve to complete the course.</li> </ol>					
Student performance trend under VC/Dean/Head of Department	<p>Dean :</p> <ol style="list-style-type: none"> <li>1) Sign into system using Dean ID and Password.</li> <li>2) Search for Department Head to be checked using their Name and Department ID.</li> <li>3) The View students</li> </ol>		<p>Computer/ Laptop</p> <ol style="list-style-type: none"> <li>1) User will need a computer to access SPMS</li> </ol> <p>Printer</p> <ol style="list-style-type: none"> <li>1) used to print the progress report on</li> </ol>	<p>SPMS</p> <ol style="list-style-type: none"> <li>1) The software will store student Data into the database and also generate a performance analysis graph using data from the</li> </ol>	<p>SPMS</p> <ol style="list-style-type: none"> <li>1) All valid data is stored and also can be updated in the database.</li> </ol>	<p>Internet</p> <ol style="list-style-type: none"> <li>1) Sign and access into SPMS it is used.</li> </ol>

	<p>progress</p> <p>VC:</p> <p>1) Sign into the system using VC ID and Password.</p> <p>2) Search for a Dean or Department Head to be checked using their name and either School ID or Department ID.</p> <p>3)Then View students progress .</p> <p>Depart ment Head:</p> <p>1) Sign into the system using department ID and Password.</p> <p>2) View student progress under them.</p>		hard copy if needed.	database.		
Course, Program, department, school CLO-	<p>Dean/VC :</p> <p>1) Sign into the system using</p>		Computer/ Laptop 1) User will need	SPMS 1)The software will store	SPMS 1) All valid data is stored and	Internet 1) Sign and access into

PLO statistics	<p>their(VC/ Dean) ID and Password.</p> <p>2) Then, view CLO-PLO made statistics which were achieved by students.</p> <p>Depart ment Head:</p> <p>1) Sign into the system using department ID and Password.</p> <p>2) View CLO-PLO made statistics which are achieved by students.</p> <p>Faculty:</p> <p>1) Sign into the system using faculty ID and Password.</p> <p>2) View CLO-PLO made statistics which are achieved by students</p>		<p>a computer to access SPMS</p> <p>Printer</p> <p>1) used to print the progress report on hard copy if needed.</p>	<p>student Data into the database and also generate CLO- PLO statistical data.</p>	<p>also can be updated in the database.</p>	<p>SPMS it is used.</p>
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	<p>Student:</p> <p>1) Sign into the system using student ID and Password.</p> <p>2) View CLO-PLO made statistics which are achieved by them and other students.</p>					
Course, student, expected vs achieved PLO	<p>Dean/VC :</p> <p>1) Sign into the system using their(VC/Dean) ID and Password.</p> <p>2) View the achieved PLO by the students the entered time which has been given as an input and after that comparison between expected and achieved.</p> <p>Depart</p>		<p>Computer/ Laptop</p> <p>1) User will need a computer to access SPMS</p> <p>Printer</p> <p>1) used to print a hard copy of the PLOs achieved during the previous and current semesters so for the comparison.</p>	<p>SPMS</p> <p>1)The software will store student Data into the database and also generate a performance analysis graph using data from the database</p>	<p>SPMS</p> <p>1) All valid data is stored and also can be updated in the database.</p>	<p>Internet</p> <p>1) Sign and access into SPMS it is used.</p>

	<p>ment Head:</p> <p>1) Sign into the system using department head ID and Password.</p> <p>2) View the achieved PLO by the students the entered time which has been given as an input and after that comparison between expected and achieved.</p> <p>Faculty:</p> <p>1) Sign into the system using faculty ID and Password.</p> <p>2) View the achieved PLO of the students during time entered that has been inputted and comparison between expected and achieved.</p>					
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	<p>Student:</p> <p>1) Sign into the system using student ID and Password.</p> <p>2) View the achieved PLO of the students during time entered that has been inputted and comparison between expected and achieved.</p>					
<p>Department average of total PLO achieved by students</p>	<p>Dean/VC :</p> <p>1) Sign into the system using VC/Dean ID and Password.</p> <p>2) Then Enter the time period in which to view the semester wish.</p> <p>3) Then view the departmental average of total PLO which has</p>		<p>Computer/ Laptop</p> <p>1) User will need a computer to access SPMS</p> <p>Printer</p> <p>1) Used to print the hard copy of PLO reports</p>	<p>SPMS</p> <p>1) The software will store student Data into the database and also generate a performance analysis graph using data from the database.</p>	<p>SPMS</p> <p>1) All valid data is stored and also can be updated in the database.</p>	<p>Internet</p> <p>1) Sign and access into SPMS it is used.</p>

	<p>been achieved by the number of students.</p> <p>Department Head:</p> <p>1) Sign into the system using department head ID and Password.</p> <p>2) Then Enter the time period in which to view the semester wish.</p> <p>3) Then view the departmental average of total PLO which has been achieved by the number of students.</p> <p>Faculty:</p> <p>1) Sign into the system using faculty ID and Password.</p>					
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	<p>2)Then Enter the time period in which to view the semester wish.</p> <p>3) Then view the departmen tal average of total PLO which has been achieved by the number of students.</p> <p>Student: 1) Sign into the system using student ID and Password. After That, View the total departmental average of the PLO which has been achieved by them.</p>					
Student Enrollment Statistics.	<p>VC: 1) Sign into the system with VC ID and Password. 2) Select the option"Stud ent</p>		Computer/ Laptop 1) User will need a computer to access SPMS	SPMS 1)The software will store student Data into  the database and also generate	SPMS 1) All valid data is stored and also can be updated in the database.	Internet 1) Sign and access into SPMS it is used.

	<p>Enrollment Statistics” and also have to select and mention which Year and Semester.</p> <p>3) Now he/she View Student Enrollment Statistics Of that year and semester.</p> <p>Dean</p> <p>1) Sign into the system using Dean ID and Password.</p> <p>2) Select the option “Student Enrollment Statistics” and also have to select and mention which year and Semester.</p> <p>3) He/She View Student Enrollment Statistics Of</p>		<p>Printer</p> <p>1) used to print the student enrollment t statistics on hard copy, if needed.</p>	<p>student enrollment Statistics graphs.</p>		
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	<p>that year</p> <p>Head of the Department:</p> <p>1) Sign into the system using department head ID and Password.</p> <p>2) Select the option "Student Enrollment Statistics" and also have to select and mention which year and Semester.</p> <p>3) He/She View the Student Enrollment Statistics Of that year.</p>					
Calculating PLO and CLO grades.	<p>Faculty:</p> <p>1) Sign into the system using faculty Id and password.</p> <p>2) Then enter the education year, educational semester, enrolled course, enrolled</p>		<p>Computer/ Laptop</p> <p>1) User will need a computer to access SPMS</p> <p>Printer</p> <p>1) used to print</p>	<p>SPMS</p> <p>1) The software will store student Data into the database and also generate student grades Statistics graphs.</p>	<p>SPMS</p> <p>1) All valid data is stored and also can be updated in the database.</p>	<p>Internet</p> <p>1) Sign and access into SPMS it is used.</p>

	section. 3) View achieved the course outcomes based on grades which have been achieved by the students. Student: 1) Sign into the system using student Id and password. 2) They provide student ID, semester, year, enrolled course and section. 3) View their grade and also calculate the course outcome based on their grades.		the student grades statistics on hard copy, if needed.			
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## CHAPTER-3 LOGICAL SYSTEM DESIGN

### A. BUSINESS RULES – SPMS 4.0:

1. A student must have one department. A STUDENT has StudentID, FirstName, LastName, dateOfBirth, gender, email, phone, address, departmentID, programID, enrollmentYear, enrollmentSemester, password. A department must have one or many Students.
2. Students may perform many registrations. A REGISTRATION includes RegistrationID, sectionID, studentID. A registration must be performed by at least one student.

3. A section mandatorily has many registrations. A registration has at least one section. A section includes sectionID, sectionNum, courseID, facultyID, year.
4. A registration may belong to many EVALUATIONS. An evaluation mandatorily belongs to one registration. An EVALUATION contains evaluationID, examID, registrationID, totalMarks.
5. A CO must map with one PLO. A PLO's must map with one or many CO's. PLO includes ploID, ploNum, programID.
6. A PLO must contain one program. A program contains one or many PLO's. A PROGRAM has programID, programName, departmentID. A program must contain one or many courses. A Course must contain one course.
7. A program must belong to one department. A department must belong to one or many programs. A DEPARTMENT contains departmentID, departmentName, schoolID.
8. A department must contain one school. A SCHOOL must contain one or many departments. A school includes schoolID, schoolName.
9. An employee has four sub-type( Dean, Department Head, Faculty, VC). An EMPLOYEE includes employeeID, password, firstName, lastName.
10. A school must be run by exactly one. A dean must run exactly one school. A DEAN has schoolID, startDate, endDate.
11. A Department must be run by exactly one Department head. A department head must manage exactly one department. A DEPARTMENT HEAD includes departmentID, startDate, endDate.
12. A Faculty must have exactly one Department. A department must have one or many Faculties. A FACULTY includes departmentID, rank, joinDate. A faculty may teach many sections. A section must be taught by exactly one faculty.
13. A course outline belongs to exactly one section. A section must have exactly one course outline. A COURSE\_OUTLINE includes courseOutlineID ,sectionID ,contactHours ,courseDescription ,objective ,content ,refMaterials ,courseType ,courseTitle ,prerequisiteCode ,creditValue.
14. A Course outline must have exactly one CLO Matrix. A CLO matrix belongs to exactly one course outline. A CLO\_MATRIX includes clo\_MatID, cloNum, coDescription, ploAssessed, correlation, courseOutlineID , c ,p ,a ,s.
15. A Lesson Plan Strategy must have exactly one Evaluation strategy. An Evaluation strategy must have exactly one Lesson Plan Strategy .A LESSON\_PLAN\_STRATEGY includes IPSID ,week ,topic ,learningStrategy , assessmentStrategy, corresponding Clo, courseOutlineID.

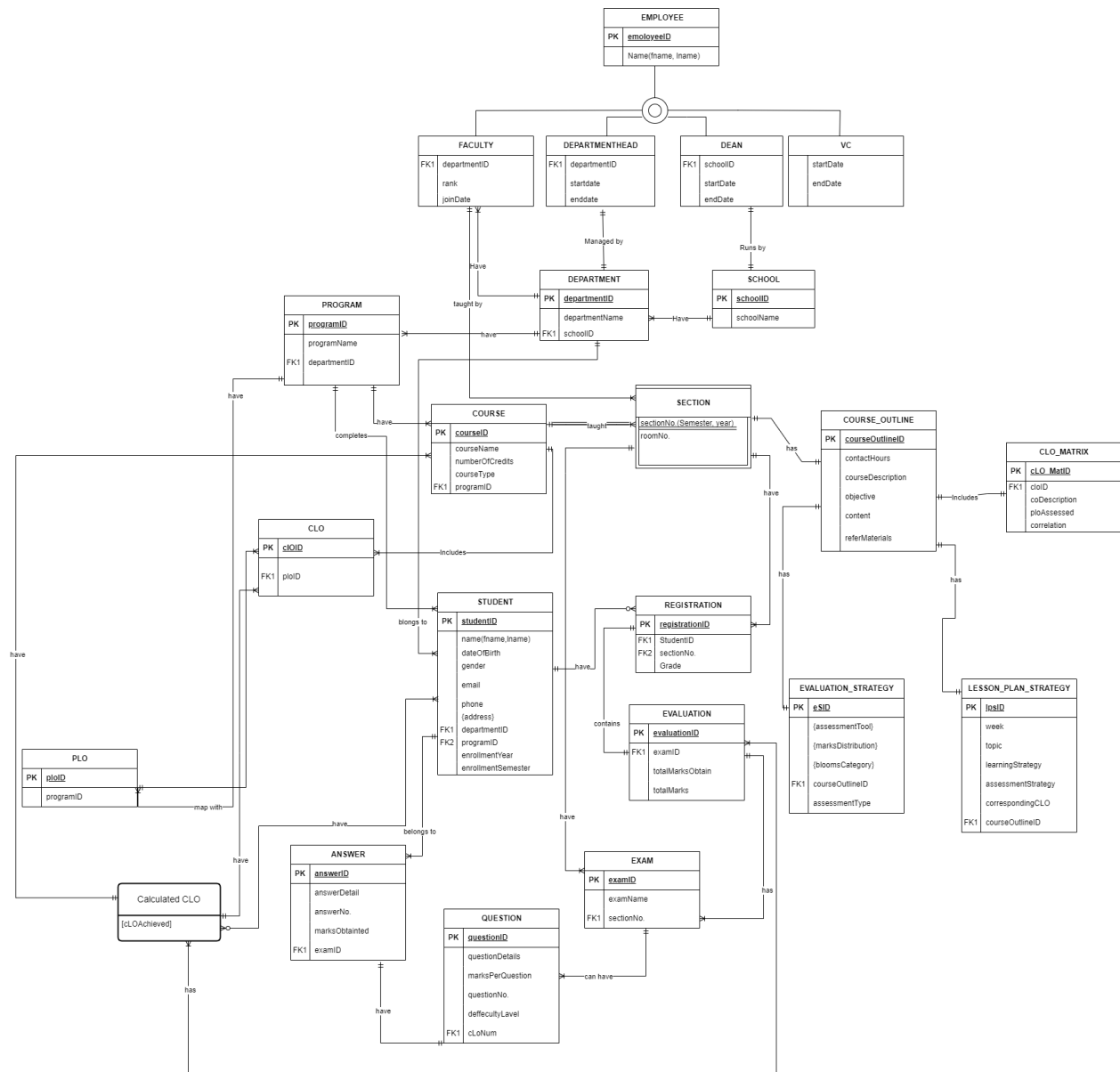
16. An exam has exactly one evaluation. An Evaluation for an exam is done exactly once. An exam belongs to exactly one section. An EXAM includes examID, examName, sectionID. A section must have one or many exams.

17. An exam must have one or many questions. Every question must belong to exactly one exam. A QUESTION includes questionID , questionDetails , marksPerQuestion , questionNum , difficulty Level , examID , coNum. A Question is answered exactly once. An answer has exactly one question.

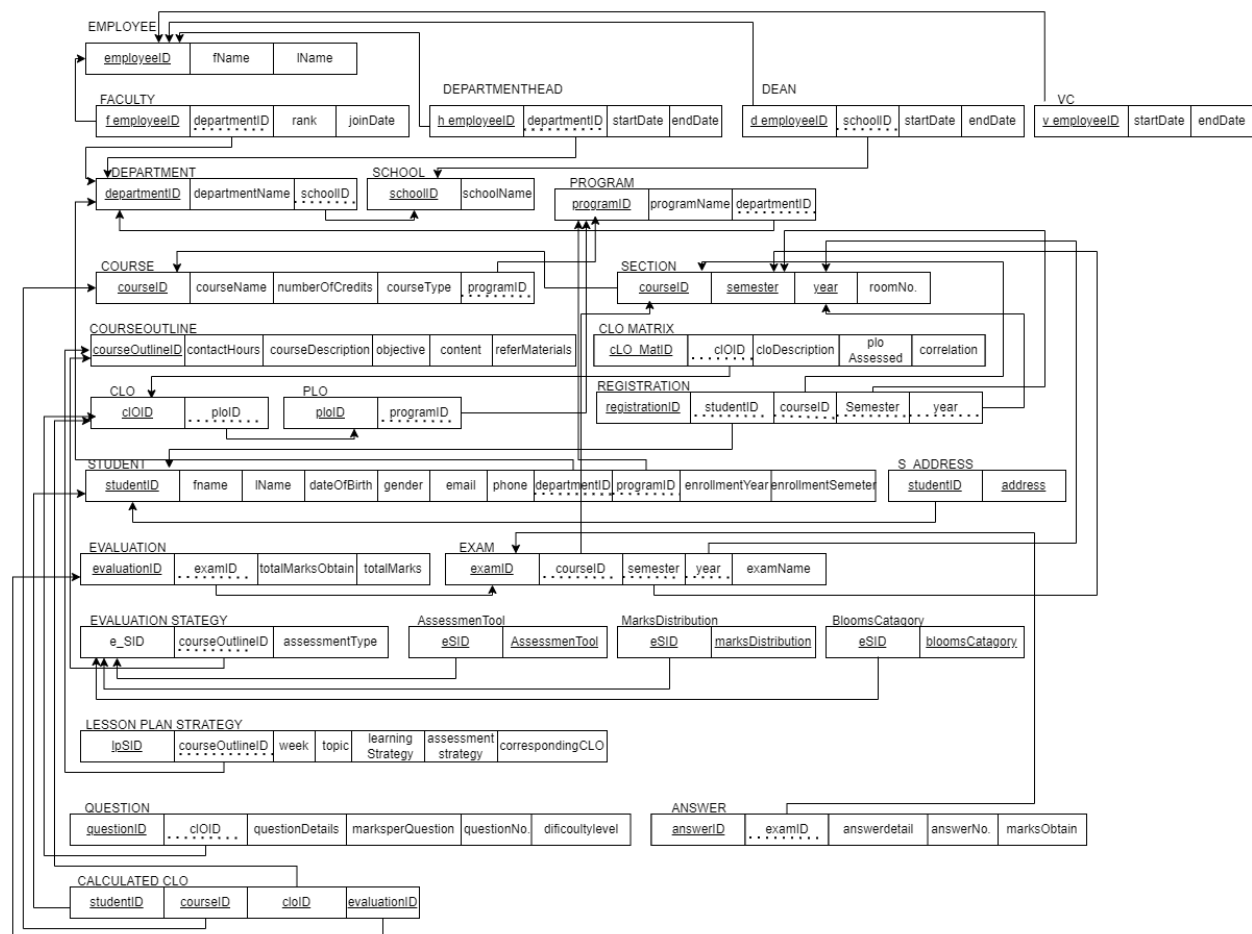
18) A PO belongs to exactly one program A program must have one or many PO. PO includes poID , poNum , programID. A PO must belong to one or many CO. A CO must have exactly one PO.

19) A student course performance evaluation is done for registration exactly once. A registration has student course performance evaluation done exactly once. A registration has exactly one evaluation. An Evaluation has exactly one registration.

## **B. ENTITY RELATIONSHIP DIAGRAM:**



## C. ENTITY RELATIONSHIP DIAGRAM TO RELATIONAL SCHEMA:



## D.NORMALIZATION:

SchoolID L1	SchoolName L2
DepartmentID D1	DepartmentName, SchoolID D2, L1
ProgramID P1	ProgramName, DepartmentID P2, D1
PLOID A1	PLONum, ProgramID A2, P1
CLOID	PLOID



B1	A1
CourseID C1	CourseName, CourseType, numberOfCredits, ProgramID C2, C3, C4, P1
StudentID S1	Firstname, LastName, DateOfBirth, Gender, Email, address, EnrollmentDate, DepartmentID  S2, S3, S4, S5, S6, S7, S8, D1
QuestionID Q1	questionDetails, marksPerQuestion, difficultyLevel,  Bloom'sTaxonomyCategory, Bloom'sTaxonomyLevel, COID, FEmployeeID  Q2, Q3, Q4, Q5, Q6, B1, F1
Employee E1	FirstName, LastName E2, E3,
FEmployeeID F1	JoinDate, Rank, DepartmentID F2, F3, D1, J1
CoutlineID J1	contactHours,courseDescription,objective,content,referMa terials J2,J3,J4,J5
EvaluationID M1	ObtainedMarks, StudentID, CourseID,  examID,QuestionID  M2, S1, C1, Q1,X1

## Group-25

L1 -> L2

D1->D2,L1

P1->P2,D1

A1->A2,P1

B1->A1

C1->C2,C3,C4,P1

T1->T2,T3

S1->S2,S3,S4,S5,S6,S7,S8,D1,P1

Q1->Q2,Q3,Q4,Q5,Q6,B1,F1

E1->E2,E3

F1->F2,F3,D1,J1

J1->J2,J3,J4,J5

M1->M2,S1,C1,Q1,X1

X1->X2,X3,X4,X5

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

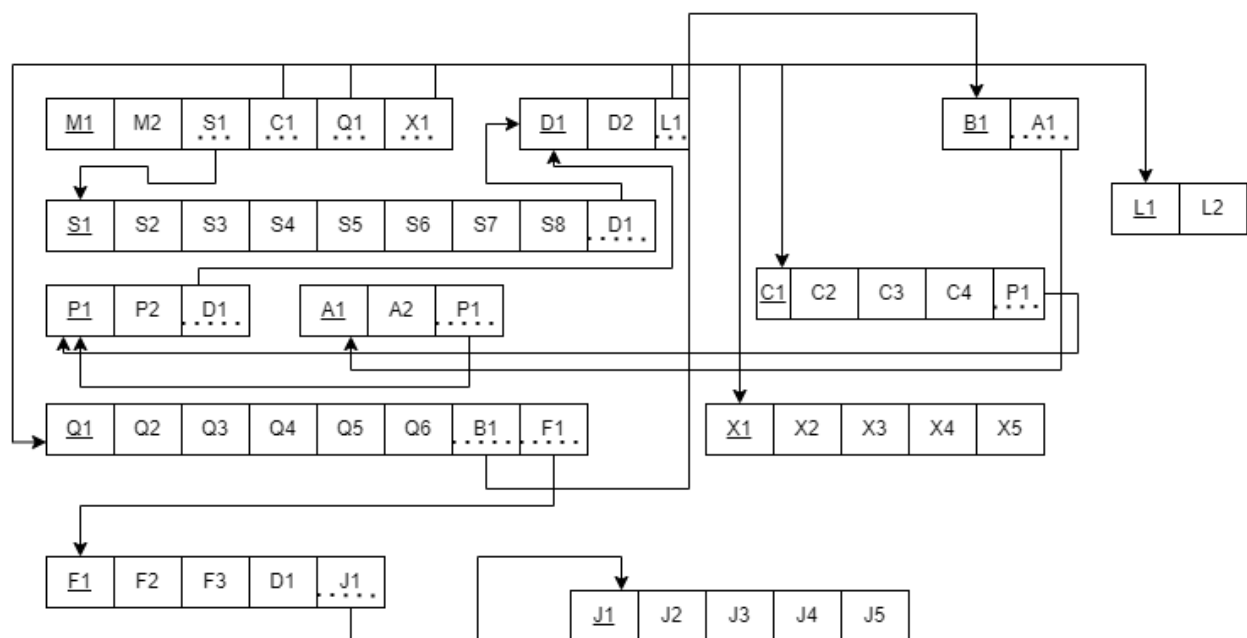
<u>M1</u>	M2	S1	S2	S3	S4	S5	S6	S7	S8	D1	D2	L1	L2	C1	C2	C3	C4	P1	P2	Q1
Q2	Q3	Q4	Q5	Q6	B1	A1	F1	F2	F3	J1	J1	J2	J3	J4	J5	X1	X2	X3	X4	X5
<u>E1</u>	E2	E3	<u>T1</u>	T2	T3															

## 2NF:

Partial dependency has been removed.

## 3NF:

Has no transitive dependencies.



BCNF: All relations are already in BCNF.

## E.DATA DICTIONARY:

Name		Data Type	Size	Remark
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v_employeeID		INTEGER	11	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	11	This is the primary key for the Student table. E.g: "1921834".
firstName	VARCHAR	30	This is the first name of the student. E.g: "Rakibul".
lastName	VARCHAR	30	This is the last name of the

			student. E.g: "Hasan".
dateOfBirth	DATE		This is the birth date of the student. E.g: "21- 12-1996".
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:  "1921834@iub.edu. bd"
phone	VARCHAR	11	This is the phone of the student.  E.g: "01XXXXXXXXXX".
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	11	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.

## SECTION\_T

Name	Data Type	Size	Remark
sectionID	INTEGER	11	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	5	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”.
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## REGISTRATION\_T

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

## 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
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f_employeeID	INTEGER	11	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
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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
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## 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
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asID	INTEGER	11	This is the primary key for this table
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eSID	INTEGER	11	This is the foreign key from evaluation strategy table
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## 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	11	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	11	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	11	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 Mathematic s"
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
prerequisiteCode	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 DESIGN



## A. INPUTS FORMS

SPMS4.0

Student ID

Educational Year

Educational Semester

Enrolled Course

Enrolled Section

Obtained Grde

CVS File

Choose File No file chosen

Go Back Store Data

Activate Windows  
Go to Settings to activate Windows.

The image displays the input form for the SPMS 4.0 system. The form is set against a solid blue background. It includes a header with the text 'SPMS4.0'. Below this, there are several input fields for student information: Student ID, Educational Year, Educational Semester, Enrolled Course, Enrolled Section, and Obtained Grde. Each field is represented by a white rectangular box. Below these fields is a section for 'CVS File' with a button labeled 'Choose File' and the text 'No file chosen'. At the bottom of the form, there are two buttons: 'Go Back' and 'Store Data'. In the bottom right corner, there is a watermark that says 'Activate Windows Go to Settings to activate Windows.'

## OUTPUT FORMS:

SPMS4.0

Course ID

CourseID	StudentID	Grade	CLOID	Weight
CSE213	1711409	A	Clo3	36
CSE213	2030330	A	Clo3	36

Activate Windows  
Go to Settings to activate Windows.