

PROJECT REPORT DATABASE MANAGEMENT CSE 303 GROUP 27 SECTION 03

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Contents

CH-1 INTRODUCTION:	3
BACKGROUND OF THE ORGANIZATION:	3
BACKGROUND OF THE PROJECT:	
OBJECTIVES OF THE PROJECT:	4
SCOPE OF THE PROJECT	
CH-2: REQUIREMENT ANALYSIS	5
Existing Business System (with rich picture)	5
PROCESSES ALONG WITH SIX SYSTEM ELEMENT ANALYSIS	ε
EXISTING PROBLEMS & ANALYSIS OF THE PROBLEM	24
PROPOSED BUSINESS SYSTEM (WITH RICH PICTURE)	26
PROPOSED PROCESSES ALONG WITH SIX SYSTEM ELEMENT ANALYSIS	26
CH-3 LOGICAL SYSTEM DESIGN	26
BUSINESS RULES	39
ENTITY RELATIONSHIP DIAGRAM (ERD)	42
ERD TO RELATIONS	43
NORMALIZATION	43
Data Dictionary	46
CH-4 PHYSICAL SYSTEM DESIGN	53
INPUT FORMS	53
OUTPUT QUERY & REPORTS	ERROR! BOOKMARK NOT DEFINED
CH-5 CONCLUSION	56
Problem & Solution	56
Additional Feature & Future Development	56
CONCLUSION & RECOMMENDATIONS	56

CH-1 INTRODUCTION:

BACKGROUND OF THE ORGANIZATION:

Independent University, Bangladesh (IUB) established in 1993 is the leading private university in Bangladesh with an explicit focus on Research and Global partnerships. The Independent University, Bangladesh (IUB) has robust and versatile schools – notably consisting of following:

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

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.

The objectives of IUB are to produce graduates of international standards in the local environment who have the knowledge and necessary skills to provide leadership in business, public service, and welfare; to encourage and support useful research; to create knowledge; and to offer opportunities for adults to continue their education.



Figure 1: Independent University, Bangladesh

BACKGROUND OF THE PROJECT:

Our project's goal is to create, develop, and distribute software that, in our opinion, will assist universities worldwide in promoting a more fruitful and efficient method of student evaluation. As the central concept of our project, we've introduced the notion of Course Outcomes (COs) and Program Learning Outcomes (PLOs), where each CO is mapped to a PLO, and each PLO represents a particular 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.

The details will all be present in the course outline for the students to have easy access and have all the necessary details regarding a course. The project will determine whether each student has successfully completed the PLOs that are linked to the COs requirements in order to evaluate them effectively through tools such as spider charts. IEB input is accepted by the system when establishing PLO criteria. For the system to map the COs to PLO appropriately, the faculties then input the COs for each of their students. It was discovered via the execution of this project that the efficiency not only reduced time but also increased quality. The PLOs are carefully and deliberately selected to guarantee that each student gets the most skills out of a course.

We also have the feature where faculties can input the questions in the question bank which can be accessed by the students which will help them gain knowledge on their desired topics and will provide them a vast field to practice.

Students can monitor their progress in each area and identify their areas for growth and improvement. Our program also aims to help the institutional bodies, including faculty, administrative, and departmental bodies, track student development, departmental performance, and better distribute and allocate resources.

OBJECTIVES OF THE PROJECT:

Our project aims to develop an interactive, user-friendly program that will serve as a platform for university staff, faculty, and other participants to assist in enhancing the standard of instruction and revolutionizing how we incorporate technology into our education. We are confident that the information we have gathered, assessed, and organized will open doors for significant improvements in the educational sector as well as the field of computer science. In this situation, SMPS will broaden the project's scope in order to benefit all the departments

SCOPE OF THE PROJECT

Our approach entails building a Web application called SPMS 2 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 system and made assumptions about their usage patterns and the information and data they would require. Since issues can occur at many different points throughout all business processes, we will create unique user interfaces and login options for various stakeholders who will also be using this system. Since our data is stored using a (RDBMS), obtaining relevant files, tabular data, and page layouts is made possible and reports become exceedingly simple, enabling real-time interaction with the required data. Additionally, we develop user interfaces that allow all users to quickly access these data and use them to produce download reports, etc. We create a platform through which faculties may work together to create course outline, course reports, marksheets,

assessments, map assessments to COs and PLOs for PLO successes, and keep track of student evaluations for all their courses throughout the semester and upload questions in the question bank for the students. 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.

CH-2: REQUIREMENT ANALYSIS

EXISTING BUSINESS SYSTEM (WITH RICH PICTURE)

We are creating a platform through which faculties can work together to create course descriptions, course reports, make assessments, track assessments to COs and PLOs for the success of PLOs, and keep track of student evaluation for all of their courses throughout the semester. This platform is also available to students, the IUB admin and management, and UGC. Each stakeholder will see and monitor the data that specifically relevant to them and the data will also be protected. Students can give responses to their assessments via the platform to their faculties who then can grade the assessments and return. The system receives the assessment records, and it stores them. The system keeps a record of every report. The system offers bar graphs, pie charts and tables that display PLO achievement for all students.

The admin can use the system to update PLO requirements after managements sends them the updated PLO requirements through the system. The admin can also create new users for the system. The registrar's office also plays a role in the system. Students can ask for grade change to the faculty who in turn can ask for grade change to the registrar's office. The registrar's office then sends the change grade. The registrar's office can also use the system to get general reports and assessment reports about COs and PLOs.

The management are the body of power who updates and sends the PLO requirements. They also deal with governmental organizations like UGC to determine their curriculum and PLOs.

The system offers all users illuminating bar graphs, pie charts, and tables that display PLO achievement for all students, PLO achievement for a specific student, and PLO achievement regarding certain courses. Student responses to questions posed by the faculty are then given back to the faculty. The system receives the assessment records after it has been completed and stores them. The system keeps a record of every report.

The system offers all users illuminating bar graphs, pie charts, and tables that display PLO achievement for all students, PLO achievement for a specific student, and PLO achievement about certain courses.

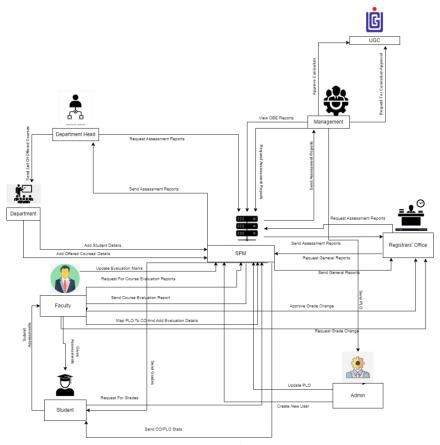


Figure 2: Rich Picture of Existing System

PROCESSES ALONG WITH SIX SYSTEM ELEMENT ANALYSIS

The Six Elements Analysis gives a thorough explanation of each element's function in each process. The table below makes it very evident that human entities predominate all important system operations, particularly the two most important ones—mapping course outcomes and examining documents associated with them. The existing approach, for instance, relies significantly on manually handled and processed hardcopy databases. As a result, there is a considerable amount of waiting involved in the interdependent processes before the Human components may perform their obligations.

Process	System Roles						
	Human Non- Computi Software Database Netwo						
		Computi	ng			and	
		ng	Hardwa			Communic	
		Hardwar	re			ation	
		е					

	1	1	1	1	ı	1
Student	Student:	Paper	Comput	Operating	Register	Internet
Registrati	a) Search for	and	er/	Software	Office	а) То
on	the website	Statione	Laptop	a) Utilized by	Database	access and
	b) Goes to the	ry:	a) SPMS	Registrar	a) Used	store data
	website.	a) Used	admin	Office and	by the	to SPMS it
	c) Clicks on the	to	will use	SPMS.	registrar'	is used.
	form option.	collect	Comput		s office	
	d) Fill up the	informa	ers to	Student	to	b) It is used
	form with	tion	access	a) Uses to fill	compile	to collect
	required	about	and	up the form	student	the
	Information.	students	update	from the	data into	student
		through	data.	website.	an excel	form from
	Registrar's	enrollm	b)		file for	the
	Office:	ent	Users	SPMS	sending	student to
	a) Checks and	forms.	will use	a) The	to SPMS.	registrar
	verifies student		the	software for		office.
	enrollment		comput	which the	SPMS	
	information		er to	administrato	a) For	c)The
	from the forms		view	r will set up	any	Registrar
	from		the	user	upgrades	office
	the website or		data.	accounts.	or new	sends all
	hardcopy				user	the
	forms.		Databas		accounts	student
	b) Registrar		е		,	informatio
	Office's Admin		Server		informati	n to SPM
	logs into the		a) Used		on is	admin by
	system using		by		kept in	using it.
	Admin-ID and		SPMS		the	
	password.		Develop		database	
	c) Sends		ers to			
	verified		collect			
	student		data		Excel	
	information as		and		a) Data	
	an		maintai		from	
	attachment to		n the		student	
	Admin/Team.		softwar		accounts	
			e.		may be	
					kept in	
	Admin:		Networ		an excel	
	a) Admin logs		king		file and	
	into		Devices		used	
	the system		(Router,		later in	
	using		Switch,		SPMS.	
	SPMS User-ID		Bridge,			
	and		Hub):			
	password.		a) Used			
	b) Receives the		to			
	student		access			
	enrollment		SPMS			
	information in					
	the					

			T	
	attached files.			
	c) Admin			
	updates the			
	student			
	enrollment			
i	information in			
C	Database.			
	d) Notifies			
	respected			
	Stakeholders			
3	Stakenoiders			
	Department			
H	Head:			
	a) Logs into the			
	system using			
	them			
	User-ID and			
l -	password.			
l l	b) Inputs the			
	desired time			
	period for			
	number of			
	students			
6	enrolled.			
	Higher			
	Authority (VC/			
	Dean):			
	a) Logs into the			
	system using			
	their			
ι	User-ID and			
	password.			
-	b) Inputs the			
	desired time			
l -	period and			
	compare			
	School/Depart			
r	ment for the			
	number of			
	students			
	enrolled			
	accordingly.			
	Faculty:			
	a) logs into the			
	system using			
	Faculty ID and			
	-			
<u> </u>	password			

	b) Inputs the ID of the section the faculty is taking to view the students enrolled.				
Student Performa nce Based on CGPA	Student: a) Logs into the System using Student-ID and password. b) Inputs the desired time period to view self CGPA Progress. Registrar's Office: a) Logs into the System using User-ID and password. b) Inputs the desired time period and School, Department or program to view Statistically and analyzed CGPA trend of students. Department Head: a) Logs into the System using User-ID and password. b) Inputs the desired time period and school,	Comput er/ Laptop a) User will need a comput er to access SPMS Printer a) Used to print out the report if need be. Networ king Devices (Router, Switch, Bridge, Hub): a) Used to access the Internet .	Operating Software a) The user uses it to execute SPMS SPMS a) A performance trend will be generated by the software.	SPMS Database a) Obtain performa nce using the database .	Internet a) To login into and access the SPMS it is used.

Department or program. c) View statistically analyzed CGPA trend of students or any
c) View statistically analyzed CGPA trend of
statistically analyzed CGPA trend of
analyzed CGPA trend of
analyzed CGPA trend of
trend of
individual
student.
student.
Faculty:
a) Logs into the
system using
Faculty-ID and
password.
b) Inputs the
desired time
period and
program to
view
statistically and
analyzed CGPA
trend of
students or any
individual
student those
who attended
the faculty's
Section.
Higher
Authority:
a) Logs into the
system using
their User-ID
and password.
b) Inputs the
desired time
period, School
and
Department
c) View
statistically
analyzed CGPA
trend of
students.
Course- Student: Comput SPMS Internet
wise a) Logs into the er/ a) A Database a) To login
student system using Laptop performance into and

performa	Student-ID and	a) User	trend based	a) Here,	access the
nce based	password.	will	on GPA will	the	SPMS it is
on CGPA	b) Inputs the	need a	be	performa	used.
	course	comput	generated	nce will	
	c) View self	er to	by the	be	
	GPA for the	access	software.	stored	
	course.	SPMS		and	
				updated.	
		Printer			
	Department	a) Used			
	Head:	to print			
	a) Logs into the	out the			
	System using	report if			
	User-ID and	need			
	password.	be.			
	b) Inputs the				
	desired time-	Networ			
	period Course-	king			
	ID	Devices			
	c) View	(Router,			
	statistically	Switch,			
	analyzed GPA	Bridge,			
	trend of	Hub):			
	Students.	a) Used			
		to			
		access			
	Registrar's	the			
	office:	Internet			
	a) Logs into the	•			
	System using				
	Admin-ID and				
	password.				
	b) Inputs the desired time				
	-period and				
	coursed				
	c) view				
	statistically				
	analyzed				
	GPA trend of				
	students.				
	Stadentsi				
	Faculty:				
	a) Logs into the				
	System				
	using				
	Faculty-ID				
	and				
	password.				
	b) Inputs the				
	,	 1	<u> </u>	I	<u> </u>

	1	1	Ī		1	1
	desired time					
	period					
	Course-ID					
	under the					
	faculty					
	c)view					
	statistically					
	analyzed					
	GPA trend of					
	students who					
	faculty's					
	section.					
	Higher					
	Authority:					
	a) Logs into					
	the system					
	using their					
	User-ID					
	and					
	password.					
	b) Inputs the					
	desired time-					
	period and					
	Course-ID					
	c)View					
	statistically					
	analyzed					
	GPA trend of					
	students for					
	that specific					
	course.					
Selective	Department		Comput	SPMS	SPMS	Internet
Number	Head:		er/	a) The	Database	a) To login
of	a) Logs into the		Laptop	software will	a) Here,	into and
Instructor	system using		a) User	produce a	the	access the
-wise	User-ID and		will	performance	performa	SPMS it is
				trend for a	-	
student	password.		need a		nce will	used.
performa	b) Inputs the		comput	specified	be	
nce based	desired time-		er to	instructor.	stored	
on the	period Course-		access		and	
GPA	ID		SPMS		updated.	
	c)View					
	statistically		Printer			
	analyzed GPA		a) Used			
	trend of		to print			
	students for a		out the			
	selective		report if			
	number of					

Instructors.	need		
instructors.			
	be.		
,			
Registrar's	Networ		
office:	king		
a) Logs into the	Devices		
system using	(Router,		
Admin-ID and	Switch,		
password.	Bridge,		
b) Inputs the	Hub):		
desired time-	a) Used		
period Course-	to		
ID	access		
c) View	the		
statistically	Internet		
analyzed GPA			
trend of			
students for a			
selective			
number of			
Instructors			
mstructors			
Faculty			
Faculty:			
a) Logs into the			
system using			
Faculty-ID and			
password.			
b) Inputs the			
desired time -			
period &			
Course-ID			
c)View			
statistically			
analyzed GPA			
trend of			
students for a			
selective			
number of			
Instructors.			
Higher			
Authority:			
a) Logs into			
the System			
using User-ID			
and			
password.			
passitora.			<u> </u>

	b) Inputs the desired time-period Course-ID c) View statistically analyzed GPA trend of students for a selective number of Instructors.				
VC-wise, dean-wise, or department head-wise student performance	Department Head: a) Logs into the system using User-ID and password. b) Select Input from VC/Dean/Depar tment Head c) View the student performance trend as per choice. Registrar's office: a) Logs into the system using User-ID and password. b) Select Input from VC/Dean/Depar tment Head c) View the student performance trend as per choice. Dean or VC a) Logs into	Comput er/ Laptop a) User will need a comput er to access SPMS Printer a) Used to print out the report if need be. Networ king Devices (Router, Switch, Bridge, Hub): a) Used to access the Internet .	SPMS a) The software will produce a performance trend	SPMS Database a) Here, the performa nce will be stored.	Internet a) To login into and access the SPMS it is used.

		I		Ī	
	the system				
	using User-ID				
	and password.				
	b) Select Input				
	from				
	VC/Dean/Depar				
	tment Head				
	c) View the				
	student				
	performance				
	•				
	trend as per				
	choice.				
Instructor	Department	Comput	SPMS	SPMS	Internet
-wise	Head:	er/	a) The	Database	a) To login
student	a) Logs into the	Laptop	software will	a) The	into and
performa	system using	a) User	produce a	performa	access the
nce based	Department-I	will	performance	nce	SPMS it is
on the	D and	need a	trend	will be	used.
GPA of	Password.	comput		stored	
the	b) Inputs a	er to		and	
students	particular	access		updated	
	instructor	SPMS		in the	
	Name/ID	011110		database	
	c)View the	Printer		database	
	student	a) Used		•	
	performance	to print			
	trend of	out the			
	selected				
		report if			
	Instructor.	need			
		be.			
	Registrar's	Networ			
	_				
	office:	king			
	a) Logs into the	Devices			
	system using	(Router,			
	User-ID and	Switch,			
	password.	Bridge,			
	b) Inputs a	Hub):			
	particular	a) Used			
	instructor	to			
	c) View the	access			
	student	the			
	performance	Internet			
	trend of				
	selected				
	Instructor.				
	Faculty:				
L		L	<u> </u>	L	<u>I</u>

	a) Logs into the system using User-ID and password. b) Input their Name/ID. c) View the student performance				
	Dean: a) Logs into the system using User-ID and				
	password. b) Inputs a particular instructor c)View the student performance trend of selected				
	VC a) Logs into the system using User-ID and				
	password. b) Inputs a particular instructor c) View the student performance trend of selected				
Total PLO percentag e achieved and	Student: a) Logs into the system using Student-ID and Password	Comput er/ Laptop a) User will	Operating system a) Used by the SPMS	SPMS Database a) Here, the performa	Internet a) To login into and access the SPM it is
attempte	b) Inputs the	need a	35	nce will	used.

d by the	time- period	comput	SPMS	be	
student	c)Views their	er to	a) A	stored.	
along	comparison	access	comparison		
with the	of attempted	SPMS	of the		
departme	vs achieved PLO		attempted		
ntal	percentage	Printer	vs. achieved		
average	along with	a) Used	PLO as well		
	the	to print	as the		
	departmental	out the	departmenta		
	Average.	report if	I average will		
		need	be produced		
	Department	be.	by the		
	Head:		software.		
	a) Logs into the				
	system	Networ			
	using User-ID	king			
	and	Devices			
	Password	(Router,			
	b) Inputs the	Switch,			
	time- period	Bridge,			
	c) Views the	Hub):			
	comparison of	a) Used			
	students	to			
	attempted	access			
	PLO vs	the			
	achieved	Internet			
	PLO	•			
	percentage				
	along with the				
	departmental				
	average.				
	average.				
	Registrar's				
	office:				
	a) Logs into the				
	system using				
	User-ID and				
	Password				
	b) Inputs the				
	time- period				
	c) Views the				
	comparison				
	of students				
	Attempted PLO				
	vs				
	Achieved PLO				
	percentage				
	along with the				
	departmental				

average.			
Faculty:			
a) Logs into the			
system using			
User-ID and			
Password.			
b) Inputs the			
time period.			
c) Views the			
comparison of			
students			
attempted PLO			
vs Achieved			
PLO			
percentage			
along with			
the			
departmental			
Average.			
Dean			
a) Logs into			
the system			
using User			
ID and			
Password			
b) Inputs the			
time period			
c) Views the			
comparison of			
students			
Attempted PLO			
vs			
achieved			
PLO percentage			
along with			
the			
departmental			
average.			
VC			
a) Logs into the			
system using			
User-ID and			
Password.			

	T		1	1	
	b) Inputs the				
	time- period.				
	c) Views the				
	comparison of				
	students				
	attempted PLO				
	vs Achieved				
	PLO				
	percentage				
	along with				
	the				
	departmental				
	average.				
PLO	Student:	Comput	SPMS	SPMS	Internet
achievem	a) Logs into the	er/	a) A PLO	Database	a) To login
ent	system using	Laptop	achievement	a) Here,	into and
CIIC	Student-ID	a) User	will be	the	access the
	And password.	will	generated	performa	SPM it is
	b) Selects PLO	need a	by the	nce will	used.
	*		-		useu.
	achievement	comput	software.	be	
	c) View PLO	er to		stored	
	Achievement.	access		and	
		SPMS		updated.	
	Department	Printer			
	Head:	a) Used			
	a) Logs into the	to print			
	System using	out the			
	user-ID and	report if			
	password.	need			
	b) Selects PLO	be.			
	achievement	De.			
	c) View PLO				
		Naturan			
	Achievement.	Networ			
	Registrar's	king			
	office:	Devices			
	a) Logs into the	(Router,			
	system using	Switch,			
	user-ID and	Bridge,			
	password.	Hub):			
	b) Selects PLO	a) Used			
	achievement.	to			
	c) View PLO	access			
	Achievement.	the			
		Internet			
	Faculty:	•			
	a) Logs into the				
	_				
	System using				
	Faculty-ID and				
	password.				

	b) Selects PLO Achievement. c) View PLO Achievement. Dean a) Logs into the System using user-ID and password. b) Selects PLO achievement. c) View PLO Achievement.				
	VC a) Logs into the system using user-ID and password. b) Selects PLO achievement. c) View PLO achievement				
Expected PLO-achievem ent versus actual score (for course's, student's, Departme nt's, program's or school's)	Student: a) Logs into the system using Student-ID and password. b) Selects PLO achievement comparison c) View PLO achievement Comparison. Department Head: a) Logs into the system using user-ID and password. b) Selects PLO	Comput er/ Laptop a) User will need a comput er to access SPMS Printer a) Used to print out the report if need be.	SPMS a) A) The software will calculate the expected vs. achieved PLO.	SPMS Database a) The performa nce will be stored and updated in the database .	Internet a) To login into and access the SPMS it is used.

	achievement	Networ			
	comparison	king			
	c) View PLO	Devices			
	achievement	(Router,			
	Comparison.	Switch,			
		Bridge,			
	_ , ,	Hub):			
	Registrar's	a) Used			
	office:	to			
	a) Logs into the	access			
	system using	the			
	user-ID and	Internet			
	password.	•			
	b) Selects PLO				
	achievement				
	comparison.				
	c) View PLO				
	achievement				
	comparison.				
	Faculty:				
	a) Logs into the				
	System using				
	Faculty-ID and				
	password.				
	b) Selects PLO achievement				
	comparison. c) view PLO				
	Achievement				
	comparison.				
	comparison.				
	Dean				
	a) Logs into the				
	system using				
	user-ID and				
	password.				
	b) Selects PLO				
	achievement				
	comparison.				
	c) View PLO				
	achievement				
	Comparison.				
	vc				
	a) Logs into the				
	system using				
	user-ID and				
<u> </u>	I	<u> </u>	<u> </u>	<u> </u>	

		1		T	T	<u> </u>
	password.					
	b) Selects PLO					
	achievement					
	comparison					
	c) View PLO					
	achievement					
	Comparison.					
CO-PLO	Student:		Comput	SPMS	SPMS	Internet
achievem	a) Logs into the		er/	a) The	Database	a) To login
ent	system using		Laptop	software will	a) The	into and
summary	Student-ID and		a) User	produce a	Summar	access the
	password.		will	summary of	У	SPMS it is
	b) Selects CO -		need a	CO-PLO	will be	used.
	PLO		comput	accomplishm	stored	
	achievement		er to	ents.	and	
	summary.		access		updated	
	c) View CO- PLO		SPMS		in the	
	achievement				database	
	summary.		Printer		•	
			a) Used			
			to print			
	Department		out the			
	Head:		report if			
	a) Logs into the		need			
	system		be.			
	using user-ID					
	and		Networ			
	password.		king			
	b) Selects		Devices			
	CO -PLO		(Router,			
	achievement		Switch,			
	summary.		Bridge,			
	c) View CO		Hub):			
	- PLO		a) Used			
	achievement		to			
	Summary.		access			
	'		the			
			Internet			
	Registrar's					
	office:					
	a) Logs into the					
	system					
	using user-ID					
	and					
	password.					
	b) Selects					
	CO -PLO					
	achievement					
	summary.					
	c) View CO					
	-PLO					
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achievement			
Summary.			
Faculty:			
a) Logs into the			
system			
using			
Faculty-ID and			
password.			
b) Selects CO			
-PLO			
achievement			
summary.			
c) View CO			
- PLO			
achievement			
Summary.			
Summary.			
Dean			
a) Logs into the			
system			
using user-ID			
and			
password.			
I -			
b) Selects			
CO -PLO			
achievement			
summary.			
c) View CO			
- PLO			
achievement			
Summary.			
VC			
a) Logs into the			
system using			
user-ID and			
password.			
I -			
b) Selects CO			
-PLO			
achievement			
summary.			
c) view CO			
- PLO			
achievement			
summary.	Ĺ		

EXISTING PROBLEMS & ANALYSIS OF THE PROBLEM

Process Name	Stakeholders	Concerns	Analysis (Reason	Proposed
		(Problems)	of the Problem)	Solution
Student Enrollment	 Student Department Head Registrar's Office 	Comparison of Student who have Enrolled in each Department with respect to a given	Student enrolled stat is recorded school-wise, department- wise, and	We want to keep the record in the count of students enrolled along
	4. Faculty 5. Admin	Time Period/Semester	program-wise but was not compared with respect to time period or semesters.	with a visual comparison of the student stats as per schoolwise, departmentwise, programwise and semester-wise.
Assessments and Grading	1. Faculty 2. Students	1) Condition of Question paper and Answer Script 2) Giving and Receiving Process 3) Unreliable Storage 4) Lack of Visibility of Learning and Question Difficulty	1) The question papers and answer script which are being stored physically can get damaged or may get lost. 2) The Process of completing the assessment and giving it to the teacher in person is slow. 3) There may be a shortage of physical space due to increase number of papers. 4) Need to find the domain of learning and difficulty of the question manually and that also takes a lot of time.	The question papers and answer scripts can be stored into the database so there is no problem of storage. Once a question is placed inside the question bank, the question bank, the question gets its difficulty level and domain of learning automatically assigned. Online submission of assessment saves time as it negates the necessity to submit a physical copy in person.
Course Outline	 Department Faculty Student 	1) Waiting Delay for receiving Necessary Resources 2) Creating a Course Outline	1) The faculty needs to send requests to department and wait for them to send back the necessary materials. 2) It requires a lot of time to create a course	A feature can be installed to generate the course outline automatically according to the things the faculty wants to add. It is stored in the database, and it can be

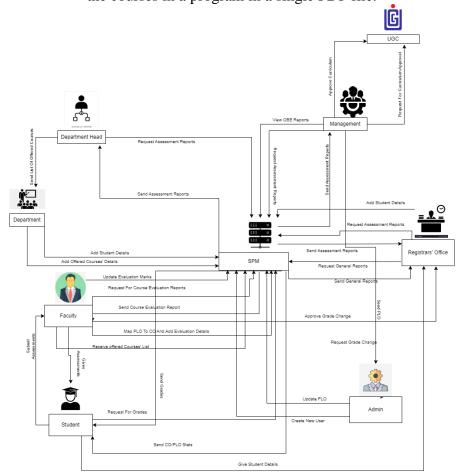
Student Performance based on CGPA	 Student Department Head Registrar's Office Faculty 	Comparison of Student CGPA between Schools, Departments, Programs and Courses	outline manually. The CGPA of students can only be observed individually but can be compared between different schools, departments, programs, and courses.	downloaded by the stakeholders in a pdf file. A system should be in place which will allow the stakeholders to analyze the CGPA not only individually but also based on different schools, departments, programs, and courses for a given time or semester.
CO-PLO Achievement	 Student Department Head Registrar's Office Faculty Admin 	1) PLO Achievement of a Student for each Courses 2) Comparison of PLO Achievement within a Department 3) PLO Achievement Rate and Score 4) Reports based on CO-PLO	1) Students are unable to monitor progress of their PLO achievement for respective courses as it is only available to higher authorities and is done manually 2) The PLO and corresponding CO of all courses a student does is never compared with cumulatively along with the departmental average performance. 3) PLO achieved versus attempted, and the actual score is done manually which can be extremely time consuming. 4) Reports based on PLO and CO may not be enough to give a clear picture.	A system should be implemented which will record the PLO' and COs in the database which will give easier access to the stakeholders. Comparisons regarding PLO achievements can then be made automatically which will save time. Charts can then be generated for better analysis.

PROPOSED BUSINESS SYSTEM (WITH RICH PICTURE)

The new system will allow the Faculty User to insert CO percentage of a student into the Database by manually or by importing a csv file. The user will be given a text box to type the question. After the Faculty User adds the question, the applications will create an option to view the question. In the question view interface, the user will be able to see the domain of learning along with its level.

The faculty user will also be able to assign marks to each of the questions separately, from which the percentage of CO's and POs achieved can be calculated. All the users will be able to see a spider chart of the CO's and POs achieved by the students.

OBE based course outline of a single course will be added by the faculty user and will be available to all users. User will be able to download course outline of a course in a program separately and the user will also be able to download all the course outline of all the courses in a program in a single PDF file.



PROPOSED PROCESSES ALONG WITH SIX SYSTEM ELEMENT ANALYSIS

The six elements analysis of the proposed system is a continuation of an analysis process where each analysis is based on the one that comes before it. Based on the rich picture, the role of each element in the new system is further understood in the table below.

Process	System Roles
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	Human	Non- Computing Hardware	Computing Hardware	Software	Database	Network and Communica tion
Student Registratio n	Student: a) Search for the website b) Goes to the website. c) Clicks on the form option. c) Fill up the form with required Informatio n. Admin: a) Admin logs into the system using SPMS User-ID and password. b) Receives the student enrollment informatio n in the attached files. c) Admin updates the student enrollment informatio n in the attached files. c) Admin updates the student enrollment informatio n in the attached files. c) Inputs the desired time period for	Paper and Stationery: a) Used to collect information about students through enrollment forms.	Computer/ Laptop a) SPMS admin will use Computers to access and update data. b) Users will use the computer to view the data. Database Server a) Used by SPMS Developers to collect data and maintain the software. Networking Devices (Router, Switch, Bridge, Hub): a) Used to access SPM S	Operating Software a) Utilized by Registrar Office and SPMS Student a) Uses to fill up the form from the website. SPMS a) The software for which the administrator will set up user accounts.	Register Office Database a) Used by the registrar's office to compile student data into an excel file for sending to SPMS. SPMS a) For any upgrades or new user accounts, information is kept in the database. Excel a) Data from student accounts may be kept in an excel file and used later in SPMS.	Internet a) To access and store data to SPMS it is used. b) It is used to collect the student form from the student to registrar office. c)The Registrar office sends all the student information to SPMS admin by using it.

	number of students enrolled.				
Student Performan ce Based on CGPA	Student: a) Logs into the System using Student-ID and password. b) Inputs the desired time - period to view self CGPA Progress. Admin: a) Logs into the System using User-ID and password. b) Inputs the desired time period and School, Departmen t or program to view. Statistically and analyzed. CGPA trend of students. Faculty: a) Logs into the system using Faculty-ID and password.	Computer/ Laptop a) User will need a computer to access SPMS Printer a) Used to print out the report if need be. Networking Devices (Router, Switch, Bridge, Hub): a) Used to access the Internet.	Operating Software a) The user uses it to execute SPMS 2.0 SPMS a) A performance trend will be generated by the software.	SPMS Database a) Obtain performance using the database.	Internet a) To login into and access the SPMS it is used.

	b) Inputs the desired time -period and program to view. statistically and analyzed CGPA trend of students or any individual's student those who attended. the faculty's Section.				
Course- wise student performan ce based on CGPA	Student: a) Logs into the system using Student-ID and password. b) Inputs the course c) View self GPA for the course. Admin: a) Logs into the System using User-ID and password. b) Inputs the desired time- period Course-ID c) View statistically analyzed GPA trend of	Computer/ Laptop a) User will need a computer to access SPMS Printer a) Used to print out the report if need be. Networking Devices (Router, Switch, Bridge, Hub): a) Used to access the Internet.	a) A performance trend based on GPA will be generated by the software.	SPMS Database a) Here, the performance will be stored and updated.	Internet a) To login into and access the SPMS it is used.

	Students.				
	Faculty: a) Logs into the System using Faculty-ID and password. b) Inputs the desired time - period Course-ID under the faculty c)view statistically analyzed. GPA trend of students who				
Selective Number of Instructor- wise student performan ce based on the GPA	faculty's section. Admin: a) Logs into the system using User-ID and password. b) Inputs the desired time-period Course-ID c)View statistically analyzed GPA trend of students for a selective number of Instructors.	Computer/ Laptop a) User will need a computer to access SPMS Printer a) Used to print out the report if need be. Networking Devices (Router, Switch, Bridge, Hub): a) Used to access the Internet.	SPMS a) a) The software will produce a performance trend for a specified instructor.	SPMS Database a) Here, the performance will be stored and updated.	Internet a) To login into and access the SPMS it is used.

	Faculty: a) Logs into the system using Faculty-ID and password. b) Inputs the desired time - period & Course-ID c)View statistically analyzed GPA trend of students for a selective number of Instructors. GPA trend of students for a selective number of Instructors.				
Admin wise student performan ce	Admin: a) Logs into the system using User-ID and password. b) Select Input from from VC/Dean/D epartment Head c) View the student performan ce trend as per	Computer/ Laptop a) User will need a computer to access SPMS Printer a) Used to print out the report if need be. Networking Devices (Router, Switch,	SPMS a) The software will produce a performance trend	SPMS Database a) Here, the performance will be stored.	Internet a) To login into and access the SPM it is used.

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	choice.	Bridge,			
		Hub):			
		a) Used to			
		access the			
		Internet.			
Instructor-	Admin:	Computer/	SPMS	SPMS	Internet
wise	a) Logs into	Laptop	a) The	Database	a) To login
student	the system	a) User will	software will	a) The	into and
performan	using	need a	produce a	performance	access the
ce based	Departmen	computer	performance	will be stored.	SPM it is
on the GPA	t-I	to access	trend	and updated.	used.
of the	D and	SPMS		in the	
students	Password.			database.	
	b) Inputs a	Printer			
	particular	a) Used to			
	instructor	print out			
	Name/ID	the report if			
	c)View the	need be.			
	student				
	performan	Networking			
	ce	Devices			
	trend of	(Router,			
	selected	Switch,			
	Instructor.	Bridge,			
		Hub):			
	Faculty:	a) Used to			
	a) Logs	access the			
	into the	Internet.			
	system				
	using User-				
	ID and				
	password.				
	b) Input				
	them				
	Name/ID.				
	c) View the				
	student				
	performan				
	ce				
	trend.	 			
Total PLO	Student:	 Computer/	Operating	SPMS	Internet
percentage	a) Logs into	Laptop	system	Database	a) To login
achieved	the system	a) User will	a) Used by	a) Here, the	into and
and	using	need a	the	performance	access the
attempted	Student-ID	computer	SPMS	will be stored.	SPM it is
by the	and	to access			used.
student	Password	SPMS	SPMS		
along with	b) Inputs		a) A		
the	the	Printer	comparison of		
			the		
percentage achieved and attempted by the	trend. Student: a) Logs into the system using Student-ID and	Laptop a) User will need a computer to access	system a) Used by the SPMS	Database a) Here, the performance	a) To login into and access the SPM it is

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departmen	time-	a) Used to	attempted vs.		
tal average	period	print out	achieved PLO		
	c)Views	the report if	as well as the		
	their	need be.	departmental		
	compariso		average will		
	n		be produced		
	of	Networking	by the		
	attempted.	Devices	software.		
	vs achieved	(Router,			
	PLO.	Switch,			
	percentage	Bridge,			
	along with	Hub):			
	the	a) Used to			
	departmen	access the			
	tal	Internet.			
	Average.				
	Admin:				
	a) Logs into				
	the system				
	using User-				
	ID and				
	Password				
	b) Inputs				
	the time-				
	period				
	c) Views				
	the				
	compariso				
	n of				
	students				
	attempted				
	PLO vs				
	achieved				
	PLO				
	percentage				
	along with				
	the				
	departmen				
	tal				
	average.				
	Faculty:				
	a) Logs into				
	the system				
	using User-				
	ID and				
	Password.				
	b) Inputs				
	the				
	UIC .				

	time				-
	time				
	period.				
	c) Views				
	the .				
	compariso				
	n of				
	students				
	attempted				
	PLO vs				
	achieved				
	PLO				
	percentage				
	along with				
	the				
	departmen				
	tal				
	Average.				
PLO	Student:	Computer/	SPMS	SPMS	Internet
achieveme	a) Logs into	Laptop	a) A PLO	Database	a) To login
nt	the system	a) User will	achievement	a) Here, the	into and
110	using	need a	will be	performance	access the
	Student-ID		generated by	will be stored	SPMS it is
		computer			
	and	to access	the software.	and updated.	used.
	password.	SPMS			
	b) Selects	5			
	PLO	Printer			
	achieveme	a) Used to			
	nt	print out			
	c) View	the report if			
	PLO	need be.			
	Achieveme				
	nt.				
		Networking			
	Admin:	Devices			
	a) Logs into	(Router,			
	the System	Switch,			
	using user-	Bridge,			
	ID	Hub):			
	and	a) Used to			
	password.	access the			
	b) Selects	Internet.			
	PLO				
	achieveme				
	nt				
	c) View				
	PLO				
	Achieveme				
	nt.				
	Faculty:				
	racuity.				

	0) 0 00 1:			<u> </u>	<u> </u>
	a) Logs into				
	the System				
	using				
	Faculty-ID				
	and				
	password.				
	b) Selects				
	PLO				
	Achieveme				
	nt.				
	c) View				
	PLO				
	Achieveme				
	nt.				
Expected	Student:	Computer/	SPMS	SPMS	Internet
PLO-	a) Logs into	Laptop	a) A) The	Database	a) To login
achieveme	the system	a) User will	software will	a) The	into and
nt versus	using	need a	calculate the	performance	access the
actual	Student-ID	computer	expected vs.	will be stored	SPMS it is
score (for	and	to access	achieved PLO.	and updated	used.
course's,	password.	SPMS	demeved i Lo.	in the	useu.
student's,	b) Selects	31 1013		database.	
	PLO	Printer		uatabase.	
Departmen					
t's,	achieveme	a) Used to			
program's	nt	print out			
or school's)	compariso	the report if			
	n . V V C :	need be.			
	c) View				
	PLO	Networking			
	achieveme	Devices			
	nt	(Router,			
	Compariso	Switch,			
	n.	Bridge,			
		Hub):			
	Admin:	a) Used to			
	a) Logs into	access the			
	the system	Internet.			
	using user-				
	ID				
	and				
	password.				
	b) Selects				
	PLO				
	achieveme				
	nt				
	compariso				
	n				
	c) View				
	PLO				
	achieveme				
	nt				
L	1			1	l .

CO-PLO achieveme nt summary	Compariso n. Faculty: a) Logs into the System using Faculty-ID and password. b) Selects PLO achieveme nt compariso n. c) view PLO Achieveme nt compariso n. Student: a) Logs into the system using	Computer/ Laptop a) User will need a	SPMS a) The software will produce a	SPMS Database a) The Summary	Internet a) To login into and access the
	Student-ID and password. b) Selects CO -PLO achieveme nt summary. c) View CO-PLO achieveme nt summary. Admin: a) Logs into the system using user-ID and password. b) Selects CO -PLO achieveme nt	computer to access SPMS Printer a) Used to print out the report if need be. Networking Devices (Router, Switch, Bridge, Hub): a) Used to access the Internet.	summary of CO-PLO accomplishme nts.	will be stored and updated in the database.	SPMS it is used.

summary. c) View CO - PLO achieveme nt Summary. Faculty: a) Logs into the system using Faculty-ID and password	c)
- PLO achieveme nt Summary. Faculty: a) Logs into the system using Faculty-ID and	1 -
achieveme nt Summary. Faculty: a) Logs into the system using Faculty-ID and	- 1
nt Summary. Faculty: a) Logs into the system using Faculty-ID and	
Faculty: a) Logs into the system using Faculty-ID and	
Faculty: a) Logs into the system using Faculty-ID and	
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a) Logs into the system using Faculty-ID and	
the system using Faculty-ID and	
using Faculty-ID and	
Faculty-ID and	
and	
password.	-
b) Selects	I -
CO	
-PLO	
achieveme	
nt	
summary.	
c) View CO - PLO	
achieveme	
nt	
Summary.	30
CO Student: Computer/ SPMS SPMS Internet	St.
percentage a) Logs into Laptop a) The Database a) To login	
based on the system a) User will software will a) The into and	
the using need a produce a Summary access the	
obtained Student-ID computer summary of will be stored SPMS it is	
grades for and to access CO and updated used.	
each password. SPMS percentage in the	
course b) Selects based on the database.	
summary CO Printer obtained	·
percentage a) Used to grades for	,
based on print out each course	1 -
the the report if accomplishme	
obtained need be. nts.	
grades for	
each Networking	_
course Devices	co
summary. (Router,	SI
c) View CO Switch,	
percentage Bridge,	р
based on Hub):	ba
the a) Used to	th
obtained access the	
grades for Internet.	
each	ea

course summary. Admin: a) Logs into the system using user- ID and password. b) Selects CO percentage based on the obtained grades for each course summary. c) View CO percentage based on the obtained grades for each course summary. c) View CO percentage based on the obtained grades for each course summary. Faculty: a) Logs into the system using Faculty-ID and password. b) Selects CO percentage based on the obtained grades for each course summary.	ı			
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c) View CO percentage based on the obtained grades for each course summary. Faculty: a) Logs into the system using Faculty-ID and password. b) Selects CO percentage based on the obtained grades for each course summary.				
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the obtained grades for each course summary. Faculty: a) Logs into the system using Faculty-ID and password. b) Selects CO percentage based on the obtained grades for each course summary.				
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grades for each course summary. Faculty: a) Logs into the system using Faculty-ID and password. b) Selects CO percentage based on the obtained grades for each course summary.				
each course summary. Faculty: a) Logs into the system using Faculty-ID and password. b) Selects CO percentage based on the obtained grades for each course summary.	obtained			
course summary. Faculty: a) Logs into the system using Faculty-ID and password. b) Selects CO percentage based on the obtained grades for each course summary.	grades for			
summary. Faculty: a) Logs into the system using Faculty-ID and password. b) Selects CO percentage based on the obtained grades for each course summary.	each			
summary. Faculty: a) Logs into the system using Faculty-ID and password. b) Selects CO percentage based on the obtained grades for each course summary.	course			
Faculty: a) Logs into the system using Faculty-ID and password. b) Selects CO percentage based on the obtained grades for each course summary.	summary.			
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a) Logs into the system using Faculty-ID and password. b) Selects CO percentage based on the obtained grades for each course summary.	Faculty:			
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Faculty-ID and password. b) Selects CO percentage based on the obtained grades for each course summary.				
and password. b) Selects CO percentage based on the obtained grades for each course summary.	•			
password. b) Selects CO percentage based on the obtained grades for each course summary.				
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obtained grades for each course summary.				
grades for each course summary.	the			
each course summary.	obtained			
each course summary.	grades for			
course summary.				
summary.				
percentage				
based on				
the				
obtained	obtained			

grades for			
each			
course			
summary.			
d) Insert			
СО			
percentage	<u> </u>		
for each			
student			

CH-3 LOGICAL SYSTEM DESIGN

BUSINESS RULES

Business rules describe the operations, definitions and constraints that govern the data model. As opposed to the ERD, they are made using regular English sentences so that a non-technical stakeholder can decipher information about the data model without notation knowledge.

The business rules that govern our data model are as follows:

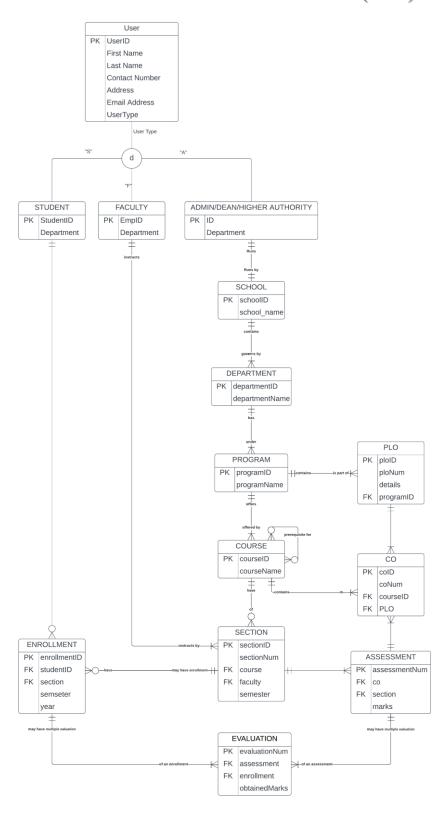
- 1. A student must have one department. A STUDENT has StudentID, FirstName, LastName, DateofBirth, Gender, Email, Phone, Address, EnrollmentDate. A department must have many students.
- 2. Student may perform many registrations. A REGISTRATION includes RegistrationID, Semester, Year, Section Id, StutendID. A registration must be performed by at least one student.
- 3. A section mandatorily have many registrations. A registration has at least one section. A section includes SectionID, SectionNum, CourseId, FacultyID, Semester, Year.
 - 4. A registration may belong to many EVALUATIONS. An evaluation mandatorily belongs to one registration. An evaluation contains EvaluationID, ObtainedMarks, AssessmentID,RegistrationID.
 - 5. An evaluation must have one question. A question must have many evaluations. Question contains QuestionID, AssessmentName, TotalMarks. An question will have one section. A section contains one or many question.
- 6. Question must map with one CO's. A CO maps with one or many question. A CO's includes COID, CourseID, PLOID. A CO must contain one Course. A Course contain one or many CO's. A course may have many prerequisites. A course must affiliate one mark distribution. A mark distribution may affiliate many courses. A Mark Distribution includes DistID, A, A-, B+, B, B-, C+, C, C-, D+, D, ThresoldMarks.

- 7. A CO's must map with one PLO's. A PLO's must map with one or many CO's. PLO includes PLOID, PLONum, Details, ProgramID.
- 8. 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.
- 9. A program must belong to one department. A department must belong to one or many programs. A department contain DepartmentID, DepartmentName, SchoolID.
 - 10. A department must contain one school. A School must contain one or many departments. A school includes SchoolID, SchoolName.
 - 11. An employee has two sub-type (Admin and Faculty). An employee includes EmployeeID, FirstName, LastName, DateofBirth, Gender, Email, Phone, Address,
- EmployeeType.An admin has EmployeeID,Rank,Join_Date, End_Date, Admin_Type.
 - 12. A school must be run by one admin (Admin Type-Dean). A dean must run one school. A school has SchoolID, StartDate, EndDate.
- 13. A Department must manage one or many admin (Admin Type- Department head). A department head must manage one department.
 - 14. A Faculty must have 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 one faculty.

15.One or many sections must have a course outline. A course outline contains CouseOutlneID, Section_Num, Course_Description, multiple course objectives which includes Domain_and_level and PLOs. It has multiple PLOs which includes PLO_number, PLO_description. It also contains Grade_Conversion_Scheme, Required_Textbook, Course_Policy, University_Regulation_And_Code_Of_Conduct and multiple values of Class_and_Schedule, Topics_and_Reading.

ENTITY RELATIONSHIP DIAGRAM (ERD)



ERD TO RELATIONS



NORMALIZATION

NORMALZATION

User_ID	u1	Program_ID	p1
First_Name	u2		
		Program_Name	p2

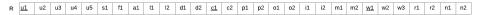
User	Last_Name	u3	Program		
	Contact_No	u4		Course_ID	c1
	Address	u5		course_ib	
	Student_ID	s1	_		
	Faculty_ID	f1		Plo_ID	01
	Admin_ID	a1	_		
	Student_ID	s1		Plo_ID	01
Student	Department_ID	d1		Plo_Num	02
	Faculty_ID	f1	PLO	Program_ID	p1
Faculty	Department	d1		Course ID	-1
	Section_ID	w1		Course_ID	c1
	Admin_ID	a1	_	Co_ID	i1
Admin				Co_Num	i2
Aumin			со	Couse_ID	c1
	School_ID	l1		Plo_ID	01
	Department_ID	d1		Assessment_Num	m1
	Program_ID	p1		_	
	Course_ID	c1		Course_ID	c1
	School_ID	l1	Assessment	Section_ID	w1
Calcard	301001_10	11		Marks	m2
School	School_Name	12		Evaluation	n1
	Department_ID	d1		Section_ID	w1
Department	Department_Name	d2	_	Section_Num	w2
·	Program	p1		Course_ID	c1
	Course_ID	c1	Section	Enrolment_ID	r1
Course	Course_Name	c2		Faculty_ID	f1
	CO_ID	i1		Semester	w3
	Enrollment_ID	r1		Evaluation_Num	n1

	Student_ID	s1		Assessment	m1
	Section_ID	w1			
Enrollment				Enrollment_ID	r1
	Semester	w3	Evaluation		
				Obtain_Marks	n2
	Year	r2			

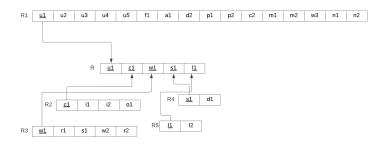
u1	u2,u3,u4,u5,s1,a1,f1	p1	p2,o1,c1
s1	d1	01	o2,p1,c1
f1	d1,w1	i1	i2,c1,o1
a1	l1,d1,p1,c1	m1	c1,m2,w1,n1
l1	12	w1	w2,c1,r1,f1,w3
d1	d2,p1	r1	s1,w1,w2,r2
c1	c2,i1	n1	r1,n2

Normalization

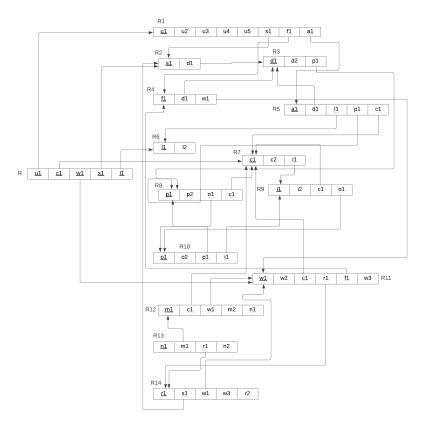
1NF:



2NF:



3NF:



BCNF

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

DATA DICTIONARY

School_T

Name	Data Type	Size	Remarks
cSchoolID	VARCHAR	10	This is the primary key of School. E.g.: "SETS"
cSchoolName	VARCHAR	255	This is the name of the school. E.g.: "School of Engineering, Technology & Science".

Program_T

Name	Data Type	Size	Remarks
cProgramID	VARCHAR	5	This is the primary key for a program. E.g.: "BSC1"
cProgramName	VARCHAR	255	This is the name of the program. E.g.: "Bachelor of Science"
cDepartmentID	VARCHAR	10	This is the foreign key from the Department table. E.g.: "CSE"

Department_T

Name	Data Type	Size	Remarks
cDepartmentID	VARCHAR	10	This is the primary key for the Department table. E.g.: "CSE"
cDepartmentName	VARCHAR	255	This is the name of the department. E.g.: "Computer Science and Engineering".
cSchoolID	VARCHAR	10	This is a foreign key from the school table. E.g.: "SETS".

CLO_T

Name Da	Data Type	Size	Remarks
---------	-----------	------	---------

nCLOID	INTEGER		This is the primary key for the CLO table. E.g.: "1".
cCLONum	TEXT		E.g.: "CLO1".
cPLOID	INT		This is the foreign key from the Program Learning Outcome table. E.g.: "PLO1"
cCourseID	VARCHAR	6	This is the Foreign Key from the Course_T. E.g.: "CSE203"

PLO_T

Name	Datatype	Size	Remarks
nPLOID	INTEGER		This is the primary key for Program Learning Outcome. E.g.: "1"
nPLONum	INTEGER		This is the PLO number. E.g.: "1"
cDetails	VARCHAR	255	This is the details for Program Learning Outcome. E.g.: "An ability to select and apply the knowledge, technique, skills and modern tools of the computer science and engineering discipline"
cProgramID	VARCHAR	5	This is the foreign key from the pPogram_T. E.g.: "BSC1"

Assessment_T

NAME	DataType	Size	Remarks
nAssessmentNo	INTEGER		This is the Primary
			Key of an assessments
			Eg:"124"
cMarks	NUMBER		This is the Marks of
			each assessments
			Eg:"65.6"
nCLOID	INTEGER		This is the Foreign
			Key From the
			CLO_T.
			E.g.: "1".
cSectionID	VARCHAR	255	This is the Foreign
			Key from Section_T.
			E.g.:
			"summer23csc10101"

Evaluation_T

Name	Datatype	Size	Remarks
nEvaluationID	INTEGER		This is the Primary Key for Evaluation Table.
cObtainedMarks	NUMBER		This is the obtained marks of the student. E.g.: "24.5"
nAssessmentNo	INTEGER		This is the Foreign Key from Assessment_T Eg:"124"
nEnrollmentID	INTEGER		This is the Foreign Key from Enrollment_T.

Student_T

Name	Data Type	Size	Remarks
nStudentID	INTEGER		This is the primary key for the student table. E.g.: "1921834".
cFirstName	VARCHAR	30	This is the first name of the student. E.g.: "Rakibul".
cLastName	VARCHAR	30	This is the last name of the student. E.g.: "Hasan".
dDateOfBirth	DATE	DD MM YYYY	This is the birth date of the student. E.g.: "21-12-1996".
cGender	VARCHAR	6	This is the gender of the student. E.g.: "Female".
cEmail	VARCHAR	30	This is the email of the student. E.g.: "1921834@iub.edu.bd"
nPhone	NUMERIC	11	This is the phone of the student. E.g.: "01XXXXXXXXX".
cAddress	VARCHAR	50	This is the address of the student. E.g.: "House 1, Road 4, Block D, Bashundhara RA".

dEnrollmentDate	DATE	DD MM YYYY	This is enrollment date of the student. E.g.: "1-1-2019"
cProgramID	INTEGER		This is the foreign key from the program table. E.g.: "1"
cDepartmentID	VARCHAR	3	This is the foreign key from the Department table. E.g.: "CSE"

Employee_T

Name	Datatype	Size	Remarks
nEmployeeID	INTEGER		This is the primary key for Employee table. E.g.: "1801"
cFirstName	VARCHAR	30	This is the first name of the faculty. E.g.: "Sadita"
cLastName	VARCHAR	30	This is the last name of the faculty. E.g.: "Ahmed"
dDateofbirth	DATE	DD-MM YYYY	This is the date of Birth of the faculty. E.g:01-01-1992
cGender	VARCHAR	6	This is the gender of the faculty. E.g.: "Female"
cEmail	VARCHAR	30	This is the email address of the student. E.g.: "1675231@iub.edu.bd"
nPhone	NUMERIC	11	This is the phone number of the faculty. E.g.: "01292383111"
cAddress	VARCHAR	30	This is the address of the faculty. E.g.: "House 14, Road 21, Sector 11, Baridara, Dhaka, Bangladesh"
cEmployeeType	CHAR	1	This is the type of the employee. E.g.: "F"

Course_T

Name	Datatype	Size	Remarks
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cCourseID	VARCHAR	6	This is the Primary Key for the Course. E.g.: "CSE203"
cCourseName	VARCHAR	255	This is the name of the Course. E.g.: "Discreet Mathematics"
nCreditNo	INTEGER		This is the number of credits for the Course. E.g.: "3"
cProgramID	VARCHAR	5	This is the Program nme related to the Course. E.g.: "BSC1"
cPrerequisiteCourse	VARCHAR	6	This is the Primary Key for the Course. E.g.: "CSE101"

Section_T

Name	Datatype	Size	Remarks
cSectionID	VARCHAR	255	This is the Primary Key for Section. E.g.: "summer23csc10101"
nSectionNum	INTEGER		This is the section number. E.g.: "1"
cCourseID	VARCHAR	6	This is the foreign key from the Course table. E.g.: "CSE101"
cSemester	VARCHAR	10	This is the semester of the section. E.g.: "Summer"
cFacultyID	NUMERIC	4	This is the foreign key from Faculty table. E.g.: "1801"
dYear	YEAR	уууу	This is the year of registration. E.g.: "2019"

Enrollment_T

Name Datatype Size Remarks	
----------------------------	--

nEnrollmentID	INTEGER		This is the Primary Key for Registration. E.g.: "0101010101"
cStudentID	NUMERIC	7	This is the foreign key from Student Table extended from User_T. E.g.: "1830398"
cSemester	VARCHAR	10	This is the semester of registration. E.g.: "Spring"
dYear	YEAR	уууу	This is the year of registration. E.g.: "2019"
nSectionID	VARCHAR	255	This is the Foreign Key from Section_T. E.g.: "summer23csc10101"

Faculty_T

Name	Datatype	Size	Remarks
nFacultyID	INTEGER		This is the primary key for the faculty table. E.g.: "4250"
dJoinDate	DATE	dd-mm yyyy	This is starting date. E.g.: "01-03-2020"
cRank	VARCHAR	30	This is the rank of the faculty. E.g.: "Assistant Professor"
cDepartmentID	VARCHAR	3	This is the foreign key from the Department table. E.g.: "CSE"

Admin_T

Name	Datatype	Size	Remarks
nAdminID	INTEGER		This is the primary key for the admin table. E.g.: "4250"
cAdminType	VARCHAR	30	This is the type of user logging in E.g.: "VC"
dJoinDate	DATE	dd-mm yyyy	This is starting date. E.g.: "01-03-2020"
cRank	VARCHAR	30	This is the rank of the admin. E.g.: "Assistant Professor"

dEndDate	DATE	dd-mm уууу	This is the date the admin retires from his post. E.g.: "01-03-2024"
cDepartmentID	VARCHAR	3	This is the foreign key from the Department table. E.g.: "CSE"
cSchoolID	VARCHAR	5	This is a foreign key from the school table. E.g.: "SETS".

CH-4 PHYSICAL SYSTEM DESIGN

INPUT FORMS



Figure: Sign in Form for all user

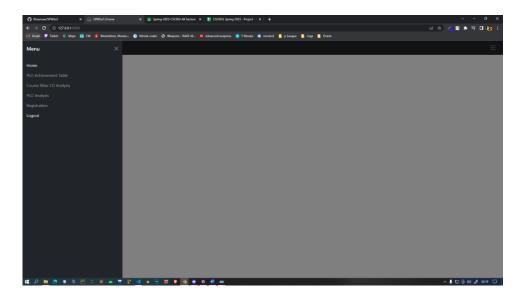
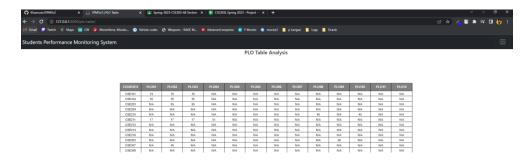
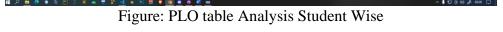


Figure: Student Dashboard and Navbar





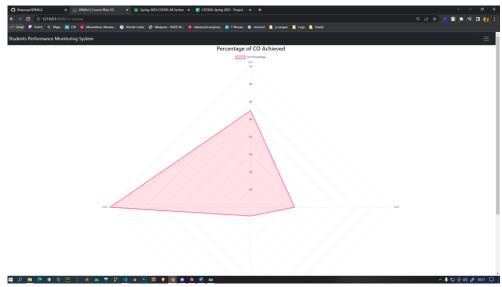


Figure: Achieved CO Analysis Student Wise

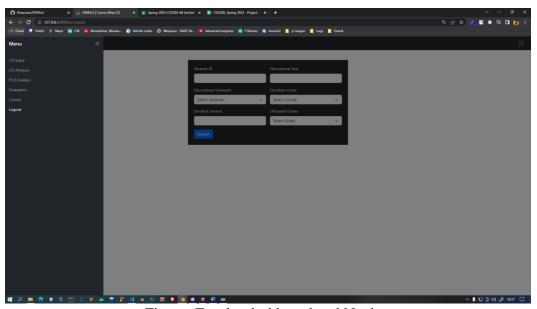


Figure: Faculty dashboard and Navbar

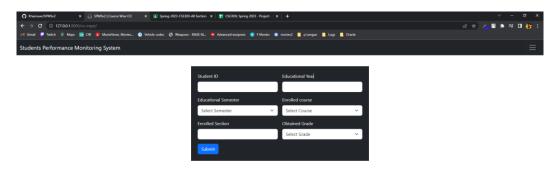


Figure: CO percentage insertion Form for Faculty User

CH-5 CONCLUSION

PROBLEM & SOLUTION

- 1. Our ability to utilize this program to its full potential has been hampered by the limited period of the semester. We intend to make enhancements with greater analysis when given more time, but we believe we have produced the best program we could give the time and resources available.
- 2. We might think that we could have produced far more trustworthy and accurate outcomes, representations, and predictions if given more tools and information to work with.

ADDITIONAL FEATURE & FUTURE DEVELOPMENT

Future Development scope:

- 1. The number of users will be increased to include advisers, who will receive pertinent data on the students they are advising for better and more advantageous interactions between students and advisors.
- 2. Project goals include adding a component that predicts a candidate's grade based on prior grades and performances.

CONCLUSION & RECOMMENDATIONS

We think the idea we had for our SPM software has been created, built, and implemented in the greatest way possible. With the appropriate application of this software, we intend to significantly raise the standard of education offered by institutions. This program can be used by students who want to become better and more capable scholars, by faculties to keep better track of their students and adjust their teaching strategies accordingly, and by institution members to more effectively manage their resources.