



*“Database Design for Comprehensive Student Profiling in Educational Institutions”*

Submitted to **Sir Nino Nacua**

In partial requirements for **Fundamentals of Database Systems**

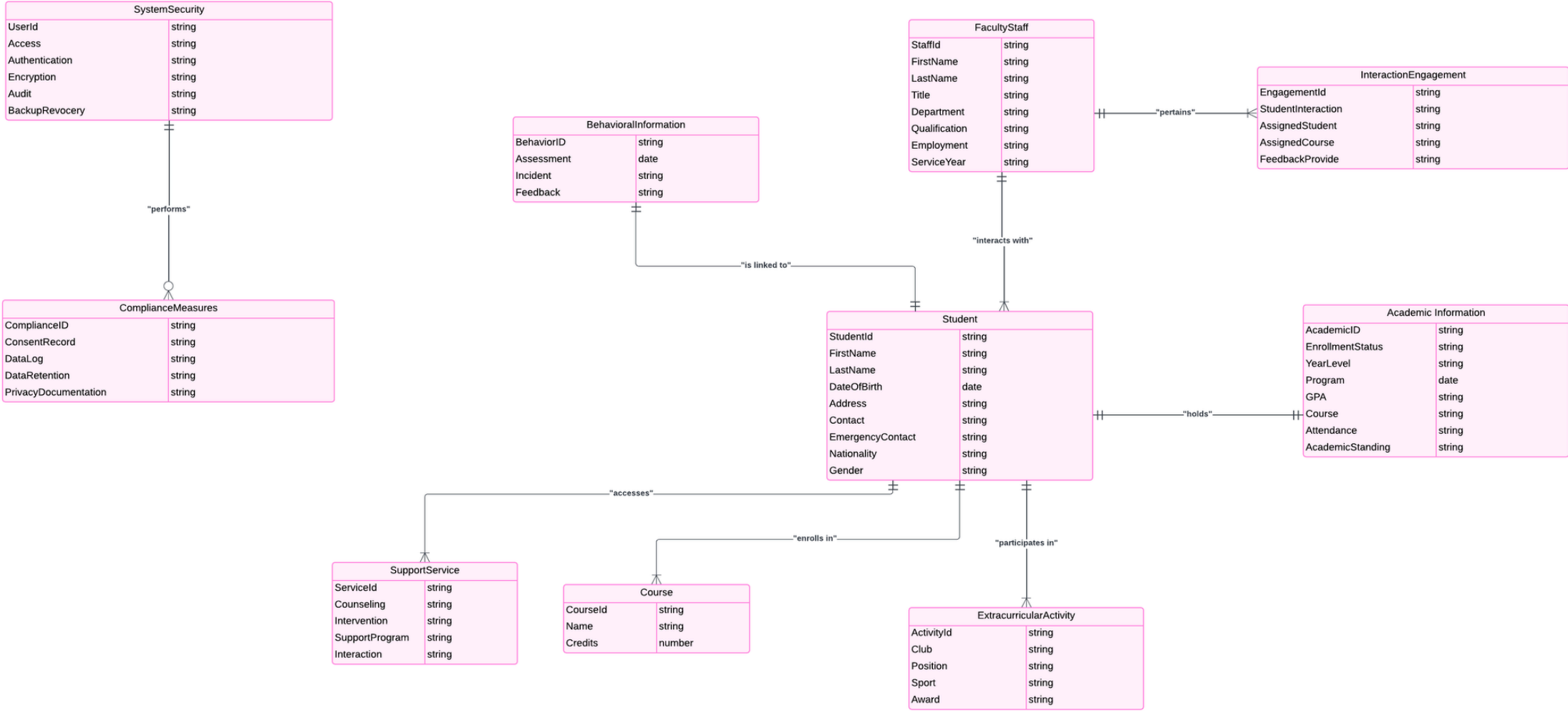
**Database Design**

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# Section I

## Conceptual Design



**The ERD models the student information system, detailing entities and relationships for managing students, faculty, courses, and related services.**

**Key Entities:**

- SystemSecurity: Manages security settings and compliance.
- ComplianceMeasures: Tracks privacy and data retention protocols.
- BehavioralInformation: Records student behavior incidents and feedback.
- FacultyStaff: Holds faculty details, qualifications, and departments.
- Student: Core entity with personal and contact information.
- InteractionEngagement: Logs interactions between faculty and students.
- AcademicInformation: Maintains academic performance and enrollment data.
- SupportService: Manages student counseling and support programs.
- Course: Stores information on courses and credits.
- ExtracurricularActivity: Tracks student involvement in clubs and sports.

**Relationships:**

- Security-Compliance: Links security actions with compliance.
- Student-Academic, Support, and Course: Connects students to their academic records, support services, and enrolled courses.
- Faculty-Student Interaction: Logs faculty interactions with students.
- Student-Extracurricular: Records student participation in activities.

Section II

Logical Design

Student Table											
StudentId	StudentFirstName	StudentLastName	DateOfBirth	Address	#	Contact	EmergencyContact	Nationality	Gender		
S001	Mariann	Mesa	2004-12-04	Carmen		123456789656	7547457457	USA	F		
S002	Franco	Galendez	2004-09-05	Kauswagan		64564	754754358	USA	M		
S003	Gwynette	Galleros	2004-10-03	Kauswagan		6465476	8578585	USA	F		
S004	Aldwyn	Betonio	2005-03-17	Iponan		4576758	85684648	PH	M		
S005	Cielo	Salas	2004-12-15	Lumbia		645765875	84684878	USA	F		
S006	Rafi	Panandigan	2003-03-18	Bulua		457568568	856969699679	USA	M		
S007	Mariel	Laplap	2005-05-04	Coralles Ext		75689796	967965856	USA	F		
S008	Kyle	Palongpalong	2004-5-27	Lapasan		7476476	957987078	USA	M		
S009	Kyle	Ochavillo	2005-02-25	CBTL		346346563	870780078	USA	M		
S010	Vonmar	Viscayno	2004-6-19	Iponan		6456456	655856854	USA	M		
S011	Jeff	Bonior	2004-11-04	Bulua		46546456	4754575474	USA	M		
S012	Michael	Jordan	1963-02-17	Lapasan		7457647	45757875869	PH	M		

Academic Table											
AcademicID	EnrollmentStatus	#	YearLevel	Program	#	GPA	Attendance	AcademicStanding			
A001	Active		2	Computer Science		1	100%	Good			
A002	Active		2	Computer Science		1	100%	Excellent			
A003	Active		2	Computer Science		1	100%	Excellent			
A004	Active		2	Computer Science		1	80%	Excellent			
A005	Active		2	Computer Science		1	100%	Excellent			
A006	Active		2	Computer Science		1	100%	Excellent			
A007	Active		2	Computer Science		1	100%	Excellent			
A008	Active		2	Computer Science		1	50%	Good			
A009	Active		2	Computer Science		1	10%	Poor			
A010	Active		2	Computer Science		1	100%	Excellent			
A011	Active		2	Computer Science		1	100%	Excellent			
A012	Active		2	Computer Science		1	100%	Excellent			

Course Table	
CourseId	CourseName
EnviSci	Environmental Science
PATHFIT-3	Physical Activity Towards Health and Fitness
Rizal	Life and Works of Rizal
CS211	Discrete Structures 1
CS212	Human Computer Interaction
CS213	Data Structures and Algorithms (Algo 1)
CS214	Fundamentals of Database Systems
CSMath 211	Statistics for Computer Science

Staff Table									
StaffId	StaffFirstName	StaffLastName	Title	Department	Qualification	Employment	#	ServiceYear	
ST001	Hearty	Maglanque-Nuenay	Dr.	Science	PhD	Full-time		15	
ST002	Junar	Landicho	Dr.	Chemistry	PhD	Part-time		5	
ST003	Albert	Einstein	Dr.	Science	PhD	Part-time		10	
ST004	Nikola	Tesla	Dr.	Chemistry	PhD	Full-time		9	
ST005	Nino	Nacua	Prof.	IT	BSIT	Part-time		6	
ST006	Peter	Griffin	Prof.	Education	BSME	Part-time		5	
ST007	Peter	Parker	Prof.	Education	BSEE	Full-time		7	
ST008	Walter	White	Prof.	Chemistry	PhD	Part-time		9	
ST009	Gustavo	Fring	Prof.	Entrepreneurship	BSA	Full-time		10	
ST010	Harvey	Specter	Atty.	Law	IBP	Part-time		7	
ST011	Mike	Ross	Mr.	Accounting	BSA	Part-time		3	
ST012	Jessica	Pearson	Atty.	Law	IBP	Part-time		2	

Student Course Relations...

Column 1

Column 2




StudentId	CourseId
S001	EnviSci
S001	PATHFIT-3
S001	Rizal
S001	CS211
S001	CS212
S001	CS213
S001	CS214
S001	CSMath 211
S002	EnviSci
S002	PATHFIT-3
S002	Rizal
S002	CS211
S002	CS212
S002	CS213
S002	CS214
S002	CSMath 211
S003	EnviSci
S003	PATHFIT-3
S003	Rizal
S003	CS211
S003	CS212

S003	CS213
S003	CS214
S003	CSMath 211
S004	EnviSci
S004	PATHFIT-3
S004	Rizal
S004	CS211
S004	CS212
S004	CS213
S004	CS214
S004	CSMath 211
S005	EnviSci

S005	PATHFIT-3
S005	Rizal
S005	CS211
S005	CS212
S005	CS213
S005	CS214
S005	CSMath 211
S006	EnviSci
S006	PATHFIT-3
S006	Rizal
S006	CS211
S006	CS212
S006	CS213
S006	CS214
S006	CSMath 211
S007	EnviSci
S007	PATHFIT-3
S007	Rizal
S007	CS211
S007	CS212
S007	CS213
S007	CS214
S007	CSMath 211
S008	EnviSci
S008	PATHFIT-3
S008	Rizal
S008	CS211
S008	CS212


S008	CS213
S008	CS214
S008	CSMath 211
S009	EnviSci
S009	PATHFIT-3
S009	Rizal
S009	CS211
S009	CS212
S009	CS213
S009	CS214
S009	CSMath 211
S010	CS211
S010	CS212
S010	CS213
S010	CS214

S010	CSMath 211
S011	EnviSci
S011	PATHFIT-3
S011	Rizal
S011	CS211
S011	CS212
S011	CS213
S011	CS214
S011	CSMath 211
S012	EnviSci
S012	PATHFIT-3
S012	Rizal
S012	CS211
S012	CS212
S012	CS213
S012	CS214
S012	CSMath 211

Student Incident Relation... ▾ 		Course Staff Assignment ... ▾ 		Activity Club Table ▾ 	
StudentId ▾	Incident ▾	CourseId ▾	StaffId ▾	ActivityId ▾	Club ▾
S001	Did not grow	CSMath 211	ST001	ACT01	Chess
S002	Afraid to make first move	CS211	ST002	ACT01	Journalism
S003	Always chilling	Rizal	ST003	ACT02	Fortune500
S004	Always anxious	CS214	ST004	ACT02	World's Handsome Men
S005	Body fatigue from dancing	EnviSci	ST005	ACT02	Pagahiy mu confess
S006	Always having a "Blast"	Rizal	ST006	ACT03	Music
S007	Always waiting	CS212	ST007	ACT04	Pagahiy mu confess
S008	Wanting to have more problems	CS213	ST008	ACT05	Dance Club
S009	Too much caffeine	CS213	ST009	ACT06	Pagahiy mu confess
S010	Crying anywhere anytime	CS214	ST010	ACT06	Demolay
S011	Always watching Ratatouille	Rizal	ST011	ACT07	Alley Aces Esports
S012	Lapasan lover	EnviSci	ST012	ACT08	Alley Aces Esports
				ACT09	Coffee Lovers
				ACT10	Valorant
				ACT10	Jea's
				ACT11	Pagahiy mu confess
				ACT12	Basketball
				ACT12	Baseball



Service Counseling Table					
ServiceId		Counseling		Intervention	Interaction
SV001	Yes		No		Annually
SV002	Yes		Yes		Weekly
SV003	Yes		Yes		Weekly
SV004	Yes		No		Everyday
SV005	Yes		No		Everyday
SV006	Yes		Yes		Everyday
SV007	Yes		Yes		Everyday
SV008	Yes		Yes		Everyday
SV009	Yes		Yes		Everyday
SV010	Yes		No		Everyday
SV011	Yes		No		Everyday
SV012	Yes		No		Weekly

Behavior Table 				
BehaviorID	Assessment		Incident	BehaviorFeedback
B001	2023-10-15	Did not grow		Positive
B002	2023-11-10	Afraid to make first move		Neutral
B003	2023-11-16	Always chilling		Negative
B004	2023-10-15	Always anxious		Positive
B005	2023-8-16	Body fatigue from dancing		Negative
B006	2023-9-19	Always having a "Blast"		Neutral
B007	2023-1-1	Always waiting		Neutral
B008	2023-4-19	Wanting to have more problems		Positive
B009	2023-6-7	Too much caffeine		Positive
B010	2023-2-9	Crying anywhere anytime		Neutral
B011	2023-6-29	Always watching Ratatouille		Neutral
B012	2023-5-30	Lapasan lover		Neutral

Compliance Table					
ComplianceID		ConsentRecord	DataLog	DataRetention	PrivacyDocumentation
C001	Yes	Logged	5 years	Documented	
C002	No	Not Logged	3 years	Restricted	
C003	No	Logged	5 years	Documented	
C004	Yes	Not Logged	10 years	Documented	
C005	No	Logged	2 years	Documented	
C006	Yes	Logged	6 years	Restricted	
C007	No	Not Logged	8 years	Restricted	
C008	Yes	Not Logged	10 years	Restricted	
C009	No	Logged	20 years	Documented	
C010	Yes	Not Logged	50 years	Restricted	
C011	No	Logged	89 years	Documented	
C012	Yes	Logged	25 B.C	Restricted	

System Table						
SystemUserId	Access	Authentication	Encryption	Audit	BackupRecovery	
UID001	Full	Password	AES	Enabled	Cloud	
UID002	Limited	Biometric	RSA	Disabled	Local	
UID003	Full	PIN	AES	Enabled	Local	
UID004	Limited	PIN	RSA	Disabled	Cloud	
UID005	Limited	Biometric	RSA	Disabled	Local	
UID006	Full	Password	AES	Disabled	Local	
UID007	Full	Password	AES	Enabled	Cloud	
UID008	Limited	Biometric	AES	Disabled	Cloud	
UID009	Full	Biometric	RSA	Disabled	Cloud	
UID010	Limited	Biometric	RSA	Enabled	Local	
UID011	Limited	PIN	RSA	Enabled	Cloud	
UID012	Limited	Password	RSA	Enabled	Local	

Engagement Table					
EngagementId	StudentInteraction	AssignedStudent	AssignedCourse	FeedbackProvide	
ENG001	Meeting	Kyle Ochavillo	CSMath 211	Positive	
ENG002	Tutoring	Cielo Salas	CS211	Positive	
ENG003	Tutoring	Michael Jordan	Rizal	Neutral	
ENG004	Tutoring	Aldwyn Betonio	CS211	Negative	
ENG005	Tutoring	Gwynette Galleros	CS214	Positive	
ENG006	Tutoring	Franco Galendez	Rizal	Positive	
ENG007	Tutoring	Mariel Laplap	CS212	Needs Improvement	
ENG008	Meeting	Jeff Bonior	CS213	Needs Improvement	
ENG009	Meeting	Mariann Mesa	CS213	Needs Improvement	
ENG010	Tutoring	Kyle Palongpalong	CS214	Needs Improvement	
ENG011	Meeting	Vonmar Viscayno	Rizal	Needs Improvement	
ENG012	Tutoring	Rafi Panandigan	EnviSci	Goods	

Student GPA Relationship ...	
StudentId	GPA
S001	1
S002	1
S003	1
S004	1
S005	1
S006	1
S007	1
S008	1
S009	1
S010	1
S011	1
S012	1

Student Award Relationship	
StudentId	Award
S001	MVP
S001	Dean's List
S002	Best
S003	2nd Runner Up
S003	Dean's List
S004	Champion
S004	MVP
S005	Dean's List
S006	World's no.1
S007	Dean's List
S008	-
S009	-
S010	MVP
S011	-
S012	MVP

System Consent Relations...	
SystemUserId	ConsentRecord
UID001	Yes
UID002	No
UID003	No
UID004	Yes
UID005	No
UID006	Yes
UID007	No
UID008	Yes
UID009	No
UID010	Yes
UID011	No
UID012	Yes

### Section III

#### Physical Design

```
MariaDB [StudentManagementSystem]> show tables;
+-----+
| Tables_in_studentmanagementsystem |
+-----+
| academicinformation                |
| behavioralinformation               |
| compliancemeasures                 |
| course                             |
| extracurricularactivity             |
| facultycourse                      |
| facultystaff                       |
| facultystudentinteraction          |
| interactionengagement               |
| student                            |
| studentcourse                      |
| studentextracurricular              |
| supportservice                     |
| systemsecurity                     |
+-----+
14 rows in set (0.001 sec)
```

```
MariaDB [StudentManagementSystem]> describe facultystudentinteraction;
+-----+-----+-----+-----+-----+-----+
| Field      | Type      | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| StaffId    | varchar(10) | NO   | PRI | NULL    |       |
| StudentId  | varchar(10) | NO   | PRI | NULL    |       |
| InteractionId | varchar(10) | NO   | PRI | NULL    |       |
+-----+-----+-----+-----+-----+-----+
```

```
MariaDB [StudentManagementSystem]> describe academicinformation;
```

Field	Type	Null	Key	Default	Extra
AcademicID	varchar(10)	NO	PRI	NULL	
StudentId	varchar(10)	NO	PRI	NULL	
EnrollmentStatus	varchar(20)	YES		NULL	
YearLevel	varchar(20)	YES		NULL	
Program	varchar(50)	YES		NULL	
GPA	decimal(3,2)	YES		NULL	
Attendance	varchar(10)	YES		NULL	
AcademicStanding	varchar(20)	YES		NULL	

8 rows in set (0.012 sec)

```
MariaDB [StudentManagementSystem]> describe behavioralinformation;
```

Field	Type	Null	Key	Default	Extra
BehaviorID	varchar(10)	NO	PRI	NULL	
StudentId	varchar(10)	NO	PRI	NULL	
Assessment	date	YES		NULL	
Incident	varchar(100)	YES		NULL	
Feedback	varchar(100)	YES		NULL	

5 rows in set (0.011 sec)

```
MariaDB [StudentManagementSystem]> describe compliancemeasures;
```

Field	Type	Null	Key	Default	Extra
ComplianceID	varchar(10)	NO	PRI	NULL	
StudentId	varchar(10)	NO	PRI	NULL	
ConsentRecord	varchar(3)	YES		NULL	
DataLog	varchar(20)	YES		NULL	
DataRetention	varchar(20)	YES		NULL	
PrivacyDocumentation	varchar(100)	YES		NULL	

6 rows in set (0.298 sec)

```
MariaDB [StudentManagementSystem]> describe extracurricularactivity;
```

Field	Type	Null	Key	Default	Extra
ActivityId	varchar(10)	NO	PRI	NULL	
Club	varchar(50)	YES		NULL	
Position	varchar(50)	YES		NULL	
Sport	varchar(50)	YES		NULL	
Award	varchar(50)	YES		NULL	

5 rows in set (0.011 sec)

```
MariaDB [StudentManagementSystem]> describe facultycourse;
```

Field	Type	Null	Key	Default	Extra
StaffId	varchar(10)	NO	PRI	NULL	
CourseId	varchar(10)	NO	PRI	NULL	

2 rows in set (0.014 sec)

```
MariaDB [StudentManagementSystem]> describe facultystaff;
```

Field	Type	Null	Key	Default	Extra
StaffId	varchar(10)	NO	PRI	NULL	
FirstName	varchar(50)	YES		NULL	
LastName	varchar(50)	YES		NULL	
Title	varchar(50)	YES		NULL	
Department	varchar(50)	YES		NULL	
Qualification	varchar(50)	YES		NULL	
Employment	varchar(20)	YES		NULL	
ServiceYear	int(11)	YES		NULL	

8 rows in set (0.013 sec)



```
MariaDB [StudentManagementSystem]> describe student;
```

Field	Type	Null	Key	Default	Extra
StudentId	varchar(10)	NO	PRI	NULL	
FirstName	varchar(50)	YES		NULL	
LastName	varchar(50)	YES		NULL	
DateOfBirth	date	YES		NULL	
Address	varchar(100)	YES		NULL	
Contact	varchar(20)	YES		NULL	
EmergencyContact	varchar(20)	YES		NULL	
Nationality	varchar(50)	YES		NULL	
Gender	char(1)	YES		NULL	

```
9 rows in set (0.011 sec)
```

```
MariaDB [StudentManagementSystem]> describe studentcourse;
```

Field	Type	Null	Key	Default	Extra
StudentId	varchar(10)	NO	PRI	NULL	
CourseId	varchar(10)	NO	PRI	NULL	

```
2 rows in set (0.012 sec)
```