

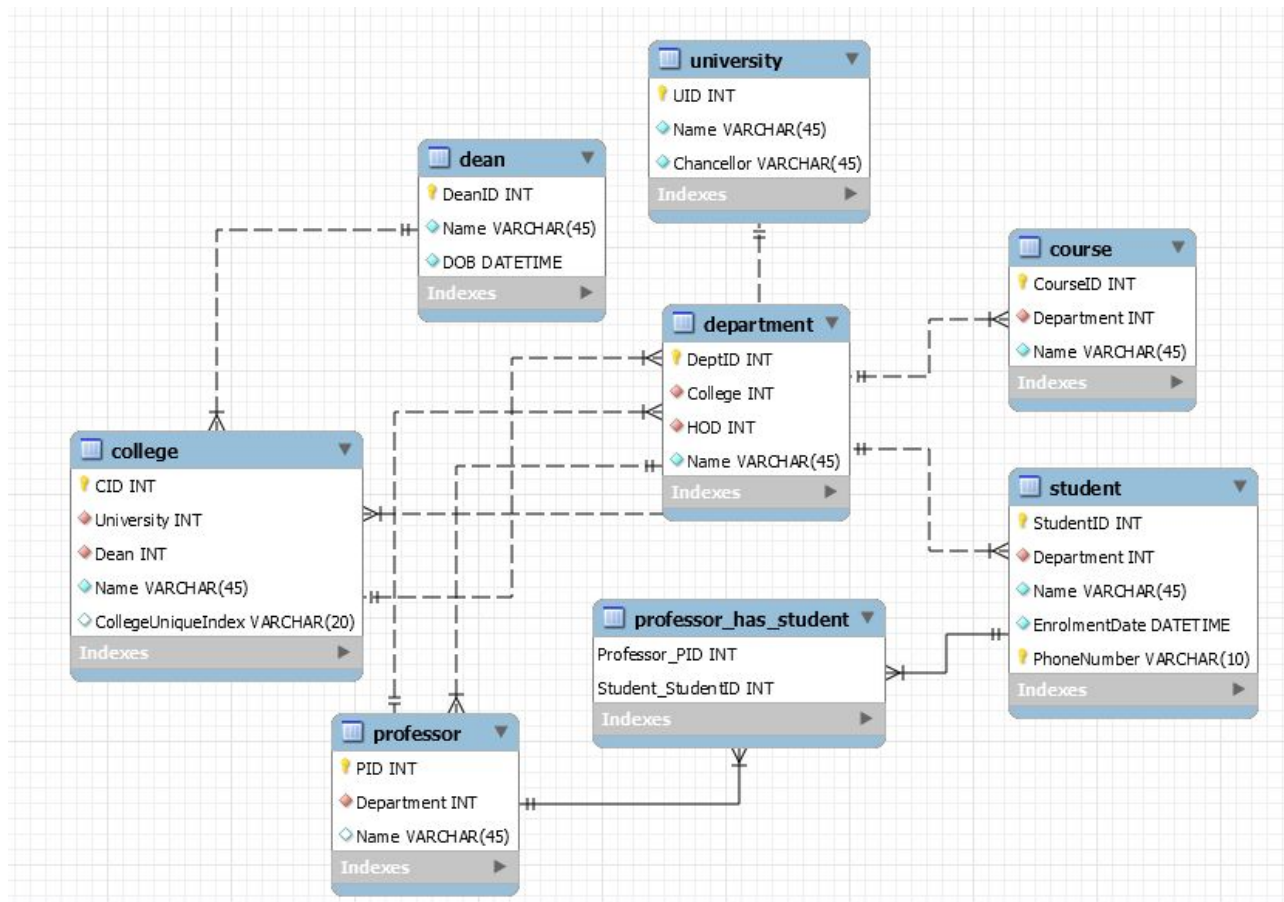
DBMS Assignment - 2

1. Showcased a many-to-many relation between Professor and Student with Professor_has_Student.

2. Composite key :~

In Professor_has_Student entity : Primary key(Professor_PID, Student_StudentID)

Weak Entity :~ Professor_has_Student



Updated EER diagram of University Database

3. Inserting data into tables :~

The screenshot shows the MySQL Workbench interface with a query window titled 'Query 1' containing the following SQL code:

```
1 use universitydb;
2
3 INSERT INTO University values(421, 'Karnataka University', 'Prof. Harish Chand');
4 INSERT INTO University values(847, 'UGC', 'Prof. Nicholas Tesla');
5 INSERT INTO Dean values(47, 'Prof. Albert Einstein', '1973-06-18');
6 INSERT INTO College values(1002, 847, 47, 'IIIT Dharwad');
```

The Output tab shows the execution results:

#	Time	Action	Message	Duration / Fetch
78	19:16:47	select * from university LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec
79	19:19:31	INSERT INTO University values(847, 'UGC', 'Prof. Nicholas Tesla')	1 row(s) affected	0.218 sec
80	19:21:09	INSERT INTO Dean values(47, 'Prof. Albert Einstein', '1973-06-18')	Error Code: 1292. Incorrect datetime value: '19730618 10:34:09 AM' for column 'DOB' at row 1	0.000 sec
81	19:24:38	INSERT INTO Dean values(47, 'Prof. Albert Einstein', '1973-06-18')	1 row(s) affected	0.078 sec
82	19:25:02	select * from dean LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec
83	19:25:32	INSERT INTO College values(1002, 847, 47, 'IIIT Dharwad')	1 row(s) affected	0.156 sec

a. Violation of Primary Key constraint :~

The screenshot shows the MySQL Workbench interface with a query window titled 'Query 1' containing the following SQL code:

```
8 INSERT INTO Dean values(47, 'Prof. Newton', '1947-07-28');
```

The Output tab shows the execution results, including an error for the final insert statement:

#	Time	Action	Message	Duration / Fetch
79	19:19:31	INSERT INTO University values(847, 'UGC', 'Prof. Nicholas Tesla')	1 row(s) affected	0.218 sec
80	19:21:09	INSERT INTO Dean values(47, 'Prof. Albert Einstein', '1973-06-18')	Error Code: 1292. Incorrect datetime value: '19730618 10:34:09 AM' for column 'DOB' at row 1	0.000 sec
81	19:24:38	INSERT INTO Dean values(47, 'Prof. Albert Einstein', '1973-06-18')	1 row(s) affected	0.078 sec
82	19:25:02	select * from dean LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec
83	19:25:32	INSERT INTO College values(1002, 847, 47, 'IIIT Dharwad')	1 row(s) affected	0.156 sec
84	19:29:51	INSERT INTO Dean values(47, 'Prof. Newton', '1947-07-28')	Error Code: 1062. Duplicate entry '47' for key 'dean PRIMARY'	0.000 sec

b. Violation of Unique Key constraint :~

The screenshot shows the MySQL Workbench interface. The left sidebar contains the 'MANAGEMENT' section with options like Server Status, Client Connections, Users and Privileges, Status and System Variables, Data Export, and Data Import/Restore. The 'INSTANCE' section includes Startup / Shutdown, Server Logs, and Options File. The 'PERFORMANCE' section includes Dashboard, Performance Reports, and Performance Schema Setup. The 'Information' section is also visible.

The main query editor shows the following SQL query:

```
INSERT INTO College values(1019, 421, 58, 'IIIT Dharwad');
```

The output window displays the results of the query. The table has columns: #, Time, Action, Message, and Duration / Fetch. The output shows that the query failed due to a duplicate entry for the key 'college.Name'.

#	Time	Action	Message	Duration / Fetch
129	21:51:31	INSERT INTO University values(847, 'UGC', 'Prof. Nicholas Tesla')	1 row(s) affected	0.125 sec
130	21:51:31	INSERT INTO Dean values(47, 'Prof. Albert Einstein', '1973-06-18')	1 row(s) affected	0.406 sec
131	21:51:31	INSERT INTO Dean values(58, 'Prof. Tarak Mehta', '1962-02-18')	1 row(s) affected	0.140 sec
132	21:51:31	INSERT INTO College values(1002, 847, 47, 'IIIT Dharwad')	1 row(s) affected	0.469 sec
133	21:51:39	select * from college LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec
134	21:51:53	INSERT INTO College values(1019, 421, 58, 'IIIT Dharwad')	Error Code: 1062. Duplicate entry 'IIIT Dharwad' for key 'college.Name'	0.187 sec

Query interrupted

c. Violation of Not Null constraint :~

The screenshot shows the MySQL Workbench interface. The left sidebar contains the 'MANAGEMENT' section with options like Server Status, Client Connections, Users and Privileges, Status and System Variables, Data Export, and Data Import/Restore. The 'INSTANCE' section includes Startup / Shutdown, Server Logs, and Options File. The 'PERFORMANCE' section includes Dashboard, Performance Reports, and Performance Schema Setup. The 'Information' section is also visible.

The main query editor shows the following SQL query:

```
INSERT INTO College values(1019, 421, 58, null);
```

The output window displays the results of the query. The table has columns: #, Time, Action, Message, and Duration / Fetch. The output shows that the query failed due to a violation of the not null constraint for the column 'Name'.

#	Time	Action	Message	Duration / Fetch
130	21:51:31	INSERT INTO Dean values(47, 'Prof. Albert Einstein', '1973-06-18')	1 row(s) affected	0.406 sec
131	21:51:31	INSERT INTO Dean values(58, 'Prof. Tarak Mehta', '1962-02-18')	1 row(s) affected	0.140 sec
132	21:51:31	INSERT INTO College values(1002, 847, 47, 'IIIT Dharwad')	1 row(s) affected	0.469 sec
133	21:51:39	select * from college LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec
134	21:51:53	INSERT INTO College values(1019, 421, 58, 'IIIT Dharwad')	Error Code: 1062. Duplicate entry 'IIIT Dharwad' for key 'college.Name'	0.187 sec
135	09:21:12	INSERT INTO College values(1019, 421, 58, null)	Error Code: 1048. Column 'Name' cannot be null	0.000 sec

Query interrupted

d. Violation of Default key constraint :~

MySQL Workbench interface showing a query execution error. The query is:

```
-- Inserting values into College table without the Name attribute, which doesn't have any default value
INSERT INTO College(CID, University, Dean) values(1019, 421, 58);
```

The output table shows the following rows:

#	Time	Action	Message	Duration / Fetch
132	21:51:31	INSERT INTO College values(1002, 847, 47, 'IIIT Dharwad')	1 row(s) affected	0.469 sec
133	21:51:39	select * from college LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec
134	21:51:53	INSERT INTO College values(1019, 421, 58, 'IIIT Dharwad')	Error Code: 1062. Duplicate entry 'IIIT Dharwad' for key 'college.Name'	0.187 sec
135	09:21:12	INSERT INTO College values(1019, 421, 58, null)	Error Code: 1048. Column 'Name' cannot be null	0.000 sec
136	09:25:15	select * from college LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec
137	09:26:53	INSERT INTO College(CID, University, Dean) values(1019, 421, 58)	Error Code: 1364. Field 'Name' doesn't have a default value	0.297 sec

Query interrupted

4. Derived attribute 'CollegeUniqueIndex' added to the table 'College' :~

MySQL Workbench interface showing a query execution result. The query is:

```
-- Created Derived attribute CollegeUniqueIndex from UniversityID and CID
ALTER TABLE College ADD CollegeUniqueIndex VARCHAR(20) AS (CONCAT(University, CID));
SELECT * FROM College
```

The output table shows the following rows:

CID	University	Dean	Name	CollegeUniqueIndex
1002	847	47	IIIT Dharwad	8471002
NULL	NULL	NULL	NULL	NULL

College 13 x

Output

#	Time	Action	Message	Duration / Fetch
138	09:49:44	ALTER TABLE Dean ADD Age INT AS (YEAR(CURRENT_TIMESTAMP) - YEAR(DOB))	Error Code: 3763. Expression of generated column 'Age' contains a disallowed function: now.	0.110 sec
139	09:50:43	ALTER TABLE Dean ADD Age INT AS (YEAR(GETDATE()) - YEAR(DOB))	Error Code: 3763. Expression of generated column 'Age' contains a disallowed function: 'GE...	1.015 sec
140	10:43:27	ALTER TABLE Dean ADD Designation VARCHAR(20) AS SUBSTRING(fullname, 1, CHARIN...	Error Code: 1064. You have an error in your SQL syntax; check the manual that corresponds ...	0.000 sec
141	10:58:10	ALTER TABLE Dean ADD Designation VARCHAR(20) AS (SUBSTRING(Name, 1, CHARIN...	Error Code: 3763. Expression of generated column 'Designation' contains a disallowed functi...	0.000 sec
142	11:40:57	ALTER TABLE College ADD CollegeUniqueIndex VARCHAR(20) AS (CONCAT(University, C...	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	2.656 sec
143	11:43:11	SELECT * FROM College LIMIT 0, 1000	1 row(s) returned	0.016 sec / 0.000 sec

Query Completed

5. Inserting into dependent table 'Course' first, having foreign key constraint 'Department' :~

The screenshot shows the MySQL Workbench interface. The left sidebar contains the 'MANAGEMENT' section with options like Server Status, Client Connections, Users and Privileges, Status and System Variables, Data Export, and Data Import/Restore. The 'INSTANCE' section includes Startup / Shutdown, Server Logs, and Options File. The 'PERFORMANCE' section includes Dashboard, Performance Reports, Performance Schema Setup, Administration, and Schemas. The 'Information' section shows 'No object selected'.

The main window displays a SQL query in the 'Query 1' tab:

```
-- Inserting into dependent table 'Course' first having foreign key constraint 'Department'
INSERT INTO Course VALUES(310, 4112, 'DBMS');
```

The 'Output' pane at the bottom shows the execution results. The table below summarizes the actions and their outcomes:

#	Time	Action	Message	Duration / Fetch
139	09:50:43	ALTER TABLE Dean ADD Age INT AS (YEAR(GETDATE())) - YEAR(DOB))	Error Code: 3763. Expression of generated column 'Age' contains a disallowed function: 'GE...	1.015 sec
140	10:43:27	ALTER TABLE Dean ADD Designation VARCHAR(20) AS SUBSTRING(fullname, 1, CHARL...	Error Code: 1064. You have an error in your SQL syntax; check the manual that corresponds ...	0.000 sec
141	10:58:10	ALTER TABLE Dean ADD Designation VARCHAR(20) AS (SUBSTRING(Name, 1, CHARIN...	Error Code: 3763. Expression of generated column 'Designation' contains a disallowed functi...	0.000 sec
142	11:40:57	ALTER TABLE College ADD CollegeUniqueIndex VARCHAR(20) AS (CONCAT(University, C...	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	2.656 sec
143	11:43:11	SELECT * FROM College LIMIT 0, 1000	1 row(s) returned	0.016 sec / 0.000 sec
144	11:54:33	INSERT INTO Course VALUES(310, 4112, 'DBMS')	Error Code: 1452. Cannot add or update a child row: a foreign key constraint fails ('University...	0.125 sec

The insertion is restricted and an error is thrown.