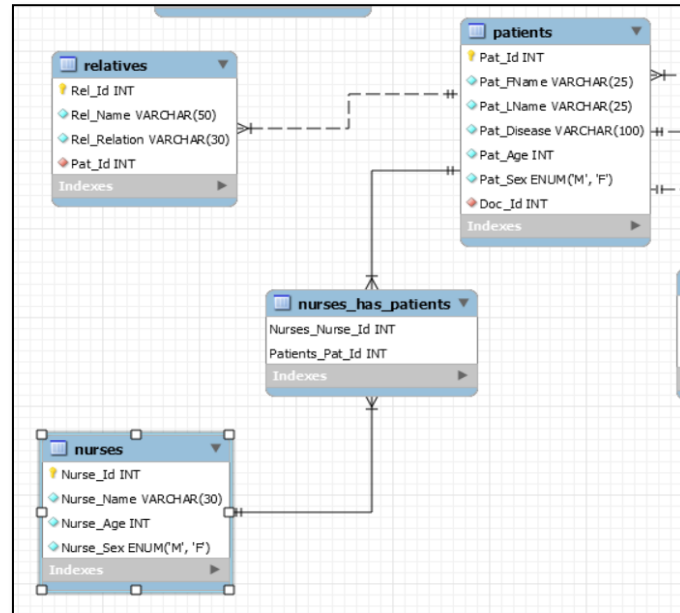


ASSIGNMENT 2

GROUP 1

1. One Many-to-Many Relation

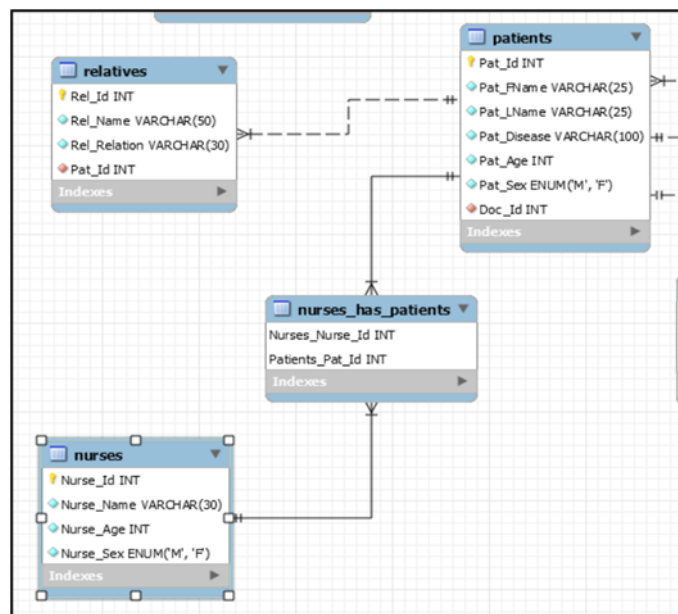
The relation between Patients and Nurses is one example of Many-to-Many Relation.



2. Represent Composite Key and Weak Entity

The combination of **Nurses_Nurse_Id** and **Patients_Pat_Id** as Primary Key for the table **Nurses_has_Patients** forms the Composite Key.

The Relatives Table in the Database forms the Weak Entity as it depends on Patients Table.



3. Violation of Primary Key, Unique Key, Not Null and Default Key Constraints through Insertion

The violation of Primary and Unique key is explained in the following screenshot as comments.

The screenshot shows a SQL query editor with a query window titled 'Query 1'. The query contains several comments explaining database constraints and an insert statement. The comments are:

- 1. Many-to-Many relation is the relation between Patients and Nurses
- 2. Composite key is the combination of (Nurses_Nurse_Id, Patients_Pat_Id) and the weak entity is Relatives Table
- 3. Violation of Primary key is same as violation of Unique Key
- As the Speciality_Id is unique and Primary Key and 110 already exists in table, it doesn't accept same values

The query ends with an insert statement: `insert into Specialities values (110, 'Orthodontics');`

The output window shows the execution results. The first row shows the query was executed successfully. The second row shows an error: `Error Code: 1062. Duplicate entry '110' for key 'specialities.PRIMARY'`

#	Time	Action	Message
1	13:54:44	use myHospital	0 row(s) affected
2	13:54:44	insert into Specialities values (110, 'Orthodontics')	Error Code: 1062. Duplicate entry '110' for key 'specialities.PRIMARY'

The violation of Not Null is explained in the following screenshot as comments.

The screenshot shows a SQL query editor with a query window titled 'Query 1'. The query contains several comments explaining database constraints and two insert statements. The comments are:

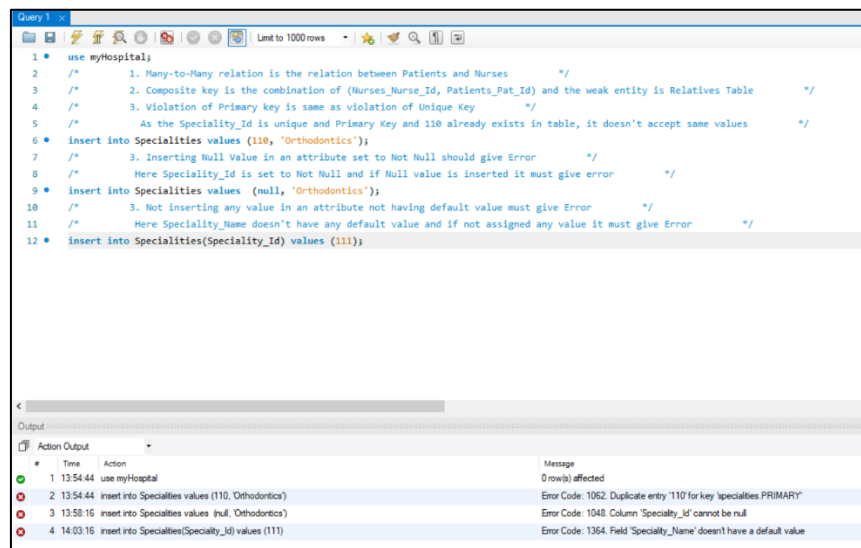
- 1. Many-to-Many relation is the relation between Patients and Nurses
- 2. Composite key is the combination of (Nurses_Nurse_Id, Patients_Pat_Id) and the weak entity is Relatives Table
- 3. Violation of Primary key is same as violation of Unique Key
- As the Speciality_Id is unique and Primary Key and 110 already exists in table, it doesn't accept same values
- 3. Inserting Null Value in an attribute set to Not Null should give Error
- Here Speciality_Id is set to Not Null and if Null value is inserted it must give error

The query ends with two insert statements: `insert into Specialities values (110, 'Orthodontics');` and `insert into Specialities values (null, 'Orthodontics');`

The output window shows the execution results. The first row shows the query was executed successfully. The second row shows an error: `Error Code: 1062. Duplicate entry '110' for key 'specialities.PRIMARY'`. The third row shows an error: `Error Code: 1048. Column 'Speciality_Id' cannot be null`

#	Time	Action	Message
1	13:54:44	use myHospital	0 row(s) affected
2	13:54:44	insert into Specialities values (110, 'Orthodontics')	Error Code: 1062. Duplicate entry '110' for key 'specialities.PRIMARY'
3	13:58:16	insert into Specialities values (null, 'Orthodontics')	Error Code: 1048. Column 'Speciality_Id' cannot be null

The violation of Default Key Constraint is explained in the following screenshot as comments.

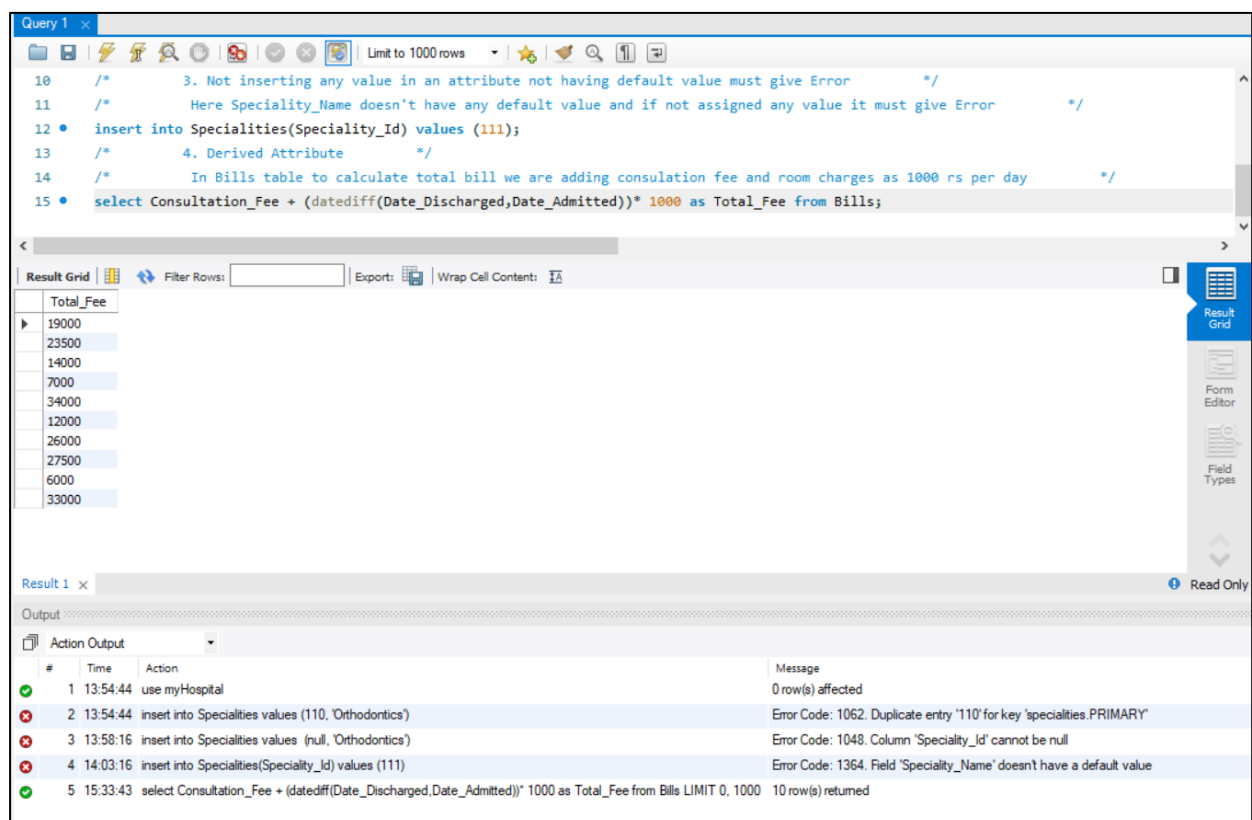


```
1 • use myHospital;
2 /* 1. Many-to-Many relation is the relation between Patients and Nurses */
3 /* 2. Composite key is the combination of (Nurses_Nurse_Id, Patients_Pat_Id) and the weak entity is Relatives Table */
4 /* 3. Violation of Primary key is same as violation of Unique Key */
5 /* As the Speciality_Id is unique and Primary Key and 110 already exists in table, it doesn't accept same values */
6 • insert into Specialities values (110, 'Orthodontics');
7 /* 3. Inserting Null Value in an attribute set to Not Null should give Error */
8 /* Here Speciality_Id is set to Not Null and if Null value is inserted it must give error */
9 • insert into Specialities values (null, 'Orthodontics');
10 /* 3. Not inserting any value in an attribute not having default value must give Error */
11 /* Here Speciality_Name doesn't have any default value and if not assigned any value it must give Error */
12 • insert into Specialities(Speciality_Id) values (111);
```

#	Time	Action	Message
1	13:54:44	use myHospital	0 row(s) affected
2	13:54:44	insert into Specialities values (110, 'Orthodontics')	Error Code: 1062. Duplicate entry '110' for key 'specialities.PRIMARY'
3	13:58:16	insert into Specialities values (null, 'Orthodontics')	Error Code: 1048. Column 'Speciality_Id' cannot be null
4	14:03:16	insert into Specialities(Speciality_Id) values (111)	Error Code: 1364. Field 'Speciality_Name' doesn't have a default value

4. One Derived Attribute

The derived attribute is achieved in the Bills table with a formula and explained in the form of comments.



```
10 /* 3. Not inserting any value in an attribute not having default value must give Error */
11 /* Here Speciality_Name doesn't have any default value and if not assigned any value it must give Error */
12 • insert into Specialities(Speciality_Id) values (111);
13 /* 4. Derived Attribute */
14 /* In Bills table to calculate total bill we are adding consultation fee and room charges as 1000 rs per day */
15 • select Consultation_Fee + (datediff(Date_Discharged,Date_Admitted))* 1000 as Total_Fee from Bills;
```

Total_Fee
19000
23500
14000
7000
34000
12000
26000
27500
6000
33000

#	Time	Action	Message
1	13:54:44	use myHospital	0 row(s) affected
2	13:54:44	insert into Specialities values (110, 'Orthodontics')	Error Code: 1062. Duplicate entry '110' for key 'specialities.PRIMARY'
3	13:58:16	insert into Specialities values (null, 'Orthodontics')	Error Code: 1048. Column 'Speciality_Id' cannot be null
4	14:03:16	insert into Specialities(Speciality_Id) values (111)	Error Code: 1364. Field 'Speciality_Name' doesn't have a default value
5	15:33:43	select Consultation_Fee + (datediff(Date_Discharged,Date_Admitted))* 1000 as Total_Fee from Bills LIMIT 0, 1000	10 row(s) returned

5. Insert tuple into table to check how foreign key constraint works

This is done to check how the foreign key constraint works and is explained in the form of comments.

The screenshot displays a SQL query editor with a script containing various SQL statements and detailed comments. The script is as follows:

```
1 use myHospital;
2 /* 1. Many-to-Many relation is the relation between Patients and Nurses */
3 /* 2. Composite key is the combination of (Nurses_Nurse_Id, Patients_Pat_Id) and the weak entity is Relatives Table */
4 /* 3. Violation of Primary Key is same as violation of Unique Key */
5 /* As the Speciality_Id is unique and Primary Key and 110 already exists in table, it doesn't accept same values */
6 insert into Specialities values (110, 'Orthodontics');
7 /* 3. Inserting Null Value in an attribute set to Not Null should give Error */
8 /* Here Speciality_Id is set to Not Null and if Null value is inserted it must give error */
9 insert into Specialities values (null, 'Orthodontics');
10 /* 3. Not inserting any value in an attribute not having default value must give Error */
11 /* Here Speciality_Name doesn't have any default value and if not assigned any value it must give Error */
12 insert into Specialities(Speciality_Id) values (111);
13 /* 4. Derived Attribute */
14 /* In Bills table to calculate total bill we are adding consultation fee and room charges as 1000 rs per day */
15 select Consultation_Fee + (datediff(Date_Discharged, Date_Admitted)) * 1000 as Total_Fee from Bills;
16 /* 5. We are adding Speciality_Id in Doctors Table directly without adding in Specialities table it is violating foreign key rules
17 /* There is no 111 Speciality_Id in Specialities Table and if we give it in Speciality_Id in Doctors Table it must give Error
18 insert into Doctors values (221, 'Nikhil', 60, 'M', 111);
```

The output window shows the execution results of the script:

#	Time	Action	Message	Duration / Fetch
1	13:54:44	use myHospital	0 row(s) affected	0.000 sec
2	13:54:44	insert into Specialities values (110, 'Orthodontics')	Error Code: 1062. Duplicate entry '110' for key 'specialities PRIMARY'	0.047 sec
3	13:58:16	insert into Specialities values (null, 'Orthodontics')	Error Code: 1048. Column 'Speciality_Id' cannot be null	0.016 sec
4	14:03:16	insert into Specialities(Speciality_Id) values (111)	Error Code: 1364. Field 'Speciality_Name' doesn't have a default value	0.000 sec
5	15:33:43	select Consultation_Fee + (datediff(Date_Discharged, Date_Admitted)) * 1000 as Total_Fee from Bills LIMIT 0, 1000	10 row(s) returned	0.000 sec / 0.000 sec
6	15:41:53	insert into Doctors values (221, 'Nikhil', 60, 'M', 111)	Error Code: 1452. Cannot add or update a child row: a foreign key constraint fails ('myhospital', 'doctors', CONST...	0.313 sec

NOTE: ALL THE EXPLANATION IS GIVEN IN THE SCRIPT FILE FOR EACH QUESTIONS WITH QUESTION NUMBERS IN THE COMMENTS.