

# SQL CONSTRAINT EXERCISE

20BCE10077

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Create the following tables and apply constraints as follows:

Enter password: \*\*\*\*

Welcome to the MySQL monitor. Commands end with; or \g.

Your MySQL connection id is 8

Server version: 8.0.28 MySQL Community Server - GPL

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Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

```
mysql> Create table Books(isbn int,title varchar(255),price int, qty int not null, PRIMARY KEY(isbn));
Query OK, 0 rows affected (0.06 sec)

mysql> create table Authors( authorId varchar(255), email varchar(255), UNIQUE(email));
Query OK, 0 rows affected (0.04 sec)
```

```
mysql> show full columns from books;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| Field | Type      | Collation      | Null | Key | Default | Extra | Privileges      | Comment |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| isbn  | int       | NULL           | NO   | PRI | NULL    |       | select,insert,update,references |         |
| title | varchar(255) | utf8mb4_0900_ai_ci | YES  |     | NULL    |       | select,insert,update,references |         |
| price | int       | NULL           | YES  |     | NULL    |       | select,insert,update,references |         |
| qty   | int       | NULL           | NO   |     | NULL    |       | select,insert,update,references |         |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
4 rows in set (0.01 sec)
```

```
mysql> show full columns from authors;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| Field | Type      | Collation      | Null | Key | Default | Extra | Privileges      | Comment |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| authorId | varchar(255) | utf8mb4_0900_ai_ci | YES  |     | NULL    |       | select,insert,update,references |         |
| email    | varchar(255) | utf8mb4_0900_ai_ci | YES  | UNI | NULL    |       | select,insert,update,references |         |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
2 rows in set (0.00 sec)
```

```
mysql> Alter table authors add PRIMARY KEY(authorId);
Query OK, 0 rows affected (0.11 sec)
Records: 0 Duplicates: 0 Warnings: 0

mysql> Create table Book_Authors(isbn int, Foreign key(isbn) references Books(isbn),authorId varchar(255),Foreign key(authorId) references Authors(authorId));
Query OK, 0 rows affected (0.04 sec)

mysql>
```

```
mysql> Create table Books(isbn int,title varchar(255),price int, qty int not null, PRIMARY KEY(isbn));
```

Query OK, 0 rows affected (0.06 sec)

```
mysql> create table Authors( authorId varchar(255), email varchar(255), UNIQUE(email));
```

Query OK, 0 rows affected (0.04 sec)

```
mysql> show full columns from authors;
```

Field	Type	Collation	Null	Key	Default	Extra	Privileges	Comment
authorId	varchar(255)	utf8mb4_0900_ai_ci	YES		NULL			
email	varchar(255)	utf8mb4_0900_ai_ci	YES	UNI	NULL			

2 rows in set (0.00 sec)

```
mysql> Alter table authors add PRIMARY KEY(authorId);
```

Query OK, 0 rows affected (0.11 sec)

Records: 0 Duplicates: 0 Warnings: 0

```
mysql> Create table Book_Authors(isbn int, Foreign key(isbn) references Books(isbn),authorId varchar(255),Foreign key(authorId) references Authors(authorId));
```

Query OK, 0 rows affected (0.04 sec)

1. mysql> Alter table books add unique(title);

Query OK, 0 rows affected (0.04 sec)

Records: 0 Duplicates: 0 Warnings: 0

```
mysql> Alter table books add unique(title);
Query OK, 0 rows affected (0.04 sec)
Records: 0 Duplicates: 0 Warnings: 0
```

2. mysql> alter table books modify price int not null;  
Query OK, 0 rows affected (0.13 sec)

```
mysql> alter table books modify price int not null;
Query OK, 0 rows affected (0.13 sec)
Records: 0 Duplicates: 0 Warnings: 0
```

3. mysql> Alter table books modify price int not null;  
Query OK, 0 rows affected (0.03 sec)  
Records: 0 Duplicates: 0 Warnings: 0

```
mysql> Alter table books add check(price>0.0);
Query OK, 0 rows affected (0.13 sec)
Records: 0 Duplicates: 0 Warnings: 0
```

```
mysql> Alter table books modify price int not null;
Query OK, 0 rows affected (0.03 sec)
Records: 0 Duplicates: 0 Warnings: 0

mysql> Alter table books add check(price>0.0);
Query OK, 0 rows affected (0.13 sec)
Records: 0 Duplicates: 0 Warnings: 0
```

4. mysql> alter table books modify qty int not null;  
Query OK, 0 rows affected (0.03 sec)  
Records: 0 Duplicates: 0 Warnings: 0

```
mysql> alter table books modify qty int not null;
Query OK, 0 rows affected (0.03 sec)
Records: 0 Duplicates: 0 Warnings: 0

mysql>
```

5. mysql> Alter table books alter qty set default 0;  
Query OK, 0 rows affected (0.02 sec)

Records: 0 Duplicates: 0 Warnings: 0

6. mysql> alter table authors drop INDEX email;

Query OK, 0 rows affected (0.03 sec)

Records: 0 Duplicates: 0 Warnings: 0

```
mysql> Alter table books alter qty set default 0;
Query OK, 0 rows affected (0.02 sec)
Records: 0 Duplicates: 0 Warnings: 0

mysql> alter table authors drop INDEX email;
Query OK, 0 rows affected (0.03 sec)
Records: 0 Duplicates: 0 Warnings: 0
```

7. mysql> alter table book\_authors drop foreign key book\_authors\_ibfk\_2;

Query OK, 0 rows affected (0.01 sec)

Records: 0 Duplicates: 0 Warnings: 0

```
mysql> alter table book_authors drop foreign key book_authors_ibfk_2;
Query OK, 0 rows affected (0.01 sec)
Records: 0 Duplicates: 0 Warnings: 0
```

8. mysql> alter table Authors drop primary key;

Query OK, 0 rows affected (0.12 sec)

Records: 0 Duplicates: 0 Warnings: 0

```
mysql> alter table Authors drop primary key;
Query OK, 0 rows affected (0.12 sec)
Records: 0 Duplicates: 0 Warnings: 0
```

9. mysql> alter table authors add No\_of\_Books\_Published int;

Query OK, 0 rows affected (0.03 sec)

Records: 0 Duplicates: 0 Warnings: 0

mysql> alter table authors add Check(No\_of\_Books\_Published>0);

Query OK, 0 rows affected (0.11 sec)

Records: 0 Duplicates: 0 Warnings: 0

```
mysql> alter table authors add No_of_Books_Published int;
Query OK, 0 rows affected (0.03 sec)
Records: 0 Duplicates: 0 Warnings: 0

mysql> alter table authors add Check(No_of_Books_Published>0);
Query OK, 0 rows affected (0.11 sec)
Records: 0 Duplicates: 0 Warnings: 0
```

mysql> show full columns from books;

Field	Type	Collation	Null	Key	Default	Extra	Privileges	Comment
isbn	int	NULL	NO	PRI	NULL		select,insert,update,references	
title	varchar(255)	utf8mb4_0900_ai_ci	YES	UNI	NULL		select,insert,update,references	
price	int	NULL	NO		NULL		select,insert,update,references	
qty	int	NULL	NO		0		select,insert,update,references	

4 rows in set (0.02 sec)

mysql> show full columns from authors;

Field	Type	Collation	Null	Key	Default	Extra	Privileges	Comment
authorId	varchar(255)	utf8mb4_0900_ai_ci	NO		NULL		select,insert,update,references	
email	varchar(255)	utf8mb4_0900_ai_ci	YES		NULL		select,insert,update,references	
No_of_Books_Published	int	NULL	YES		NULL		select,insert,update,references	

3 rows in set (0.00 sec)

mysql> show full columns from BOOK\_Authors;

Field	Type	Collation	Null	Key	Default	Extra	Privileges	Comment
isbn	int	NULL	YES	MUL	NULL		select,insert,update,references	
authorId	varchar(255)	utf8mb4_0900_ai_ci	YES	MUL	NULL		select,insert,update,references	

2 rows in set (0.00 sec)



# I. HR Database Diagram

```
mysql> Create database HR;
Query OK, 1 row affected (0.02 sec)

mysql> use Database HR;
ERROR 1049 (42000): Unknown database 'database'

mysql> use HR;
Database changed

mysql> Create table Departments(department_id int, department_name varchar(255),manager_id int,location_id int);
Query OK, 0 rows affected (0.06 sec)

mysql> create table Locations(location_id int, street_address varchar(255), postal_code int,city varchar(255),state_province varchar(255), country_id int);
Query OK, 0 rows affected (0.04 sec)

mysql> create table Job_history(employee_id int,start_date date,end_date date,job_id int,department_id int);
Query OK, 0 rows affected (0.04 sec)

mysql> create Table Employees(employee_id int,first_name varchar(255),last_name varchar(255), email varchar(255),phone_number int,hire_date date,job_id int, salary float, commission_pct float,manager_id int,dept_id int);
Query OK, 0 rows affected (0.04 sec)

mysql> create table jobs(job_id int,job_title varchar(255), min_salary float,max_salary float);
Query OK, 0 rows affected (0.04 sec)

mysql> create table Countries(country_id int,country_name varchar(255),region_id int);
Query OK, 0 rows affected (0.04 sec)

mysql> create table Regions(region_id,region_name varchar(255));
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near ',region_name varchar(255))' at line 1
mysql> create table Regions(region_id int,region_name varchar(255));
Query OK, 0 rows affected (0.02 sec)

mysql> alter table regions add primary key(region_id);
Query OK, 0 rows affected (0.12 sec)
Records: 0 Duplicates: 0 Warnings: 0

mysql> alter table employees add primary key(employee_id);
Query OK, 0 rows affected (0.09 sec)
Records: 0 Duplicates: 0 Warnings: 0

mysql> alter table jobs add primary key(job_id);
Query OK, 0 rows affected (0.09 sec)
Records: 0 Duplicates: 0 Warnings: 0

mysql> alter table countries add primary key(country_id);
Query OK, 0 rows affected (0.13 sec)
Records: 0 Duplicates: 0 Warnings: 0
```

```
mysql> alter table job_history add primary key(employee_id,start_date);
Query OK, 0 rows affected (0.08 sec)
Records: 0 Duplicates: 0 Warnings: 0
```

```
mysql> alter table departments add primary key(department_id);
Query OK, 0 rows affected (0.07 sec)
Records: 0 Duplicates: 0 Warnings: 0
```

```
mysql> alter table locations add primary key (location_id);
Query OK, 0 rows affected (0.07 sec)
Records: 0 Duplicates: 0 Warnings: 0
```

```
mysql> desc Departments;
```

Field	Type	Null	Key	Default	Extra
department_id	int	NO	PRI	NULL	
department_name	varchar(255)	YES		NULL	
manager_id	int	YES		NULL	
location_id	int	YES		NULL	

```
4 rows in set (0.02 sec)
```

```
mysql> desc locations;
```

Field	Type	Null	Key	Default	Extra
location_id	int	NO	PRI	NULL	
street_address	varchar(255)	YES		NULL	
postal_code	int	YES		NULL	
city	varchar(255)	YES		NULL	
state_province	varchar(255)	YES		NULL	
country_id	int	YES		NULL	

```
6 rows in set (0.00 sec)
```

```
mysql> desc job_history;
```

Field	Type	Null	Key	Default	Extra
employee_id	int	NO	PRI	NULL	
start_date	date	NO	PRI	NULL	
end_date	date	YES		NULL	
job_id	int	YES		NULL	
department_id	int	YES		NULL	

```
5 rows in set (0.00 sec)
```

```
mysql> desc employees;
```

Field	Type	Null	Key	Default	Extra
employee_id	int	NO	PRI	NULL	
first_name	varchar(255)	YES		NULL	
last_name	varchar(255)	YES		NULL	
email	varchar(255)	YES		NULL	
phone_number	int	YES		NULL	
hire_date	date	YES		NULL	
job_id	int	YES		NULL	
salary	float	YES		NULL	
commission_pct	float	YES		NULL	
manager_id	int	YES		NULL	
department_id	int	YES		NULL	

```
11 rows in set (0.00 sec)
```

```
mysql> desc countries;
```

Field	Type	Null	Key	Default	Extra
country_id	int	NO	PRI	NULL	
country_name	varchar(255)	YES		NULL	
region_id	int	YES		NULL	

```
3 rows in set (0.00 sec)
```

```
mysql> desc jobs;
```

Field	Type	Null	Key	Default	Extra
job_id	int	NO	PRI	NULL	
job_title	varchar(255)	YES		NULL	
min_salary	float	YES		NULL	
max_salary	float	YES		NULL	

```
4 rows in set (0.00 sec)
```

```
mysql> desc regions;
```

Field	Type	Null	Key	Default	Extra
region_id	int	NO	PRI	NULL	
region_name	varchar(255)	YES		NULL	

```
2 rows in set (0.00 sec)
```

```
mysql> insert into Departments(department_id,department_name,manager_id,location_id) values(2001,"executive department",123,00987);
Query OK, 1 row affected (0.02 sec)

mysql> insert into Locations(location_id,street_address,postal_code,city,state_province,country_id) values(00987,"b-2387,sdf,civil lines",211016,"alld","Uttar pradesh",91);
Query OK, 1 row affected (0.01 sec)

mysql> insert into job_history(employee_id,start_date,end_date,job_id,department_id) values (098,'2008-12-12','2022-11-11',9090,2001);
Query OK, 1 row affected (0.02 sec)

mysql> insert into employees(employee_id,first_name,last_name,email,phone_number,hire_date,job_id,salary,commission_pct,manager_id,department_id) values (098,"fiza","siddiqui","@gamil.com",98236,'2008-11-10',9090,123.32,0.12,123,2001);
Query OK, 1 row affected (0.01 sec)

mysql> insert into countries(country_id,country_name,region_id) values (91,"India",123456);
Query OK, 1 row affected (0.01 sec)

mysql> insert into jobs(job_id,job_title,min_salary,max_salary) values (9090,"Manager",100,12000);
Query OK, 1 row affected (0.00 sec)

mysql> insert into regions(region_id,region_name) values(123456,"civil lines");
Query OK, 1 row affected (0.02 sec)
```

1. Create a query to display all the data from the *Employees* table.
2. Create a query to display the unique manager numbers from *Employees* table.

```
mysql> select * from employees;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| employee_id | first_name | last_name | email | phone_number | hire_date | job_id | salary | commission_pct | manager_id | department_id |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| 98 | fiza | siddiqui | @gamil.com | 98236 | 2008-11-10 | 9090 | 123.32 | 0.12 | 123 | 2001 |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
1 row in set (0.00 sec)

mysql> select distinct manager_id from employees;
+-----+
| manager_id |
+-----+
| 123 |
+-----+
1 row in set (0.00 sec)
```

Create a query to display the unique salaries in *Employees* tables.

```
mysql> select distinct salary from employees;
+-----+
| salary |
+-----+
| 123.32 |
+-----+
1 row in set (0.00 sec)
```

Create a query to display the unique combination of values in *department\_id* and *job\_id* columns

```
mysql> select distinct department_id,job_id from employees;
+-----+-----+
| department_id | job_id |
+-----+-----+
| 2001 | 9090 |
+-----+-----+
1 row in set (0.00 sec)
```