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Lab Exercise 3:

1. Write a SQL statement to rename the table countries to country_new.

```
mysql> show tables;
+-----+
| Tables_in_day2 |
+-----+
| countries8      |
| departments     |
| employees3      |
| job_history4    |
| jobs4           |
| myview          |
| tbl_dept        |
| tbl_employee    |
| tbl_employee1   |
| tbl_employee2   |
| tbl_student     |
+-----+
11 rows in set (0.00 sec)

mysql> alter table countries8 rename to country_new;
Query OK, 0 rows affected (0.01 sec)

mysql> show tables;
+-----+
| Tables_in_day2 |
+-----+
| country_new     |
| departments     |
| employees3      |
| job_history4    |
| jobs4           |
| myview          |
| tbl_dept        |
| tbl_employee    |
| tbl_employee1   |
| tbl_employee2   |
| tbl_student     |
+-----+
11 rows in set (0.00 sec)

mysql>
```

2. Write a SQL statement to add a column region_id to the table locations.

```
mysql> desc locations;
+-----+-----+-----+-----+-----+-----+
| Field          | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| location_id    | int           | NO   |     | NULL    |       |
| street_address | varchar(15)   | YES  |     | NULL    |       |
| postal_code    | varchar(8)    | YES  |     | NULL    |       |
| city           | varchar(8)    | YES  |     | NULL    |       |
| state_province | varchar(5)    | YES  |     | NULL    |       |
| country_id     | decimal(4,0) | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
6 rows in set (0.00 sec)

mysql> alter table locations add region_id int(5) after state_province;
Query OK, 0 rows affected, 1 warning (0.02 sec)
Records: 0 Duplicates: 0 Warnings: 1

mysql> desc locations;
+-----+-----+-----+-----+-----+-----+
| Field          | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| location_id    | int           | NO   |     | NULL    |       |
| street_address | varchar(15)   | YES  |     | NULL    |       |
| postal_code    | varchar(8)    | YES  |     | NULL    |       |
| city           | varchar(8)    | YES  |     | NULL    |       |
| state_province | varchar(5)    | YES  |     | NULL    |       |
| region_id      | int           | YES  |     | NULL    |       |
| country_id     | decimal(4,0) | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
7 rows in set (0.00 sec)
```

3. Write a SQL statement to add a columns ID as the first column of the table locations.

```
mysql> desc locations;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| location_id | int | NO | | NULL | |
| street_address | varchar(15) | YES | | NULL | |
| postal_code | varchar(8) | YES | | NULL | |
| city | varchar(8) | YES | | NULL | |
| state_province | varchar(5) | YES | | NULL | |
| region_id | int | YES | | NULL | |
| country_id | decimal(4,0) | YES | | NULL | |
+-----+-----+-----+-----+-----+-----+
7 rows in set (0.00 sec)

mysql> alter table locations add ID int(5) FIRST;
Query OK, 0 rows affected, 1 warning (0.01 sec)
Records: 0 Duplicates: 0 Warnings: 1

mysql> DESC locations;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| ID | int | YES | | NULL | |
| location_id | int | NO | | NULL | |
| street_address | varchar(15) | YES | | NULL | |
| postal_code | varchar(8) | YES | | NULL | |
| city | varchar(8) | YES | | NULL | |
| state_province | varchar(5) | YES | | NULL | |
| region_id | int | YES | | NULL | |
| country_id | decimal(4,0) | YES | | NULL | |
+-----+-----+-----+-----+-----+-----+
8 rows in set (0.00 sec)
```

4. Write a SQL statement to add a column region_id after state_province to the table locations.

```
mysql> desc locations;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| location_id | int | NO | | NULL | |
| street_address | varchar(15) | YES | | NULL | |
| postal_code | varchar(8) | YES | | NULL | |
| city | varchar(8) | YES | | NULL | |
| state_province | varchar(5) | YES | | NULL | |
| country_id | decimal(4,0) | YES | | NULL | |
+-----+-----+-----+-----+-----+-----+
6 rows in set (0.00 sec)

mysql> alter table locations add region_id int(5) after state_province;
Query OK, 0 rows affected, 1 warning (0.02 sec)
Records: 0 Duplicates: 0 Warnings: 1

mysql> desc locations;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| location_id | int | NO | | NULL | |
| street_address | varchar(15) | YES | | NULL | |
| postal_code | varchar(8) | YES | | NULL | |
| city | varchar(8) | YES | | NULL | |
| state_province | varchar(5) | YES | | NULL | |
| region_id | int | YES | | NULL | |
| country_id | decimal(4,0) | YES | | NULL | |
+-----+-----+-----+-----+-----+-----+
7 rows in set (0.00 sec)
```

5. Write a SQL statement change the data type of the column country_id to integer in the table locations.

```
mysql> desc locations;
+-----+-----+-----+-----+-----+-----+
| Field      | Type      | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| ID         | int       | YES  |     | NULL    |       |
| location_id | int       | NO   |     | NULL    |       |
| street_address | varchar(15) | YES  |     | NULL    |       |
| postal_code | varchar(8) | YES  |     | NULL    |       |
| city       | varchar(8) | YES  |     | NULL    |       |
| state_province | varchar(5) | YES  |     | NULL    |       |
| region_id  | int       | YES  |     | NULL    |       |
| country_id | decimal(4,0) | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
8 rows in set (0.00 sec)

mysql> alter table locations modify country_id int(5);
Query OK, 0 rows affected, 1 warning (0.05 sec)
Records: 0 Duplicates: 0 Warnings: 1

mysql> desc locations;
+-----+-----+-----+-----+-----+-----+
| Field      | Type      | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| ID         | int       | YES  |     | NULL    |       |
| location_id | int       | NO   |     | NULL    |       |
| street_address | varchar(15) | YES  |     | NULL    |       |
| postal_code | varchar(8) | YES  |     | NULL    |       |
| city       | varchar(8) | YES  |     | NULL    |       |
| state_province | varchar(5) | YES  |     | NULL    |       |
| region_id  | int       | YES  |     | NULL    |       |
| country_id | int       | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
8 rows in set (0.00 sec)
```

6. Write a SQL statement to drop the column city from the table locations.

```
mysql> desc locations;
+-----+-----+-----+-----+-----+-----+
| Field      | Type      | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| ID         | int       | YES  |     | NULL    |       |
| location_id | int       | NO   |     | NULL    |       |
| street_address | varchar(15) | YES  |     | NULL    |       |
| postal_code | varchar(8) | YES  |     | NULL    |       |
| city       | varchar(8) | YES  |     | NULL    |       |
| state_province | varchar(5) | YES  |     | NULL    |       |
| region_id  | int       | YES  |     | NULL    |       |
| country_id | int       | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
8 rows in set (0.00 sec)

mysql> alter table locations drop city;
Query OK, 0 rows affected (0.01 sec)
Records: 0 Duplicates: 0 Warnings: 0

mysql> desc locations;
+-----+-----+-----+-----+-----+-----+
| Field      | Type      | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| ID         | int       | YES  |     | NULL    |       |
| location_id | int       | NO   |     | NULL    |       |
| street_address | varchar(15) | YES  |     | NULL    |       |
| postal_code | varchar(8) | YES  |     | NULL    |       |
| state_province | varchar(5) | YES  |     | NULL    |       |
| region_id  | int       | YES  |     | NULL    |       |
| country_id | int       | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
7 rows in set (0.00 sec)
```

7. Write a SQL statement to change the name of the column `state_province` to `state`, keeping the data type and size same.

```
mysql> desc locations;
+-----+-----+-----+-----+-----+-----+
| Field      | Type      | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| ID         | int       | YES  |     | NULL    |       |
| location_id | int       | NO   |     | NULL    |       |
| street_address | varchar(15) | YES  |     | NULL    |       |
| postal_code | varchar(8) | YES  |     | NULL    |       |
| state_province | varchar(5) | YES  |     | NULL    |       |
| region_id  | int       | YES  |     | NULL    |       |
| country_id | int       | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
7 rows in set (0.00 sec)

mysql> alter table locations drop state_province,ADD state varchar(5) after postal_code;
Query OK, 0 rows affected (0.01 sec)
Records: 0 Duplicates: 0 Warnings: 0

mysql> desc locations;
+-----+-----+-----+-----+-----+-----+
| Field      | Type      | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| ID         | int       | YES  |     | NULL    |       |
| location_id | int       | NO   |     | NULL    |       |
| street_address | varchar(15) | YES  |     | NULL    |       |
| postal_code | varchar(8) | YES  |     | NULL    |       |
| state      | varchar(5) | YES  |     | NULL    |       |
| region_id  | int       | YES  |     | NULL    |       |
| country_id | int       | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
7 rows in set (0.00 sec)
```

8. Write a SQL statement to add a primary key for the columns `location_id` in the `locations` table.

Here is the sample table `employees`.

Sample table: `employees`

```
mysql> desc locations;
+-----+-----+-----+-----+-----+-----+
| Field      | Type      | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| ID         | int       | YES  |     | NULL    |       |
| location_id | int       | NO   |     | NULL    |       |
| street_address | varchar(15) | YES  |     | NULL    |       |
| postal_code | varchar(8) | YES  |     | NULL    |       |
| state      | varchar(5) | YES  |     | NULL    |       |
| region_id  | int       | YES  |     | NULL    |       |
| country_id | int       | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
7 rows in set (0.00 sec)

mysql> alter table locations add primary key(location_id);
Query OK, 0 rows affected (0.05 sec)
Records: 0 Duplicates: 0 Warnings: 0

mysql> desc locations;
+-----+-----+-----+-----+-----+-----+
| Field      | Type      | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| ID         | int       | YES  |     | NULL    |       |
| location_id | int       | NO   | PRI | NULL    |       |
| street_address | varchar(15) | YES  |     | NULL    |       |
| postal_code | varchar(8) | YES  |     | NULL    |       |
| state      | varchar(5) | YES  |     | NULL    |       |
| region_id  | int       | YES  |     | NULL    |       |
| country_id | int       | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
7 rows in set (0.00 sec)
```

9. Write a SQL statement to add a primary key for a combination of columns location_id and country_id.

```
mysql> desc locations;
```

Field	Type	Null	Key	Default	Extra
ID	int	YES		NULL	
location_id	int	NO		NULL	
street_address	varchar(15)	YES		NULL	
postal_code	varchar(8)	YES		NULL	
state	varchar(5)	YES		NULL	
region_id	int	YES		NULL	
country_id	int	YES		NULL	

```
7 rows in set (0.00 sec)

mysql> alter table locations add primary key(location_id,country_id);
Query OK, 0 rows affected (0.17 sec)
Records: 0 Duplicates: 0 Warnings: 0

mysql> desc locations;
```

Field	Type	Null	Key	Default	Extra
ID	int	YES		NULL	
location_id	int	NO	PRI	NULL	
street_address	varchar(15)	YES		NULL	
postal_code	varchar(8)	YES		NULL	
state	varchar(5)	YES		NULL	
region_id	int	YES		NULL	
country_id	int	NO	PRI	NULL	

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

10. Write a SQL statement to drop the existing primary from the table locations on a combination of columns location_id and country_id.

```
mysql> desc locations;
```

Field	Type	Null	Key	Default	Extra
ID	int	YES		NULL	
location_id	int	NO	PRI	NULL	
street_address	varchar(15)	YES		NULL	
postal_code	varchar(8)	YES		NULL	
state	varchar(5)	YES		NULL	
region_id	int	YES		NULL	
country_id	int	NO	PRI	NULL	

```
7 rows in set (0.00 sec)

mysql> alter table locations drop primary key;
Query OK, 0 rows affected (0.06 sec)
Records: 0 Duplicates: 0 Warnings: 0

mysql> desc locations;
```

Field	Type	Null	Key	Default	Extra
ID	int	YES		NULL	
location_id	int	NO		NULL	
street_address	varchar(15)	YES		NULL	
postal_code	varchar(8)	YES		NULL	
state	varchar(5)	YES		NULL	
region_id	int	YES		NULL	
country_id	int	NO		NULL	

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

```
mysql> desc job_history
-> ;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| employee_id | int | NO | | NULL | |
| start_date | date | YES | | NULL | |
| hire_date | date | YES | | NULL | |
| job_id | int | NO | | NULL | |
| department_id | int | NO | | NULL | |
+-----+-----+-----+-----+-----+-----+
5 rows in set (0.00 sec)

mysql> desc jobs;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| job_id | int | NO | PRI | NULL | |
| job_title | varchar(35) | NO | | NULL | |
| min_salary | decimal(6,0) | YES | | NULL | |
| max_salary | decimal(6,0) | YES | | NULL | |
+-----+-----+-----+-----+-----+-----+
4 rows in set (0.00 sec)

mysql> alter table job_history add foreign key(job_id) REFERENCES jobs(job_id);
Query OK, 0 rows affected (0.07 sec)
Records: 0 Duplicates: 0 Warnings: 0

mysql> desc job_history;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| employee_id | int | NO | | NULL | |
| start_date | date | YES | | NULL | |
| hire_date | date | YES | | NULL | |
| job_id | int | NO | MUL | NULL | |
| department_id | int | NO | | NULL | |
+-----+-----+-----+-----+-----+-----+
5 rows in set (0.00 sec)
```

```
mysql> alter table job_history add constraint fk_job_id foreign key(job_id) REFERENCES jobs(job_id) ON UPDATE RESTRICT ON DELETE CASCADE;
Query OK, 0 rows affected (0.07 sec)
Records: 0 Duplicates: 0 Warnings: 0

mysql> desc job_history;
```

Field	Type	Null	Key	Default	Extra
employee_id	int	NO		NONE	
start_date	date	YES		NONE	
hire_date	date	YES		NONE	
job_id	int	NO	MUL	NONE	
department_id	int	NO		NONE	

```
5 rows in set (0.00 sec)

mysql> show index from job_history;
```

Table	Non_unique	Key_name	Seq_in_index	Column_name	Collation	Cardinality	Sub_part	Packed	Null	Index_type	Comment	Index_comment	Visible
job_history	1	fk_job_id	1	job_id	A	0				BTREE			YES

```
1 row in set (0.01 sec)
```

[illegible]

```
mysql> show index from job_history;
```

Table	Non_unique	Key_name	Seq_in_index	Column_name	Collation	Cardinality	Sub_part	Packed	Null	Index_type	Comment	Index_comment	Visible
job_history	1	fk_job_id	1	job_id	A	0			NULL	BTREE			YES
NULL													

```
1 row in set (0.00 sec)
```

```
mysql> alter table job_history add index index_job_id(job_id);
```

Query OK, 0 rows affected (0.02 sec)
Records: 0 Duplicates: 0 Warnings: 0

```
mysql> desc job_history;
```

Field	Type	Null	Key	Default	Extra
employee_id	int	NO		NULL	
start_date	date	YES		NULL	
hire_date	date	YES		NULL	
job_id	int	NO	MUL	NULL	
department_id	int	NO		NULL	

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

```
mysql> show index from job_history;
```

Table	Non_unique	Key_name	Seq_in_index	Column_name	Collation	Cardinality	Sub_part	Packed	Null	Index_type	Comment	Index_comment	Visible
job_history	1	index_job_id	1	job_id	A	0			NULL	BTREE			YES
NULL													

```
1 row in set (0.01 sec)
```

15. Write a SQL statement to drop the index `indx_job_id` from `job_history` table.

```
mysql> show index from job_history;
```

Table	Non_unique	Key_name	Seq_in_index	Column_name	Collation	Cardinality	Sub_part	Packed	Null	Index_type	Comment	Index_c
comment Visible Expression												
job_history	1	index_job_id	1	job_id	A	0				BTREE		
YES NULL												
job_history	1	index_job_id_primary_key	1	job_id	A	0				BTREE		
YES NULL												

```
2 rows in set (0.01 sec)
```

```
mysql> alter table job_history drop index index_job_id;
```

```
Query OK, 0 rows affected (0.01 sec)
```

```
Records: 0 Duplicates: 0 Warnings: 0
```

```
mysql> show index from job_history;
```

Table	Non_unique	Key_name	Seq_in_index	Column_name	Collation	Cardinality	Sub_part	Packed	Null	Index_type	Comment	Index_c
comment Visible Expression												
job_history	1	index_job_id_primary_key	1	job_id	A	0				BTREE		
YES NULL												

```
1 row in set (0.00 sec)
```