

COURSE OUTCOME 1 (CO1):

Design and build a simple relational database system and demonstrate competence with the fundamentals tasks involved with modelling, designing and implementing a database.

Create a database

Company, and tables Employees, Departments, Dependents, Locations, Countries, and Regions using **DDL commands with integrity constraints**. Populate the tables with **DML commands**. ER Diagram of table is attached with this. Tables are to be populated as per the integrity constraints on each table. The output of each command to be taken as screenshot. 5 tuples each to be populated in every single table.

The company database has seven tables:

1. The **employees table** stores the data of employees.
2. The **jobs table** stores the job data including job title and salary range.
3. The **departments table** stores department data.
4. The **dependents table** stores the employee's dependents.
5. The **locations table** stores the location of the departments of the company.
6. The **countries table** stores the data of countries where the company is doing business.

Query for table creation :

```
MariaDB [(none)]> create database company;
Query OK, 1 row affected (0.002 sec)

MariaDB [(none)]> use company;
Database changed
MariaDB [company]> create table regions(region_id INT PRIMARY KEY,region_name VARCHAR(30));
Query OK, 0 rows affected (0.043 sec)
```

```
MariaDB [company]> create table countries(country_id INT PRIMARY KEY ,country_name VARCHAR(30), region_id INT , FOREIGN KEY (region_id) REFERENCES regions(region_id));
Query OK, 0 rows affected (0.064 sec)
```

```
MariaDB [company]> create table locations(location_id INT PRIMARY KEY, street_address VARCHAR(30), postal_code VARCHAR(30),city VARCHAR(30),state_province VARCHAR(30), country_id INT, FOREIGN KEY(country_id) REFERENCES countries(country_id));
Query OK, 0 rows affected (0.070 sec)
```

```
MariaDB [company]> create table departments(department_id INT PRIMARY KEY , department_name VARCHAR(30), location_id INT, FOREIGN KEY(location_id) REFERENCES locations(location_id));
Query OK, 0 rows affected (0.064 sec)
```

```
MariaDB [company]> create table jobs(job_id INT PRIMARY KEY, job_title VARCHAR(30), min_salary INT(10), max_salary INT(20));
Query OK, 0 rows affected (0.041 sec)
```

```
MariaDB [company]> create table employees(employee_id INT PRIMARY KEY ,first_name VARCHAR(30), last_name VARCHAR(30),email VARCHAR(30) UNIQUE, phone_number VARCHAR(20),hire_date DATE, job_id INT, salary INT(20),manager_id INT, department_id INT, FOREIGN KEY(job_id) REFERENCES jobs(job_id), FOREIGN KEY(manager_id) REFERENCES employees(employee_id), FOREIGN KEY (department_id) REFERENCES departments(department_id));
Query OK, 0 rows affected (0.067 sec)
```

```
MariaDB [company]> create table dependents(dependent_id INT PRIMARY KEY , first_name VARCHAR(30), last_name VARCHAR(30),relationship VARCHAR(30), employee_id INT, FOREIGN KEY (employee_id) REFERENCES employees(employee_id));
Query OK, 0 rows affected (0.070 sec)
```

```
MariaDB [company]> show tables;
```

```
+-----+
| Tables_in_company |
+-----+
| countries          |
| departments        |
| dependents         |
| employees          |
| jobs               |
| locations           |
| regions            |
+-----+
7 rows in set (0.001 sec)
```

INSERT INTO REGIONS :

```
MariaDB [company]> INSERT INTO regions (region_id, region_name)
```

```
-> VALUES
```

```
-> (1, 'North America'),
```

```
-> (2, 'Europe'),
```

```
-> (3, 'Asia'),
```

```
-> (4, 'South America'),
```

```
-> (5, 'Africa');
```

```
Query OK, 5 rows affected (0.004 sec)
```

```
Records: 5 Duplicates: 0 Warnings: 0
```

```
MariaDB [company]>
```

```
MariaDB [company]> select * from regions;
```

```
+-----+-----+
| region_id | region_name |
+-----+-----+
|          1 | North America |
|          2 | Europe       |
|          3 | Asia         |
|          4 | South America |
|          5 | Africa       |
+-----+-----+
```

```
5 rows in set (0.001 sec)
```

INSERT INTO COUNTRIES :

```
MariaDB [company]> INSERT INTO countries (country_id, country_name, region_id) VALUES(1, 'America',1);
Query OK, 1 row affected (0.033 sec)
```

```
MariaDB [company]> INSERT INTO countries (country_id, country_name, region_id) VALUES(2, 'China',1);
Query OK, 1 row affected (0.033 sec)
```

```
MariaDB [company]> INSERT INTO countries (country_id, country_name, region_id) VALUES(3, 'India',2);
Query OK, 1 row affected (0.033 sec)
```

```
MariaDB [company]> INSERT INTO countries (country_id, country_name, region_id) VALUES(4, 'Russia',3);
Query OK, 1 row affected (0.033 sec)
```

```
MariaDB [company]> INSERT INTO countries (country_id, country_name, region_id) VALUES(5, 'Japan',4);
Query OK, 1 row affected (0.003 sec)
```

```
MariaDB [company]> select * from countries;
```

```
+-----+-----+-----+
| country_id | country_name | region_id |
+-----+-----+-----+
|          1 | America      |          1 |
|          2 | China        |          1 |
|          3 | India        |          2 |
|          4 | Russia       |          3 |
|          5 | Japan        |          4 |
+-----+-----+-----+
```

```
5 rows in set (0.001 sec)
```

INSERT INTO LOCATIONS :

```
MariaDB [company]> INSERT INTO locations(location_id, street_address, postal_code, city, state_province, country_id) VALUES (1, '145 Main street', '234542', 'Springfield', 'IL', 1);
Query OK, 1 row affected (0.034 sec)

MariaDB [company]> INSERT INTO locations(location_id, street_address, postal_code, city, state_province, country_id) VALUES (1, '345 China street', '236742', 'Beijing', 'ON', 2);
ERROR 1062 (23000): Duplicate entry '1' for key 'PRIMARY'
MariaDB [company]> INSERT INTO locations(location_id, street_address, postal_code, city, state_province, country_id) VALUES (2, '345 China street', '236742', 'Beijing', 'ON', 2);
Query OK, 1 row affected (0.032 sec)

MariaDB [company]> INSERT INTO locations(location_id, street_address, postal_code, city, state_province, country_id) VALUES (3, 'Oak city', '534342', 'Rio de Janeiro', 'BR', 3);
Query OK, 1 row affected (0.003 sec)

MariaDB [company]> INSERT INTO locations(location_id, street_address, postal_code, city, state_province, country_id) VALUES (4, '101 Pine st', '443422', 'Berlin', 'BE', 4);
Query OK, 1 row affected (0.032 sec)

MariaDB [company]> INSERT INTO locations(location_id, street_address, postal_code, city, state_province, country_id) VALUES (5, '202 Maple ave', '863822', 'Tokyo', 'Tokyo', 5);
Query OK, 1 row affected (0.032 sec)

MariaDB [company]> select * from locations;
```

location_id	street_address	postal_code	city	state_province	country_id
1	145 Main street	234542	Springfield	IL	1
2	345 China street	236742	Toronto	ON	2
3	Oak city	534342	Rio de Janeiro	BR	3
4	101 Pine st	443422	Berlin	BE	4
5	202 Maple ave	863822	Tokyo	Tokyo	5

```
5 rows in set (0.001 sec)
```

INSERT INTO DEPARTMENTS :

```
MariaDB [company]> INSERT INTO departments(department_id, department_name, location_id) VALUES (1, 'Human Resource', 1);
Query OK, 1 row affected (0.032 sec)

MariaDB [company]> INSERT INTO departments(department_id, department_name, location_id) VALUES (2, 'Sales', 2);
Query OK, 1 row affected (0.032 sec)

MariaDB [company]> INSERT INTO departments(department_id, department_name, location_id) VALUES (3, 'Marketing', 3);
Query OK, 1 row affected (0.032 sec)

MariaDB [company]> INSERT INTO departments(department_id, department_name, location_id) VALUES (4, 'Research & Development', 4);
Query OK, 1 row affected (0.032 sec)

MariaDB [company]> INSERT INTO departments(department_id, department_name, location_id) VALUES (5, 'IT Support', 5);
Query OK, 1 row affected (0.031 sec)

MariaDB [company]> select * from departments;
```

department_id	department_name	location_id
1	Human Resource	1
2	Sales	2
3	Marketing	3
4	Research & Development	4
5	IT Support	5

```
5 rows in set (0.001 sec)
```

INSERT INTO JOBS :

```
MariaDB [company]> INSERT INTO jobs(job_id, job_title, min_salary,max_salary) VALUES (1,'Software Engineer',50000, 100000);
Query OK, 1 row affected (0.032 sec)

MariaDB [company]> INSERT INTO jobs(job_id, job_title, min_salary,max_salary) VALUES (2,'Data Scientist',55000, 120000);
Query OK, 1 row affected (0.003 sec)

MariaDB [company]> INSERT INTO jobs(job_id, job_title, min_salary,max_salary) VALUES (3,'Prodcut Manager',60000, 140000);
Query OK, 1 row affected (0.003 sec)

MariaDB [company]> INSERT INTO jobs(job_id, job_title, min_salary,max_salary) VALUES (4,'UX Designer',30000, 130000);
Query OK, 1 row affected (0.003 sec)

MariaDB [company]> INSERT INTO jobs(job_id, job_title, min_salary,max_salary) VALUES (5,'HR Manager',35000, 100000);
Query OK, 1 row affected (0.032 sec)

MariaDB [company]> select * from jobs;
```

job_id	job_title	min_salary	max_salary
1	Software Engineer	50000	100000
2	Data Scientist	55000	120000
3	Prodcut Manager	60000	140000
4	UX Designer	30000	130000
5	HR Manager	35000	100000

```
5 rows in set (0.001 sec)
```

INSERT INTO EMPLOYEES :

```
MariaDB [company]> INSERT INTO employees(employee_id, first_name, last_name,email,phone_number, hire_date,job_id , salary,manager_id,department_id) VALUES(1, 'Abhishek','Sharma','abhishek@gmail.com', '9756456626','10-05-2020', 1,80000,NULL, 1);
Query OK, 1 row affected, 1 warning (0.005 sec)

MariaDB [company]> INSERT INTO employees(employee_id, first_name, last_name,email,phone_number, hire_date,job_id , salary,manager_id,department_id) VALUES(2, 'Rahul','raju','rahul@gmail.com', '9756283626','16-06-2021', 2,65000,1, 2);
Query OK, 1 row affected, 1 warning (0.032 sec)

MariaDB [company]> INSERT INTO employees(employee_id, first_name, last_name,email,phone_number, hire_date,job_id , salary,manager_id,department_id) VALUES(3, 'Nirmal','Kumar','nirmal@gmail.com', '9722178926','26-02-2020', 3,90000,NULL, 3);
Query OK, 1 row affected, 1 warning (0.032 sec)

MariaDB [company]> INSERT INTO employees(employee_id, first_name, last_name,email,phone_number, hire_date,job_id , salary,manager_id,department_id) VALUES(4, 'Adharsh','joseph','adharsh@gmail.com', '9562532327','10-09-2020', 4,40000,1, 4);
Query OK, 1 row affected, 1 warning (0.003 sec)

MariaDB [company]> INSERT INTO employees(employee_id, first_name, last_name,email,phone_number, hire_date,job_id , salary,manager_id,department_id) VALUES(5, 'Shyam','prasad','shyam@gmail.com', '9967367327','20-10-2022', 5,60000,2, 5);
Query OK, 1 row affected, 1 warning (0.032 sec)

MariaDB [company]> select * from employees;
```

employee_id	first_name	last_name	email	phone_number	hire_date	job_id	salary	manager_id	department_id
1	Abhishek	Sharma	abhishek@gmail.com	9756456626	0000-00-00	1	80000	NULL	1
2	Rahul	raju	rahul@gmail.com	9756283626	0000-00-00	2	65000	1	2
3	Nirmal	Kumar	nirmal@gmail.com	9722178926	0000-00-00	3	90000	NULL	3
4	Adharsh	joseph	adharsh@gmail.com	9562532327	0000-00-00	4	40000	1	4
5	Shyam	prasad	shyam@gmail.com	9967367327	0000-00-00	5	60000	2	5

```
5 rows in set (0.001 sec)
```

INSERT INTO DEPENDENTS :

```
MariaDB [company]> INSERT INTO employees(employee_id, first_name, last_name, email, phone_number, hire_date, job_id, salary, manager_id, department_id) VALUES(1, 'Abhishek', 'Sharma', 'abhishek@gmail.com', '9756456626', '10-05-2020', 1, 80000, NULL, 1);
Query OK, 1 row affected, 1 warning (0.005 sec)

MariaDB [company]> INSERT INTO employees(employee_id, first_name, last_name, email, phone_number, hire_date, job_id, salary, manager_id, department_id) VALUES(2, 'Rahul', 'raju', 'rahul@gmail.com', '9756283626', '16-06-2021', 2, 65000, 1, 2);
Query OK, 1 row affected, 1 warning (0.032 sec)

MariaDB [company]> INSERT INTO employees(employee_id, first_name, last_name, email, phone_number, hire_date, job_id, salary, manager_id, department_id) VALUES(3, 'Nirmal', 'Kumar', 'nirmal@gmail.com', '9722178926', '26-02-2020', 3, 90000, NULL, 3);
Query OK, 1 row affected, 1 warning (0.032 sec)

MariaDB [company]> INSERT INTO employees(employee_id, first_name, last_name, email, phone_number, hire_date, job_id, salary, manager_id, department_id) VALUES(4, 'Adharsh', 'joseph', 'adharsh@gmail.com', '9562532327', '10-09-2020', 4, 40000, 1, 4);
Query OK, 1 row affected, 1 warning (0.003 sec)

MariaDB [company]> INSERT INTO employees(employee_id, first_name, last_name, email, phone_number, hire_date, job_id, salary, manager_id, department_id) VALUES(5, 'Shyam', 'prasad', 'shyam@gmail.com', '9967367327', '20-10-2022', 5, 60000, 2, 5);
Query OK, 1 row affected, 1 warning (0.032 sec)

MariaDB [company]> select * from employees;
```

employee_id	first_name	last_name	email	phone_number	hire_date	job_id	salary	manager_id	department_id
1	Abhishek	Sharma	abhishek@gmail.com	9756456626	0000-00-00	1	80000	NULL	1
2	Rahul	raju	rahul@gmail.com	9756283626	0000-00-00	2	65000	1	2
3	Nirmal	Kumar	nirmal@gmail.com	9722178926	0000-00-00	3	90000	NULL	3
4	Adharsh	joseph	adharsh@gmail.com	9562532327	0000-00-00	4	40000	1	4
5	Shyam	prasad	shyam@gmail.com	9967367327	0000-00-00	5	60000	2	5

```
5 rows in set (0.001 sec)
```