1	a) Create a **dept** table with the following:

Did   int(3)   primary key
Dname   varchar(10)

```
MariaDB [21co56]> CREATE TABLE dept
    ->                  (
    ->                      D_no int(3) PRIMARY KEY,
    ->                      D_name varchar(10)
    ->              );
Query OK, 0 rows affected (0.016 sec)
```

b) Insert two records in the dept table

```
MariaDB [21co56]> INSERT INTO dept VALUES
    ->                      (1, "Computer"),
    ->                      (2, "Mechanical");
Query OK, 2 rows affected (0.009 sec)
Records: 2  Duplicates: 0  Warnings: 0
```

c) Display the contents of the table

```
MariaDB [21co56]> SELECT * FROM dept;
+------+-----------+
| D_no | D_name    |
+------+-----------+
|    1 | Computer  |
|    2 | Mechanical |
+------+-----------+
2 rows in set (0.001 sec)
```

2	Create table **emp1_rollno** with the constraint applied at the column level.

```
MariaDB [21co56]> CREATE TABLE emp01_21co56
    ->                  (
    ->                      E_id int(3) PRIMARY KEY,
    ->                      E_name varchar(20) NOT NULL,
    ->                      doj date DEFAULT sysdate(),
    ->                      E_regno int(5) UNIQUE,
    ->                      E_age int(3) CHECK (E_age >= 25),
    ->                      D_no int(3) REFERENCES dept(D_no)
    ->              );
Query OK, 0 rows affected (0.037 sec)
```

3	Describe emp1_rollno table
|   | ```
MariaDB [21co56]> DESCRIBE emp01_21co56;
+----------+-------------+------+-----+-----------+-------+
| Field    | Type        | Null | Key | Default   | Extra |
+----------+-------------+------+-----+-----------+-------+
| E_id     | int(3)      | NO   | PRI | NULL      |       |
| E_name   | varchar(20) | NO   |     | NULL      |       |
| doj      | date        | YES  |     | sysdate() |       |
| E_regno  | int(5)      | YES  | UNI | NULL      |       |
| E_age    | int(3)      | YES  |     | NULL      |       |
| D_no     | int(3)      | YES  |     | NULL      |       |
+----------+-------------+------+-----+-----------+-------+
6 rows in set (0.026 sec)
``` |
| 4 | Create table emp2_rollno with the constraint applied at the table level. |
|   | ```
MariaDB [21co56]> CREATE TABLE emp02_21co56
    ->             (
    ->                 E_id int(3),
    ->                 E_name varchar(20) NOT NULL,
    ->                 doj date DEFAULT sysdate(),
    ->                 E_regno int(5),
    ->                 E_age int(3),
    ->                 D_id int(3),
    ->                 PRIMARY KEY(E_id),
    ->                 UNIQUE(E_regno),
    ->                 CHECK(E_age >= 25),
    ->                 FOREIGN KEY(D_id) REFERENCES dept(D_no)
    ->             );
Query OK, 0 rows affected (0.040 sec)
``` |
| 5 | Describe emp2_rollno table |
|   | ```
MariaDB [21co56]> DESC emp02_21co56;
+----------+-------------+------+-----+-----------+-------+
| Field    | Type        | Null | Key | Default   | Extra |
+----------+-------------+------+-----+-----------+-------+
| E_id     | int(3)      | NO   | PRI | NULL      |       |
| E_name   | varchar(20) | NO   |     | NULL      |       |
| doj      | date        | YES  |     | sysdate() |       |
| E_regno  | int(5)      | YES  | UNI | NULL      |       |
| E_age    | int(3)      | YES  |     | NULL      |       |
| D_id     | int(3)      | YES  | MUL | NULL      |       |
+----------+-------------+------+-----+-----------+-------+
6 rows in set (0.025 sec)
``` |
| | |

6	Create table **emp3_rollno** with all the constraints that can be applied at the table level with constraint names
|   | ```
MariaDB [21co56]> CREATE TABLE emp03_21co56
    ->              (
    ->                      E_id int(3),
    ->                      E_name varchar(20) NOT NULL,
    ->                      doj date DEfAULT sysdate(),
    ->                      E_regno int(5),
    ->                      E_age int(3),
    ->                      D_id int(3),
    ->                      CONSTRAINT Eid_pk PRIMARY KEY(E_id),
    ->                      CONSTRAINT Eregno_uk UNIQUE(E_regno),
    ->                      CONSTRAINT Eage_ch CHECK(E_age >= 25),
    ->                      CONSTRAINT Eid_fk FOREIGN KEY(D_id) REFERENCES dept(D_no)
    ->              );
Query OK, 0 rows affected, 1 warning (0.054 sec)
``` |
| 7 | Describe emp3_rollno table |
|   | ```
MariaDB [21co56]> DESCRIBE emp03_21co56;
+---------+-------------+------+-----+-----------+-------+
| Field   | Type        | Null | Key | Default   | Extra |
+---------+-------------+------+-----+-----------+-------+
| E_id    | int(3)      | NO   | PRI | NULL      |       |
| E_name  | varchar(20) | NO   |     | NULL      |       |
| doj     | date        | YES  |     | sysdate() |       |
| E_regno | int(5)      | YES  | UNI | NULL      |       |
| E_age   | int(3)      | YES  |     | NULL      |       |
| D_id    | int(3)      | YES  | MUL | NULL      |       |
+---------+-------------+------+-----+-----------+-------+
6 rows in set (0.027 sec)
``` |
| 8 | Create table **emp4_rollno** with fields given below without any constraints |
|   | ```
MariaDB [21co56]> CREATE TABLE emp04_21co56
    ->              (
    ->                      E_id int(3),
    ->                      E_name varchar(20),
    ->                      doj date,
    ->                      E_regno int(5),
    ->                      E_age int(3),
    ->                      D_id int(3)
    ->              );
Query OK, 0 rows affected (0.020 sec)
``` |
| | |

9	Define the constraints using alter table commands for the emp4_rollno table
	a) Add a primary key

```
MariaDB [21co56]> ALTER TABLE emp04_21co56
    ->              ADD CONSTRAINT PRIMARY KEY(E_id);
Query OK, 0 rows affected (0.043 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

b) Modify ename to not null and size 25

```
MariaDB [21co56]> ALTER TABLE emp04_21co56 MODIFY E_name varchar(25) NOT NULL;
Query OK, 0 rows affected (0.039 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

c) Add unique constraint along with constraint name to eregno

```
MariaDB [21co56]> ALTER TABLE emp04_21co56
    ->              ADD CONSTRAINT uk_RegNo UNIQUE(E_regno);
Query OK, 0 rows affected (0.018 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

d) Drop unique constraint from eregno

```
MariaDB [21co56]> ALTER TABLE emp04_21co56 DROP CONSTRAINT uk_RegNo;
Query OK, 0 rows affected (0.018 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

10	Insert 7 records to verify the constraints (Adding to emp03 table....)
	a) Primary key violation

```
MariaDB [21co56]> INSERT INTO emp03_21co56 VALUES
    ->              (1, "Haysten D'costa", "2023-08-30", 10001, 25, 1),
    ->              (1, "Roy D'costa", "2023-08-25", 10002, 25, 2);
ERROR 1062 (23000): Duplicate entry '1' for key 'PRIMARY'
MariaDB [21co56]>
```

b) Unique key violation

```
MariaDB [21co56]> INSERT INTO emp03_21co56 VALUES
    ->              (1, "Haysten D'costa", "2023-08-30", 10001, 25, 1),
    ->              (2, "Hilda D'costa", "2020-05-10", 10001, 35, 2);
ERROR 1062 (23000): Duplicate entry '10001' for key 'Eregno_uk'
MariaDB [21co56]>
```

c) Check constraint violation

```
MariaDB [21co56]> INSERT INTO emp03_21co56 VALUES
    ->              (1, "Haysten D'costa", "2023-08-30", 10001, 20, 1);
ERROR 4025 (23000): CONSTRAINT `Eage_ch` failed for `21co56`.`emp03_21co56`
MariaDB [21co56]>
```

d) Not null constraint violation

```
MariaDB [21co56]> INSERT INTO emp03_21co56 VALUES
    ->              (3, NULL, "2003-01-24", 10003, 40, 1);
ERROR 1048 (23000): Column 'E_name' cannot be null
MariaDB [21co56]>
```

e) Default constraint

```
MariaDB [21co56]> INSERT INTO emp03_21co56 (E_id, E_name, E_regno, D_id)
    ->              VALUES (1, "Haysten D'costa", 10001, 1);
Query OK, 1 row affected, 1 warning (0.008 sec)
```

```
MariaDB [21co56]> SELECT * FROM emp03_21co56;
+------+-----------------+------------+---------+-------+------+
| E_id | E_name          | doj        | E_regno | E_age | D_id |
+------+-----------------+------------+---------+-------+------+
|    1 | Haysten D'costa | 2023-09-11 |   10001 | NULL  |    1 |
+------+-----------------+------------+---------+-------+------+
1 row in set (0.001 sec)
```

f) Foreign key constraint

```
MariaDB [21co56]> INSERT INTO emp03_21co56 VALUES
    ->              (2, "Hilda D'costa", "2020-05-10", 10002, 35, 3);
ERROR 1452 (23000): Cannot add or update a child row: a foreign key constrai
nt fails (`21co56`.`emp03_21co56`, CONSTRAINT `Eid_fk` FOREIGN KEY (`D_id`)
REFERENCES `dept` (`D_no`))
MariaDB [21co56]>
```

g) Correct record entry

```
MariaDB [21co56]> INSERT INTO emp03_21co56 VALUES
    ->              (2, "Shivam Shet Mandrekar", "2023-09-5", 10002, 25, 1),
    ->              (3, "Sahil Halankar", "2023-09-5", 10003, 30, 2);
Query OK, 2 rows affected, 1 warning (0.009 sec)
Records: 2  Duplicates: 0  Warnings: 1
```