DATABASE MANAGEMENT SYSTEM – DAY 02

MySQL / MODIFY ALTER TABLE Statements

The `ALTER TABLE` statement is used to add, delete, or modify columns in an existing table.

The `ALTER TABLE` statement is also used to add and drop various constraints on an existing table.

10.1) ALTER TABLE - ADD Column

```
ALTER TABLE table_name ADD column_name datatype;
```

Ex:
ALTER TABLE Customer ADD Email VARCHAR(25);

Ex:

ALTER TABLE Customer ADD Description VARCHAR(50) FIRST;

Ex:

ALTER TABLE Customer ADD Location VARCHAR(50) AFTER Description;

10.2) ALTER TABLE - DROP Column

```
ALTER TABLE table_name DROP COLUMN column_name;
```

Ex:
ALTER TABLE Customer DROP Email;

10.3) ALTER TABLE - RENAME Column

```
ALTER TABLE table_name RENAME COLUMN old_name TO new_name;
```

Ex:
ALTER TABLE Customer RENAME COLUMN Email TO Gmail;

10.4) ALTER TABLE – ALTER/MODIFY DATA TYPE

```
ALTER TABLE table_name MODIFY COLUMN column_name datatype;
```

Ex:
ALTER TABLE Customer MODIFY COLUMN Email char(25);

10.5) ALTER TABLE – RENAME TABLE NAME

```
ALTER TABLE table_name RENAME new_table_name;
```

Ex:

```
ALTER TABLE Customer RENAME CustomerDetails;
```

SQL Constraints

SQL constraints are used to specify rules for the data in a table.

Constraints are used to limit the type of data that can go into a table. This ensures the accuracy and reliability of the data in the table.

•NOT NULL - Ensures that a column cannot have a NULL value.

Ex: nic VARCHAR(15) NOT NULL,

•UNIQUE - Ensures that all values in a column are different.
Ex: nic VARCHAR(15) UNIQUE,

•UNIQUE NOT NULL – Ensures that all values in a column are different and a column cannot have a NULL value.
Ex: nic VARCHAR(15) UNIQUE NOT NULL,

•PRIMARY KEY - A combination of a NOT NULL and UNIQUE. And uniquely identifies each row in a table.
•Primary keys must contain UNIQUE values, and cannot contain NULL values.
•A table can have only ONE primary key; and in the table, this primary key can consist of single or multiple columns (fields).

Ex: nic VARCHAR(15) PRIMARY KEY,

•CONSTRAINT PRIMARY KEY – Another method of define the PRIMARY key field.
Ex:

```
CREATE TABLE Customer(
 customerId VARCHAR(6),
 name VARCHAR(30),
 address VARCHAR(30),
 salary FLOAT(10,2),
 CONSTRAINT PRIMARY KEY (customerId)
);
```

•CONSTRAINT COMPOSITE PRIMARY KEY – Another method of define the PRIMARY key field.
Ex:

```
CREATE TABLE Customer(
 customerId VARCHAR(6),
 name VARCHAR(30),
 address VARCHAR(30),
 salary FLOAT(10,2),
 CONSTRAINT PRIMARY KEY (customerId, name)
);
```

•FOREIGN KEY – The FOREIGN KEY constraint is a key used to link two tables together.
A FOREIGN KEY is a field (or collection of fields) in one table, that refers to the PRIMARY KEY in another table.

Ex:

```
CREATE TABLE Orders(
        orderId VARCHAR(6),
        date DATE,
        customerId VARCHAR(6) NOT NULL,
        CONSTRAINT PRIMARY KEY (orderId),
        CONSTRAINT FOREIGN KEY(customerId) REFERENCES Customer(customerId)
);
```

•CHECK - Ensures that the values in a column satisfies a specific condition.
Ex: age INT CHECK (age<=18),
Ex: address VARCHAR(30) CHECK (address="Galle"),

•DEFAULT - Sets a default value for a column if no value is specified.
Ex: address VARCHAR(30) DEFAULT 'Galle',

•ENUM - Sets predefined values for a column.
Ex: gender ENUM ('MALE','FEMALE','OTHER'),

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