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*MA332:*
*Databases and data processing with SQL*

# Lab 1: Part 2 – SQL DDL & DML

**22/10/2021**

**Adapted from Profusion training material**

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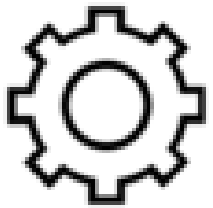
# Agenda



Syntaxis

Exercises

Solutions

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# CREATE Statement

We will use the **CREATE** statement to add a new table into the database.

Syntaxis:

```
CREATE TABLE Table_name (
Field1 DATA_TYPE CONSTRAIN,
Field2 DATA_TYPE CONSTRAIN, …)
```

Example:

```
CREATE TABLE weather_db.new_locations (
Location_id int PRIMARY KEY,
Location_name varchar(40) DEFAULT NULL);
```

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# INSERT

Next to do is inserting some records into our new table,

Syntaxis:

```
INSERT INTO Table_name
VALUES (rec1_field1, rec1_ field2, …), (rec2_field1, ‘ec2_ field2);
```

Let’s insert a record for the University of Essex and another one for Colchester

```
INSERT INTO weather_db.new_locations
VALUES (0, “University of Essex”), (1, “Colchester”);
```

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# ALTER TABLE t ADD

There are many cases when we want to alter a table after its construction, we can use the **ALTER** statement for this

```
ALTER TABLE Table_name ADD [DROP, RENAME] Field [Constrain] ;
```

Example: Add a column ‘status’ to the table new_locations and visualise it with MySQL workbench:

```
ALTER TABLE weather_db.new_locations ADD Region VARCHAR(40);

ALTER TABLE weather_db.new_locations DROP Region;
```

**Note: please do all deletions wisely.**

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# UPDATE IN

We can use the **UPDATE** statement to assign new values in our database.

```
UPDATE TABLE Table_name SET Field = new_value;
```

```
UPDATE TABLE Table_name SET Field = new_value WHERE logic_sentence;
```

Example: Assign the value **TRUE** to the region in the table new_locations

```
UPDATE weather_db.new_locations SET region =“True”;
```

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# DELETE statement

Using the **DELETE** statement we can also delete records from the data base that matches a condition.

```
DELETE FROM Table_name WHERE Field = condition;
```

Example: Delete all data from table new_locations where *region* is equal to ‘Colchester’

```
DELETE FROM weather_db.new_locations WHERE region =“Colchester”;
```

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# DROP and TRUNCATE statements

To eliminate all records from out table we can use the **TRUNCATE** statement. Whereas to delete **completely** a table from the database we use the **DROP** statement

```
TRUNCATE TABLE weather_db.new_locations
```

```
DROP TABLE weather_db.new_locations
```

Key takeaways on deleting records:

| Delete columns | Delete records with condition | Delete ALL records | Delete table |
|---|---|---|---|
| `ALTER TABLE + DROP` | `DELETE FROM + WHERE` | `TRUNCATE TABLE` | `DROP TABLE` |

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# Exercises:

## Exercises Part 1:

1. Using the CREATE TABLE statement, create a table called **client_data** with the following schema:

| Field | Data Type | Constaint |
|---|---|---|
| **ID** | integer | Primary key |
| **First_name** | varchar 40 | NOT NULL |
| **Last_name** | Varchar 40 | None |
| **Nationality** | Varchar 40 | None |
| **Age** | Float | greater than 18 |

2. Insert the following records in the data base using the INSERT statement:

| ID (PK) | First_name | Last_name | Nationality | Age |
|---|---|---|---|---|
| **1** | John | S | British | NULL |
| **2** | Peter | Jackson | NULL | 20 |
| **3** | Tom | W | NULL | 20 |
| **4** | Jack | Patrick | American | 30 |

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# Exercises:

3. Add a column called “type” to the Client_data table and fill the records of this column with the value ‘1’ for the records where nationality is known, and ‘2’ otherwise.

4. Delete the records of the table client_data where the last name is unknown.

5. Delete all the content from the column ‘Age’ without deleting the column from the schema.

6. Delete table client_data including the schema.

## Exercises Part 2:

1. There are many records in the table cat_locations where the country column is null. Fill these records with the value ‘UK’.

2. Delete the rows from table tempW where rainfall is null

3. From this table also delete the timestemp column from the schema.

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# Thank you