PB_05_Kushagra Suryavanshi

Batch B1

Title: SQL - DML (Insert, Update, Delete) and select statement with where clause and SQL operators.

Aim: Write suitable DML and select command to manipulate and retrieve requested data from tables.

Objectives: To study -
- DML (Insert, Update, Delete) commands
- SQL Select - Logical, IN, Negation, NULL, comparison operators.
- Where clause, Between AND, Exists, ALL, LIKE.

Theory:

→ Explain SQL DML commands

1. Insert: insertion of new tuples into a given relation.

eg: · add a new tuple to course.

⇒ Insert into course values ('CS 437', 'DBMS', 'C.S', 4);

· Or equivalently

→ Insert into course (cid, title, dept_name, credits) values ('CS-437', 'DBMS', 'CS', 4);

· add a new tuple to student with tot-creds set to null

⇒ insert into student values ('3003', 'Green', 'Finance', null);

2. DELETE: deletion of tuples from a given relation.

eg:

. Delete all instructions from finance department
⇒ delete from instructor where dept_name = 'Finance';

. Delete all students relation tuples
⇒ delete from student ;

3. Update : updation of values in some tuples in a given relation.

eg:

. Increase salaries of instructors whose salary is over $100,000 by 3% & of all others by 5%.

⇒ update instructor
set salary = salary * 0.03.
where salary > 100,000;

⇒ update instructor
set salary = salary * 0.05
where salary <= 100,000;

⇒ Explain select query
The select statement is used to select data from a database table.

⇒ SELECT ..... } mandatory clauses
FROM
Where } Optional clauses
group by
Having
Order by

eg: SELECT * FROM Student;
- The result of an SQL query is a relation

→ Explain SQL operators
The select clause can contain arithmetic expressions involving the operations, +, −, *, /, and operating on constants or attributes of tuples.

eg => select ID, name, salary / 12
from instructor;
would return a relation that is the same as the instructor, except that the value of the attribute salary is divided by 12.

Input: Flight Database

Output: Data as per request

Conclusion: This, we have learned SQL DML commands, SELECT command with SQL operators thoroughly

FAQs:

→

DROP	TRUNCATE
used to remove table definitions and its contents	used to delete all the rows from the table

• table space is freed from the memory. • view of table does not exist. • integrity constraints will be remove.	no table space freed from the memory. view of table exists integrity constraints will not be removed.

2.] Pattern matching functions:

• 'like' Operator: provides standard pattern matching in SQL that is always used after a 'where' clause. It matches any patterns based on some conditions provided using the wildcard characters.

eg: SELECT * FROM course where course_name like 'd%';

• 'REGEXP_LIKE' operator: takes column name and the regular expression as parameters.

eg: SELECT * FROM course Where REGEXP_LIKE(coursename, '^[A-Za-z]{4}$'); where '^' represents starting '$' represents ending of regular expressions.

• REGEXP operator: same functionality as REGXEP_LIKE.

eg: SELECT * FROM course where course_name REGXEP '^[A-Za-z]{4,}$';

• RLIKE operator: (same as above) eg: SELECT FROM course WHERE coursename RLIKE '^[A-Za-z]{4,}$';

3.] DELETE FROM customers.

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Enter password: *************
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 11
Server version: 8.0.21 MySQL Community Server - GPL

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owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> create database Music_Library2;
Query OK, 1 row affected (0.15 sec)

mysql> use Music_Library;
ERROR 1049 (42000): Unknown database 'music_library'
mysql> use Music_Library2;
Database changed
mysql> create table Artist(Artist_id integer primary key auto increment(10),
Artist_name varchar(20));
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that
corresponds to your MySQL server version for the right syntax to use near 'auto
increment(10), Artist_name varchar(20))' at line 1
mysql> create table Artist(Artist_id integer primary key autoincrement(10),
Artist_name varchar(20));
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that
corresponds to your MySQL server version for the right syntax to use near
'autoincrement(10), Artist_name varchar(20))' at line 1
mysql> create table Artist(Artist_id integer primary key auto_increment(10),
Artist_name varchar(20));
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that
corresponds to your MySQL server version for the right syntax to use near '(10),
Artist_name varchar(20))' at line 1
mysql> create table Artist(Artist_id integer primary key auto_increment,
Artist_name varchar(20));
Query OK, 0 rows affected (1.54 sec)

mysql> create table Music_Collection(Collection_id integer primary key
auto_increment, collection_type varchar(20));
Query OK, 0 rows affected (0.67 sec)

mysql> create table Tracks(Track_id not nul primary key auto_increment, Track_title
varchar(20), time_length float, album_id integer not null, foregin key(album id)
references
    -> ;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that
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corresponds to your MySQL server version for the right syntax to use near 'not nul
primary key auto_increment, Track_title varchar(20), time_length float, ' at line 1
mysql> create table Album(Album_id integer not null primary key
auto_increment,Album_name varchar(20),collection_id integer,artist_id integer,
year_creation integer,foreign key(collection_id) references
Music_Collection(Collection_id), foreign key(artist_id) references
Artist(Artist_id);
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that
corresponds to your MySQL server version for the right syntax to use near '' at
line 1
mysql> create table Album(Album_id integer not null primary key
auto_increment,Album_name varchar(20),collection_id integer,artist_id integer,
year_creation integer,foreign key(collection_id) references
Music_Collection(Collection_id), foreign key(artist_id) references
Artist(Artist_id);
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that
corresponds to your MySQL server version for the right syntax to use near '' at
line 1
mysql> create table Album(Album_id integer primary key auto_increment,Album_name
varchar(20),collection_id integer,artist_id integer, year_creation integer,foreign
key(collection_id) references Music_Collection(Collection_id), foreign
key(artist_id) references Artist(Artist_id);
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that
corresponds to your MySQL server version for the right syntax to use near '' at
line 1
mysql> desc Artist;
+-------------+-------------+------+-----+---------+----------------+
| Field       | Type        | Null | Key | Default | Extra          |
+-------------+-------------+------+-----+---------+----------------+
| Artist_id   | int         | NO   | PRI | NULL    | auto_increment |
| Artist_name | varchar(20) | YES  |     | NULL    |                |
+-------------+-------------+------+-----+---------+----------------+
2 rows in set (0.05 sec)

mysql> desc Music_Collection;
+-----------------+-------------+------+-----+---------+----------------+
| Field           | Type        | Null | Key | Default | Extra          |
+-----------------+-------------+------+-----+---------+----------------+
| Collection_id   | int         | NO   | PRI | NULL    | auto_increment |
| collection_type | varchar(20) | YES  |     | NULL    |                |
+-----------------+-------------+------+-----+---------+----------------+
2 rows in set (0.00 sec)

mysql> create table Album(Album_id integer primary key, collection_id integer,
artist_id integer, year_creation integer, foreign key(collection_id) references
Music_Collection(Collection_id), foreign key(artist_id) references
Artist(Artist_id);
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that
corresponds to your MySQL server version for the right syntax to use near '' at
line 1
```

```
mysql> create table Album(Album_id integer primary key, collection_id integer,
artist_id integer, year_creation integer, foreign key(collection_id) references
Music_Collection(Collection_id), foreign key(artist_id) references
Artist(Artist_id));
Query OK, 0 rows affected (2.56 sec)

mysql> desc Album;
+---------------+------+------+-----+---------+-------+
| Field         | Type | Null | Key | Default | Extra |
+---------------+------+------+-----+---------+-------+
| Album_id      | int  | NO   | PRI | NULL    |       |
| collection_id | int  | YES  | MUL | NULL    |       |
| artist_id     | int  | YES  | MUL | NULL    |       |
| year_creation | int  | YES  |     | NULL    |       |
+---------------+------+------+-----+---------+-------+
4 rows in set (0.00 sec)

mysql> create Tracks(Track_id integer not null primary key, Track_name varchar(20),
album_id integer, time_length float, foreign key(album_id) references
Album(Album_id));
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that
corresponds to your MySQL server version for the right syntax to use near
'Tracks(Track_id integer not null primary key, Track_name varchar(20), album_id i'
at line 1
mysql> create table Tracks(Track_id integer not null primary key, Track_name
varchar(20), album_id integer, time_length float, foreign key(album_id) references
Album(Album_id));
Query OK, 0 rows affected (1.11 sec)

mysql> desc Tracks;
+-------------+-------------+------+-----+---------+-------+
| Field       | Type        | Null | Key | Default | Extra |
+-------------+-------------+------+-----+---------+-------+
| Track_id    | int         | NO   | PRI | NULL    |       |
| Track_name  | varchar(20) | YES  |     | NULL    |       |
| album_id    | int         | YES  | MUL | NULL    |       |
| time_length | float       | YES  |     | NULL    |       |
+-------------+-------------+------+-----+---------+-------+
4 rows in set (0.12 sec)

mysql> select count(*), Album.Album_id from Tracks,Album where
Tracks.album_id=Album.Album_id;
+----------+----------+
| count(*) | Album_id |
+----------+----------+
|        0 |     NULL |
+----------+----------+
1 row in set (0.07 sec)

mysql> select * from Album;
```

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+-------+------------+----------+------+----------+----------+
| ab_id | album_name | track_id | year | time_alb | alb_cost |
+-------+------------+----------+------+----------+----------+
|   101 | Love       |        1 | 2000 |     3000 |    30.49 |
|   104 | Sad        |        2 | 1995 |     4000 |       15 |
|   105 | Friends    |        5 | 1995 |     1000 |        5 |
|   106 | Family     |        6 | 2010 |     2000 |       60 |
+-------+------------+----------+------+----------+----------+
4 rows in set (0.00 sec)

mysql> select album_id,album_name,year from Album order by album_name;
ERROR 1054 (42S22): Unknown column 'album_id' in 'field list'
mysql> select ab_id,album_name,year from Album order by album_name desc limit 5;
+-------+------------+------+
| ab_id | album_name | year |
+-------+------------+------+
|   104 | Sad        | 1995 |
|   101 | Love       | 2000 |
|   105 | Friends    | 1995 |
|   106 | Family     | 2010 |
+-------+------------+------+
4 rows in set (0.00 sec)

mysql> select ab_id,album_name,year from Album order by time_alb limit 5;
+-------+------------+------+
| ab_id | album_name | year |
+-------+------------+------+
|   105 | Friends    | 1995 |
|   106 | Family     | 2010 |
|   101 | Love       | 2000 |
|   104 | Sad        | 1995 |
+-------+------------+------+
4 rows in set (0.00 sec)

mysql> select artist_name from Artist where artist_name like '%B%' or '%b%';
+-------------+
| artist_name |
+-------------+
| Bob Azzam   |
| Badshaah    |
| Bob Azzam   |
| Beyonce     |
+-------------+
4 rows in set, 1 warning (0.03 sec)

mysql> update Album set alb_cost=alb_cost*0.2;
Query OK, 4 rows affected (0.11 sec)
Rows matched: 4  Changed: 4  Warnings: 0

mysql> select * from Album;
```

```
+-------+------------+----------+------+----------+----------+
| ab_id | album_name | track_id | year | time_alb | alb_cost |
+-------+------------+----------+------+----------+----------+
|   101 | Love       |        1 | 2000 |     3000 |    6.098 |
|   104 | Sad        |        2 | 1995 |     4000 |        3 |
|   105 | Friends    |        5 | 1995 |     1000 |        1 |
|   106 | Family     |        6 | 2010 |     2000 |       12 |
+-------+------------+----------+------+----------+----------+
4 rows in set (0.04 sec)

mysql> update Album set alb_cost=alb_cost*5;
Query OK, 4 rows affected (0.12 sec)
Rows matched: 4  Changed: 4  Warnings: 0

mysql> select * from Album;
+-------+------------+----------+------+----------+----------+
| ab_id | album_name | track_id | year | time_alb | alb_cost |
+-------+------------+----------+------+----------+----------+
|   101 | Love       |        1 | 2000 |     3000 |    30.49 |
|   104 | Sad        |        2 | 1995 |     4000 |       15 |
|   105 | Friends    |        5 | 1995 |     1000 |        5 |
|   106 | Family     |        6 | 2010 |     2000 |       60 |
+-------+------------+----------+------+----------+----------+
4 rows in set (0.00 sec)

mysql> update Album set alb_cost=alb_cost+alb_cost*0.2;
Query OK, 4 rows affected (0.14 sec)
Rows matched: 4  Changed: 4  Warnings: 0

mysql> select * from Album;
+-------+------------+----------+------+----------+----------+
| ab_id | album_name | track_id | year | time_alb | alb_cost |
+-------+------------+----------+------+----------+----------+
|   101 | Love       |        1 | 2000 |     3000 |   36.588 |
|   104 | Sad        |        2 | 1995 |     4000 |       18 |
|   105 | Friends    |        5 | 1995 |     1000 |        6 |
|   106 | Family     |        6 | 2010 |     2000 |       72 |
+-------+------------+----------+------+----------+----------+
4 rows in set (0.00 sec)
```