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MySQL

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to see today?

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about what is MySQL?

MySQL developed in C/C++ is one of the most popular database options.

One of the oldest relational DB for web-based apps.

Freeware.

There are some paid additions also of this DB to be used for commercial purposes.

Higher focus on MySQL's speed, performance, and reliability.

This DBMS engine will let you choose from a wide range of storage engines, enabling you to change its features and functionality and allow it to handle data from various types of tables.

some history

1995

the DBMS was developed by the Swedish company MySQL AB

2008

MySQL AB was acquired by Sun Microsystems

2010

Sun Microsystems was acquired by Oracle, since then, MySQL has been maintained and managed by Oracle.

data model

database → table → columns and rows

Database – A database is a collection of tables, with related data.

MySQL is a RDBMS (Relational DataBase Management System)

Table – A table is a matrix with data. A table in a database looks like a simple spreadsheet.

Column – One column (data element) contains data of one and the same kind, for example the column postcode.

Row – A row (= tuple, entry or record) is a group of related data, for example the data of one subscription.

query language

typical DDL commands

1. CREATE

```
CREATE DATABASE DatabaseName;  
CREATE TABLE TableName (Column1 Datatype1, Column2  
Datatype2,...,ColumnNDatatypeN);
```

2. ALTER

```
ALTER TABLE TableName ADD ColumnNameData_Type;  
ALTER TABLE TableName DROP ColumnName;  
ALTER TABLE TableName MODIFY COLUMN ColumnName  
Data_Type;
```

3. DROP

```
DROP TABLE TableName;
```

query language

typical DML commands

1. INSERT

```
INSERT INTO <table_name> VALUE (<value1>,<value2>,  
<value3>.....,<valueN>);
```

2. SELECT, WHERE, ORDER BY

```
SELECT column1,column2,.....columnN  
FROM table_table  
WHERE <condition>  
ORDER BY column1 DESC;
```

3. UPDATE

```
UPDATE <table_name> SET <column_name>=value WHERE  
<condition>;
```

query language

typical DML commands

4. DELETE

```
DELETE FROM <table_name> WHERE <condition>;
```

5. AGGREGATE FUNCTIONS

```
SELECT COUNT(name) AS total_students FROM student;
```

```
SELECT AVG(marks) AS avg_marks FROM student;
```

```
SELECT SUM(marks) AS total_marks FROM student;
```

```
SELECT name, MAX(mark) AS highest_mark FROM student;
```

```
SELECT name, MIN(mark) AS lowest_mark FROM student;
```

```
SELECT DISTINCT (section) FROM student;
```


query language

typical DML commands

6. GROUP BY

```
SELECT list_of_expressions  
FROM name_of_table  
WHERE restrictions_and_conditions  
GROUP BY expressions_for_grouping
```

```
•  
SELECT author, SUM(rate*pages) AS payment  
FROM educba_articles  
GROUP BY author;
```

query language

typical DML commands

7. HAVING

```
SELECT list_of_expressions  
FROM name_of_table  
WHERE restrictions_and_conditions  
GROUP BY expressions_for_grouping  
HAVING condition_or_filter_on_grouped_expressions;
```

```
SELECT author, SUM(rate*pages) AS payment  
FROM educba_articles  
GROUP BY author;  
HAVING payment > 5000;
```

query language

typical DML commands

8. JOIN

```
SELECT e1.employee_id, e1.department, a1.address  
FROM employee e1  
INNER JOIN address a1  
ON e1.employee_id = a1.employee_id;
```

Types: Inner join, Left join, Right join, Full outer join, Self-join, Cross join

9. NESTED QUERIES

```
SELECT lastName, firstName  
FROM employees  
WHERE officeCode IN (  
  SELECT officeCode  
  FROM offices  
  WHERE country = 'USA'
```

advantages & disadvantages

cons:

- does not support a very large database size as efficiently
- doesn't handle transactions very efficiently and it is prone to data corruption
- doesn't support SQL check constraints

pros:

- initial cost
- portability
- data security

Q&A

do you have any questions?



MySQL

thank you for watching.

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